

**FACTORS AFFECTING EFFECTIVE INVENTORY MANAGEMENT IN  
HEALTHCARE FACILITIES SERVICE DELIVERY IN KENYA: A CASE STUDY OF  
KENYATTA NATIONAL HOSPITAL (KNH) NAIROBI, KENYA**

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**ABSTRACT**

Managing inventory in an effective manner has a positive impact on the business since it allows business to meet or exceed customers' expectations of product availability with the amount of each item that will maximize their company's net profit or minimize its total inventory investment (Schieber & Akiko, 2010). The study was seeking to find out factors affecting effective inventory management in public health facilities in Kenya with the aim of making recommendations on how to improve such effectiveness. The specific objectives was to find out if enterprise resource planning, Just in Time, Economic order quantity and material requirement planning are the factors affecting Effective inventory management on healthcare facilities in Kenya. Kenyatta National Hospital (KNH) as not implemented advanced inventory management systems which has disadvantaged it on responsiveness to cases of stock outs, poor records, high stock costs, poor quality services and reduced efficiencies. The literature review appreciated the scholarly work of past studies and theories. The beneficiaries of the study are future researchers, hospitals, top management and employees of Healthcare Sector. Descriptive research design was used for the study and questionnaires were used as the data collection instrument, Slovin's formula was used to pick a sample of 75 respondents from a target population of 300 staff involved in inventory management in KNH. In collecting the data, open-ended and closed-ended questions will be used. The quantitative data generated was analyzed by use of descriptive statistics feature in SPSS version 20.0 to generate information which was presented using tables, charts, frequencies and percentages and inferential statistics to make predictions or inferences about a population from observations and analyses of a sample. The regression model was used to show the relationship between the dependent variable and the independent variables. The study concluded that ERP implementation enhance accuracy in inventory management, provides speed in inventory management, reduce the cost managing inventory in public Hospitals, helps with proper controls in inventory management and finally provides efficiency in inventory

management. The study concluded that of JIT helps to match demand and supply, provides short lead times and short time deliveries for inventory.

*Keywords: Effective Inventory Management in Healthcare Facilities Service Delivery.*

## **Introduction**

The past 15 to 20 years has seen an increase in research focusing on operational issues relating to supply chain management. Most of the research has been related to multi-echelon inventory models (Burns, 2009). Effective inventory management is the result of outstanding inventory control and inventory management. Effective inventory management allows a distributor to meet or exceed customers' expectations of product availability by maintaining the amount of each item that will also maximize their company's net profit. The main goal of inventory management research is to reduce the cost of healthcare without sacrificing services typically by improving the efficiency or productivity of the systems (Axelsson, 2008). Managing inventory in an effective manner has a positive impact on the business. This is why it is important to explore and analyze the following four methods of controlling inventory in order to reach an informed decision about which one best suits your business (Cook, 2007).

In 2010, health-care expenditures in the United States reached \$2.6 trillion, nearly 10 times the \$256 billion spent in 1980. Hospital care and clinical services account for roughly half of the nation's health expenditures. According to (Burns & Pauly, 2009), supply chain costs may account for as much as 40 percent of the cost of providing care, and it is estimated that if demand and inventory were better managed, cost savings could range from 6 percent to 13.5 percent of total health-care costs.

## **Effective Inventory Management**

Inventory management systems obtain and move supplies and equipment to places where they are needed in a timely manner and at an optimum cost. Supplies and equipment usually cannot go directly from their source to the end user. They frequently must be held in the warehouse at some points along the way. In view of this warehouse of supplies maintained and inventory of supplies and equipment are held at all levels in the Ghana Health Service (GHS). The inventory management system recognizes that staffs at all levels have a wide range of responsibilities (USAID, 2013). Access to essential medicines and supplies is fundamental to the good performance of the Healthcare facility and is commonly cited as the most important element of quality by healthcare consumers and, the absence of medicines and supplies is a key factor in the underuse of government health services. In Ghana health system all commodities procured at the National level are stored at the Central Medical Stores (CMS). The Tertiary Hospitals, Regional Medical Stores (RMS) and even private sector suppliers then get their supplies from the Central Medical Stores (WHO, 2012).

