INFLUENCE OF INVENTORY MANAGEMENT PRACTICES ON PERFORMANCE OF PROCUREMENT FUNCTION IN HEALTH INSTITUTIONS IN KENYA. A SURVEY OF SELECTED PUBLIC HEALTH INSTITUTIONS IN WESTERN KENYA

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Abstract: *A number of organizations collapse due to poor planning and corruption which drives firms to close down their operations. This can be stopped if proper inventory management is practiced and the technique thoroughly utilized for the benefit of the firm. Humanitarian Organizations ought to train their staff who engage in procurement since systems cannot work by themselves. Once the organization has qualified personnel who understand how to apply prudent inventory management techniques, the organization's supply chain performance is achieved.*

Importance: Organizations use inventory control not only to ensure materials and products timely availability but also to ensure superior customer service and to achieve competitive advantage which in return promotes the procurement performance of an institution. This study sought to establish influence of inventory management practices on procurement performance of public health institutions taking a survey of public health institutions in Western Kenya. The point of the study is to provide adequate information of health organizations in Kenya which can be used to improve on their service delivery by managing inventory adequately.

Scope: The study was carried out in selected health institutions in western Kenya. They included Kisii Teaching and Referral Hospital, Bungoma Level 5 Hospital, Russia Kisumu Hospital, Migori Level 5 Hospital, Homabay Level 5 Hospital in a period of one month from October 15th to November 15th. The study was guided by three theories; Just in Time theory, vendor management theory and activity cost analysis theory.

Findings: The study revealed that automated systems coordinates inventory management practices, automated systems enables better demand management and reduces the storage space. The study recommends that there should be an increase in Health sector now that it among the devolved functions. Such funds will enhance faster delivery of quality, reliable and timely patients among the hospitals in Western Kenya. Many hospitals will be able to invest in technology with an aim to enhance timely, reliable and quality service delivery. The County Government should ensure that all public hospitals are at a better condition through maintenance and servicing of structures and equipment's.

Keywords: *inventory management practices, procurement function, procurement performance*

Introduction

Inventory management aim is holding inventories at the most reduced conceivable cost, given the goals to guarantee continuous supplies for progressing operations. Management needs to discover a tradeoff between the distinctive cost parts when deciding for example, the inventory holding costs, cost of providing stock and expenses coming about because of lacking inventories. (Callahan, 2009).

Inventory management plays a crucial role in inventory of business firms in enhancing effectiveness and efficiency. It has been of sympathy toward numerous years to business firms around the world. Organizations in their operations have been constantly in hunt down wellsprings of reasonable upper hand. In this way, with a specific end goal to enhance their aggressiveness there is requirement for business endeavors to grasp powerful practices in overseeing stock (Rajeev, 2008).

The increasing magnitude and complexity of global emergency operations relief imposes a critical need for efficient and effective humanitarian management of process of supply chain (Beamon and Kotleba 2006). Unusual constraints and unpredictable demand in large-scale emergencies gives physical supply chains a challenge. Current emergency approaches are frequently surpassed by the non-governmental organizations need for logistics.

Service delivery is a business aspect that defines the interaction between clients and providers where service is offered by the providers, and the clients either loses value or finds value as a result. Good service delivery provides clients with value increase.

The measurement for measuring service delivery incorporates; appeal Coverage which includes particular two measurements, percent of items delivered and percent of appeal coverage. The percent of items delivered metric metric is the rate of the things really been conveyed nearby out of aggregate number of things were asked for operation. The percent of appeal coverage metric is the amount of swore things by contributors out of the aggregate number of things asked for the operation. Its utilization is to show how well and rapidly the association is discovering vows for the asked for things. The sign of how well the association is meeting its allure for an operation as far as both conveying things and discovering benefactors is shown by the two measurements together.

Profile of Public Hospitals in Western Kenya

The Kenya's health system is one of the pillars of vision 2030. The key role being to maintain skilled man power and providing affordable and quality health services. To achieve this pillar, the health sector has ensured that the procurement function has procured the required health products and provided with appropriate technology that facilitates efficient and effective service delivery. According to the Kenya Health policy (2014-2030) it stated that the Kenyan Government under the Ministry of Health works with Public Hospitals to facilitate operations and service delivery to the citizens. According to the Kenyan Constitution (2010) the Mandate of the Ministry of Health is to formulate policies, set standards, provide health services, create an enabling environment and regulate the provision of health service delivery. The County Governments in Kenya are given the mandate by the constitution to provide health services, pharmacies, ambulance services, promotion of health care, licensing and control of the undertaking the deal with selling of food stuffs to the public, cemeteries, funeral parlors and waste management and disposal.

This study targeted selected public hospitals in western Kenya which include; - Kisii Level 5 hospital, Bungoma level 5 hospital, Russia Hospital, Migorin Level 5 and Homabay level 5 hospital. This is because the stated hospitals provide specialized medical services and they have the mandate to work their own

procurement, supply chain and inventory management. According to the Health policy it is stated that these public Health facilities maintain their inventory management and other supply chain activities which is usually in line with respect to Public Procurement and Disposal Act (2005) and the subsequent regulations (2006) which assist in provision of quality services which are easily accessible, timely and affordable to the public. (Gunasekaran and Kobu, 2007).

