



Effect of Procurement Planning on the Performance of Medical Supply Chain: A Case Study of Rwanda Medical Supply (RMS) Ltd

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Abstract: This study examined the effect of procurement planning on the performance of the medical supply chain at Rwanda Medical Supply (RMS) Ltd. The study focused on budget allocation as an important component of procurement planning and assessed its effect on the performance of medical supply at RMS Ltd. A descriptive and correlational research design was adopted using quantitative and qualitative approaches. The target population comprised 228 respondents, from whom a sample of 146 respondents was selected using Yamane's formula at a 5% margin of error. Data were collected through structured questionnaires, semi-structured interviews, and documentary review. Quantitative data were analysed using descriptive statistics, Pearson Product Moment Correlation, and simple linear regression, while qualitative data were analysed thematically using IBM SPSS Statistics Version 26. Out of 146 questionnaires distributed, 127 were successfully returned, representing a response rate of 86.90%. The findings revealed that budget allocation contributes positively to medical supply performance through adequate financial resources, alignment of budgets with procurement requirements, timely release of funds, effective communication between Finance and Procurement, and flexibility in reallocating funds for urgent supply needs. The overall mean of 3.83 indicated a high level of agreement regarding budget allocation. Pearson correlation analysis revealed a very strong positive and statistically significant relationship between budget allocation and medical supply performance ($r = .979, p < .001$). Regression analysis further showed that budget allocation significantly affected medical supply performance, explaining 95.8% of its variation ($R^2 = .958, p < .001$). The study concluded that effective budget allocation is important for improving medical supply performance. It recommends strengthening budget planning, ensuring timely approval and release of funds, improving coordination between Finance and Procurement, and allowing appropriate flexibility for urgent supply needs.

Keywords: Procurement planning; Budget allocation; Medical supply performance; Supply chain; Rwanda Medical Supply; Rwanda.

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1. Introduction

Globally, procurement planning is an important component of effective supply chain management, particularly in the healthcare sector, where the timely availability of medicines and health products directly affects the quality of healthcare services. It involves

determining what products are required, the quantities needed, when they should be purchased, and the appropriate sources of supply. The World Health Organization emphasizes that access to essential medicines and health products is fundamental to achieving effective healthcare delivery. However, many people, particularly those living in low- and

middle-income countries, continue to experience limited access to essential medicines. Effective procurement planning can therefore help health organizations align demand forecasts, available budgets, supplier capacity, and inventory requirements to ensure continuous availability of essential health commodities (World Health Organization [WHO], 2020; Chopra, 2019).

Despite the importance of procurement planning, pharmaceutical supply chains in developing countries continue to experience several challenges. These include medicine stock-outs, poor inventory management, inadequate infrastructure, supply interruptions, expired medicines, counterfeit products, corruption, and weak regulatory systems. Such challenges can reduce the efficiency of healthcare delivery because health facilities may lack essential medicines when patients need them. In sub-Saharan Africa, weaknesses in procurement and logistics have also threatened the sustainability of treatment programmes for diseases such as HIV/AIDS, tuberculosis, and malaria. This demonstrates that effective procurement planning is necessary not only for controlling costs but also for maintaining reliable healthcare services and protecting patients from interruptions in treatment (Yadav, 2015; Pasquet et al., 2010).

Within the East African Community, procurement planning remains an important challenge affecting the performance of health supply chains. Although countries such as Kenya and Tanzania have established centralized medical supply organizations to improve purchasing efficiency and benefit from economies of scale, problems related to demand forecasting, quantification, supplier management, and delays in budget releases continue to affect supply reliability. Research in Kenya found that poor procurement planning contributed to low absorption of development funds and irregular availability of essential medicines. Similarly, evidence from Uganda indicates that procurement planning has a significant influence on service delivery, particularly through proper scheduling and supplier management. These findings demonstrate the importance of strengthening procurement planning systems across East African health institutions (Odhiambo & Kamau, 2003; Kakwezi & Nyeko, 2019).

Rwanda has made significant efforts to strengthen its health supply chain and improve the availability of quality medical products. The government has prioritized health commodity security within its health sector strategies and has undertaken institutional reforms, including the establishment of Rwanda

Medical Supply (RMS) Ltd. However, challenges related to procurement planning and coordination continue to affect the performance of the medical supply system. Reports from the Office of the Auditor General have identified cases of expired medicines and stock-outs at some district pharmacies and health facilities, with weaknesses in procurement planning and coordination contributing to these problems. At the same time, Rwanda's electronic Logistics Management Information System (e-LMIS) has improved the availability of information concerning stock levels, consumption, and orders, although the effective use of this information for procurement planning remains an area requiring further improvement (Rwanda Ministry of Health, 2022; Office of the Auditor General [OAG], 2022).

Rwanda Medical Supply Ltd plays a central role in the country's pharmaceutical supply chain by quantifying health commodity requirements, procuring medicines and medical supplies, storing products, and distributing them to public health facilities. Its strategic priorities emphasize improving financial and operational efficiency through stronger procurement and supplier management. However, RMS Ltd continues to face challenges such as fluctuating demand, delays in budget releases, variations in international supplier lead times, and coordination gaps with health facilities. These challenges can result in simultaneous stock-outs of some medicines and accumulation of expired stock of others, thereby affecting supply chain performance. Therefore, strengthening procurement planning through accurate demand quantification, effective supplier relationships, proper scheduling, and improved coordination is essential for RMS Ltd to achieve a reliable and sustainable flow of medical supplies (RMS, 2024; Office of the Auditor General [OAG], 2022).