Regional Medical Stores, Hospitals and other facilities in the various regions also procure from the two sources where the regional level procurements are done, but these are done by first visiting the Central Medical Stores and Regional Medical Stores respectively, and obtain a non-availability certificate when the commodities are out of stock which allows them to go ahead and

do their purchase outside the CMSs and RMSs. Therefore, in the Ghana Health Service (GHS), after the commodities have been procured, they are transported and stored in a number of intermediate facilities at different levels before reaching the health facilities which enables clients obtain the services they were seeking (Goodsell, 2008). The Government of Kenya in recent years has been implementing numerous health sector reforms with health systems strengthening at the core of the reform agenda through the support of Kenya Medical Supplies Agency. This work includes supporting the national government to formulate key policies and guidelines while assisting counties to better plan, manage and finance quality health services to meet local needs (Duclos, 2008). KEMSA as offered improved stock management through computer software, and infrastructure for temperature and humidity controls, and hiring of skilled personnel on the area of supply Chain.

However, it has been criticized as being as taking the role of a Stockist, rather than operating according to the 'just-in-time' (JIT) principle (Duclos, 2008). USAID has indicated that adequate storage and inventory control is a challenge, many drugs expire before they can be used, or they are they reach the service delivery point, which might be a health facility, laboratory, or community health worker (USAID, 2006). Kenyatta National Hospital (KNH) is the largest referral hospital in East and Central Africa. Founded in 1901 with a bed capacity of 40 as the Native Civil hospital, it was renamed the King George VI in 1952. Kenyatta National Hospital has a capacity of 1800 beds and has over 6000 staff members. According to 2013-2014 budgets Kenyatta national hospital was allocated a budget of 1.2 billion Kenya Shillings of which more than 700 million was towards the purchase of medical Equipment, Pharmaceutical and Surgical materials (GOK, 2013). Due to the nature and costs of inventory that the hospital holds concerns have been how effective inventories are managed.

### **Statement of the Problem**

The main objective of effective inventory management is to maintain inventory at appropriate level and at the lowest possible cost to ensure uninterrupted supplies for ongoing operations. When making decisions on inventory, management has to find a compromise between the different cost components such as costs of supplying inventory, inventory-holding costs resulting from insufficient inventories (Callahan, 2009).

Akiko, (2012), observed that despite the availability of MRP, JIT, EOQ and ERP, KNH has not implemented advanced inventory management systems which make the hospital less responsive to cases of stock out. The hospital lacks an effective warehousing system to store drugs and hospital equipment needed by the patients. Connor, (2013) also observed that efforts were being made by the Kenya's Ministry of Health and its partners to provide the hospital with health commodities (medicines and medical logistics) to meet the requirements of clients, these commodities are often wrongly managed . Stock out of crucial pharmaceuticals in the hospital has led to hasty buying. Instances of inaccurate recording of data information, is evident where stock control ledgers and stock balances have discrepancy which is a good indication ineffective inventory Management system (GOK, 2013). Schreibfeder, (2010) agrees that by developing and using a comprehensive set of tools, such to closely monitor the performance of inventory, healthcare sector can achieve goals more efficiently. In Michael (2011) study he agrees that efficient business material levels are established with as much care as production levels, a

careless choice of the material level can easily precipitate production slow down caused by lack of badly needed materials. Ndetto (2010) also indicates that inventory management practices in public sector are not effective, The management of inventory is left to operate in general inexplicit guidelines in the legal frame work dispersed in various sections covering other activities( Makena,2010).Also Muhati (2010) observed that best practices like economic order quantity Just in time, and quick replenishment are generally lacking. Therefore this leads to the question what are the factors affecting effective inventory management in healthcare facilities in Kenya a study of KNH.