Statement of the Problem

A number of organizations collapse due to poor planning and corruption which drives firms to close down their operations. This can be stopped if proper inventory management is practiced and the technique thoroughly utilized for the benefit of the firm. Gonzalez and Gonzalez (2010) noted that management and staff have minimal knowledge on how to apply the inventory management systems which negates the success of an organization. Organizations use inventory control not only to ensure materials and products timely availability but also to ensure superior customer service and to achieve competitive advantage which in return promotes the procurement performance of an institution.

The procurement departments of health institutions are responsible of providing the necessary goods and services to all of their clients and individuals by keeping the stock levels at most economical costs possible. There has been an outcry from the clients that institutions both public and private do not meet the stipulated patient service levels. The effectiveness of internal stock control is directly measurable by how successful an institution is providing services to its clients. There is some evidence of suppliers who cannot meet delivery schedules and thus cause delivery uncertainty thus negatively impacting procurement performance. It is therefore important to expand knowledge on inventory management practices, their adoption and benefits to institutions. While some studies have conducted to relate inventory control practices with various aspects of organizational performance such as financial, economic and operational performance, most of such studies had focused on external inventory control practices. For instance, Ogbo studied the impact of effective inventory control management on organizational performance. Very limited study has been done on inventory management systems. It is therefore evident that knowledge gap exists on the effect of inventory management system on procurement performance. In this view, the study proposed to survey the effect of inventory management practices on the procurement performance of Health institutions in Kenya.

Research Objectives

The general objective of the study was to find out the effects of inventory management practices on procurement performance of public health institutions in western Kenya. The study was guided by the following specific objectives;

    (i)   To find out the effect of bin cards on procurement performance of selected public health institutions in western Kenya.

    (ii)   To establish the effect of automated systems on procurement performance in selected public health institutions in western Kenya.

    (iii)   To find out the effect of ABC on procurement performance in selected public health institutions in western Kenya

Research Methodology

The study adopted a descriptive survey research design. The targeted population was 32 respondents from the 5 health institutions. Purposive sample selection was used thus a sample size of 32 respondents due to the

small, manageable size of the total population, thus the sample size is same as the target population. Stratified random sampling and Purposive sampling was used to select the sample because the population is heterogeneous. The main instrument of data collection was a structured questionnaire.

Research Findings And Discussion

Regression Analysis

Table 1: Model Presentation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.8496a	.7218	.7172	.24678

Adjusted R^2 which is termed as the coefficient of determination tells us how Inventory management practices on healthcare facilities varied with bin cards, ABC analysis and automated systems. According to the findings in the table above, the value of adjusted R^2 is 0.7172. This implied that there was a variation of 71.72% of Inventory management practices on healthcare facilities with bin cards, ABC Analysis and automated systems at a confidence level of 95%. R is the correlation coefficient which showed that there was a strong correlation between the study variable as shown by the correlation coefficient of 0.8496. These findings are concur with a study done by Kitheka (2012) who indicated that automated systems were not well implemented in public hospitals in Nairobi County.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.744	4	0.372	2.88	.028b
	Residual	23.091	62	0.129		
	Total	23.835	67			

From the ANOVA statistics below the processed data which is the population parameters, had a significance level of 2.8% which showed that the data was ideal for making conclusions on the population's parameter as the value of significance (p-value) was less than 5%. The calculated was greater than the critical value (2.88>1.984) an indication that bin cards, ABC Analysis and automated systems significantly influence inventory management practices on healthcare facilities. The significance value was less than 0.05 an indication that the model was significant. The researcher conducted a multiple regression analysis so as to determine the relationship between inventory management practices on healthcare facilities and the four variables. As per the SPSS generated table 3, the equation ($Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$) becomes: Y= 0.233+ 0.142X1+ 0.643X2+ 0.232X3

Where Y is the dependent variable (inventory management practices on healthcare facilities), X1 is the bin cards, X2 is ABC Analysis, X3 is Automated systems variable.

Table 3: Coefficients

Model		Unstandardized coefficients		Standardized coefficients		
		B	Std. Error	Beta	t	Sig
1	(Constant)	.233	.172		1.847	.000
	The use of bin cards	.142	.082	.132	1.739	.034
	ABC Analysis	.643	.082	.586	7.835	.000
	Automated Systems	.232	.083	.246	2.806	.006

