



ROLE OF PROCUREMENT AUDIT ON PERFORMANCE OF PUBLIC HOSPITALS IN NAIROBI COUNTY, KENYA

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ABSTRACT

The study sought to establish the role of procurement audit on performance of public hospitals in Nairobi County, Kenya. The study adopted a descriptive research design and targeted all the public hospitals in Nairobi County as the unit of analysis. The target population was 160 respondents and census approach was used to collect data from the respondents. It was notable that there exists a relationship between independent variables and dependent variable with a correlation coefficient of 0.871. Results indicated that the variables were very significant and they therefore needed to be considered in any effort to boost procurement audit in the public hospitals in Nairobi County, Kenya. The study recommended that there was need to identify the source of the risks early enough in order to reduce supplier bankruptcy and costs. The study recommended that there was need to enhance a computerized inventory auditing procuring of materials for reduction of stock outs. There was need to have internal inventory security practices to reduce operational costs, reduce overstocking and reduce obsolete products in the stores. The hospitals should ensure that the supplier provides quality products and continuous improvement is virtually guaranteed by the organization. The products supplied should meet the customer expectation, acceptable or even of high quality. There was need for the hospitals to have the suppliers undergo performance assessments to enhance timely delivery of products. There should be continuous internal audits carried out to enhance reduction of costs. There should be continuous periodical reports being carried out to enhance reduction of costs. The periodical reports can be used to facilitate the suppliers' relationship to enhance procurement audit in the public hospitals.

Key Words: Supply Chain Risks, Inventory Control, Total Quality Management, Monitoring and Evaluation, Public Hospitals, Procurement Audit

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INTRODUCTION

Procurement audit is a popular concept among accounting and inventory management practitioners. According to Lewis & Media (2014), procurement audit ensures timely and adequate identification and evaluation of inventories. Procurement audits reduce inventory losses and ensure inventory accuracy. It enables an organization evade risks associated with inventory such as; inadequate and inappropriate inventory, unnecessarily high inventory levels, inaccurate and incomplete inventory records, poor inventory security and obsolete inventory (Johnstone, 2014). Providing health facilities to the public with drug and medical supplies is a very complex process that involves a large variety of actors from both the private and public sectors. Government's health ministries often lack the proper procurement audit due to inadequate management skills required to write technical specifications, supervise competitive bidding, and monitor and evaluate the contract performance. Corruption can occur at any stage of the process and influence decisions on the model of procurement (direct rather than competitive), on the type and volume of procured supplies, and on specifications and selection criteria ultimately compromising access to essential quality medicines (Smith, 2010).

Public hospitals encounter many challenges accompanied with new requirements, namely; customer dissatisfaction, increasing cost of the health services, competition and reducing the reimbursement for services. All of these factors force the health organizations to adopt a system that can meet these requirements, dealing with the continuous changes, technology changes, increase in the health services costing, increase in competitive position and gaining customers' satisfaction (Ali *et al*, 2012). There is an increasing need by public hospitals administrators to adopt supply chain management; to promote the advancement of health care (Hong *et al*, 2012; Toba *et al*, 2008). Supply chain management in

the public health sector has received increasing attention in recent years as both a priority and a challenge for many countries as healthcare institutions find themselves with increasing number of products, programs and patients to manage. SCM practices involve a set of activities undertaken in an organization to promote effective management of its supply chain (Odhiambo, 2014). Due to cost control Supply chain management had become an important phenomenon by health care organizations in order to achieve the organization's set goals. Within healthcare sectors, quality management initiatives have been raised and hospitals focus on how quality care can be delivered in order to influence outcomes with respect to hospital performance and patient satisfaction (Jiang, Friedman & Begun 2006).

Procurement audit looks at whether internal policies and procedures have been documented and are designed to ensure compliance with organizational and industrial standards, whether internal inventory control policies and procedures are communicated to, and understood by employees implementing inventory control, whether controls are in place to effectively manage risks related to internal inventory control, whether there is an oversight body and if it meets regularly and receives key information to allow for effective monitoring of objectives, strategies and results related to internal inventory control, whether the expected inventory control results are clearly defined and monitored (Library and Archives Canada, 2014).