### **Literature Review**

Brackus (2010), study argue that material control is concerned with two parts of Accounting; physical property and value of the property. Material control as one of the policy procedures employed in the management of materials and these include internal checks as in continuous, period, spot and .or any other type of control established by management to carry out activities aimed at ensuring an effective and efficient material management procedure. Other forms of material control include ensuring high security of the store house and stock yard, good custody of keys, limiting access to premises and making of materials as in coding, to minimize theft, segregation of prescribed item.

A study by Pandey (2005), describes accounting as the use of statistical and accounting measures to maintain knowledge of the quantities of Stores present in each of a facility. It includes the use of physical inventories and materials balances to verify the presence of materials or to detect the loss of material after it occurs, in particular, through theft by one or more insiders. Brackus (2010), study also noted that Accounting material control is concerned with the safe guarding the enterprises property in form of materials by properly recording the receipts, consumption of materials and the balance in storage. Williamson, (2005), examines application of various materials control techniques on the fact that material control procedures vary in complexity and accuracy. According to a study by Kotabo (2012), though there are many systems for control of stock, both manual and automatic, there are really two basic approaches on which these systems are based. Recording method which may take place either when materials fall to a pre-determined level or according to eh situation discovered when levels are received on a periodic regular basis. The action level method of controlling stock by quality which involves fixing stock levels for each commodity which is recorded in the stock system . Under the action level methods of provision, commodities are ordered at unspecified intervals as and when ordering levels are related. This means that orders can only be placed usually for one item at time.

Nyanga (2010), study indicate that in any efficient business material levels are established with as much care as production levels, a careless choice of the material level can easily precipitate production slow down caused by lack of badly needed materials. He continues that as a result of tighter controls over materials , items and meticulous records keeping, the cost of maintaining adequate levels of materials is reduced with adverse effects on the continuity of operations. It is paramount to note that there is great need for stocks taking to keep track of physical stock and to cross check the accuracy of stock records. Stoke taking is the complete process of verifying the physical quantity of the entire range of materials (items) held at a given point in time (Robert, 2004). The study found out that the reasons for physical

stock taking are to verify the accuracy of stock records that support the value shown in the balance sheet by physical verification of the item. This may even disclose frauds, theft or loss and any weakness in the system of custody and control of stock. Van (2004), asserted that the size and number of surpluses and deficiencies revealed by stock taking is a good criteria to assess the efficiency of store keeping methods and material control procedures. Peter (2013) analyzed inventory and procurement practices in hospitals in Kenya and evaluated the potential for cost savings. They applied an advanced inventory management systems and found out that these systems forecasts demand better than traditional methods of ordering and replenishing (Peter *et al*, 2013). Because of inability to predict demand, procurement and supply-chain managers in hospitals struggle with how many items to order. They observed that traditional methods of modeling and forecasting are not sufficient; implementation of an advanced forecasting techniques or Models such as ERP, MRP and EOQ showed much greater efficiency.

According to Olubodun (2005), study, the Equipment Management Process Maturity Model (EMPM) is a model that can be used by any contractor regardless of the size of firm. It is meant to promote good practice in materials management with the ultimate goal of combining the advantages of centralization and decentralization in material acquisition process to maximum effect. In order to achieve this, the model seeks to increase the involvement of site personnel in the flow materials to the site. The system synchronizes material scheduling with planning and control of the project. The main sources of information for feedback and control of materials are requisitions, bids and quotations, purchase order and sub-contracts, shipping and documents, and invoices. According to Main (2010), for project involving the large scale use of critical resources, the owner may initiate the procurement procedure even before the selection of a constructor in order to avoid shortages and delays. Under ordinary circumstances, the constructor will handle the procurement to shop for materials with the best prices /performance process is unavoidable, but it should be minimized to insure timely delivery of materials in good condition. Main (2010), further describes the materials for delivery to and from a construction site into three broadly classification; bulk materials, Standard off-the-shelf materials, and Fabricated member or units. The process of delivery including transportation, field storage and installation will be different for these classes of materials (Adèr, 2008). The equipment needed to handle and haul these classes of materials will also be different.