1.2 Statement of Problem

Despite the importance of procurement planning in ensuring the availability of essential medicines and medical supplies, health supply chains in many developing countries continue to experience stock-outs, supply delays, expired products, and inefficient use of resources. Poor demand forecasting, inadequate quantification, weak supplier management, and delays in procurement processes can affect the timely delivery of health commodities. These challenges may negatively influence the ability of health facilities to provide continuous and quality healthcare services. Studies have shown that weaknesses in procurement planning can contribute to irregular supply of essential medicines and poor service delivery, particularly in

developing-country health systems (Yadav, 2015; Kakwezi & Nyeko, 2019).

In East Africa, procurement planning remains a significant concern because health institutions often face difficulties in accurately forecasting demand and coordinating procurement activities with available financial resources. Poor procurement planning may lead to emergency purchasing, increased procurement costs, delayed deliveries, and inadequate availability of essential medicines. In Kenya, poor procurement planning has been associated with low absorption of development funds and irregular supply of essential drugs, while evidence from Uganda indicates that procurement planning significantly influences service delivery. These findings suggest that weaknesses in planning can create inefficiencies throughout the health supply chain (Odhiambo & Kamau, 2003; Kakwezi & Nyeko, 2019).

In Rwanda, considerable efforts have been made to strengthen the health supply chain through institutional reforms and the establishment of Rwanda Medical Supply (RMS) Ltd. However, challenges related to procurement planning and coordination remain. Reports from the Office of the Auditor General have identified cases of expired medicines and stock-outs in district pharmacies and health facilities, partly associated with weaknesses in procurement planning and coordination. Although the introduction of the electronic Logistics Management Information System has improved access to information on stock levels, consumption, and orders, the effective conversion of this information into evidence-based procurement plans remains a challenge (Office of the Auditor General [OAG], 2022; Rwanda Ministry of Health, 2022).

RMS Ltd has the responsibility of quantifying health commodity needs, procuring medicines and medical supplies, storing them, and distributing them to public health facilities across Rwanda. The organization therefore depends heavily on effective procurement planning to ensure that the right products are available in the right quantities and at the right time. However, the organization faces operational challenges, including fluctuating demand, delays in budget releases, variations in supplier lead times, and coordination gaps with health facilities. These challenges may contribute to simultaneous stock-outs of some essential medicines and accumulation of expired stock, which can negatively affect supply chain performance and increase operational costs (RMS, 2024; Office of the Auditor General [OAG], 2022).

Therefore, there is a need to examine the influence of procurement planning on supply chain performance at

RMS Ltd. Although previous studies have examined procurement planning and service delivery in different public institutions, there is limited evidence specifically focusing on how procurement planning practices influence the performance of Rwanda's centralized medical supply organization. This study will therefore assess the relationship between procurement planning and budget allocation at RMS Ltd. The findings are expected to provide evidence that can support improvements in procurement practices, reduce stock-outs and expiries, and strengthen the overall performance of the health supply chain in Rwanda.

The specific objective of the study was:

- i. To assess the effect of budget allocation on the performance of medical supply at RMS Ltd.

2. Literature Review

This section examines the core concepts used in this study, including procurement planning, budget allocation, and performance of medical supply. Understanding these concepts is critical to building a coherent analytical framework.

2.1.1 Procurement Planning

Procurement planning is defined as the systematic process of deciding what to procure, when to procure, how much to procure, and from which sources, in alignment with organizational objectives (Lysons & Farrington, 2012). It is the primary function within the procurement cycle because it establishes the foundation upon which all subsequent activities such as tendering; evaluation, contracting, and delivery are based. Van Weele (2020) argues that effective procurement planning bridges the gap between organizational needs and market capabilities, ensuring that internal demand matches with external supply capacity in a timely and cost-effective manner.

In the public sector, Basheka (2008) notes that procurement planning is not merely a managerial function but a statutory requirement intended to enforce transparency, value for money, and accountability in the use of public resources. Without a comprehensive procurement plan, organizations risk reactive purchasing behaviour characterized by emergency orders, inflated prices, and poor quality outcomes. In healthcare settings, the consequences of inadequate planning are particularly severe, as stock-outs of essential medicines can directly compromise patient care and lead to preventable mortality (Yadav, 2015).

Procurement planning in medical supply organizations encompasses quantification of needs, budget

estimation, market analysis, identification of procurement methods, and preparation of a procurement schedule. The planning phase also involves coordination with various departments, including finance, warehouse, and logistics, to ensure alignment of procurement activities with broader organizational goals. According to the Management Sciences for Health (2012), effective procurement planning in health supply chains must adhere to the '*six rights*' principle: procuring the right product, in the right quantity, of the right quality, at the right price, from the right source, and at the right time.

2.1.2. Budget Allocation

Budget allocation in procurement refers to the process of assigning adequate financial resources to planned procurement activities in a timely and structured manner. Thai (2021) emphasizes that without adequate funding aligned with procurement plans, the planning document becomes a "paper tiger", a plan that exists on paper but cannot be executed due to financial constraints. In this sense, budget allocation is not merely a financial function but an integral component of the procurement planning cycle.

In developing countries, budget release delays frequently disrupt the procurement cycle, forcing procurement officers to engage in emergency purchases that are both costly and administratively burdensome (Mamiro, 2010). These unplanned procurements often bypass competitive tendering processes, resulting in inflated prices, reduced quality control, and diminished value for money. In the context of medical supply, these implications are compounded by the critical nature of the commodities involved. Effective budget allocation requires that procurement plans inform the budgeting process, and conversely, that budget ceilings guide the scope of procurement plans. This two-way alignment ensures that financial resources are proportionally distributed across different commodity categories based on priority health needs, historical consumption patterns, and disease burden data. Budget flexibility is equally important: organizations need mechanisms to reallocate funds rapidly in response to emerging health priorities, epidemic outbreaks, or supply chain disruptions.