Public procurement in fact is the largest market in sub-Saharan Africa country for up to 70% of the national budget of West Africa Economies. According to the Country Procurement Assessment Report (CPAR, 2002) our lack of capacity to spend had had severe consequences on the Ecowas region. It has contributed to "donor fatigue" and the resultant crunch in foreign exchange and a rapid fall of the local currencies. It is worthy to note that procurement budgets constituted the major part of natural budgets

in both developed and developing countries. According to the Organization for Economic Co-operation and Development (OECD, 2014) report, procurement constituted over 80% of merchandise worldwide and commercial services export in 1998. In the US for example, procurement constituted 20% of Gross Domestic Product (GDP) and this was higher in other developed economies the world over (OECD, 2014). In Ghana, public procurement accounts for 50%-70% of total Government expenditure, representing 14% of (GDP) and accounting for about 24% of imports, (World Bank, 2003a). It is therefore obvious that an improvement in the procurement practices will enhance wealth and reduce poverty.

The Ministry of Health (MoH) is the major financier and provider of health care services in Kenya. Out of all the health facilities in the country, the MoH controls and runs about 52% while the private sector, the mission organizations and the Ministry of Local government runs the remaining 48%. The public sector controls about 79% of the health centers, 92% of the sub-health centers. Country Procurement Assessment Report (CPAR), prepared by a team of Government officials, World Bank and donor staff, and national consultants, reveals substantial inefficiency in public procurement and concludes that the principle of "value for money" is not achieved. This is true for both governments financed and donor financed procurement. The main findings of the 2012 Country Portfolio Performance Review of World Bank projects also reviewed slow project implementation and disbursement among other factors due to, a large extent of inadequate procurement planning, non-transparent procurement procedures and poor contract management in 60% of the dispensaries. The NGO sector is dominant in health clinics, maternity and nursing homes controlling 94% of the total while also controlling 86% of the medical centers in the country (CBS, 2014).

Statement of the Problem

Over the last three decades, there has been renewed interest in the establishment of procurement audit in public hospitals in Kenya. A study by Kleema (2014) established that there is a positive significant relationship between supply chain risks management, total quality management, inventory management, monitoring and evaluation on performance of organizations. Similarly, Reedman (2015) found out that procurement audit enhance service delivery in organizations by 24%. William (2013) further argued that the procurement audit enhance service delivery in organizations in terms of effectiveness and efficiency. This is following poor service delivery in the public hospitals in the country (AMREF, 2016). There is need for these hospitals to adopt procurement audit to enhance their service delivery (Wyllis, 2017).

In spite of the legal, policy and institutional reforms undertaken so far in the public procurement in Kenya, public hospitals still find it hard to effectively implement procurement audit practices (World Bank, 2014). KPMG report (2013) indicated that 90% of public health institutions suffer from a number of malpractices related to procurement audit required for quality service delivery. As indicated in the health sector performance report 2015-2016, hospitals in Kenya are grappling as Kenyans especially the poor suffer from medical stock-out, medical wastage or lack of prescribed drug in public hospitals due to procurement audit related issues (Gatonye 2017). A study done by USAID (2012) established poor procurement audit management especially in the public hospitals in Kenya lead to wastage of financial resources, shortages of essential medicines, average of others resulting in expiration and deadline in quality health care.

Most public hospitals in Kenya are performing dismally (Kenya Health Policy, 2014); characterized by dilapidated facilities, obsolete medical equipment, inadequate drugs and low bed capacity in the wards.

Patients suffer in grief, due to inadequate care from medical personnel who complain about insufficient medical supplies (MOH Survey, 2015). A study by Njoroge (2015) established that inventory control management and performance of public hospitals in Kenya. Waguru (2015) conducted a study on the Inventory Management Systems and Supply chain performance in public hospitals in Nairobi, Kenya. Korir (2010) did a study on the data development analysis and stochastic frontier approaches to the measurement of hospital efficiency and Oloo (2017) conducted a study on the effects of procurement practices on the performance of public hospitals in Kenya. Muthama (2016) conducted a study on the effects of cash management practices on operational performance of selected public hospitals in Kisii County, Kenya. These studies did not look at the determinants of procurement audit in public hospitals. A gap this study sought to fill. This study therefore sought to establish the role of procurement audit on performance of public hospitals in Nairobi County, Kenya.