Inventory management involves the coordinating of materials availability, controlling, utilization and procuring of materials (Kotabo, 2012). Inventory management is the direction of activities with the purpose of getting the right inventory in the right place at the right time and in the right quantity and it's directly linked to production function of any organization which implies that the inventory management system operated will affect the profitability of an organization directly and indirectly (Brackus, 2010). Inventories are the stock of raw materials, work in progress, finished goods and supplies held by a business organization to facilitate operations in the production process, (Pandey, 2005). Also if the company fails to manage its inventory efficiently, it is likely to face profitability problems (Robert 2004). The goal of inventory management therefore is to provide the inventories required to sustain operations at minimum costs (Main, 2010).

According to Nyanga (2010), Inventory control helps organization to establish the proper inventory levels through the economic order quantity; and to keep track of this level through inventory control system which many are manual such as two bin method and red line method, or computerized inventory control systems. Proper inventory controls also require an organization to undertake stocking and use appropriate method to value stock so as not to under

or over state profits (Kotabo, 2012). Companies incur substantial costs in the procurement and maintenance of inventories, which costs form a large portion of production costs (Pandey 2005). Inventory costs include: carrying costs such as storage and insurance; ordering costs like transporting and store placement; and stock out costs like redundancy and loss of sales (Brackus 2010). A company cannot achieve an outstanding performance without proper and efficient control of materials. Materials are as much as cash itself and any theft, wastage and excessive use of materials are of immediate financial loss and leads to poor performance of a company (Kotabo, 2012). Olubodum (2005), noted that Material control involved a systematic control and regulation of purchase, storage and usage of materials in such a way to maintain an even flow.

**Research Methodology**

The study used a descriptive research design because the objective was to provide a systematic description that will be as factual and accurate as possible. The target population was obtained from Kenyatta National Hospital at Upper hill area. According to the human resource department at KNH (2014), there are approximately 4700 employees, who are permanently employed. Top management staff, Middle management staff and junior staffs were targeted for this study. Questionnaires were used in gathering information from the employees regarding impact of inventory management on service delivery on healthcare facilities in Kenya. A Statistical Package for Social Sciences (SPSS) version 20.0 was used for data analysis. Descriptive statistics were computed for all the variables to ensure quality of data. The results of the sample were then be generalized to the study on impact of inventory management on service delivery on healthcare facilities in Kenya.

**Results and Findings**

**Regression Analysis**

**Table 4. 1: Model Summary**

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

**Source, Author (2014)**

Adjusted R<sup>2</sup> which is termed as the coefficient of determination tells us how Inventory management on healthcare facilities varied with enterprise resource planning, just in time stocking, economic order quantity model and material requirement planning (MRP). According to the findings in the table above, the value of adjusted R<sup>2</sup> is 0.7172. This implied that there was a variation of 71.72% of Inventory management on healthcare facilities with enterprise resource planning, just in time stocking, economic order quantity model and material requirement planning (MRP) 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.

**Table 4. 2: ANOVA**

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

**Source, Author (2014)**

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 enterprise resource planning, just in time stocking, economic order quantity model and material requirement planning (MRP) significantly influence inventory management on healthcare facilities. The significance value was less than 0.05 an indication that the model was significant.

**Table 4.3: Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.233	.172		1.847	.000
	Enterprise resource planning	.142	.082	.132	1.739	.034
	Just in time stocking	.643	.082	.586	7.835	.000
	Economic order quantity model	.232	.083	.246	2.806	.006
	Material requirement planning (MRP)	.162	.063	.223	2.583	.011

The researcher conducted a multiple regression analysis so as to determine the relationship between inventory management on healthcare facilities and the four variables. As per the SPSS generated table 4.9, the equation ( $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$ ) becomes:

$$Y = 0.233 + 0.142X_1 + 0.643X_2 + 0.232X_3 + 0.162X_4$$

Where Y is the dependent variable (inventory management on healthcare facilities), X<sub>1</sub> is the Enterprise resource planning variable, X<sub>2</sub> is Just in time stocking, X<sub>3</sub> is Economic order quantity model variable and X<sub>4</sub> is Material requirement planning (MRP) variable.