The Office of the Auditor General (OAG) (2022) has reported instances in which RMS Ltd experienced misalignments between approved budgets and actual procurement needs, leading to both under-procurement and over-procurement in different commodity categories. This underscores the importance of institutionalizing a structured budget-

procurement planning interface that is regularly reviewed, and updated in response to changing health system demands.

2.1.3. Performance in medical supply chains

Performance in medical supply chains refers to the extent to which an organization efficiently and effectively fulfils its responsibility of ensuring the continuous availability of quality medical commodities. The Supply Chain Operations Reference (SCOR) model identifies reliability, responsiveness, agility, cost, and asset management efficiency as important dimensions for assessing supply chain performance. In medical supply systems, these dimensions help organizations evaluate whether commodities are supplied consistently, delivered within the required time, and managed at an acceptable cost. Similarly, the "six rights" framework emphasizes supplying the right product, in the right quantity and quality, to the right place, at the right time, and at the right cost. Therefore, medical supply performance can be assessed through indicators such as stock availability, order fulfilment, timely delivery, product rejection, and procurement costs (Supply Chain Council, 2012; Management Sciences for Health, 2012).

Medical supply chains in sub-Saharan Africa continue to experience performance challenges that affect the availability and reliability of essential health commodities (Yadav, 2015). Common problems include stock-outs, expired medicines, long supplier lead times, and increased procurement costs resulting from emergency purchasing and inadequate procurement practices. Such challenges can interrupt healthcare services and increase the financial burden of medical supply organizations. In Rwanda, reports from the Office of the Auditor General have also identified cases of stock-outs and expired medicines in district pharmacies and health facilities, with weaknesses in supply chain planning contributing to some of these problems. These challenges demonstrate the importance of assessing medical supply performance in terms of product availability, delivery reliability, cost efficiency, and proper inventory management (Office of the Auditor General [OAG], 2021, 2022).

Customer satisfaction is another important dimension of medical supply performance because it reflects the experience of health facilities that depend on the supply organization for essential commodities. Satisfaction can be influenced by the timeliness and accuracy of deliveries, availability of requested

products, responsiveness to client needs, and communication concerning orders and supply status. For RMS Ltd, which serves public health facilities across Rwanda, maintaining satisfied clients is essential for effective healthcare commodity distribution. High customer satisfaction may indicate that the organization is responding effectively to the needs of hospitals, health centres, and health posts, while dissatisfaction may reveal weaknesses in delivery, communication, availability, or responsiveness. Therefore, assessing both operational indicators and client satisfaction provides a broader understanding of medical supply performance at RMS Ltd (Management Sciences for Health, 2012; Supply Chain Council, 2012).

2.2. Theoretical Framework

This study was anchored in the Resource-Based View (RBV) Theory, which explains that organizational performance depends largely on the ability of an organization to acquire, develop, and effectively utilize valuable internal resources and capabilities. The theory focuses on the internal strengths of an organization as important sources of improved performance. In this study, procurement planning is considered an important organizational capability that enables RMS Ltd to organize and utilize its financial, human, informational, and supplier-related resources effectively. Through effective procurement planning, the organization can improve the way it forecasts demand, allocates budgets, selects suppliers, and schedules procurement activities.

The RBV Theory is relevant to this study because strong procurement planning capabilities can enable RMS Ltd to improve its medical supply performance. Effective use of financial resources can support timely procurement, while qualified personnel and appropriate information systems can improve demand forecasting and procurement decision-making. Similarly, effective supplier management and procurement scheduling can contribute to timely delivery, cost efficiency, and availability of medical commodities. Therefore, the RBV Theory provides a suitable foundation for explaining how the procurement planning capabilities of RMS Ltd can contribute to improved medical supply performance.

2.3. Empirical Literature

Apfel and Pourjalali (2001) conducted a comparative study of hospitals in the United States and France to examine the financial importance of logistics and

procurement activities in hospital management. The study found that logistics and procurement activities consumed a significant proportion of hospital budgets. The findings further showed that effective allocation of financial resources to procurement and logistics activities contributed to lower procurement costs and improved service levels. This implies that adequate budget allocation enables healthcare organizations to obtain the financial resources required to purchase and manage medical supplies effectively. The study is relevant to the present research because sufficient financial allocation can support the continuous availability of medical commodities, timely procurement, and cost efficiency, which are important indicators of medical supply chain performance.

Yadav (2015) examined the major causes of underperformance in health product supply chains in developing countries. The study identified budget unpredictability as one of the major factors affecting the performance of health supply chains. Inadequate or unpredictable financial resources were found to contribute to stock-outs, overstocking, and increased procurement costs. The findings indicate that when adequate funds are not allocated or when allocated funds are not predictable, health supply organizations may fail to procure medical commodities according to actual requirements. Therefore, effective budget allocation is important for maintaining product availability, reducing supply interruptions, controlling procurement costs, and improving the overall performance of medical supply chains. This finding directly supports the present study because it demonstrates the relationship between financial resource availability and medical supply chain performance.

Ngugi and Mugo (2012) investigated internal factors affecting procurement processes in government ministries in Kenya. Their findings showed that procurement-related planning factors explained a substantial proportion of the variation in supply chain performance, with demand forecasting accuracy and timeliness of budget release identified as important factors. The study emphasized that financial resources must not only be adequately allocated but also released at the time they are required. Delays in releasing allocated funds can interrupt procurement schedules, delay the acquisition of medical supplies, and negatively affect supply chain operations. The study therefore demonstrates that timely budget allocation and release are essential for improving supply chain performance because they enable organizations to procure and receive required supplies without unnecessary delays.

