

# BLOOD COLLECTIONS FROM ORGANIZATIONS IN NORTH CENTRAL NIGERIA: A TEN YEAR REVIEW

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## **Abstract**

*Introduction: Voluntary blood donors in most developing sub Saharan countries are scarcely available with little or no safe donor retention strategies despite the rampant disease and man-made causes of anaemia frequently needing transfusion. The exploration of blood donor sourcing through effective collaboration with organised settings may create a breakthrough.*

*Aims: The study sought to determine the organisations and their contribution to blood collections at the blood service in North central Nigeria.*

*Methods: The records of blood collections in organizations within the North Central Nigeria from 2007 to 2017 were studied. The records of the blood donation clinics and units of blood collected in the organizations were collated. Data was analysed using epi info 2010 version.*

*Results: A total of 52,664 units were collected from volunteer donors at 756 blood donation clinics in three categories of organisations in North Central Nigeria from 2007 to 2017 with a ratio of 70 donations per clinic. 32,228 (61.20%) were from faith base organisations, 17,795 (33.79%) from educational institutions and 2,641 (5.01%) from work places. There were 478 (63.23%), 219 (28.97%) and 59 (7.80%) blood drive clinics with the mean donations rate of 67, 81 and 45 per clinics for the respective organisations.*

*Conclusion: Organizations in North Central Nigeria have contributed to voluntary blood donation. Collaboration between organizations and the blood service could lead to the attainment of national blood security.*

**Key words:** *Organizations, North Central Nigeria, Blood, Collection*

## **Introduction**

Following the discovery of the circulatory system by William Harvey, a British physician in 1628, blood transfusion was contemplated and attempted soon afterward.<sup>1</sup> The first successful blood transfusion occurred in England in 1665 when Richard Lower kept dogs alive by transfusing blood from other

dogs. Transfusion from sheep to humans was separately reported by Jean-Baptiste in France, Richard Lower and Edmund King both in England in 1667.<sup>1</sup> James Blundell, a British obstetrician took blood transfusion to the next level in 1818 when he performed the first human to human blood transfusion while treating postpartum

haemorrhage.<sup>1</sup> Attempts at transfusion of milk from goats, cows and humans were made between 1873 and 1900. From 1901 to 1940, advances in blood transfusion led to red blood cell antigens typing and cross matching of blood for donor-recipient compatibility.<sup>2</sup>

The first national blood collection program was established in the United States in 1941. The Red Cross began the national blood service which collected blood for the United States soldiers, a social exercise which ended in 1945 with the World War II, having collected thirteen million pints. The Red Cross in 1948 began the first nationwide blood program for civilians by opening the first blood collection centre in Rochester, New York. By 1949, the blood system of the United States grew to comprise of 1500 hospital blood banks, 46 community blood centres and 31 American Red Cross regional blood centres.<sup>2</sup> The gains in blood sourcing led the United States to open its national blood clearing house. The blood banks in the States initiated move towards an all-volunteer blood donor system in 1970 with the Red Cross calling for a National Blood Policy two years later, which the federal government set up in 1974, supporting standardized practice and an end to paid donations.<sup>1</sup> The World Health Assembly a year later (1975) recommended all member countries to establish centralised blood service that would develop blood transfusion practice based on blood collection from volunteers.<sup>2</sup>

The current daily need of 7000 blood units at the National Blood Service of the United States, to keep healthy level of stock, is partly met by regular blood collections through drives at suitable venues within the campus of the university of Nottingham.<sup>3</sup> The Australian Red Cross, by organizing blood challenge among student groups in a blood donation healthy competition, collected almost 3000 units of

blood that saved a little less than 9000 lives in three months.<sup>4</sup> In the medicine department of the university of Chicago, a facility is provided for the booking of appointment for blood donations, enabling safe committed donors to donate every 56 days.<sup>5</sup>

The requirements for the selection of suitable blood donors, lays emphasis on donor safety and protection of the recipient from transfusion related hazards, as outlined in details by WHO.<sup>6</sup> Access to safe blood in low and middle income countries is characterized by short fall in adequate volume of supplies, safe protocol for donation, transfusion and appropriate regulation to ensure equitable and sustainable distribution.<sup>7</sup> The blood service in Jos, North Central Region of Nigeria hosts one of the six zonal blood service centres, collecting blood from volunteer givers at both indoors and outdoors while converting family replacement donors to voluntary, and eliminating paid donations.<sup>8</sup> Reports of works assessing the contribution of organisations to blood collection in our setting are not known to us.

**Aims:** This study sought to determine the contributions of organizations in sustaining successful blood donation campaign. It also sought to identify and outline modalities for adoption in effective blood sourcing in organizations.

