

**INVENTORY MANAGEMENT PRACTICES AND SERVICE
DELIVERY OF HEALTH HUMANITARIAN ORGANIZATIONS IN
KENYA**

SOPHY MAUREEN ONYANGO

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DECLARATION

This research project is my original work and has not been submitted for the award of degree in any other university.

Signed_____ Date_____

Sophy Onyango

D61/70850/2014

This research project has been submitted for examination with my approval as the University Supervisor.

Signed_____ Date_____

Dr. Magutu Obara Peterson (PhD),

Lecturer, Department of Management Science,

University of Nairobi - School of Business,

Dedication

To God be all the Glory and Honor, To my beloved husband,son,parents for the inspiration and love, and my brothers and sisters, you mean everything to me, for all the sacrifice you made, for not only allowing me but supporting me undertake this project for my career progression, may God abundantly reward you! To my Supervisor, your support was priceless.

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ABSTRACT

Inventory management is a prerequisite for globally competitive organizations. The study aimed at investigating the inventory management practices and service delivery of health humanitarian organizations in Kenya. The study sought to answer the following specific objective: to establish the inventory management practices commonly used by health humanitarian organizations in Kenya; and to determine the relationship between inventory management practices and service delivery of health humanitarian organizations in Kenya. The study targeted 30 respondents of humanitarian organizations, out of which 21 questionnaires were returned filled, representing 70% response rate. The study used primary data. Quantitative data collected was analyzed by the use of descriptive statistics using Statistical Package for Social Sciences (SPSS version 22.0) and presented through percentages, means, and standard deviations. The study concluded that the inventory management affects the service delivery of health humanitarian organizations. There were certain limitations such as resource constraint which prohibited collecting information from the respondents and time constraint was also a challenge. Although the study was on the effects of inventory management on the service health humanitarian organizations, it is recommended that the similar studies should be done in other sectors of the Kenya economy for comparison purposes and to allow for generalization of findings on the inventory management in Kenya.

CHAPTER ONE: INTRODUCTION

1.1Background of the study

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 trade off 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)

Control of stock includes the supply of administrations and products of the right quality, time and amount. It is a solid means in which organizations guarantees clients fulfillment and association staying in operations by means of minimization of misfortunes. Numerous associations issue is the manner by which to oversee stock. Noteworthy connection amongst deals and generation of item is given by stock. It additionally constitutes a bigger rate of creation cost. Numerous organizations critical and most costly resource is stock spoken to by a significant rate of the aggregate capital contributed. Stock is among the biggest speculation made at any level of a firm and in this manner

merits sensibly to be dealt with as a noteworthy variable approach, exceptionally receptive to the style and plans of top administration. Nonetheless, both directors and experts to date in many associations have generally been unsuccessful in persuading top administration to give due thought that this region coherently merits (Ogbo, 2011).

Inventory control is the movement bearing whose reason for existing is getting the right stock at the opportune time in the correct place and in the right amount and it is connected straightforwardly to any association generation work. Stock administration framework worked influences straightforwardly or in a roundabout way any association's gainfulness (Miller, 2010). There are numerous reasons in the matter of why associations ought to keep up stock of products.

It is physical unthinkable and unsound economically having goods arriving in a system exactly when demands occurs. Clients would need to sit tight for longer period before satisfying what they requested in situations where there is no stock at hand. Management of inventory involves control of company's materials stored and used with the aim of exactly providing what is required when and where it is required incurring the least possible cost when minimum of residual stock is employed (Agha, 2010).

Beamon and Kotleba (2006) explain that Re-order level (ROL) is critical for humanitarian organizations to achieve optimal efficiency and be effective. They need to have two reorder levels one that is normal whereas a second one that is for emergency cases in case of disaster. This improves performance and customer satisfaction.

In Supply chain of a company management of inventory is of high importance (Rao and Rao,2009),One of the consideration drivers to stock is that holding stock incorporates huge cost in the store network (de Leeuw, Holweg and Williams, 2011)

Stock administration is important because firms will ensure assets and stock are well managed and demand forecasting is greatly enhanced to avoid unplanned procurement. Inventory can double up as stock and assets. Therefore, when an organization employs demand forecasting, it will minimize operational costs and improve customer satisfaction (Hines and Bruce 2007). This will enable the organization plan for the future as it applies various variables that the organization can use for its goal achievement namely: demand and supply, cost and personnel requirements

An arrangement of stock gives the authoritative structure and working strategies for controlling and keeping up merchandise to stock. A fitting method for choices making on when to request and the amount to arrange and a method for track keeping stock things is a necessity of a capable stock administration framework. Any association Inventory decisions depends on facts about level of stocks at hand, information on demand taking into account the quantity forecasted, lead time variation and lead time, cost of holding inventory, shortage cost and cost of ordering. The manager in charge of inventory control is helped by this information in meeting the competitive advantage the organization desires (Jossop 1986).

To protect the medicinal services conveyance towards any sort of unsettling influence administration of stock is required as a production network organize partition. The General Manager of Amrita Institute of Medical Sciences Versha Kaushal, represents that as most offices vigorously rely on upon provisions, administration of stock can

straightforwardness or issue operations of a wellbeing office. From an ease needle to a top of the line orthopedic embed, small scale steel instruments, amid a patient's stay at the wellbeing office supplies of wellbeing wares are key. Quality care must be given on time when the required wellbeing items are accessible in satisfactory amounts

Versha Kaushal, clarified encourage that administration of stock accordingly assumes a pivotal part in giving proficient social insurance in connection to three imperative parts of medicinal supplies utilized as a part of the wellbeing offices; security ,reasonableness and accessibility.

1.1.1 Inventory Management Practices

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.