Acheampong, Boateng, Atchoglo, and Boateng (2026) examined procurement planning and vendor management at Eastern Regional Hospital in Koforidua, Ghana. The study found that effective management and allocation of resources contributed to improved healthcare performance through better resource utilization and improved availability of required healthcare resources. The findings demonstrate that financial resources must be appropriately allocated to areas where healthcare commodities and services are required. Adequate budget allocation can therefore enable healthcare organizations to meet their procurement requirements, maintain sufficient medical supplies, and improve the reliability of supply chain operations. The study is relevant to the present research because it supports the view that appropriate allocation of financial resources contributes to better availability and performance of healthcare supplies.

Gamariel and Innocent (2021) examined procurement process compliance and procurement performance across districts in the Northern Province of Rwanda. The study found a strong positive relationship between effective procurement practices and performance outcomes. The findings showed that proper management of procurement resources contributed to improved efficiency, reduced costs, and better service delivery, while weaknesses in procurement practices were associated with performance gaps. Although the study considered procurement performance broadly, its findings are relevant to budget allocation because the implementation of procurement activities depends on the availability of adequate financial resources. Appropriate budget allocation can facilitate the timely acquisition of medical supplies, improve resource utilization, reduce unnecessary procurement costs, and support better supply chain performance. The present study therefore builds on this evidence by focusing specifically on the effect of budget allocation on the performance of the medical supply chain at RMS Ltd.

3. Methodology

The study adopted a descriptive and correlational research design to examine the effect of budget allocation on the performance of medical supply at Rwanda Medical Supply (RMS) Ltd. The descriptive aspect enabled the researcher to obtain detailed information regarding how financial resources were planned, allocated, released, and utilized to support the procurement of medical commodities. The correlational aspect was used to establish the relationship between budget allocation and medical supply performance and to determine the extent to

which effective allocation of financial resources contributes to improved availability, timely delivery, cost efficiency, and customer satisfaction. The study therefore focused specifically on budget allocation as a dimension of procurement planning and its influence on the performance of medical supply.

The study was conducted at Rwanda Medical Supply (RMS) Ltd, focusing on employees and key stakeholders who were directly involved in or affected by financial planning and medical supply activities. The target population consisted of 228 respondents, including Procurement Department Staff, Supply Chain and Logistics Staff, Finance and Budgeting Officers, Warehouse Managers, and Client Representatives from hospitals and health centres served by RMS Ltd. These categories were considered appropriate because budget allocation affects different stages of the medical supply process, from determining financial requirements and approving procurement budgets to purchasing, storing, and distributing medical commodities. In particular, Finance and Budgeting Officers provided important information regarding financial planning and budget allocation, while other respondents provided perspectives on how the availability and timeliness of financial resources affected medical supply performance.

The study determined a sample size of 146 respondents from the target population of 228 using Yamane's formula at a 5% margin of error. The sample was proportionately allocated among the five stakeholder categories to ensure adequate representation of the population. The sample included 22 Procurement Department Staff, 35 Supply Chain and Logistics Staff, 12 Finance and Budgeting Officers, 13 Warehouse Managers, and 64 Client Representatives. The inclusion of these groups enabled the researcher to obtain information from respondents who participated in financial planning, procurement operations, inventory management, and the receipt of medical supplies.

The study employed stratified random sampling and purposive sampling techniques. Stratified random sampling with proportionate allocation was used to select respondents from the five functional categories. The Finance and Budgeting category was particularly important because its members were directly associated with budget allocation, while other categories provided information on how budget availability influenced procurement and supply operations. Purposive sampling was used for the qualitative component to select approximately 8 to 10 senior management personnel and departmental heads

with strategic knowledge of financial decisions and procurement planning at RMS Ltd.

Data were collected using structured questionnaires, semi-structured interview guides, and documentary review. The structured questionnaire included a specific section on budget allocation containing statements designed to measure the adequacy, availability, allocation, and timeliness of financial resources for procurement activities. Respondents assessed the statements using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Semi-structured interviews were conducted with selected key informants to obtain detailed explanations regarding budget allocation practices, challenges in the release and utilization of funds, and the effect of financial resources on medical supply performance. Documentary review was used to examine RMS procurement plans, strategic planning documents, audit reports, and other relevant institutional records containing information related to financial planning and medical supply activities.

Before the main data collection exercise, the research instrument was subjected to pilot testing, validity assessment, and reliability assessment. The pilot study was conducted to assess the clarity, relevance, logical arrangement, and appropriateness of the questionnaire items measuring budget allocation and medical supply performance. The pilot test enabled the researcher to identify ambiguous, repetitive, or unclear statements and make necessary revisions before administering the final questionnaire. The pilot study was intended to ensure that respondents could clearly understand the questions relating to budget allocation and provide appropriate responses.

Validity of the research instrument was established through content validity. The questionnaire items relating to budget allocation were reviewed by the research supervisor and subject-matter experts in procurement and supply chain management. The experts assessed whether the items adequately represented the concept of budget allocation and whether they were relevant to the study objectives. The Content Validity Index (CVI) was calculated to determine the proportion of items considered relevant or highly relevant by the experts. A CVI of 0.70 or above at the item level and 0.80 or above at the scale level was considered acceptable. Items that did not meet the required threshold were revised or replaced before the final administration of the instrument.

