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Appraising the Procurement Process and Funding in Blood Bank Units of Health Institutions in Abia State Nigeria

Uche CL[1]*, Chikezie K[2], Eke OK[3], Ngwudo S[4], Abali IO[5], Ndukwe CO[5], Ugwu NI[6], Ogbenna AA[7], Owojuyigbe TO[8], Iwuoha EC[9], Kalu SN[10], Ndukwe PE[3] and Airaodion AI[11]

[1]Department of Haematology and Blood Transfusion, Abia State University, Uturu, Nigeria. [2]Department of Haematology, Federal Medical Centre, Umuahia, Abia State, Nigeria.[3]Department of Obstetrics and Gyneacology, Abia State University Teaching Hospital, Aba, Nigeria.[4]Department of Paediatrics, Abia State University Teaching Hospital, Aba, Nigeria. [5]Department of Surgery, Abia State University Teaching Hospital, Aba, Nigeria.[6]Department of Haematology and Immunology, Ebonyi State University, Abakaliki, Nigeria.[7]Department of Haematology and Blood Transfusion, University of Lagos/Lagos University Teaching Hospital Idi -Araba, Nigeria.[8]Department of Haematology and Immunology, Obafemi Awolowo University, Ile-Ife, Nigeria.[9]Department of Community Medicine, Abia State University, Uturu, Nigeria.[10]Department of Heamatology, Imo State University, Owerri, Nigeria. [11]Department of Biochemistry, Lead City University Ibadan, Oyo State, Nigeria.

**Corresponding author: Uche CL.*

Abstract

Background: Efficient procurement processes and adequate funding are essential for the optimal functioning of blood banks. This study assessed the procurement processes and funding in blood bank units of health institutions in Abia State, Nigeria.

Materials and Methods: A six-month cross-sectional retrospective study was conducted across 13 health institutions in Abia State, comprising both public and private facilities. The institutions were selected from the three senatorial zones: Abia North, Abia South, and Abia Central. Data were collected using a pretested, semi-structured interviewer-administered questionnaire and blood bank records. The procurement processes were evaluated based on criteria such as direct procurement, performance assessment of suppliers, verification of quality, and staff training. Funding information for blood banks and voluntary donation drives was also gathered. Data were analysed using descriptive statistics.

Results: The study found that 53.8% of health institutions had a good procurement process, while 30.8% had a fair process. Most institutions (84.6%) procured consumables based on need, and 100% prioritized quality when selecting suppliers. However, 61.5% of institutions lacked training programs for procurement staff. In terms of funding, only 7.7% of institutions had dedicated funding for blood banks, and none had funding for voluntary blood donation drives.

Conclusion: Although the procurement process in Abia State's health institutions is generally good, there is a need to improve staff training and secure adequate funding for blood banks and donation drives. Addressing these gaps will enhance the efficiency and sustainability of blood services in the region.

Keywords: procurement process; blood bank; funding; health institutions blood donation

Introduction

Blood banking is a critical component of healthcare, particularly in managing emergencies, surgeries, and chronic diseases [1]. In Nigeria, and specifically Abia State, the procurement and funding mechanisms of blood banks in healthcare institutions remain a focal point of concern. Blood is a life-saving resource, and its availability, safety, and efficient management are essential to ensuring that patients in need of transfusions receive timely and adequate care [1]. This study seeks to appraise the procurement process and funding in blood bank units across health institutions in Abia State, Nigeria. Blood transfusion plays an indispensable role in modern medical care, particularly in the management of trauma, major surgeries, maternal complications, and haematological conditions such as anaemia and sickle cell disease. Efficient blood bank management is critical to ensuring the availability of blood products when needed. Blood procurement involves several stages, from donor recruitment and screening to the storage, testing, and distribution of blood and blood products. Each stage requires adequate resources and strict adherence to regulations to ensure safety and quality [2]. According to World Health Organization (WHO) guidelines, blood banking systems in low- and middle-income countries (LMICs) like Nigeria face numerous challenges, including inconsistent blood