According to the regression equation established, taking all factors into account the use of bin cards, ABC Analysis and automated systems constant at zero, inventory management practices on healthcare facilities will be 0.233. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in the use of bin cards will lead to a 0.142 increase in inventory management practices on healthcare facilities; a unit increase in ABC Analysis lead to a 0.643 increase in inventory management on healthcare facilities, a unit increase in automated systems variable will lead to a 0.232 increase in inventory management on healthcare facilities, a unit increase in the use of bin cards will lead to a 0.162 increase in inventory management on healthcare facilities. This infers that ABC Analysis contributes more to the organizational Performance followed by Risk monitoring. The P value show the level of significance of each variable, from the p-value of all variable were less than 0.05 this is an indication that they were statistically significant. The study further revealed that there was positive relationship between the use of bin cards, ABC Analysis, automated systems and inventory management practices on healthcare facilities. This implied that the use of bin cards, ABC Analysis and automated systems was the order of importance in as far as inventory management practices on healthcare facilities is concerned. These study findings were found to be consistent with a study conducted by Kitheka (2012) whose co-efficient findings concluded that there was a statistical significant relationship between bin cards, inventory management automation and performance of Supermarkets in Kenya.

Summary of the Findings

The extent to which bin cards affect procurement performance in Public Hospitals.

The study sought to find out the effect of bin cards on procurement performance in selected public hospitals. The study findings revealed that bin cards enhanced accuracy in inventory management, better control of inventory management and enhancing efficiency in inventory management. According to Lysons & Gilingham (2010), indicated that bin cards provides connectivity between procurement section and stores/ warehouse hence enhancing efficiency.

The extent to which ABC Analysis affect Procurement Performance in Public Hospitals.

The study sought to find out the effect of ABC Analysis on procurement performance in selected public hospitals. This method reduces the costs involved in inventory management in various hospitals, reduces wastes of inventory in various hospitals, determines the levels of inventory to be held in a given hospital and providing clear forecastation.

The effect of Automated Systems in procurement performance in Public Hospitals.

The study sought to find out the effect of automated systems on procurement performance in selected public hospitals. The study revealed that automated systems coordinates inventory management practices, automated systems enables better demand management and reduces the storage space. According to Barren (2004) he

established that automated systems highly supported efficient and effective workflow and information flow which is continuous and consistent from both procurement and the warehouse.

Conclusion

The study established that bin cards, automated systems and automated systems affected inventory management practices to a great extent as indicated below;-

The Effect of Bincards on Procurement Performance in selected Public Hospitals in Western Kenya

The use of bin cards provides better control of inventory hence increasing efficiency in inventory management. The study concluded that bin cards enhanced accuracy in inventory management, better control of inventory management and enhancing efficiency in inventory management. According to Lysons & Gilingham (2010), indicated that bin cards provides connectivity between procurement section and stores/ warehouse hence enhancing efficiency.

The Effect of ABC Analysis on Procurement Performance in Selected Public Hospitals in Western Kenya

The study concludes that the use ABC analysis facilitates shorter lead times for inventory. The use of automated systems improved service delivery leading to customer and employee satisfaction hence enhancing achieving organization objectives and goals. This conclusion is supported by the study done by Smarus (2008) who concluded that organization items cannot be given equal attention, it is therefore essential to determine the items or group of items that deserve the maximum control. One of the most important considerations for control is the value of the annual consumption of inventory items. It has been observed that a small number of inventory items consume a very large share of inventory consumption during the year. Further a little larger number of inventory items covers a moderate share of annual inventory consumption. This brought out the concept of ABC analysis.

The Effect of Automated Systems on Procurement Performance in Selected Public Hospitals in Western Kenya

The study concludes that automated systems enhanced transparency, accuracy and reliability in the inventory management practices in public hospitals. This study concurs with the study done by Ken et al (2010) which highlighted that in order to effectively automate inventory management, several systems have been developed so as to ensure that firms, supermarkets included, hold the right quantities of stock so as to strike a balance between the costs involved and customer satisfaction.

Recommendations of the Study

The study recommends that there should be an increase in Health sector now that it among the devolved functions. Such funds will enhance faster delivery of quality, reliable and timely patients among the hospitals in Western Kenya. Many hospitals will be able to invest in technology with an aim to enhance timely, reliable and quality service delivery. The Kenyan Government as well should conduct audit to ensure that the hospital facilities access to health services and proper capacity management in health services. This will reduce the costs and improve service delivery in the health facilities.

The County Government should ensure that all public hospitals are at a better condition through maintenance and servicing of structures and equipment's. This will improve the quality of services offered. Despite that the health sector has been devolved some parts of the country are not yet to benefit from this package therefore

both the national government and county governments' should work together and improve the infrastructure in local areas. This will enhance access to health services.

Some of the supply chain employee are not updated on the application on the some of the automated systems hence affecting service delivery. Therefore, training of such employees leads to effective inventory management hence cutting costs, reducing wastes and improving efficiency and effectiveness in Public Hospitals in Western Kenya.

Suggestions for further Study

A similar study should also be undertaken in other parts of the country to establish the extent to which inventory management practices and their influence in the performance of public hospitals. This will enhance better comparisons that will result in drawing of soundful conclusions which will be based on concrete facts. Another study should be undertaken as well to establish the effectiveness of inventory management practices implementation in private hospitals. This will give room for leveraging and adopting mechanisms that will enable improvements both in the private sector and public sector in the long run.

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