**Method:** The records of activities that build up to blood collections in organizations within the north central Nigeria over a ten year period; from 2007 to 2017 were studied. The activities were securing blood drive appointments for donation clinics, sensitization of the organisations and its persons on altruistic blood donation. The records of the blood donation clinics and units of blood collected in the organizations were collated. The organisations were grouped into religious, educational and work place (military and paramilitary, Civil and others). Ethical

approval for this work was obtained from the ethical committee of the North Central Zonal Centre of the National Blood Transfusion Service in Jos, Nigeria. Data was analysed using epi info 2010 version and presented in table and charts.

### **Results:**

A total of 52,664 blood units were collected successfully from volunteer donors at 756 blood donation clinics in three categories of organisations where blood donation clinic(s) were conducted in North Central Nigeria from 2007 to 2017 with a ratio of 70 donations per clinic. The highest collections, 32,228 (61.20%) were from religious organisations; the church in particular, 17,795 (33.79%) from educational institutions and 2,641 (5.01%) from work places. There were 478 (63.23), 219 (28.97%) and 59 (7.80%) blood drive clinics with the mean donations rate of 67, 81 and 45 per clinics for the respective organisations. All the heads of the institutions were sensitized and their permission obtained before the blood donation clinics were set up within the organisations, where only altruistic volunteers donated blood.

Religious organisations collaborating in blood donation with the regional blood service in north central Nigeria are entirely the church denominations, where 32,228 blood units were collected at 478 clinics. Over the study period, 438 (91.63%) blood donation clinics were set up in four denominations; Church of Christ in Nations [287(60.01%)], Catholic Church [62(12.97%)], Evangelical Church of West Africa [47(9.83%)] and Seventh Day Adventist [42(8.78%)]. 30,748 (95.41%) blood units were collected from the clinics with the highest mean donation per clinic ratio in the Catholic Church while the highest number of blood donation clinics was conducted in the COCIN denomination (table 1). Baptist and ten other church

denominations were sites for the collection of 1,480 (4.59%) blood units at 40 (8.37%) clinics (figure 1). Twenty-nine educational institutions accommodated a total of 217 blood donation clinics with the resultant collection of 17,795 blood units. Fifty clinics (22.37%) took place in the Universities where 4511 (25.35%) donations were made; 92 units per clinic event. Colleges and polytechnics constituted the bulk of the educational institutions in this study, with 130 clinics (59.91%) accounting for 10,218 (57.42%) of the education based blood collections; 79 donations per clinic. Theological education institutions hosted 24 (11.06%) clinics and yielded 1,958 (11.00%) units of blood at approximately 85 donations per clinic. Other educational centres were home for thirteen (6.00%) blood drive clinics that generated 1,108 (6.23%) blood units at the donation rate of 85 per clinic (figure 2).

Twelve work places provided sites for 59 blood donation clinics where 2,641 units were collected. 539 (21.90%) units were donated at 19 (32.03%) clinics in the military and paramilitary formations at 28 donations per clinic. Civilian work environments were used for 24 (40.68%) clinics that pulled in 1,227 (46.46%) blood units while other work places had sixteen (27.22%) clinics with blood donation output of 875 (33.13%) units at the donation rate of 51 and 55 per clinic respectively (table 1)

### **Discussion**

Blood collections in this study are from volunteers at organisation's volunteered sites in churches, schools and work places. This is a clear departure from the traditional hospital based blood donation from predominantly paid and family replacement donors, largely considered unsafe.<sup>8</sup> The large number of blood units collected from organisations in the zone show an increased improvement in voluntary blood

donor recruitment over the observation in our earlier report.<sup>9</sup> The overall high rate of blood donation in this study indicates that outdoor clinics may cost effectively yield more units of blood for transfusion in our setting. Sustained collaboration with organisations in blood sourcing through awareness creation and public acceptance of the social norm of blood donation may propel the entry of Nigeria into the committee of nations that have attained 100% voluntary blood donations.<sup>10</sup> Continual expansion of the roles and number of organisations in blood sourcing in Nigeria could lead to sufficiency and safety of blood and blood products which would guarantee national blood security. The commitment of the Red Cross and the Red Crescent, like in other countries, would advance the blood service towards the desired provision of quality blood for transfusion in Nigeria.<sup>4</sup>

Faith base organisations presented veritable opportunities for blood sourcing in north central Nigeria. The church contributions to blood donor clinics and collections in this region are exemplary. Education and awareness among church leadership on blood and its donation could build confidence and trust, resulting in increased clinics and collections. The realization of appeals from various hospitals for blood in Ghana led the World Miracle Church International in collaboration with other partners, to organise a blood donation exercise in 2012 for its members in Accra.<sup>11</sup> Several Muslims were at several set up locations in Egypt donating blood voluntarily to meet transfusion needs of, Coptic Christians, victims of 2017 Palm Sunday bomb blast.<sup>12</sup> There is a need to deepen current collaboration with the existing faith based partners (table 1, figure 1) while extending awareness to the leadership of others churches and mosques for the overall sensitization of members towards optimal donor clinic set up, voluntary donor enrolments and

donations.