supply, inadequate infrastructure, and insufficient funding [3]. In addition, cultural, social, and religious beliefs may hinder voluntary blood donation, further complicating the supply chain in countries like Nigeria [4]. The sustainability of blood banks largely depends on a well-coordinated procurement process and a robust financial framework, which often pose significant challenges in resource-constrained settings. Procurement in blood banking refers to the acquisition and management of blood, equipment, and materials needed for safe blood transfusion practices. In Nigeria, blood banks are expected to adhere to national guidelines provided by the National Blood Transfusion Service (NBTS), which regulate donor screening, blood collection, testing, and storage [1]. However, a gap exists between policy and practice, particularly regarding the logistics and procurement of essential resources. Health institutions face bottlenecks in the procurement process, such as inadequate infrastructure, limited financial resources, and delayed delivery of necessary supplies [5]. In addition to the logistics of acquiring blood and blood products, equipment such as refrigerators, test kits, and reagents must be routinely maintained and procured to ensure functionality. Blood banks in Abia State, like other parts of Nigeria, often experience challenges related to the irregular supply of reagents and the breakdown of critical storage equipment due to poor funding and a lack of consistent maintenance culture [6]. Adequate funding is critical to the smooth operation of blood banks, ensuring that supplies are procured timely, equipment is maintained, and staff is properly trained. However, funding for healthcare services, including blood banks, remains a significant challenge in Nigeria. The Federal Government of Nigeria allocates a portion of the healthcare budget to blood transfusion services, but these funds are often insufficient, leading to an over-reliance on external sources such as donor agencies and non-governmental organizations (NGOs) [7].

Health institutions in Abia State also face similar funding constraints, exacerbated by the state's limited financial capacity to adequately support blood bank operations. The majority of blood banks rely heavily on internally generated revenue (IGR) and user fees to cover operational costs, which limits their ability to procure adequate supplies and maintain essential services [8]. The high cost of blood testing reagents and equipment, as well as the logistical costs involved in transporting blood from rural to urban centres, further strain the already tight budgets of these facilities [2]. Moreover, the scarcity of voluntary blood donors increases the cost of blood procurement, as hospitals often resort to paying donors to meet demand, adding additional financial burdens to the system. Given the crucial role of blood banks in the healthcare system, it is imperative that the procurement process is streamlined, and funding mechanisms are enhanced to improve blood availability and safety. Implementing sustainable procurement strategies can help mitigate the challenges of equipment shortages, expired reagents, and insufficient blood supply. Additionally, government policies must prioritize adequate funding for blood transfusion services and strengthen public-private partnerships to support infrastructure and service delivery. Addressing these systemic challenges requires a collaborative effort between government agencies, healthcare institutions, and external donors [9]. This study aims to provide a comprehensive appraisal of the current procurement processes and funding mechanisms in blood bank units across health institutions in Abia State. By identifying key challenges and proposing actionable solutions, the study seeks to contribute to improving the operational efficiency of blood banks and ultimately enhancing healthcare outcomes.

Materials And Methods

Study Design

A cross-sectional six-month retrospective study was conducted in both Abia state public and private health institutions. Health facilities that met the inclusion and exclusion criteria were recruited in the study. The three Senatorial zones in Abia state were involved: Abia North, Abia South and Abia Central. Four to five health institutions that met the inclusion and exclusion criteria were recruited from each of the three senatorial zones respectively.

Study Area

Abia State is a state in the Southeast geopolitical zone of Nigeria, it is bordered to the north and northeast by the states of Enugu, and Ebonyi, Imo State to the west, Cross River State to the east, Akwa Ibom State to the southeast, and Rivers State to the south. Abia State occupies about 6,320 square kilometres of land with an estimated population of over 3,720,000 as of 2016. It has three Senatorial zones: Abia North, Abia South and Abia Central. Each senatorial zone consists of 6, 6, and 5 LGAs

respectively. On the whole Abia state has a total of 17 Local govt. area (LGA). Abia state has about 200 registered hospitals and clinics.