According to the regression equation established, taking all factors into account (enterprise resource planning, just in time stocking, economic order quantity model and material requirement planning (MRP) constant at zero, inventory management 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 Enterprise resource planning will lead to a 0.142 increase in inventory management on healthcare facilities; a unit increase in Just in time stocking lead to a 0.643 increase in inventory management on healthcare facilities, a unit increase in Economic order quantity model variable will lead to a 0.232 increase in inventory management on healthcare facilities, a unit increase in material requirement planning (MRP) will lead to a 0.162 increase in

inventory management on healthcare facilities. This infers that Just in time stocking contributes more to the Financial 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 enterprise resource planning, just in time stocking, economic order quantity model, material requirement planning (MRP) and inventory management on healthcare facilities. This implied that just in time stocking, economic order quantity model, material requirement planning (MRP) and enterprise resource planning was the order of importance in as far as inventory management on healthcare facilities is concerned.

### **Summary of the Findings**

#### **Enterprise Resource Planning**

The study established that enterprise resource planning affects Inventory management on healthcare facilities in KNH to a great extent, the study also revealed that ERP implementation enhance accuracy in inventory management, provides speed in inventory management, reduce the cost managing inventory in public Hospitals, helps with proper controls in inventory management and finally provides efficiency in inventory management. According to Rikhardsson *et al.*, (2004), ERP systems have connectivity (communications to plant floor equipment) as part of their product offering (Lysons & Gillingham, 2010), this requires that the vendors offer specific support for the plant floor equipment their customers operate. The benefit of staging is that ERP vendors do not need to master the complexities of equipment integration. Connectivity becomes the responsibility of the systems integrator.

#### **Just in Time stocking**

The study established that just in time stocking affects Inventory management on healthcare facilities in KNH to a great extent, the study also revealed that Implementation of JIT helps coordinate movement of inventory, JIT has enabled cost savings in hospitals inventory management , Implementation of JIT helps to match demand and supply; JIT provides short lead times and short time deliveries for inventory, JIT provides coordinated inventory management in hospitals and finally JIT helps to reduce warehousing space of storing inventory. There is close relationships between suppliers and hospitals is stressed, the system requires both entities to make a serious commitment to their new relationships, due to JIT's tightly coordinated supply process (Barrett, 2004).

#### **Economic Order Quantity Model**

The study established that economic order quantity model affects Inventory management on healthcare facilities in KNH to a great extent, the study also revealed that use of EOQ model reduces costs of inventory management in hospitals, EOQ models helps in reducing wastage of inventory in hospitals, EOQ enables predicting of inventory in hospitals and finally that EOQ enables clear forecasting hence making inventories available in hospitals.

#### **Material Requirement Planning (MRP)**

The study established that material requirement planning (MRP) affects Inventory management on healthcare facilities in KNH to a great extent, the study also revealed that MRP avails inventory on real-time in hospitals, use of MRP in hospitals inventory management improves safety of patients. The study further showed that the respondents agreed that MRP enables implementation of quality standards in hospitals and MRP enables cost cutting measures in hospitals inventory management.

### Conclusions

The study established that just in time stocking, economic order quantity enterprise resource planning and material requirement planning (MRP) affects Inventory management on healthcare facilities in KNH to a great extent. The study concluded that ERP implementation enhance accuracy in inventory management, provides speed in inventory management, reduce the cost managing inventory in public Hospitals, helps with proper controls in inventory management and finally provides efficiency in inventory management. The study concluded that of JIT helps to match demand and supply, provides short lead times and short time deliveries for inventory. The study showed that use of MRP in hospitals inventory management improves safety of patients.

### Recommendations

The costs involved in inventory-production that are incurred by KNH are categorized under holding stocks and ordering costs. Cost reduction is necessary for implementation of inventory management for performance of manufacturing firms because inventory cost reduction eliminates wastages on the materials used for production, the study further recommended that holding stocks and ordering costs may increase the performance of an organization and helps in preparing employees towards managing the inventory ideology. Just in time stocking also equips organization with sufficient resources and that inventory cost reduction helps in achieving profitability objective. The study recommended that use of material requirement influence positively implementation of quality inventory management on healthcare facilities.