The role of tertiary education institutions in successful blood service in the North Central region of Nigeria over the study period is as obvious as that of faith based organizations (table 1, figure 2). The high collection of blood in our tertiary institutions mimics the output of regular conducts of blood drives at suitable venues within the university of Nottingham which partly met the daily need of 7000 blood units at the National Blood Service of the United States, that kept its healthy level of stock.<sup>3</sup> The collection of blood units in our educational institutions could increase by organizing inter and intra institution healthy blood donation challenge among student groups, a strategy used by the Australian Red Cross.<sup>4</sup> There is need to collaborate with managements of tertiary institutions for the establishment of static clinics with facility for appointment bookings and blood donations.<sup>5</sup> Static blood donation clinics in higher institutions of learning will create rapid awareness on blood donation, donor recruitment and retention, among a largely youthful population, and partly meet daily blood transfusion requirements. Creation of blood donor clubs will enhance smooth interactions with institutions management and orderly expose students and personnel to blood donation for informed enrolment.

Work places were also suitable sites and venues for blood collections in the geopolitical north central region of Nigeria. The low blood pool at work places in our study compared to faith and education based collections may be related to more people at older ages at the time of employment after education. The characteristics of prospective donors at higher education institutions and at church worship centres may have the similarity of age, pair group decision, and experimentation, unlike those at work places in their reproductive carrier or having medical and or

surgical indications for permanent deferral from blood donation.<sup>13</sup>

#### Conclusion

Blood collection from organizations in North Central Nigeria has substantially contributed to the local and national blood pool. Faith based and educational institutions like in developed countries with sustainable blood service could be collaborated with by the blood service in Nigeria for the attainment of national blood availability, sufficiency, affordability and safety.

#### Recommendations

Blood and blood donation should be taught in secondary and Tertiary educational institutions to

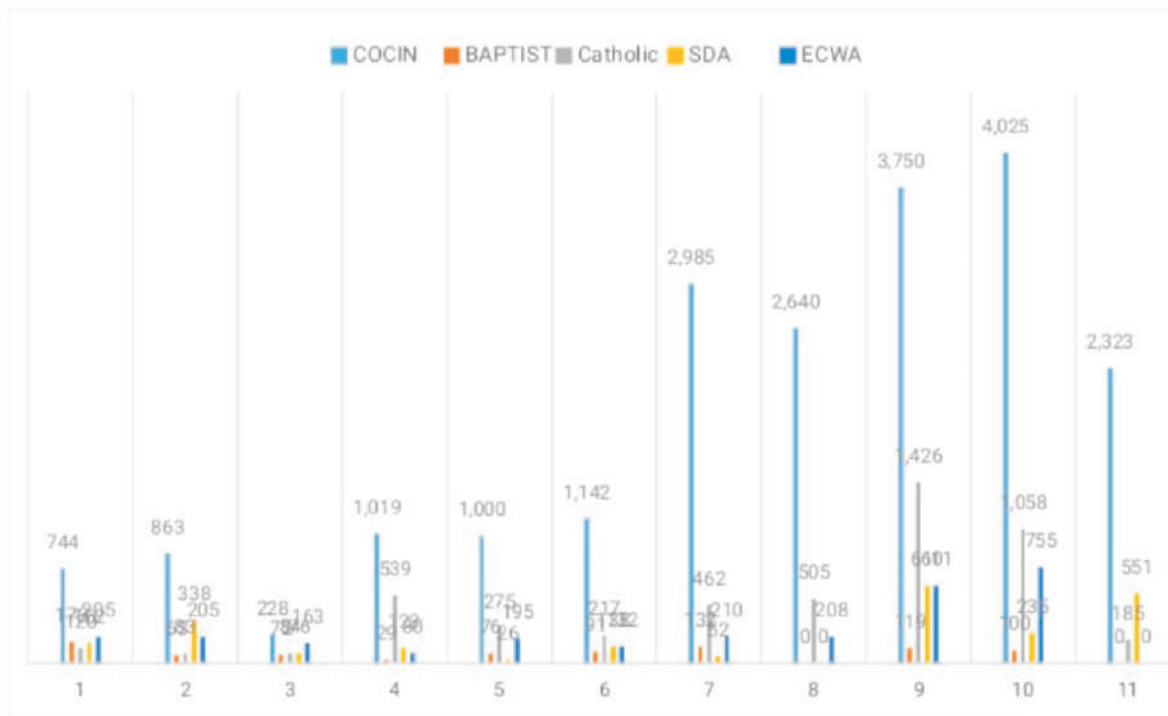
create the necessary awareness that will enshrine the habit of voluntary blood donation for national service and encourage early commitment among young people. Leadership of local and international organizations should welcome the blood service and encourage members to donate blood. Static donor clinics should be established in schools, worship centres, ministries, departments and agencies to demystify blood donation and bring the altruistic opportunity to the populace.