Data Collection

A well-designed, semi-structured pretested interviewer-administered questionnaire (adapted from the National Blood Transfusion, Ministry of Health) was used for the study. Blood bank records were used where necessary. Information was obtained from data covering January to June 2022. The data was collected between November 2023 and February 2024 in Health facilities in Abia State and a total of 13 health facilities were used.

The data collected include

Demographic Data: The following information was collected under demographic data: Senatorial zone made up of Abia North, Abia South and Abia. Type of the Institutions (Secondary and tertiary), Specialty (multispecialty), Number of dedicated staff in the blood transfusion unit and presence of active blood transfusion committee. Sex and age distribution of donors were collected from all facilities.

Procurement Process in Blood Bank Units in Abia State: The following information was elicited: whether blood banks directly procure their consumables, Is procurement of consumables based on needs? Criteria considered when selecting a supplier? Any system in place to assess the performance of the suppliers? Any defined process for verifying quality and safety? Is any record readily available for an audit? any instances where procurements are rejected due to quality? Any feedback sought from Staff and stakeholders to improve procurement, any recent changes in improvement based on the feedback and lessons learnt? Any training program to educate procurement staff about quality standards and best practices? The assessment was done by scoring the points obtained from the above questions for each health institution as well as converting the scores to percentages: Good =≥70%, fair=50-69.9%, poor ≤49.9%. Ethical clearance (FMC/QEH/.596./Vol.10/690) was obtained from Health Research Ethics Committee (HREC) of the Federal Medical Centre Umuahia.

Statistical Analysis

Data was analyzed using the SPSS version 23. Continuous variables were analyzed using descriptive (means, standard deviation, median) while categorical variables were analyzed in frequency and proportions.

Results

The socio-demographic characteristics of the health facilities show that there is a fairly even distribution of health facilities across the three senatorial zones in Abia State, with Abia North and Abia South each having 4 facilities (30.8%), while Abia Central has the highest representation with 5 facilities (38.5%). The majority of these institutions are secondary-level healthcare facilities (77%), with only 3 (23%) being tertiary institutions. All the institutions are multispecialty hospitals, indicating a broad range of medical services offered (Table 1).

The procurement processes of blood banks in Abia State reveal several key points. About half of the blood banks (46.2%) procure their consumables directly, while 53.8% do not. Most institutions (84.6%) base their procurement on need, and all prioritize quality and reliability over price when selecting suppliers (100%). However, only 38.5% of the facilities have a system to assess supplier performance, and 53.8% lack such a system. The majority (92.5%) agree that quality should be of utmost importance to ensure transparency during the procurement process. Furthermore, while all institutions have a process for verifying the quality and safety of blood bank supplies, 84.6% of them have records available for audit or review, and 84.6% have rejected products due to quality issues in the past. However, only 53.8% of institutions actively seek feedback to improve procurement processes, and just 46.2% have made recent changes based on feedback. Notably, 61.5% of institutions do not provide training to procurement staff on quality standards, indicating an area that needs improvement (Table 2a).

The assessment of the procurement process shows that 53.8% of the blood banks have a good procurement process, scoring 70% or higher. About 30.8% of the facilities fall into the "fair" category, with scores between 50% and 69.9%, while 15.4% have poor procurement processes, with scores below 49.9% (Table 2b). This suggests that while the majority of institutions have satisfactory procurement systems, some facilities need improvements.

The funding for blood banks in health institutions in Abia State is notably limited. Only 1 facility (7.7%) has dedicated funding for the blood bank, while 92.3% do not have any funding allocated. Furthermore, none of the institutions have funding dedicated to voluntary blood donation drives (Table 3).