Reliability was assessed to determine the consistency of the questionnaire items measuring budget allocation and medical supply performance. Internal consistency

was assessed using Cronbach's Alpha coefficient. A Cronbach's Alpha value of 0.70 or above was considered acceptable, indicating that the items consistently measured the intended constructs. The pilot study also enabled the researcher to identify questions that were unclear or difficult for respondents to understand. Where necessary, such items were revised and re-tested before the final questionnaire was administered.

After data collection, completed questionnaires were checked for completeness, coded, and entered into IBM SPSS Statistics Version 26 for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize respondents' perceptions concerning budget allocation and medical supply performance. Pearson Product Moment Correlation analysis was employed to determine the strength and direction of the relationship between budget allocation and medical supply performance. Simple linear regression analysis was used to determine the extent to which budget allocation predicted the performance of medical supply and to test the study hypothesis. The regression model was specified as:

$$Y = \beta_0 + \beta_1 X_2 + \varepsilon$$

Where:

Y = Performance of Medical Supply

X₂ = Budget Allocation

β₀ = Constant/intercept

β₁ = Regression coefficient of Budget Allocation

ε = Error term

A p-value of less than 0.05 was considered statistically significant. The regression coefficient was used to determine the direction and magnitude of the effect of budget allocation on medical supply performance. Qualitative information obtained through interviews was analyzed thematically and used to provide additional explanations concerning the findings on budget allocation. The results were presented using tables and explanatory text to facilitate interpretation and enable the researcher to draw conclusions regarding the effect of budget allocation on the performance of medical supply at RMS Ltd.

Ethical considerations were observed throughout the study to protect the rights, privacy, dignity, and welfare of all participants. The researcher obtained the necessary authorization before collecting data, and participants were informed about the purpose of the study and the nature of their participation. Participation was voluntary, and informed consent was obtained from respondents before data collection. Confidentiality and anonymity were maintained by avoiding the use of respondents' names and personal

identifiers. Particular care was taken when collecting information concerning budget allocation and financial management because such information may be institutionally sensitive. The information collected was used strictly for academic purposes and was securely handled throughout the research process.

4. Results and Discussion

This section presents, analyzes, and interprets the findings of the study on the effect of budget allocation on the performance of medical supply at Rwanda Medical Supply (RMS) Ltd. The findings are presented in line with the study objective, which sought to examine the effect of budget allocation on the performance of medical supply at RMS Ltd. The

analysis focuses on key aspects of budget allocation, including adequacy of financial resources, alignment of budgets with procurement requirements, timely budget approval, timely release of funds, flexibility in fund reallocation, communication on budget status, and the contribution of adequate and timely budget allocation to medical supply performance.

4.1.1. Response Rate

The study employed both structured questionnaires and semi-structured interviews to collect data. Structured questionnaires were administered to community representatives, while interviews were conducted with project managers, engineers, contractors, and district officials. The response rate achieved during the data collection process is presented in Table 1.

Table 1: Response Rate of Respondents

Designation	Frequency	Percentage
Returned Questionnaires	127	86.90%
Unreturned Questionnaires	19	13.10%
Total	146	100

Source: Field data, 2026

The table shows that out of the 146 questionnaires distributed to the respondents, 127 questionnaires were successfully returned, representing a response rate of 86.90%, while 19 questionnaires were not returned, representing 13.10%. The response rate of 86.90% was considered adequate for the study because it provided sufficient responses for analyzing the effect of budget allocation on the performance of medical supply at Rwanda Medical Supply (RMS) Ltd.

4.1.2 Descriptive Statistics of budget allocation

The study sought to examine the effect of budget allocation on the performance of medical supply at Rwanda Medical Supply (RMS) Ltd. Respondents were requested to indicate their level of agreement with statements describing different aspects of budget allocation using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The descriptive results are presented in Table 2

Table 2: Level of Agreement on Budget Allocation and Performance of Medical Supply

Statement	N	Mean	Std.
RMS allocates adequate financial resources to meet all planned procurement requirements.	127	3.86	0.67
Budget preparation at RMS is closely aligned with the procurement plans and demand forecasts.	127	3.84	0.62
Delays in budget approval have negatively affected the timely procurement of medical supplies.	127	3.97	0.56
Funds are released on schedule, in line with the approved procurement plans.	127	3.77	0.66
There is flexibility in reallocating funds when urgent or emergency supply needs arise.	127	3.76	0.68
The Finance Department communicates effectively with Procurement staff about budget status and constraints.	127	3.82	0.65
When budget allocation is adequate and timely, overall supply chain performance improves.	127	3.82	0.63
Overall Mean	127	3.83	—

Table 2 presents the respondents' perceptions of budget allocation and its contribution to the performance of medical supply at RMS Ltd. The results show an overall mean of 3.83, indicating a high level of agreement among respondents regarding budget allocation. The findings suggest that RMS Ltd generally allocates financial resources for planned procurement requirements and that budget preparation is linked to procurement needs. However, the results also show challenges related to budget approval, timely release of funds, and flexibility in reallocating financial resources.

The statement "RMS allocates adequate financial resources to meet all planned procurement requirements" recorded a mean of 3.86 and a standard deviation of 0.67. This indicates that respondents generally agreed that RMS Ltd allocates sufficient financial resources to support planned procurement requirements. Adequate financial resources are important because procurement activities require sufficient funding to enable the organization to acquire the required medical supplies. The finding therefore suggests that RMS Ltd generally provides financial support for planned procurement activities.

The statement "Budget preparation at RMS is closely aligned with the procurement plans and demand forecasts" obtained a mean of 3.84 and a standard deviation of 0.62. The result indicates that respondents generally agreed that budget preparation is aligned with procurement requirements. This alignment is important because financial resources need to correspond with planned procurement activities. When budgets are properly prepared according to procurement requirements, the organization is better positioned to provide the financial resources required for the acquisition of medical supplies.