Inventory is a critical asset in any organization though according to Barnes (2008) inventory is looked at as a liability under the just-in-time control system but he agrees with the way accountants treat it as an asset to the organization. In the statement of financial position, inventory appears under the current assets of the organization regardless whether it's profit or not for profit organization. Inventory plays a major role and its management goes a long way in helping a firm grow as it relates to its external and internal customers (Gibson, 2013).

The goals of the company must be balanced with the needs of the customer in an integrated model of inventory management where at the ideal time the right inventories are in the ideal place. A disciplined process is what needed is whereby investment level in inventory is in line with the customer service level expected to be provided.

To maintain levels of inventory optimally, a robust system is needed to maintain accurately and track levels of inventory control. To manage customers and vendors, supply chain, and to maintain control of inventory internal processes are required. Such processes enable monitoring patterns of demand, maintaining counts of inventory accurately, tracking inventory performance and ensuring adherence to commitments by suppliers

Beamon and Kotleba(2006) explain that Re-order level (ROL) is critical for humanitarian organizations to achieve optimal efficiency and be effective. They need to have two reorder levels one that is normal whereas a second one that is for emergency cases in case of disaster. This improves service delivery and customer satisfaction.

Bachetti, Plebani, Saccani and Syntetos (2010) argue that inventory management need to be organized in a logical way to facilitate the organization knowledge of when to order and quantity to order. Economic order quantity enables organizations plan their inventory replenishment on a timely basis such as monthly, quarterly, half yearly or yearly basis. As organizations try to improve on the management of inventory, Economic Order Quantity and Re-order Point are important tools organizations uses to ensure inventory supply does not hit a stock out as explained by Gonzalez and Gonzalez (2010).

Just-in-time (JIT) contributes greatly to an organization's positive performance and customer satisfaction. A study undertaken between 1981 and 2000 in the US to analyze inventory management and was found out that organizations that kept too much inventory in their warehouse operated an inefficient supply chain, while those that kept minimal inventory in their warehouse were very efficient (Lai and Cheng 2009). It was observed that keeping moderate inventory is good and enables an organization operate minimal expenses of holding and setup costs, eliminate unwanted lead time and produce goods as per customers order. This enables an organization achieve total quality control (TQC) as efficient and effective supply chain management are implemented in a firm's value chain (Kumar and Suresh 2009) and (Datta, 2007).

1.1.2 Service Delivery

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.

Gift to Delivery Time: How long it takes after a contributor has vowed to give for a thing to be conveyed to the proposed goal is measured by this pointer. On the scorecard both the middle and mean number of days are accounted for, which is a practice utilized as a part of the U.S. Armed force's arrangement of execution estimation (Dumond, 2000). Both consistency and the normal of the conveyance lead times are gaged by the two metric

Budgetary Efficiency: Metrics required in the pointer are three. Two techniques one relative and one outright are utilized by the initial two measurements in contrasting planned costs with real costs paid for things conveyed in the operation. The third money related effectiveness metric incorporates transportation cost to convey the products to proposed recipients. This metric is communicated as a proportion of aggregate cost of transportation brought about over aggregate expenses for things conveyed at a point in time. The estimation of this proportion ought to diminish after some time, as less costly transport techniques are utilized after the underlying conveyance stage and as more things are conveyed nearby

Evaluation Accuracy: This is the way speedier gifts vowed and products conveyed to recipients. Depends on how precisely field staff surveyed necessities of the influenced populace after a fiasco. It demonstrates after some time how much the operation's last spending plan transformed from the first spending plan. This metric contextualizes the estimations of alternate measurements on the scorecard. For instance, on the off chance that it shows up on the scorecard that conveyance drives time of a particular sort of thing was longer than normal in an operation, the appraisal exactness metric will demonstrate if

the long lead time of that thing was brought on by an at first low estimation of the amount required

Gunasekaran and Kobu identified criteria for commercial logistics to show the purpose of performance measurement that can be adapted the humanitarian supply chain and logistics as follows (Gunasekaran and Kobu, 2007): Identify success, Distinguish whether clients' (benefactors' and recipients') needs are met, Help the association to uncover what they don't know or affirms what is known by them, comprehend it's procedures and Identify where issues, squander, bottlenecks, exist and where upgrades are important, Ensure that choice depend on truths, advance followed appear if changes arranged really happened, Facilitate a more straightforward and open co-operation and correspondence.

1.1.3 Health Humanitarian Organizations in Kenya

Humanitarian organizations are involved in the provision of humanitarian assistance in the mode of shelter, medicine, food, water, and supplies to the affected populations whenever disasters strike (Beamon and Balcik, 2008). Humanitarian organizations are involved in a categories of activities that include procurement, planning, preparedness, warehousing, transport, tracing and tracking, customs clearance (Whiting and Ayala-Öström, 2009).

There are basically four types of humanitarian organizations operating in Kenya. The first category includes government sponsored humanitarian organizations such as the KRCS which was established through an act of parliament in 1965(Kenya Red). The second category of humanitarian organizations is privately sponsored. This category includes

NCCCK, Ahadi Kenya, Save the Children, MSF, just to mention but a few. (Kameri-Mbote, 2000 - 2002).

The third category of humanitarian organizations is those run and funded by religious groups such as churches and mosques. They include the Catholic Relief Services, Adventist Relief Association, the Lutheran World Relief and many others. The last category of humanitarian organizations is those affiliated with the United Nations Organization (UNO). There are several humanitarian organizations under the umbrella of the UNO such as the UNICEF that deals with children's rights, UNDP which addresses issues concerning development projects in various countries, WHO which handles global health development initiatives around the world and UNHCR which handles the concerns of refugees including resettlement(Coipuram, 2003).

Profit is not a driving force for the Humanitarian Supply Chain sector; however donor fatigue is a huge threat to humanitarian organization revenues (Fritz, 2006). There is an increase in donor/stakeholder outcry for higher accountability and transparency in program spending to ensure the bulk of the funding contributed is not wasted on administrative services but rather reaches the intended recipients (Polman, 2011). It is imperative therefore that humanitarian organization find ways to reduce administrative expenses by streamlining operational spending to ensure more services/goods are delivered per dollar.