Table 1: Socio-demographic Characteristics of The Health Facilities

Variables	Frequency (n = 13)	Percentage (%)
Senatorial zone		
Abia North	4	30.8
Abia South	4	30.8
Abia Central	5	38.5
Type of Institution		
Secondary	10	77
Tertiary	3	23
Specialty		
Mon specialty	0	0
Multispecialty	13	100

Table 2a: Procurement Process of Blood Banks in Abia State

Variables	Frequency	Percentage (%)
Does the blood bank directly procure its consumables?		
Yes	5	46.2
No	7	53.8
Is procurement of consumables done based on need?		
Yes	11	84.6
No	2	15.4
In order of Preference, what criteria do you consider when selecting a supplier?		
a. Quality is most important		
Yes	13	100.0
No	0	0
b. Followed by reliability		
Yes	13	100
No	0	0
c. Price is the least important		
Yes	13	100
No	0	0
Do you have a system in place to assess the performance of your suppliers?		
Yes	5	38.5
No	7	53.8
No answer	1	7.7
To ensure transparency and fairness during the procurement process quality should be of utmost importance?		
Yes	12	92.5
No	0	0
No answer	1	7.7
Do you have a well-defined process for verifying the quality and safety of blood bank supplies?		
Yes	13	100
No	0	0
Are these records readily available for audit or review purposes?		
Yes	11	84.6
No	1	7.7
No answer	1	7.7
Are there instances where you had to reject procured products due to quality?		
Yes	11	84.6
No	2	15.4
Do you actively seek feedback from staff and stakeholders to improve the procurement?		

Yes	7	53.8
No	5	38.5
No answer	1	7.7
Any recent changes or improvement in your procurement processes based on feedback or lessons learnt?		
Yes	6	46.2
No	5	38.5
No answer	2	15.4
Any training program to educate procurement staff about quality standards and best practices?		
Yes	5	38.5
No	8	61.5

The table generally showed a good procurement process, however training program to educate the staff on quality standards on best practices is suboptimal.

Table 2b: Assessment of Procurement Process of Blood Bank in Abia State

Procurement Grading	Frequency (n=13)	Percentage (%)
Good (Score = ≥70)	7	53.8
Fair (Score:50 – 69.9)	4	30.8
Poor (Score: ≤49.9%))	2	15.4

The table shows a good procurement process.

Table 3: Funding of blood bank in Health Institutions in Abia State

Variables	Frequency	Percent
Any funding dedicated to the blood bank		
Yes	1	7.7
No	12	92.3
Any funding dedicated for voluntary blood donation drives		
Yes	0	0
No	13	100

This table showed that out of 13 responses, only 1 institution has dedicated funding for the blood bank, while the majority (12 institutions) do not have any dedicated funding. None of the 13 institutions have dedicated funding for voluntary blood donation drives.

Discussion

The results of this study, which aimed to appraise the procurement process and funding in blood bank units across health institutions in Abia State, Nigeria, highlight several critical areas of success and concern. The distribution of health facilities across the three senatorial zones—Abia North, Abia South, and Abia Central—is relatively balanced, with Abia Central accounting for a slightly higher percentage (38.5%). This distribution may affect accessibility to blood bank services, as previously noted by studies like Agba et al. (2018), who found that geographical location plays a significant role in healthcare access in Nigeria. Similarly, the predominance of secondary health institutions (77%) mirrors findings from other regions, where secondary care facilities are often more widespread, as noted by Onwujekwe et al. [10]. The fact that all institutions are multispecialty highlights the complexity of their procurement needs. This finding aligns with the study by Obadeyi et al. [11], which found that multispecialty institutions require more sophisticated procurement strategies due to the diverse needs of their departments. The procurement process in Abia State's blood bank units demonstrates a high level of consideration for quality and reliability, with all institutions (100%) prioritizing these factors over price. This is consistent with international best practices as recommended by the World Health Organization [3], which emphasizes the importance of quality in the procurement of blood-related supplies. However, the procurement process also reveals some areas of concern. For instance, while 84.6% of institutions procure consumables based on need, 53.8% do not have systems in place to assess supplier performance. This finding is consistent with Uzochukwu et al. [12], who noted that the lack of performance assessment frameworks is a common issue in Nigerian health institutions, leading to inefficiencies in the supply chain. The issue of