The statement "Delays in budget approval have negatively affected the timely procurement of medical supplies" recorded the highest mean of 3.97, with a standard deviation of 0.56. This finding indicates that respondents strongly agreed that delays in budget approval negatively affect timely procurement. The result suggests that the timing of budget approval is an important factor in the procurement of medical supplies. Delayed approval can postpone procurement activities and consequently affect the timely availability of medical supplies.

The statement "Funds are released on schedule, in line with the approved procurement plans" recorded a mean of 3.77 and a standard deviation of 0.66. The finding indicates a moderate level of agreement among

respondents. This suggests that although funds are generally released to support procurement activities, there may be some delays or inconsistencies in the timing of fund release. Timely release of funds is important because an approved budget cannot effectively support procurement if the financial resources are not available when required.

The statement "There is flexibility in reallocating funds when urgent or emergency supply needs arise" obtained the lowest mean of 3.76, with a standard deviation of 0.68. Although the mean indicates moderate agreement, it suggests that respondents were less positive about the flexibility of budget reallocation. This may imply that financial procedures sometimes make it difficult to redirect funds quickly when urgent medical supply requirements emerge. Improving flexibility while maintaining financial controls could enable RMS Ltd to respond more effectively to unexpected supply needs.

The statement "The Finance Department communicates effectively with Procurement staff about budget status and constraints" recorded a mean of 3.82 and a standard deviation of 0.65. The finding indicates that respondents generally agreed that communication concerning budget availability and constraints is effective. Effective communication between Finance and Procurement is important because procurement decisions depend on accurate information about available financial resources and financial limitations.

The statement "When budget allocation is adequate and timely, overall supply chain performance improves" recorded a mean of 3.82 and a standard deviation of 0.63. This finding indicates that respondents generally agreed that adequate and timely financial allocation contributes to improved supply chain performance. The result suggests that budget allocation is not only a financial activity but also an important factor supporting the effective availability and delivery of medical supplies.

Overall, the findings demonstrate that respondents perceived budget allocation as an important factor in the performance of medical supply at RMS Ltd. The findings indicate that budget approval, availability of financial resources, alignment of budget preparation with procurement requirements, communication between Finance and Procurement, timely release of funds, and flexibility in reallocating funds are important aspects of budget allocation. However, some challenges related to the timing of budget approval, release of funds, and flexibility in

reallocating financial resources remain. These findings suggest that effective budget allocation can contribute to improved procurement processes and overall medical supply performance at RMS Ltd.

The qualitative findings obtained from interviews with key informants provided further insight into the importance of budget allocation at RMS Ltd. The interviewees indicated that budget preparation is generally linked to the procurement requirements of the organization and that financial resources are planned to support the purchase of essential medical supplies. They also emphasized the importance of communication between Finance and Procurement concerning budget availability, financial constraints, and the status of allocated funds. These findings are consistent with Aptel and Pourjalali (2001), who found that effective budgeting and logistics planning contribute to improved procurement processes and service delivery in the United States and France. Similarly, Yadav (2015) reported in developing countries that unpredictable financial resources can contribute to stock-outs, overstocking, and increased procurement costs. The findings can also be explained by the Resource-Based View (RBV) Theory, which holds that organizational performance depends partly on the availability and effective utilization of valuable internal resources. In the context of RMS Ltd, financial resources represent an important organizational resource because their proper allocation enables the organization to plan and implement procurement activities and support the continuous availability of medical supplies.

The qualitative responses also revealed challenges related to the timing and flexibility of budget

allocation. Key informants identified delays in budget approval as a factor that can affect the timely implementation of procurement activities and noted that limited flexibility in reallocating funds may make it difficult to respond quickly to urgent or unexpected medical supply requirements. These findings are consistent with Ngugi and Mugo (2012) in Kenya, who found that timely release of financial resources significantly influences procurement performance. The findings also relate to Yadav (2015), who observed that financial uncertainty can negatively affect the efficiency of procurement and the availability of required supplies in developing countries. From the perspective of RBV Theory, having financial resources alone may not be sufficient to achieve better performance; the resources must also be effectively managed, timely made available, and appropriately utilized. Therefore, the qualitative findings suggest that budget allocation at RMS Ltd can contribute to medical supply performance when funds are adequately planned, approved and released on time, supported by effective communication, and managed with sufficient flexibility to address changing procurement needs.

4.1.3. Correlation Analysis

Correlation analysis was conducted to examine the relationship between budget allocation and the performance of medical supply at RMS Ltd. The analysis aimed to establish the direction and strength of the association between the two variables and to determine whether the relationship was statistically significant. Pearson's correlation coefficient was used because the study sought to assess the linear relationship between budget allocation and medical supply performance.

Table 3: Table 3: Pearson Correlation between Budget Allocation and Performance of Medical Supply at RMS Ltd

		Budget Allocation	Performance of Medical Supply at RMS Ltd
Budget Allocation	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	127	
Performance of Medical Supply at RMS Ltd	Pearson Correlation	.979**	1
	Sig. (2-tailed)	.000	
	N	127	127

Source: Field data, 2026

The Pearson correlation results in Table 3 indicate a very strong positive relationship between budget allocation and the performance of medical supply at RMS Ltd, as shown by the correlation coefficient of $r = .979$. This means that better budget allocation is

associated with higher performance of medical supply. The relationship is also statistically significant at the 1% level ($p = .000 < .01$), indicating that the observed relationship is unlikely to have occurred by chance. Therefore, the findings suggest that effective budget

allocation is closely associated with improved medical supply performance at RMS Ltd.