Objectives of the Study

The general objective of the study was to establish the determinants of procurement audit in public hospitals in Nairobi County, Kenya. The specific objectives were:-

- To examine influence of supply chain risks on performance of public hospitals in Nairobi County, Kenya.
- To establish influence of inventory control on performance of public hospitals in Nairobi County, Kenya.
- To determine influence of total quality management on performance of public hospitals in Nairobi County, Kenya.
- To explore the influence of monitoring and evaluation on performance of public hospitals in Nairobi County, Kenya.

LITERATURE REVIEW

Theoretical Review

Agency Theory

This theory would guide the study in establishing the relationship between supply chain risks and procurement audit in public hospitals in Nairobi City County, Kenya. A theory in this area of procurement can help all stakeholders in public procurement better understand the role they play in providing incentives for utilizing cooperatives in purchasing decisions. This research project will be based on Jensen's and Meckling's, (2006), Agency theory that states that, an agency relationship is a contract under which one or more persons (principals) engages another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent.

Lean Theory

To establish the influence of inventory control on procurement audit in public hospitals, the study will be based on lean theory. Lean thinking has its origins in Japanese production operations (Lamming, 2008). Toyota practiced the principles of lean management as early as the 1950s forming the basis of strategic inventory management which today is envisaged as an essential core principle of almost any production system in all industries worldwide (Lysons, 2006). Lean production is 'lean' because it uses less of everything compared with mass production: half the human effort in the factory, half the factory space, half the investment in tools, half the engineering hours to develop a new product in half the time and it requires far less half of the needed inventory on site (Eroglu, 2011). The expected results are fewer defects while producing a greater and ever growing variety of products.

Deming's Theory

This theory will guide the study in investigating the relationship between quality management and procurement audit in public hospitals. William

Edwards Deming is well known for founding the Deming's theory of Total Quality Management, which rests upon fourteen points of management. He also identified the system of profound knowledge; the Shewart Cycle (Plan-Do-Check-Act), the ratio of Quality is equal to the result of work efforts over the total costs. This ratio explains that if a company is to focus on costs, the problem is that costs rise while quality deteriorates (Brighthub, 2013).

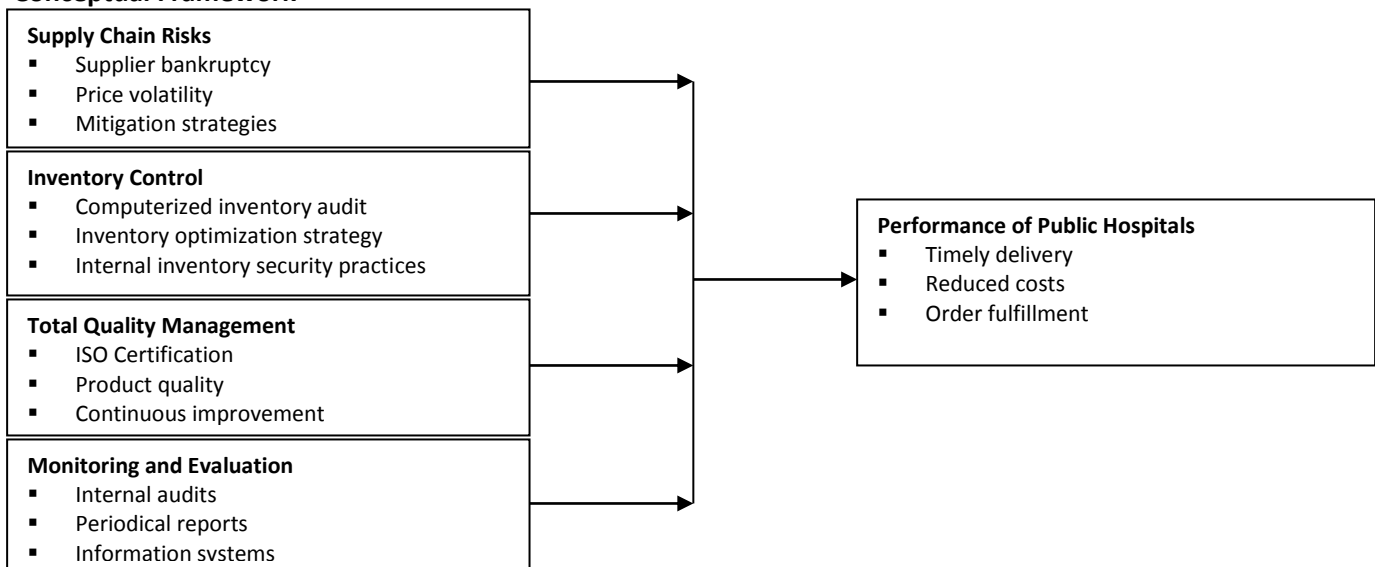
Edwards emphasized on the management as a key player in proper delivery of quality. He made it clear that poor management leads to a quality crisis. This also focuses more on the human resource capacity in the organization. If the management has poor quality skills, there will be a quality crisis.