1.2 Research 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 economic order quantity which negates the success of an organization. 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.

The Global Humanitarian Assistance (2013) has classified Kenya as a fragile nation in terms of humanitarian aid. The need for humanitarian aid has risen sharply, This has been attributed to the increase in the state of disasters such as refugees who are foreign, especially at Kakuma Camp of refugee, droughts, floods, accidents, disease outbreaks and terrorist attacks, among other disasters. various active conflicts have been in the country, thus increasing the vulnerability of instabilities that call for humanitarian assistance. As of 2010, Kenya received an approximate US\$290m in humanitarian aid. This was an equivalence of 5.1% of its gross national income (GNI) Global Humanitarian Assistance (2013). The Global Humanitarian Assistance (2013) reports that, the country was ranked 8th largest humanitarian aid recipient in the world.

Bai and Zhong, (2008) describes that inventory control systems and its investment for a business take up a bigger percentage of total budget. Literature indicates that control of inventory was one of the most neglected areas of management in most firms thus leading to strain on operations of business. Furthermore Mathuva, (2013) argues that the direction of relationship between operational performance and inventory control systems of business firms over time has not been clear. Furthermore on the relationship between

performance and inventory control systems from previous studies had produced mixed results (Gill, Biger, and Mathur, 2010). In this view, the study proposed to survey the effect of inventory management practices on the service delivery of Health Humanitarian Organizations in Kenya.

1.3 Research Objectives

The objectives of this study are:

- (i) To establish the inventory management practices commonly used by health humanitarian organizations in Kenya; and
- (ii) To determine the relationship between inventory management practices and service delivery of health humanitarian organizations in Kenya.

1.4 Value of the Research

The point of the study is to provide adequate information Humanitarian organizations in Kenya can use to improve on their service delivery by managing inventory adequately. Thus supply chain professionals and finance managers will find this research useful for knowledge and operational implementation

Donor funding institutions will also benefit from this study and they will know how to streamline their grant agreements with future project run by Humanitarian organization so that impacts are felt and funds donated don't go to waste

Academicians and scholars will also find this research valuable to their study and advancement of knowledge. They will be able to improve on the studies done under inventory management

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The motivation behind this part is reviewing literature and theoretical framework of stock administration which is the management of the largest single investment in assets for most organizations.

At the point when offering internationally, Inventory administration has turned into an exceptional issue if levels of client administration are to be kept up in light of the fact that holding merchandise in non-residential markets is practically a need. For chiefs Inventory administration is of awesome significance since they should choose how to control whatever is left of the coordinations framework all the more inventively and the amount to hold keeping in mind the end goal to guarantee that client benefit does not endure as an aftereffect of lower levels of stock. That is the reason administration of stock requires a specific consideration or the support of the whole organization's administration levels so as to meet clients' fulfillment.

2.2 Inventory Management Practices Theories

Three main inventory management aims identified by Lysons and Gillingham (2003), to give both outer and inner clients with the administration levels required regarding request rate fill and amount, to find out future and present necessities for all stock sorts staying away from both generation bottlenecks and overloading, in this way keeping expenses to a base by assortment decrease, investigation of costs brought about in acquiring and conveying inventories and efficient parcel sizes.

Stock and Lambert (2001), states that stock administration goals are to foresee the effect of corporate approaches on levels of stock, increment corporate gainfulness and minimizing the aggregate cost exercises of coordination's.

James Healy(1998)highlights that Ten to Thirty percent of extra stock is carried by distributors which are unnecessary. Thus causing unnecessary carrying cost, sales loss, customer's loss, and profit loss due to inefficient and sloppy inventory management. Further he pointed out the need to set procedures to determine the true cost of managing inventory to control inventory physically.

His argument was that inventory management purpose is facilitating operations by reducing time products are kept on shelf hence expanding revenue.

These speculations significance to this study is that it uncovers that benefit decreases by holding pointless supply of products by adding to the operational cost of any association. Appropriation of productive stock administration methods and strategies is important for associations to guarantee that the right quality and amount of wares are accessible where and when they are required.

2.3Inventory management practices

Inventory management practices are extremely important for business operations because their success and cost reduction of the firm's expenditure necessitate improved supply chain performance and knowledge to the employees (Lambert, 2008). These practices are critical and knowledge in them is highly desirable thus, managers and procurement staff need to be able to apply the techniques for the benefit of the organization (Fellows and Rottger, 2005).

Administration of stock suggests to the administration and following of items which envelops the observing of moved wares all through stockroom areas and stock equalizations compromise.

2.3.1 Re-Order Level

As organizations strive to achieve efficiency, they should be able to understand their Re-Order Levels (ROL) which enables them know when to order and when not to order. This can be achieved through the use of quantitative methods which necessitate proper inventory management (Apte, 2010). Re-Order level is critical for Humanitarian organizations to achieve optimal efficiency and be effective leading to high supply chain performance and customer satisfaction, then they need to have two reorder levels one that is normal whereas the other is an emergency one in case of disaster (Beamon and Kotleba, 2006).

2.3.2 Economic Order Quantity

Bachetti, Plebani, Saccani and Syntetos (2010) argues that inventory management need to be organized in a logical way so that the organization can be able to know when to order and how much to order. This can only be achieved through the Economic Order Quantity computation. Economic order quantity enables organizations to plan their inventory replenishment on a timely basis such as quarterly, monthly, half yearly or yearly basis. By doing so, it enables firms have minimal storage costs or zero within their warehouses since inventory coming in goes out immediately. Thus helps in having zero holding costs, (Schonberger, 2008). Thus organizations try to improve on inventory management, the Economic Order Quantity and Re-order Point are important tools that organizations may use to ensure that supply of inventory does not hit a stock out as explained by Gonzalez

and Gonzalez (2010). Over time, organizations have been maintaining their inventory in a haphazard manner which has necessitated a change in the way firms conduct their business. Stock outs have been experienced adversely leading to customer dissatisfaction hence; firms are changing their approach to be able to remain relevant by employing Economic Order Quantity and Re-order Point for customer satisfaction.