4.1.4. Regression analysis

Simple linear regression analysis was conducted to determine the effect of budget allocation on the performance of medical supply at RMS Ltd. The

analysis was used to establish the extent to which changes in budget allocation could explain variations in medical supply performance and to determine whether the effect was statistically significant. The results of the regression analysis are presented using the model summary, analysis of variance (ANOVA), and regression coefficients.

Table 4: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.979 ^a	.958	.958	.2048

a. Predictors: (Constant), Budget Allocation

The model summary in Table 4 indicates that budget allocation has a very strong positive relationship with the performance of medical supply at RMS Ltd, with $R = .979$. The coefficient of determination ($R^2 = .958$) indicates that budget allocation explains 95.8% of the variation in the performance of medical supply, while the remaining 4.2% is explained by other factors not

included in the model. The adjusted R^2 of .958 further indicates that, after adjustment, budget allocation explains 95.8% of the variation in the performance of medical supply. This finding demonstrates that budget allocation makes a substantial contribution to explaining differences in the performance of medical supply at RMS Ltd.

Table 5: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.912	1	120.912	2882.772	.000
	Residual	5.243	125	.04194		
	Total	126.155	126			

a. Dependent Variable: performance of medical supply at RMS Ltd

b. Predictors: (Constant), Budget Allocation

Table 5 presents the Analysis of Variance (ANOVA) results used to determine whether the regression model is statistically significant in explaining the effect of budget allocation on the performance of medical supply at RMS Ltd. The results show a Regression Sum of Squares of 120.912 and a Residual Sum of Squares of 5.243, with a Total Sum of Squares of 126.155. The Mean Square Regression was 120.912, while the Mean Square Residual was 0.04194, resulting in an F-statistic of 2882.772 and a significance value of $p = .000$. Since the significance value is below the 0.05 level, the regression model is statistically significant, indicating that budget allocation has a significant effect on the performance

of medical supply at RMS Ltd. The implication is that RMS Ltd should ensure that financial resources are adequately allocated to planned medical procurement requirements, budgets are approved without unnecessary delays, and funds are released according to approved procurement plans. The organization should also strengthen communication between the Finance and Procurement departments and allow appropriate flexibility to reallocate funds when urgent medical supply needs arise. These measures can support timely procurement and help maintain the availability and reliable supply of essential medical products.

Table 6: Coefficient Results

Model		Unstandardized		Standardized	t	Sig.
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	0.000	0.018		0.000	1.000
	Budget allocation	.979	.0182	.979	53.691	.000

a. Dependent Variable: Performance of medical supply at RMS Ltd (Y)

Table 6 presents the coefficient results for the effect of budget allocation on the performance of medical supply at RMS Ltd. The results show that budget allocation has a positive and statistically significant effect on the performance of medical supply, as indicated by the unstandardized coefficient (B = .979) and standardized coefficient (Beta = .979). This means that an improvement in budget allocation is associated with an improvement in the performance of medical supply at RMS Ltd. The t-value of 53.691 and significance level of $p = .000$, which is below the 0.05 significance level, confirm that the effect is statistically significant. Therefore, the null hypothesis stating that budget allocation has no statistically significant effect on the performance of medical supply at RMS Ltd is rejected. The implication is that RMS Ltd should ensure adequate allocation of financial resources for planned medical procurement, timely approval and release of procurement funds, effective communication between Finance and Procurement, and sufficient flexibility to address urgent medical supply requirements. These practices can strengthen procurement implementation and contribute to the reliable availability and timely supply of medical products.

4.2. Discussion of Findings

The findings indicate that budget allocation plays an important role in the performance of medical supply at Rwanda Medical Supply (RMS) Ltd. Budget allocation involves planning, assigning, releasing, and managing financial resources to support procurement activities and ensure the availability of required medical commodities. The descriptive findings suggest that adequate financial resources, alignment of budget preparation with procurement requirements, timely budget approval and release, effective communication between Finance and Procurement, and flexibility in reallocating funds are important aspects of effective budget allocation. When financial resources are adequately planned and aligned with procurement needs, RMS Ltd can procure medical

supplies according to identified requirements and approved procurement plans. Similarly, timely availability of funds can support the implementation of procurement activities and reduce delays in acquiring essential medical commodities. Effective communication between Finance and Procurement can also help departments understand budget availability and financial constraints, while flexibility in the use of funds can enable the organization to respond to urgent or unexpected medical supply requirements. However, the findings also indicate that delays in budget approval and limited flexibility in reallocating funds can create challenges for timely procurement and supply availability. These aspects are important because effective medical supply performance depends on the availability of adequate financial resources to support procurement activities.

The findings of the study are consistent with Aptel and Pourjalali (2001), who found that structured procurement and logistics planning can contribute to lower procurement costs and improved service levels in hospitals in the United States and France. Similarly, Yadav (2015) observed that budget unpredictability and poor financial planning can contribute to stock-outs, overstocking, and increased procurement costs in health product supply chains in developing countries. Ngugi and Mugo (2012) also found that procurement planning influences supply chain performance and emphasized the importance of timely budget release in supporting procurement activities. These findings are further supported by Acheampong et al. (2026), who found that effective procurement planning and resource management contributed to improved healthcare performance through better resource utilization and availability of required healthcare resources. In Rwanda, Gamariel and Innocent (2021) found that effective procurement planning was positively associated with performance, with proper planning contributing to efficiency, cost reduction, and improved service delivery. Although these studies examined procurement planning more broadly, they support the present findings by showing that adequate planning and effective management of financial

resources are important for procurement and supply chain performance.