Scientific Management Theory

To investigate the influence of monitoring and evaluation on procurement audit in public hospitals,

the study was based on scientific management theory. The theory basically consists of the works of Fredrick Taylor. Fredrick Taylor started the era of modern management in the late nineteenth and early twentieth centuries; Taylor consistently sought to overthrow management by rule of thumb and replace it with actual timed observations leading to the one best practice Watson (2002). The proponent advocated for the systematic training of workers in the one best practice rather than allowing them personal discretion in their tasks. He further believed that the workload would be evenly distributed between the workers and management with management performing the science and instruction and the workers performing the labor, each group doing the work for which it was best suited.

Conceptual Framework



Independent Variables

Dependent Variable

Figure 1: Conceptual Framework

Source: Author (2019)

Empirical Review

Supply Chain Risks

Okonjo(2014)sought to establish the relationship between procurement risk management practices and supply chain performance among mobile phone service providers in Kenya. The study established that most of the mobile phone service providers in Kenya implement procurement risk management practices. It was also clear that there was a very significant relationship between procurement risk management practices and supply chain performance. The study recommended that further research on the same study can be done in other countries to establish whether implementing procurement risk management practices is able to yield the same effect on supply chain performance.

Inventory Control

Ogbo (2014) conducted a study to investigate the importance of effective inventory control system on organizational performance as it relates to the bottling company. The result of the study revealed that flexibility in inventory control management is an important approach to achieving organizational performance. The study also revealed that organizations benefits from computerized inventory control management by way of easy storage and retrieval of material, improved sales effectiveness and reduced operational cost. The study further found that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability. It is recommended that organizations should adopt the automated inventory keeping method that best suit their operations.

Total Quality Management

According to Khan (2010), a critical aspect of building quality into a product is to ensure that the product design meets customer expectations. Many firms have arrived at the conclusion that effective quality management can improve their competitive abilities and provide strategic advantages in the marketplace (Hackman&Wageman, 2015). TQM has been widely recognized and successfully implemented in many firms, giving them the edge in both international and local competitiveness through superior procurement performance and the production of high quality products that not only meet customers' needs, but also delight them (Goh & Ridgway, 2013).According to Gupta (2009), product quality begins by identifying important customer requirements, which typically come from the marketing department. These requirements are numerically scored based on their importance, and scores are translated into specific product characteristics. Evaluations are then made of how the product compares with its main competitors relative to the identified characteristics. Finally, specific goals are set to address the identified problems.

Monitoring and Evaluation

Sekyere, Danso and Ayarkwo(2014) did a study on the Performance Assessment of Procurement Practices of the Suntresso Government Hospital, Kumasi. This study sought to assess the performance of procurement practices of the Suntreso government hospital and to determine the extent to which the Hospital followed the requirement of (PPA 2003, Act 663) in the planning, execution and monitoring of procurement operations. The study also sought to analyze the challenges the Hospital encountered in performing procurement practices in the management of procurement operation.Face to face interview was used in collecting data for this study because of its ability to provide very rich meaningful information. The main research instrument used was the Semi-structured, face to face interviews. The

researcher also made use of a census in the survey. The study revealed that National Competitive Tendering and price Quotation were the mostly used method procurement methods in the operations of the Sunreso Government Hospital.