2.3.3 Just-In-Time

Meaning of Just in Time (JIT) by Coyle et al (2003) as a System of stock control that endeavors to decrease levels of stock by planning free market activity by the point where the sought thing touches base for utilize in the nick of time. Items in a perfect world ought to arrive when a firm precisely needs it, with no resistance for ahead of schedule or late conveyances.

In the nick of time System is additionally characterized by Lysons and Gillingham (2003), as a stock control logic whose point is keeping up sufficiently first material in simply the ideal time at simply the opportune place to make only the appropriate measure of item.

It is an incline creation framework primarily utilized as a part of tedious assembling. The Just In Time System proposes that when an association needs inventories ought to be accessible by then, no later, nor any prior..

2.3.4 Vendor Managed Inventory

Management of inventory determines the way an organization will thrust itself to high performance efficiency. Some organizations have resulted to vendor managed inventory (VMI) systems which aid the supplier to monitor customer's inventory usage. Through this VMI system, customers will avoid stock outs because the suppliers will have already

replenished their inventory. The key aspect here is communication which should be well planned from the beginning of business relations between the customer and the supplier (Frahm, 2003). Vendor managed inventory saves an organization immense time and finance since the supplier will be able to monitor its customer's levels of inventory and make a point of replenishing them. As the customer and supplier interact, the communication channel needs to be clear and fast so that they may avoid instances of stock outs. Where the customer anticipates having an abnormal levels of order they should notify the supplier so that they can adjust their production to cater for the demand. Moreover, we now have Joint Managed Inventory which is an advance level of vendor managed inventory It seeks to integrate the supplier more firmly into the customer's organization by using the point of sale (POS) which allows the supplier to see the real time data of its customer's inventory (Frahm, 2003).

2.3.5 Activity Based Costing Analysis

In management of Inventory classifications of inventory systems helps allocate money and time thus allowing firms to deal with multitude of stock-keeping units (SKU) and multiple product lines(Bloomberg et al. 2002).ABC analysis is the most widely used classification model

As perDube and Onwubolu (2006), Application of ABC investigation to a stock circumstance decides control levels set on the things and the significance of things .Two elements decides imperative positioning results, its unit esteem and the use rate for a thing. The yearly utilization esteem is acquired by duplication of these two elements, which is the aggregate estimation of the yearly use. The greater every element, the more top positioning is the thing. For quick moving high unit esteem things requires close

control. Unexpectedly, for moderate moving, low unit esteem things the cost of the stock control framework may surpass the advantages to be picked up and basic techniques for control ought to be substituted products, high efficiency levels, bring down levels of stock, and growing long haul associations with channel individuals

ABC analysis. ABC analysis is where stocks are classified into three categories namely:

A – stock items that are of high value and material to the organization but low volume
B – stock items which are of medium value and medium volume;
C – stock items baring minimal value but are of great volume

2.4 Inventory Management practices and Health Service Delivery

In the supply chain a critical pretended by stock is expanding the measure of interest that can be fulfilled when clients' needs items they are promptly accessible.

Quality care must be given on time when required material is accessible in sufficient quality. Administration of stock assumes a critical part in giving proficient human services in connection to three essential parts of medicinal supplies utilized as a part of the wellbeing offices; security, accessibility, and moderateness.

2.4.1 Timing; the Most Crucial Aspect.

In healthcare delivery time factor is the most crucial aspect. Life can be lost by just a delay by a few seconds. Therefore, Inventory manager's huge responsibility is ensuring most diverse healthcare commodities available on time.

The expected patients number is unpredictable suppliers are unreliable and costs are rising. Hence making the challenge even greater,