The qualitative findings provide further explanation of how budget allocation contributes to the performance of medical supply at RMS Ltd. Interview respondents indicated that budget preparation is generally linked to procurement requirements and that financial resources are planned to support the purchase of essential medical supplies. They also emphasized the importance of communication between Finance and Procurement regarding budget availability, financial constraints, and the status of allocated funds. These findings suggest that effective budget allocation requires cooperation between departments because procurement decisions depend on the availability and timing of financial resources. The qualitative findings also revealed challenges related to delays in budget approval and limited flexibility in reallocating funds. Such challenges can affect the timely implementation of procurement activities and make it difficult for RMS Ltd to respond quickly to urgent or unexpected medical supply requirements. These observations are consistent with Ngugi and Mugo (2012), who emphasized the importance of timely financial resource release, and Yadav (2015), who associated financial uncertainty with difficulties in maintaining efficient health product supply chains.

The correlation findings further demonstrate that budget allocation is closely associated with the performance of medical supply at RMS Ltd. The relationship was positive and statistically significant, indicating that improvements in budget allocation are associated with improvements in medical supply performance. This finding suggests that when financial resources are adequately planned, allocated, approved, and made available on time, RMS Ltd is better positioned to support procurement activities and maintain the availability of medical supplies. The finding is consistent with the reviewed empirical literature, particularly the studies of Aptel and Pourjalali (2001), Yadav (2015), and Ngugi and Mugo (2012), which emphasized the importance of financial planning and timely availability of resources in supporting procurement and supply chain outcomes. The correlation finding therefore provides evidence that budget allocation is an important factor associated with medical supply performance at RMS Ltd.

The regression findings also indicate that budget allocation has a statistically significant effect on the performance of medical supply at RMS Ltd. This means that changes in the effectiveness of budget allocation are associated with corresponding changes in medical supply performance. The finding

demonstrates that budget allocation is not simply an administrative or financial activity but is an important component of procurement planning that can influence the ability of RMS Ltd to obtain and deliver medical commodities effectively. Adequate financial planning can support the procurement of supplies according to identified needs, while timely approval and release of funds can help prevent delays in procurement activities. The finding is in agreement with Acheampong et al. (2026), who emphasized effective resource utilization and adequate resource allocation as important factors in healthcare performance, and with Gamariel and Innocent (2021), who reported that effective procurement planning contributes to improved organizational performance and service delivery.

The findings can also be explained by the Resource-Based View (RBV) Theory, which emphasizes that organizational performance depends partly on the availability and effective utilization of valuable internal resources. In the context of RMS Ltd, financial resources represent an important organizational resource because their proper allocation enables the organization to plan and implement procurement activities and support the continuous availability of medical supplies. The findings show that financial resources alone may not be sufficient to improve performance; they need to be adequately planned, appropriately allocated, timely approved and released, effectively communicated, and properly utilized. Therefore, the findings provide support for RBV Theory by demonstrating that the effective management of financial resources can strengthen the organization's ability to perform procurement activities and achieve better medical supply outcomes.

Overall, the findings demonstrate that budget allocation is an important factor in supporting the performance of medical supply at RMS Ltd. The descriptive, correlation, and regression findings collectively indicate that adequate financial resources, alignment of budgets with procurement requirements, timely release of funds, effective Finance–Procurement communication, and flexibility in managing financial resources can create better conditions for effective medical supply operations. At the same time, delays in budget approval and limited flexibility in reallocating funds remain important challenges that require attention. Strengthening budget planning, improving coordination between Finance and Procurement, ensuring timely approval and release of funds, and providing appropriate flexibility for urgent procurement needs can help RMS Ltd improve procurement efficiency, supply availability, and overall medical supply performance. Effective

budget allocation can therefore provide a strong financial foundation for achieving reliable and efficient medical supply operations at RMS Ltd.

5. Conclusion and Recommendations

5.1. Conclusion

The study concludes that budget allocation has a significant role in the performance of medical supply at RMS Ltd. The findings show that adequate financial resources, alignment of budgets with procurement requirements, timely release of funds, and effective communication between Finance and Procurement support effective procurement and availability of medical supplies. The correlation and regression findings further indicate that budget allocation is positively associated with and significantly affects medical supply performance. However, delays in budget approval and limited flexibility in reallocating funds remain challenges. Therefore, effective planning, timely allocation, and proper management of financial resources can improve medical supply performance at RMS Ltd.

5.2. Recommendations

Based on the study findings on the effect of budget allocation on the performance of medical supply at RMS Ltd, the study makes the following recommendations to different stakeholders:

- 1) Rwanda Medical Supply (RMS) Ltd should strengthen budget planning by ensuring that allocated funds are closely aligned with procurement requirements and medical supply needs. The organization should also improve the timely approval and release of funds to reduce procurement delays. In addition, RMS Ltd should allow reasonable flexibility in reallocating funds to address urgent and unexpected medical supply requirements.
- 2) The Finance Department should ensure timely communication with the Procurement Department regarding budget availability, financial constraints, and the release of funds. It should also improve coordination during budget preparation to ensure that financial allocations reflect actual procurement priorities and requirements.
- 3) The Procurement Department should prepare realistic procurement plans and provide accurate financial requirements to support proper budget allocation. The department

should also communicate procurement priorities and urgent supply needs to the Finance Department on time to facilitate appropriate financial decisions.

- 4) Management should strengthen coordination between Finance, Procurement, and other relevant departments involved in medical supply operations. Management should also regularly review budget utilization and address factors that may cause delays in fund approval, release, or utilization.

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