Procurement in Public Hospitals

Ondigi and Muturi (2015) did a study on the factors affecting public procurement in public health institutions. The specific objectives of the study were to establish the effect information communication technology, internal ethical issues and accountability on procurement. The study was guided by the quality management theory in procurement, procurement capability reviews assessment model and the agency theory. This being a case study, descriptive survey design was adopted. The population for the study was 183. A stratified random sample of 55 respondents forming thirty per cent sample as suggested by Kothari (2003) was used to represent the population. Data was collected from the field using questionnaires and interview guides. The collected data was analyzed using descriptive statistics. The findings revealed that there is 60% relationship between factors affecting public procurement and suppliers of hospital.

METHODOLOGY

The study adopted a descriptive research design to establish the determinants of procurement audit in public hospitals in Kenya. A research design describes how the study addresses the specific aims and objectives of the research. The target population was all supply chain related staff in the public hospitals in Nairobi City County as per December, 2017(NCC, 2018). The unit of analysis was the health public hospital in Nairobi City County. The unit of observation was the supply chain officers, managers and auditors of the public hospitals in Nairobi County. The study used questionnaire as the research instrument. The study utilized a quantitative questionnaire that was developed for generating

information on key variables of interest from the targeted respondents in this study. The study also undertook desk review of existing information about the study areas and collect qualitative data through in-depth interview from respondents who were conversant with the subject through various interactions or experiences. The study collected both qualitative and quantitative data and was analyzed using both quantitative and qualitative methods with the help of (SPSS)version The qualitative data was analyzed by the use of content analysis which helped the study in giving recommendation in line with the conclusions drawn for the whole population under study. The Multiple Regression model that aided the analysis of the variable relationships was as follows: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$, Where;

Y= Performance of Public hospitals (dependent variable);

β_0 = constant (coefficient of intercept);

X_1 = Supply Chain Risks (Independent variable);

X_2 = Inventory Control (Independent variable);

X_3 = Total Quality Management (Independent variable);

X_4 = Monitoring and Evaluation (Independent variable);

ϵ = Error term;

$\beta_1 \dots \beta_4$ = Regression coefficient of four variables.

FINDINGS

Descriptive Statistics

Supply Chain Risks

The study sought to assess the influence of supply chain risks on performance of public hospitals in Nairobi County, Kenya. This section presents findings to statements posed in this regard with responses given on a five-point likert scale (where 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5= Strongly Agree). Table 1 presented the findings. The

scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' was taken to represent a statement equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' was taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0.

Table 1 presented the findings as tabulated, a majority of respondents were found to be neutral that they identified the source of the risks early enough in order to reduce supplier bankruptcy and costs (3.345); they identified the necessary mitigation measures to reduce impact on the performance of the organization (3.334); Price volatility to improve operations in the organization (3.008); There was adequate price volatility related mechanisms on cost control (3.113); The risk avoidance was one of the mitigation strategies to

reduce the supply chain costs (2.998); The mitigation strategies were adequate to enhance reduction of costs (3.223). The study results implied that supply chain risks influence performance of public hospitals in Nairobi County, Kenya.

The study findings were in agreement with literature review by Accenture (2010) identifies these procurement risks as; a company's dependency on a supplier, unanticipated price volatility of raw material, supplier quality problems, supply chain disruptions, unanticipated price volatility through currency exchange rates, supplier bankruptcy, legal/regulatory issues and supplier dependency on a company. Procurement risk management practices are the measures taken including changes to behaviors, procedures and controls which remove procurement risks or reduce them to what is considered to be an acceptable level (Russill, 2008).

Table 1: Supply Chain Risks Statistics

Description	Mean	Std. Dev
Identify the source of the risks early enough in order to reduce supplier bankruptcy and costs	3.345	.098
Identify the necessary mitigation measures to reduce impact on the performance of the organization	3.334	.023
Price volatility to improve operations in the organization	3.008	.875
There are adequate price volatility related mechanisms on cost control	3.113	.654
The risk avoidance is one of the mitigation strategies to reduce the supply chain costs	2.998	.268
The mitigation strategies are adequate to enhance reduction of costs	3.220	.231

Inventory Management

The study sought to assess the influence of inventory management on performance of public hospitals in Nairobi County, Kenya. This section presented findings to statements posed in this regard with responses given on a five-point likert scale (where 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5= Strongly Agree). Table 2 presented the findings. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' was taken to represent a

statement equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' was taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0.