2.4.2 Patient safety; the first priority

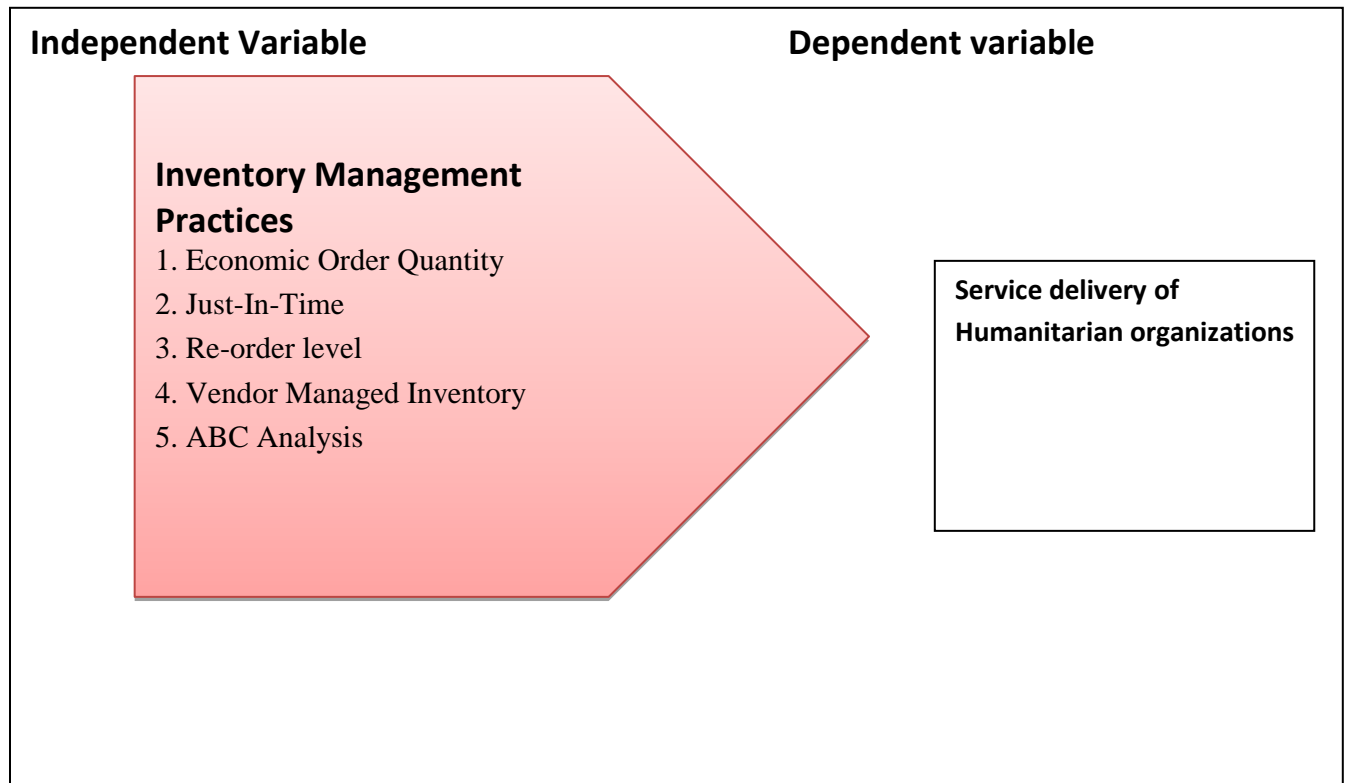
In healthcare delivery the patient wellbeing is the principal need, and critical part is played by directors of stock in ensuring their goal. Stock chief greatest obligation is to guarantee that great quality items are obtained for clinical utilize. In spite of vital basis in surveying items being cost, clinical viability and wellbeing concerns are organized. Administrators of stock ought to likewise guarantee that the supplied things are well inside the expiry time frame..

2.4.3 Cost (Affordability); an important variable.

Enormous weight is on stock directors to start cost cutting measures. Colossal number of patients is requesting high caliber at sensibly estimated social insurance administrations though the medicinal supply cost has been spiraling up. Inventory managers should continuously ensure they obtain better deals since supplies cost form significant portion of healthcare expense. For vast majority an economical price helps in ensuring affordable healthcare. Because of increase number of patients the healthcare reaps the benefit of increased revenue.

Innovative services and products flood the medical supply industry. Managers of inventory need to persistently scout for alternative competitive item or methods that outcome in better result. Nature of the item should be the essential worry with a specific end goal to guarantee that patient care is not traded off despite the fact that cost is an imperative rule,

2.5 Conceptual Framework



The topic includes the research design, population under consideration, data collection methods, research procedures and the methodology that were employed in the study.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the methodology that was used to carry out the research study. The topic includes the research design, population under consideration, data collection methods, research procedures and the methodology that were employed in the study

3.2 Research Design

The study used a descriptive research design of cross sectional type because it enabled the researcher to make a comparison from a broad category of Humanitarian organizations. Comparative study was done to bring out the status and preferences of these Humanitarian organizations. Descriptive research assists the researcher to collect data by way of observation, description, and recording, analyzing and reporting the conditions operating at that moment from a population (Cooper and Schindler, 2006). This design assists to describe features, behavior, attitudes and principles of the study (Mugenda and Mugenda, 1999)

3.3 Population

The population targeted consisted of 10 Humanitarian organizations providing health functions.

3.4 Data Collection

Data collection was conducted by way of primary data collection from one of the following respondent; the Finance Manager or equivalent, Procurement Manager, Stores Manager. The target respondents were the most competent to answer questions on

inventory management. The data collection instrument used were structured questionnaire which were distributed by drop and pick method. This gave the researcher first hand primary data which were reliable and accurate for analysis (Kothari, 2004). The questionnaire rating scale that was adopted was the Likert format depicting responses on a scale of 1 to 5.

3.5 Data Analysis

Data analysis was done through descriptive statistics by applying measures of central tendency for objective one; to establish the strategic inventory management practices commonly used by humanitarian organizations in Kenya; regression analysis was used for objective two; to determine the relationship between strategic inventory management practices and service delivery of humanitarian organizations in Kenya with inventory management practices as the independent variable and service delivery as the dependent variable. Statistical Packages for Social Sciences (SPSS) software was used to analyze the data collected.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter provides a summary of the data analysis, results of the study and the discussion of the results of the study. The results were presented on the inventory management practices and service delivery of health humanitarian organizations in Kenya. The study was based on the following specific objectives: to establish the inventory management practices commonly used by health humanitarian organizations and to determine the relationship between inventory management practices and service delivery of health humanitarian organizations in Kenya.

4.2 Response Rate

The Sample size of 30 respondents was targeted by the study from which only 21 filled in and submitted the questionnaires leading to a response rate of 70%. In making conclusions for the study this response rate was satisfactory as per Mugenda and Mugenda (1999) The response rate was representative, a 50% response rate is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. The response rate was considered to be excellent, Based on the assertion.

4.3 General information

The study sought to establish the information on the respondents employed in the study with length of work period in the health humanitarian organizations, the respondents gender, the respondents position, and education of the respondents. These bio data points

at the respondents' appropriateness in answering the questions. When asked the duration of time they had worked for the health organization, 40% of all respondents reported to have worked for 6 to 10 years, 30% had worked for a period of 2 to 5 years, and the remaining 15% was equally shared between those who had worked for 11 to 15 years and less 2 years. This shows the respondent had adequate experience in inventory management

As pertaining to their highest level of education, 50% of the respondents had undergraduate degree education, 20% had master's degree, and 30% of the respondents had higher diploma in education in various fields indicating clearly their level of articulation of the subject matter and their ability to contribute to the inventory management as was evidence in the research findings. This is also the reflection of the humanitarian organizations culture change philosophy of continuous training for best results.