transparency and fairness in procurement is another area where Abia State blood banks generally perform well, with 92.5% agreeing that quality should be prioritized. This mirrors findings from Ekwunife et al. [5], who noted that transparent procurement processes are essential for maintaining public trust and ensuring the safety of blood supplies. However, the lack of training programs for procurement staff (61.5%) is a significant concern. This finding contrasts with studies like Chikwe et al. [13], who emphasized the importance of continuous training in maintaining procurement standards in healthcare settings. The funding of blood banks in health institutions in Abia State appears to be severely lacking, with only 7.7% of institutions having any dedicated funding, and none having funding for voluntary blood donation drives. This is a critical issue, as adequate funding is essential for ensuring the smooth operation of blood banks. In comparison, Adebayo et al. [14] found that inadequate funding was a significant barrier to the effectiveness of blood banks across Nigeria, contributing to shortages of supplies and equipment.

The absence of funding for voluntary blood donation drives is particularly alarming. Studies like Nwafor et al. [15] have shown that voluntary blood donation is crucial for maintaining an adequate blood supply, and lack of funding can lead to reliance on paid donations, which may compromise the safety of the blood supply. This lack of funding contrasts sharply with findings from more developed healthcare systems, where voluntary blood donation programs are well-funded and widely supported [16]. The procurement grading results indicate that 53.8% of the blood banks have a good procurement process, while 30.8% were graded as fair, and 15.4% as poor. These findings suggest that while some institutions have established effective procurement practices, others require significant improvement. Comparatively, Udeh et al. [17] reported similar variability in procurement processes among Nigerian healthcare institutions, attributing these differences to variations in management practices and institutional support. The suboptimal procurement processes identified in this study are consistent with challenges reported in previous studies, such as inconsistent supplier performance evaluations and lack of transparency in procurement [18]. Addressing these issues through regular audits, feedback mechanisms, and training programs can help standardize procurement processes across institutions.

Conclusion

This study's findings highlight both the strengths and weaknesses of the procurement processes and funding mechanisms in blood bank units across Abia State. While quality and reliability are prioritized in procurement decisions, the lack of dedicated funding and proper training programs presents significant barriers to effective blood bank operations. These results are consistent with previous studies, which have also identified funding and staff training as critical areas for improvement in Nigeria's healthcare system. Given the importance of blood banks in ensuring safe and reliable blood supplies, addressing these gaps is essential. Recommendations include increasing government funding for blood banks, particularly for voluntary blood donation drives, and implementing comprehensive training programs for procurement staff. Such measures will align with best practices and ensure the sustainability and effectiveness of blood bank units in Abia State.

Recommendation

Develop and Regularly Update Procurement Plans: Blood bank units must develop documented procurement plans that are regularly updated. This will enhance the efficiency of procurement processes and ensure that supplies are procured based on actual needs. Implement Regular Supplier Performance Evaluations: Regular evaluation of supplier performance should be implemented to ensure that only high-quality suppliers are engaged. This will help in minimizing issues related to the procurement of substandard products.

Enhance Training for Procurement Staff: Organizing regular training programs for procurement staff on quality standards and best practices is essential. This will improve the competence of the procurement team and ensure that they are well-equipped to handle procurement challenges.

Increase Funding for Blood Bank Operations: There is a critical need to increase funding dedicated to blood bank operations, especially for voluntary blood donation drives. This could involve seeking grants from government and non-governmental organizations, as well as exploring other funding sources.

Promote Inclusiveness and Transparency in the Procurement Process: To overcome the challenges of out-of-stock syndrome and financial constraints, it is important to include all relevant stakeholders in the procurement process. This will ensure a more transparent and inclusive approach, leading to better procurement outcomes.

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