Table 2 presented the findings as tabulated, a majority of respondents were found to be neutral that there was a computerized inventory auditing procuring of materials. (3.212); There was inventory optimization strategy thus reduction of stock outs (3.098); There were internal inventory security practices to reduce operational costs (3.108); There was adequate price volatility related mechanisms on cost control (3.111); There was no overstocking to

reduce taxes paid to the inventory stored (2.988); There was adequate inventory optimization strategy to reduce obsolete products in the stores (3.005). The study results imply that inventory management influence procurement audit in public hospitals in Nairobi County, Kenya.

The study findings were in agreement with the literature review by Elahi (2010) states that internal inventory control audit if effectively managed can translate into enhanced procurement control efficiency and in return procurement performance. Inventory control audit looks at whether internal

policies and procedures have been documented and are designed to ensure compliance with organizational and industrial standards, whether internal inventory control policies and procedures are communicated to, and understood by employees implementing inventory control, whether controls are in place to effectively manage risks related to internal inventory control, whether there is an oversight body and if it meets regularly and receives key information to allow for effective monitoring of objectives, strategies and results related to internal inventory control, whether the expected inventory control results are clearly defined and monitored.

Table 2: Inventory Control Management Statistics

Description	Mean	Std. Dev
There is computerized inventory auditing procuring of materials.	3.212	.876
There is inventory optimization strategy thus reduction of stock outs	3.098	.354
There are internal inventory security practices to reduce operational costs	3.108	.329
There is no overstocking to reduce taxes paid to the inventory stored	3.111	.219
There is adequate inventory optimization strategy to reduce obsolete products in the stores	2.998	.042

Total Quality Management

The study sought to assess the influence of total quality management on performance of public hospitals in Nairobi County, Kenya. This section presents findings to statements posed in this regard with responses given on a five-point likert scale (where 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5= Strongly Agree). Table 3 presented the findings. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' was taken to represent a statement equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' was taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0.

Table 3 presented the findings as tabulated, a majority of respondents were found to be neutral that the supplies are ISO certified included in the approved list (3.212).; The organization had ensured that the supplier provides quality products (3.189); Continuous improvement was virtually guaranteed by the organization (3.098); The products supplied meets the customer expectation, acceptable or even of high quality (2.996); Quality assessment was a key factor of suppliers in the organization (3.195); The suppliers had competence and technical ability to provide high quality products (3.222). The study results implied that total quality management influence procurement audit in public hospitals in Nairobi County, Kenya. According to Khan (2010), a critical aspect of building quality into a product is to ensure that the product design meets customer expectations.

Table 3: Total Quality Management Statistics

Description	Mean	Std. Dev
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The supplies are ISO certified included in the approved list	3.212	.876
The organization has ensured that the supplier provides quality products	3.189	.564
Continuous improvement is virtually guaranteed by the organization	3.089	.359
The products supplied meets the customer expectation, acceptable or even of high quality	2.996	.489
Quality assessment is a key factor of suppliers in the organization	3.195	.529
The suppliers have competence and technical ability to provide high quality products	3.222	.908

Monitoring and Evaluation

The study sought to assess the influence of monitoring and evaluation on performance of public hospitals in Nairobi County, Kenya. This section presents findings to statements posed in this regard with responses given on a five-point likert scale (where 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5= Strongly Agree). Table 4 presented the findings. The scores of 'strongly disagree' and 'disagree' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Neutral' has been taken to represent a statement equivalent to a mean score of 2.6 to 3.4. The score of 'agree' and 'strongly agree' have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5.0.