When asked their current level in the health humanitarian organizations, the results after analysis displays that 20% of the respondents were finance manager, 35% of the respondents were procurement manager, 30% were store manager, while 15% were field manager in their organization. When asked their gender, 55% of the respondents were male and 45% of the respondent indicated the female. This presupposes that generally, the margin between males and females is minimal. This implied that there was equal representation of the male and female in the respondent.

4.4 Inventory management practices

Inventory management practices are one of the practices used in the health humanitarian organizations, Kenya. The respondents were asked to indicate to what extent they agreed with the statement in relation to inventory management practices in the health humanitarian organizations and they responded to various aspects under the variable on a five-point Likert Scale (5= strongly agree, 4=agree, 3= neutral, 2= disagree and 1= strongly disagree). The research findings are as in the Table 4.1 below showing the resultant means and standard deviations of the variables.

Table 4.1: Inventory management practices

	Mean	Std dev
Economic Order Quantity		
The firm inventory management is organized in a logical way they	3.76	.87
The firm plans their inventory replenishment on a timely basis	3.80	.90
The firm minimizes storage costs by use of EOQ	3.91	.75
The firm reduces the cost of inventory management by use of EOQ	3.73	.79
The firm reduces wastages of inventory by use of EOQ	3.67	.93
The firm ensures that inventory supply does not hit stock outs	3.85	.71
The firm clearly forecasts hence making inventory available	3.82	.89
Composite mean	3.79	.83
Re-order level		
The firm understands their re-order levels	3.81	.75
The firm knows when to order and when not to order	3.93	.69

The firm reduces lead time by use of re-order level	3.84	.70
The firm reduces cost of inventory management by use of re-order	3.70	.92
The firm reduces wastages by use of re-order level	3.79	.84
The firm knows when to order and when not by use of re-order level	3.93	.69
The firm achieves optimal efficiency by use of re-order level	3.88	.81
Composite Mean	3.84	.77
Just-in-time		
The firm reduces inventory levels	3.90	.80
The firms items desired arrives just in time for use	3.78	
The firm does not have tolerance for late or early deliveries	3.76	.85
The firm maintains first enough material at just the right time in just the	3.87	.81
right place to make just the right amount of product		
The firm coordinates movement of Inventory by use of JIT	3.73	.91
The firm matches demand and supply by use of JIT	3.81	.79
The firm saves cost of inventory management by use of JIT	3.90	.87
The firm reduce warehousing space by use of JIT	3.84	.73
Composite Mean	3.82	.82
Vendor Managed Inventory		
The firm avoids stock outs by use of VMI	3.72	.81
The firm inventory delivered on time by use of VMI	3.80	.89
The firm saves on finance and time by use of VMI	3.87	.76
The firms coordinates movement of inventory by use of VMI	3.75	.82
The firms achieves high inventory utilization by use of VMI	3.70	.85
Composite Mean	3.76	.83
Activity based Costing		
The firm allocates time and money in inventory by use of ABC	3.74	.78
The firm determines the importance of items by use of ABC	3.87	.80
The firm determines the control level placed on the items by use of	3.71	.87

Composite Mean	3.77	.82
Overall mean	3.80	

Source: Research data, (2016)

To a great extent (mean ≥ 3.5) the inventory management practices were being adopted by the health humanitarian organizations, the respondents to a great extent agreed that the health humanitarian organizations always practice economic order quantity with mean of 3.79, reorder level with a mean of 3.84, just in time with a mean of 3.82, vendor management inventory with a mean of 3.76 and activity based costing with a mean of 3.77.

This means that to a great extent the health humanitarian organization adopts inventory management practices with an overall mean of (3.80). The findings agrees with the literature review in that reorder level is critical for humanitarian organizations to achieve optimal efficiency and be effective leading to high supply chain performance and customer satisfaction, then they need to have two reorder levels one that is normal whereas the other is an emergency one in case of disaster (Beamon and Kotleba, 2006).

Also the findings concurs are in line with Gonzalez and Gonzalez (2010), study in that re-order point are important tools that organizations can use to ensure that inventory supply does not hit a stock out hence leading to customer satisfaction. According to Stock and Lambert (2001), Just-In-Time System seeks to eliminate non-value-adding activities from any operation with objectives of producing high-quality products, , lower levels of

inventory, high productivity levels and developing long-term relationships with channel members. Through this VMI system, customers will avoid stock outs because the suppliers will have already replenished their inventory. It seeks to integrate the supplier more firmly into the customer's organization by using the point of sale which allows the supplier to see the real time data of its customer's inventory (Frahm, 2003).

4.5 Impact of inventory management techniques on service delivery

Service delivery is one of the benefits provided by the adoption of the inventory management practices, Kenya. The respondents were asked to indicate to what extent they agreed with the statement in relation to service delivery in the health humanitarian organizations and they responded to various aspects under the variable on a percentage, number and minutes. The research findings are as in the Table 4.2 below showing the resultant percentages and number.

Table 4.2 Impact of inventory management techniques on service delivery

Service delivery measure	Measure	2012	2013	2014	2015
Customer Satisfaction	%	60%	71%	70%	75%
Service delivery innovation	Number	2	3	5	6
Number of customer complains	Number	20	15	10	6

Average time taken to serve customer	Minutes	7	5	5	3
Number of Compliments from customers	Number	15	12	6	4

Source: Research data, (2016)

The service delivery improved every year as indicated by the measurement. This shows that inventory management practices are used to improve service delivery in health humanitarian organizations hence operational efficiency.

The finding agrees with the literature review in that huge responsibility of making thousands of diverse health commodities available on time rest on inventory managers. Also the managers should ensure affordable healthcare.