**Table 1**

<b>Organizations</b>	<b>No of Clinics (%)</b>	<b>No of Units</b>	<b>Donation Ratio</b>
Faith base	478 (63.23)	32228 (61.20)	67
Educational	219 (28.97)	17795 (33.79)	81
Work places	59 (7.80)	2641 (5.01)	45
Total	756 (100.00)	52664 (100.00)	70
Faith base			
COCIN	287 ()	20,719 ()	72
Catholic	62 ()	4954 ()	80
ECWA	47 ()	2764 ()	59
SDA	42 ()	2311 ()	55
Others	40 ()	1,880 (8.37)	47
Educational			
Universities	50 (22.37)	4511 (25.35)	92
Coll/Poly	130 (59.91)	10218 (57.42)	79
Theological	24 (11.06)	1958 (11.00)	85
Others	13 (6.00)	1108 (6.23)	85
Work places			
Barracks	19 (32.20)	539 (20.41)	28
Civilian	24 (40.68)	1227 (46.46)	51
Others	16 (27.12)	875 (33.13)	54

Distribution of organizations and blood collections in North Central Nigeria

Figure 1



Blood collections from five church denominations in North Central Nigeria

Key: 1-11 ≥ 2007 to 2017, COCIN ≥ Church of Christ in Nations, ECWA ≥ Evangelical Church of West Africa, SDA ≥ Seventh Day Adventist

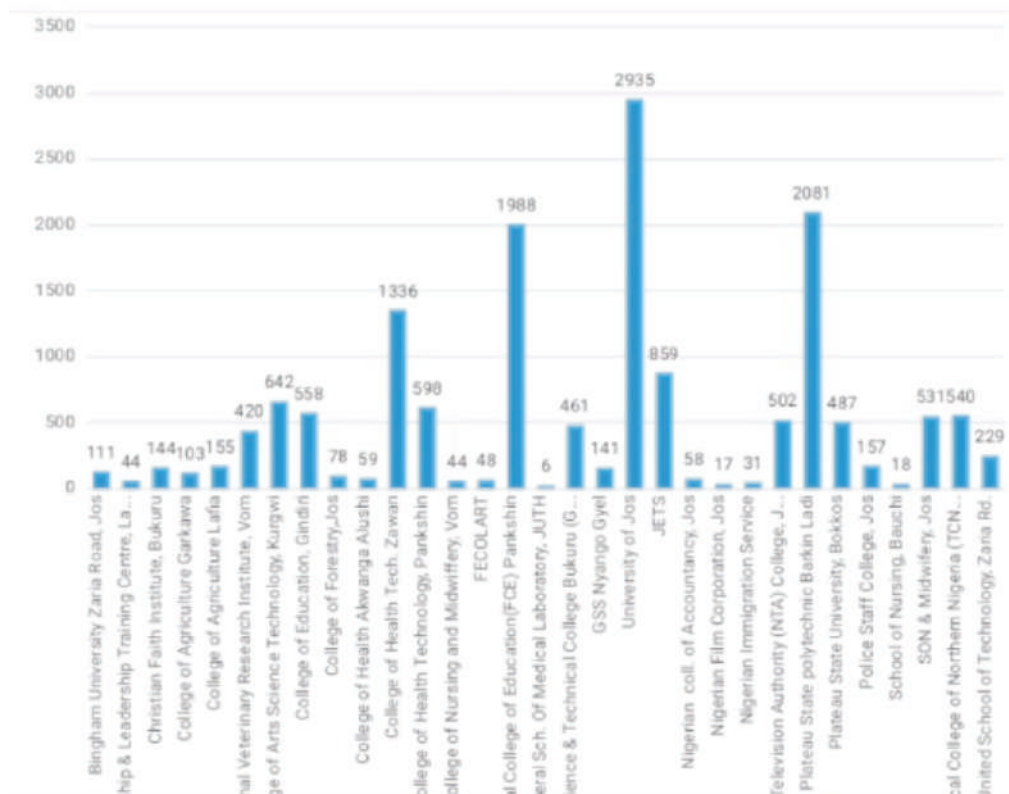


Figure 2

Blood units collected in educational institutions in North Central Nigeria

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