Table 4 presented the findings as tabulated, a majority of respondents were found to be neutral

Table 4: Monitoring and Evaluation Statistics

Description	Mean	Std. Dev
The suppliers undergo performance assessments to enhance timely delivery of products	2.989	.654
There are continuous internal audits carried out to enhance reduction of costs	3.128	.432
There are continuous periodical reports carried out to enhance reduction of costs	2.998	.532
The suppliers performance assessment is meant for reduction of costs in the hospital	3.006	.785
The periodical reports facilitates the suppliers relationship	3.108	.419

Performance of Public Hospitals

On the extent to which performance of public hospitals in Nairobi county, respondents were asked to indicate the extent to which the supply chain risks, inventory management, total quality management, monitoring and evaluation influenced performance of public hospitals in Nairobi county. The data was

that the suppliers underwent performance assessments to enhance timely delivery of products (2.989).; There were continuous internal audits carried out to enhance reduction of costs (3.128); There was continuous periodical reports carried out to enhance reduction of costs (2.998); The suppliers performance assessment was meant for reduction of costs in the hospital (3.006); Quality assessment was a key factor of suppliers in the organization (2.899); The periodical reports facilitated the suppliers relationship (3.108). The study results imply that monitoring and evaluation influence procurement audit in public hospitals in Nairobi County, Kenya.

The study results showed that Madu (2013) established that those organizations which manage productivity and quality on a continuous basis are in a position to compete in increasingly competitive global marketplace.

collected from the different indicators of the variable procurement audit in public hospitals in Nairobi county which was ordinal categorical. The data was therefore presented in frequency tables with the mode being used as the appropriate measure of central tendency. The results were presented in Table 5.

The first indicator for the dependent variable required to know what the performance of public hospitals in Nairobi County on the level of cost reduction was, 0% of the respondents had 0-10%, 3% had 11-20%, 11% had 21-30%, 17% had 31-40%, 69% had over 50%. The modal class is of the respondents who had over 50% level of cost reduction in performance of public hospitals in Nairobi County. The mode was found to be 5 which implied that on average the performance of public hospitals in Nairobi county level of cost reduction was over 50%. When the respondents were asked what the level of increase in timely deliveries of procured goods and services in the hospitals was, 3% of the respondents 0-10%, 3% had 11-20%, 14% had 21-30%, 26% had 31-50%, 49% had over 50%. The modal class is of the respondents who had over 50% level of increase in timely deliveries of procured goods and services in the hospitals. The mode was found to be 5 which

implied that on average the level of increase in timely deliveries of procured goods and services in the hospitals is over 50%.

Finally, the respondents were asked what the level of increase in order fulfillment in the hospitals offered was, 0% of the respondents 0-10%, 3% had 11-20%, 3% had 21-30%, 34% had 31-50%, 60% had over 50%. The modal class is of the respondents who had over 50% on the order fulfillment. The mode was found to be 5 which imply that on average the level of order fulfillment in the hospitals is over 50%. Finally, the respondents were asked what the level of reduction of stock out in hospitals was, 0% of the respondents 0-10%, 3% had 11-20%, 20% had 21-30%, 43% had 31-50%, 34% had over 50%. The modal class is of the respondents who had between 31-50% reductions of stock out levels in hospitals. The mode was found to be 4 which implied that on average level of reduction of stock out in the hospitals is between 31-50%.

Table 5: Performance of Public Hospitals

Statement	0%- 10%	11%- 20%	20%- 30%	31%- 50%	Over 50%	Mode
What is the level of cost reduction in organization?	0	3	11	17	69	5
What is the level of increase in timely deliveries of procured goods and services in the organization?	3	3	14	26	49	5
What is the level of increase in customer satisfaction in the organization?	0	3	3	34	60	5
What is the level of reduction of stock out levels in the organization?	0	3	20	43	34	4

Inferential Analysis

Table 6: Correlation Matrix for Independent and Dependent Variables

		PPH	SCR	TQM	M & E	PPH
Performance of Public Hospitals	Pearson Correlation	1				
	Sig.(2-tailed)					
Supply Chain Risks	N					
	Pearson Correlation	.429	1			
	Sig.(2-tailed)	.000				
	N	120				

Inventory Management	Pearson Correlation	.501	.324	1		
	Sig.(2-tailed)	.000	.003			
Total Quality Management	N	120	120			
	Pearson Correlation	.787	.216		1	
Monitoring & Evaluation	Sig.(2-tailed)	.000	.004	.023		
	N	120	120	120		
Monitoring & Evaluation	Pearson Correlation	.841	.123	134	.223	1
	Sig.(2-tailed)	.000	.004	.006	.008	
	N	120	120	120	120	