4.6. Relationship between inventory management practices and service delivery

The study proposed that there exist a relationship between inventory management practices and service delivery of health humanitarian organizations in Kenya. Regression analysis was used to come up with the model that can explain the relationship between variables. The table 4.3 shows the model summary of the coefficient of determination

Table 4.3: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.87	.75	.67	.89

Source: Research data, (2016)

The study sought to establish the extent of influence of the independent variables on the dependent variables. This was done by generating the coefficient of determination presented in table 4.3. The model summary was significant ($p=0.004$) showing that the model was functional. The "R Square"(coefficient of determination) is a measure of how much the variance in the dependent variable the model explained In other words, the coefficient of determination indicates the extent to which the dependent variable is influenced by the independent variables as given in the regression model.

The model had an R square value of 0.75 indicating that the dependent variable percentage of the variance that was explained by the independent variables was 75%.

Such a percentage indicates a very good level of prediction, that is, 75% of the variations in service delivery of humanitarians organizations could be explained by the changes in economic order quantity, reorder level, vendor management inventory, just in time, activity based costing, leaving 25% unexplained (error term).The P- value of 0.004 (Lesser than 0.05) implies that service delivery model of humanitarians organizations is significant at the 5 per cent significance. R is the correlation coefficient which displays the relationship between variables of the study, from the result shown in the table above

there was a positive strong connection between the variables of the study as shown by 87%.

The table 4.4 below shows the Anova results after analysis

Table 4.4: Analysis of variance

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	36.22	5	7.24	9.05	.004 ^a
Residual	12.07	15	.80		
Total	48.29	20			

a. Predictors: (Constant), economic order quantity, reorder level, vendor management inventory, just in time, activity based costing

b. Dependent Variable: Service delivery of humanitarians organizations

Source: Research data, (2016)

ANOVA findings (P- value of 0.04) in Table 4.4 show that there is correlation among the predictor's variables and response variable. The table 4.4 shows that the independent variables are statistically significant in predicting the dependent variable. This is because the P value denoted by sig shows whether the variance is significant or not. In this study, the ANOVA of the model is significant given $P=0.04 < 0.05$ (i.e., the regression model is a good fit of the data).

Table 4.5: Regression Coefficients

	Un-standardized		Standardized		
	Coefficients		Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1(Constant)	.880	.416		.192	.847
Economic order quantity	.308	.100	.383	4.29	.002
Reorder level	.140	.214	.171	2.857	.000
VMI	.202	.086	.112	2.779	.000
Just in time	.120	.060	.109	2.000	.020
ABC	.043	.078	.243	1.23	.045

a. Dependent Variable: Service delivery of humanitarian's organizations

Source: Research data, (2016)

In table 4.5, the standardized and un-standardized coefficients show the contribution of each independent variable. The significance level in last column shows whether the contribution of the independent variable is statistically significant. The t value shows the likelihood that the value of the individual variable in the regression model is not zero ($\neq 0$). The smaller the t value the higher the likelihood that the value of the variable is higher than 0. Based on the results presented in table 4.5, the equation general form to predict Service delivery of humanitarian's organizations in a health humanitarian organization based on the service delivery functions as follows:

$$\text{Service delivery} = 0.88 + 0.308\text{EOQ} + 0.140\text{reorder level} + 0.202\text{VMI} + 0.120\text{JIT} + 0.043\text{ABC}$$

The prediction model was acquired from the Coefficients table (Unstandardized coefficients), as displayed above. The Unstandardized coefficients illustrate how much the dependent variable varies with an independent variable, when all other independent variables are taken constant. The predictor model means, $\beta_0 = 0.88$, displays that if independent variables levels are taken at constant zero, service delivery would be 0.88, $\beta_1 = 0.308$, displays that change in one unit in economic order quantity would results in 0.308units increase in service delivery, $\beta_2 = 0.140$, displays that change in one unit inreorder would ends in 0.140units increase in service delivery, $\beta_3 = 0.202$, shows that one unit change in vendor managed inventory would give rise to 0.202units rise in service delivery, $\beta_4 = 0.120$, shows that one unit change in just in time would end in 0.120 units increase in organizational performance and $\beta_5 = 0.043$, shows that one unit change in activity based costing would give rise to 0.043 units rise in service delivery.

Findings agrees with the study of Stock and Lambert (2001), in that Just-In-Time System is important because redefines program seeking to eliminate activities that are non-value-adding from any operation with aim of generating products of high-quality, high levels of productivity, lower inventory levels, and developing long-term connection with channel members.

The corresponding p-value indicates that the relationship between inventory management and Service delivery of humanitarians' organizations is statistically vital.

CHAPTER FIVE: SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Examining inventory management as defined by Stock and Lambert (2001), objectives of increasing profitability in corporate, to figure out the impact of corporate policies on levels of inventory, and minimizing logistics activities total cost. This chapter provides a summary of findings, adoption of inventory management practices, impacts of inventory management practices on service delivery, conclusion, recommendations, implications of the study on policy, theory and practice, limitation of the study, and further suggestion for research.

5.2 Summary of the Findings

The research findings revealed clearly that health humanitarian organizations adopt inventory management practices in management of their operations that are aligned to its corporate strategy in running its value chain function and these inventory management practices have significantly contributed to the performance and service delivery hence creating competitive edge in the very health industry by focusing on operational effectiveness and efficiency.

5.2.1 Adoption of inventory management practices

Health humanitarian organizations consciously adopt specific inventory management practices that are aligned to its corporate strategy in running its health value chain function and these practices have contributed significantly to the service delivery and

performance of the health humanitarians organizations by increasing efficiency and effectiveness and hence creating a competitive edge in the very competitive health humanitarians organizations. The inventory management practices adopted by health humanitarians' organizations include economic order quantity, reorder level, just in time, vendor management inventory and activity based costing.