The study recommended that improved anticipation of future developments in Inventory management on healthcare facilities will improve their performance. The study further recommended that there should be unified data, information sharing and channels relationship for

### References

- Axelsson, R., (2008). Towards Evidence Based Health Care Management, *International Journal of Health Planning and Management*, vol. 13, no. 4, pp. 307-317.2.
- Ballou, R.H. (2009) *Business Logistics Management: Planning, Organizing, and Controlling the Supply Chain*, 4<sup>th</sup> Edition, Prentice- Hall International, London.
- Burns, L.R., (2009). *The Healthcare Value Chain*, San Francisco: Jossey-Bass.
- Chandra, C., Kachhal, S.K., (2008). Managing Health Care Supply Chain: *Trends, Issues, and Solutions from a Logistics Perspective*, Proceedings of the Sixteenth Annual Society of Health Systems Management Engineering Forum, February 20-21, Orlando, Florida

- Connor, L.R.,(2013). Reengineering Health Care Material Management,” *Journal of the Society for Health Systems*, vol. 5, no. 4, pp 74-89.10.
- Cook, Al. (2007). The dangers of stockpiling, planning rules change as hospitals brace for potential disasters. *Materials Management in Health Care*, 16(9), 32-34.
- Egbelu, P.J (2008). Cost Analysis of Hospital Material Management Systems, *Journal of the Society for Health Systems*, vol. 5, no. 4, pp 1-1013.
- Kotabo, K. (2012). *Management of Finance Company*, Sixth Edition. International Thomson Business Press, London
- Lysons, K, and Gillingham, M (2010). *Purchasing and Supply Chain Management*, 6<sup>th</sup> Edition, Harlow, Financial Times/Prentice Hall, London.
- Mills, A., Brugha, R., Hanson, K., and McPake, B. (2009). *The Challenge of Health Sector Reform: What Must Government Do?* London, Palgrave.
- Mugenda & Mugenda (2008). *Research Methods*: 1<sup>st</sup> Edition, Published by ACTS, Nairobi, Kenya.
- Peil, L. D. (2008). *Research Methodology and Design*, 5<sup>th</sup> Edition, Macmillan. Publishers, New York, U.S.A
- Raths, D. (2006). Making ERP work. Healthcare providers are taking a closer look a enterprise resource planning, *Healthc Inform*, 23(6), 16.
- Rick L. (2008). Can you profit from improved Inventory Control? *Journal of Association of Automated Services Management Institute*, Vol.5
- Rikhardsson,P.(2004). ERP. Enterprise Resource Planning. Danske erfaringer med implementering og anvendelse. Kobenhavn: Borsens Forlag A/S.
- SCC. (2006). *Supply Chain Operations Reference-model (SCOR) 8.0* (Vol. 8): Supply-Chain Council.
- Schieber, G. and Akiko, M. (2010). Health Care Financing and Delivery in Developing Countries: *Health Affairs*, Vol. 18, No. 3, pg. 193-205.
- Stefanou J., and Revanoglou A. (2006). ERP integration in a healthcare environment: a case study. *Journal of Enterprises Information Management* 19 (1) pp. 115-130.
- Williamson, O.E., (2009). Transaction Cost Economics. In Schmalensee, R. & Willig, R.D. (eds.) *Handbook of Industrial Organization, Volume 1*. North-Holland.
- World Health Organization (2007). Extending essential care, Integrated Management of Adolescent and Adult illness, Geneva: WHO, 2003 Report.

World Health Organization (2010). The World Health Report 2000, Geneva.

World Health Organization (2010). The World Health Report 2002, Reducing Risks, Promoting Healthy Life, Geneva.

Zellner, S., O'halon, B., and Chandani, T. (2007). State of the Private Health Sector Wall Chart, Bethesda, MD: Private Sector Partnerships- One, Abt Associates Inc.