*. Correlation is only significant at the 0.05 level (2-tailed)

Multiple Regression Analysis

Table 7: Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
	.871	.758	.689	.001

Table 8: ANOVA

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	72.954	4	18.238	90.064	.001
Residual	23.292	115	.2025		
Total	96.246	119			

NB: F-critical Value = 21.765;

Table 8: Regression Coefficient Results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	B		
(Constant)	16.980	2.462		6.897	.000
Supply Chain Risks	.876	.137	.665	6.387	.000
Inventory Control Management	.774	.153	.654	5.032	.002
Total quality management	.762	.178	.455	4.276	.004
Monitoring & Evaluation	.696	.180	.332	3.876	.005

CONCLUSIONS

The study concluded that supply chain risks influence performance of public hospitals in Nairobi County, Kenya. The regression coefficients of the study showed that supply chain risks had a significant positive influence on procurement audit in public hospitals in Kenya. This implied that increasing levels of supply chain risks would increase the levels of procurement audit in public hospitals in Kenya. This

shows that supply chain risks has a strong positive influence on performance of public hospitals in Nairobi County, Kenya.

In addition, the study concluded that inventory control management influence performance of public hospitals in Nairobi County, Kenya. The regression coefficients of the study showed that inventory control management had a significant positive influence on performance of public hospitals in

Nairobi County, Kenya. This implied that increasing levels of inventory control management would increase the levels of performance of public hospitals in Nairobi County, Kenya. This showed that inventory control management had a strong positive influence on performance of public hospitals in Nairobi County, Kenya.

Further, the study concluded that total quality management influence performance of public hospitals in Nairobi County, Kenya. The regression coefficients of the study showed that total quality management had a significant positive influence on performance of public hospitals in Nairobi County, Kenya. This implied that increasing levels of total quality management would increase the levels of performance of public hospitals in Nairobi County, Kenya. This shows that total quality management has a strong positive influence on performance of public hospitals in Nairobi County, Kenya.

Finally, the study concluded that monitoring and evaluation influence performance of public hospitals in Nairobi County, Kenya. The regression coefficients of the study showed that monitoring and evaluation has a significant positive influence on performance of public hospitals in Nairobi County, Kenya. This implied that increasing levels of monitoring and evaluation would increase the levels of performance of public hospitals in Nairobi County, Kenya. This shows that monitoring and evaluation has a strong positive influence on performance of public hospitals in Nairobi County, Kenya.

RECOMMENDATIONS

The study recommended that there was need to identify the source of the risks early enough in order to reduce supplier bankruptcy and costs. The management of the hospitals should have the necessary mitigation measures to reduce impact on the procurement performance. The price volatility can also affect operations in the hospitals and

mitigation strategies should be adequate to enhance reduction of costs.

The study recommended that there was need to enhance a computerized inventory auditing procuring of materials for reduction of stock outs. There is need to have internal inventory security practices to reduce operational costs, reduce overstocking and reduce obsolete products in the stores.

The study recommended that there was need to have supplies that are ISO certified included in the approved list. The hospitals should ensure that the supplier provides quality products and continuous improvement is virtually guaranteed by the organization. The products supplied should meet the customer expectation, acceptable or even of high quality. Quality assessment was a key factor of suppliers in the organization. There is need to have suppliers that have competence and technical ability to provide high quality products.

There was need for the hospitals to have the suppliers undergo performance assessments to enhance timely delivery of products. There should be continuous internal audits carried out to enhance reduction of costs. There should be continuous periodical reports being carried out to enhance reduction of costs. The periodical reports can be used to facilitate the suppliers' relationship to enhance procurement audit in the public hospitals.

Areas for Further Research

The study was a milestone for further research in the field of public procurement in public hospitals in Kenya. The findings demonstrated the important factors to enhancement of procurement audit to include; supply chain risks, inventory control management, total quality management, monitoring and evaluation. The current study should therefore be expanded further in future in order to determine the effect of procurement legal framework on public procurement in public hospitals in Kenya. There is

need to undertake similar research in other organization and private sector in order to establish government institutions and public sector whether the explored factors can be generalized.

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