5.2.2 Effects of inventory management practices on service delivery and performance

The adoption of various inventory management practices have impacted positively on the service delivery and performance of health humanitarians organizations and consequently on building its operational efficiency. Inventory management provides a very fertile ground of creating competitiveness and hence the move by some health humanitarians' organizations to reposition this approaches to value chain to ensure goods are supplied on time hence customer satisfaction.

5.3 Conclusion

The objectives of this study were to establish the inventory management practices commonly used by health humanitarian organizations in Kenya; and determine the relationship between inventory management practices and service delivery of health humanitarian organizations in Kenya. Subject to the result of the study and the forgoing discussions, it is clear that there exists very strong inventory management practices and strategies that have contributed to good performance and service delivery within the operation and supply chain and conversely impacting health humanitarians organizations overall performance and its competitive strength in the challenging industry environment.

As of the study result it concludes that the implementation of inventory management practices improves the service delivery. The improved service delivery and performance is reflected through reduced lead times and customer satisfaction. This shows that inventory management practices was well customized process to suit the health humanitarians organizations change needs as health humanitarians organizations had very well defined inventory management practices and strategies. These practices would give the health humanitarians organizations the higher success rate to the change process hence competitive advantage and improved service delivery and performance.

5.4 Recommendations

Inventory management needs to be embraced to help the management team appreciates the direct impact of these initiatives. Adoption of flexible inventory management practices through appropriate research will help efficiently and effectively meet the business diverse yet drastic changing needs as well as address challenges arising from a dynamic global business environment. Management should embrace both qualitative and quantitative aspects in their decision making and more sustainable inventory management practices and strategies integration across the group will yield synergies.

5.5 Implications of the study on policy, Theory and practice

The theory as captured at the literature review stage is such that the organization that adopt sound inventory management practices outperform those that do not and indeed the gap keep widening as such organizations continue to innovatively implore fresh inventory management practices targeting further and faster creation of value given immense competition and pressure from the stake holders such that sustainability of those

that do not embrace such best inventory management practices and strategies is at stake. With the globalization and stiff competition, there is not much time left to slow copying organizations, proactively and innovatively investing in appropriate inventory management practices should be the core calling of top management if their organizations are to grow.

The implementation of inventory management practices requires actions and participation from all levels of stakeholders. Therefore a collaborative approach between the supplier and the end user/customer teamwork is the best set up for sustainable inventory management practices. In tandem with these efforts, the top management should put in place additional measures to encourage employees and suppliers to consider sustainable inventory management practices to improve organizational performance and service delivery.

The inventory management as evident from the study clearly reflects how they marry with corporate strategy to yield improved organizational performance and service delivery hence creating competitive advantage. To achieve effective adoption of the various inventory management practices, it requires clear policies to be formulated, implemented and monitored to ensure they remain relevant to the business.

5.6 Limitations of the Study

The study was faced by certain limitations. Firstly, the size of sample in this study may be adjudged to be small. To this extent the results for the study may suffer from sampling bias, therefore it lead to the narrow understanding of the population.

Secondly, a resource constraint was a major challenge. Due to financial constraints, the study was under-powered, and thus, did not reach statistical significance.

Thirdly, there was limited access to information. There was lack of response from some of the targeted respondents. Others failed to return the questionnaires claiming that they had no time to fill them, while others argued that it was against the health organizations policy to disclose any information relating to their organization making support from their health organization a challenge.

5.7 Suggestion of further studies

Since this study explored the inventory management practices and service delivery of health humanitarian organizations in Kenya it recommends that; suchlike studies should be executed in different sectors of the Kenyan economy for comparability purposes and to permit for rationalizations of results on the inventory management in Kenya.

The study sought to explore the inventory management practices and service delivery of health humanitarian organizations in Kenya. The study vouch for that an in-depth study should be accrued out on constituents motivating adoption of inventory management practices in health humanitarians' organizations in Kenya.

REFERENCES

- Apte, A. (2010). *Humanitarian Logistics: A New Field of Research and Action. Foundations and Trends(R) in Technology, Information and Operations Management*. USA: Now Published Inc.
- Bachetti, A., Plebani, F., Saccani, N. and Syntetos, A.A. (2010). *Spare Parts Classification and Inventory Management: a case study. Global Thinking, Sustainable Practice, Professional Success*. University of Salford. Manchester: Salford Business School.
- Barnes, D. (2008). *Operations Management. An International Perspective*. United Kingdom: Thomson Learning.
- Ballou, R.H. (2004), *Business Logistics/Supply Chain Management: Planning, Organizing, and Controlling the Supply Chain*, Pearson/Prentice-Hall, Upper Saddle River, NJ.
- Beamon, B.M. and Kotleba, S.A. (2006). Inventory Modelling for Complex Emergencies in Humanitarian Relief Operations. *International Journal of Logistics: Research and Applications*, Vol. 9, 1 - 18. Retrieved March 2006
- Beamon, B. M. and Balcik, B. (2008). Performance Measurement in Humanitarian Relief Chains. *International Journal of Public Sector Management*, Vol. 21,
- Blanchard, D. (2010). *Supply Chain Management. Best Practices* (2nd ed.). Hoboken, New Jersey, USA: Published by John Wiley and Sons, Inc. BPP.(2008). *Professional Accountant*. London: BPP Publishers.

- Cooper, D.R. and Schindler, P.S. . (2006). *Business Research Methods* (9th ed.). New Delhi, India: Published by Tata McGraw Hill Education Private Limited. 45
- Frahm, S. (2003, March 05). *Vendor Managed Inventory (VMI): Three Steps in Making It Work*. Retrieved May 12, 2013, from Pertinent and Timely Articles to Cultivate Your SCM Knowledge: <http://scm.ncsu.edu/scm-articles/article/vendor-managed-inventory-vmi-three-steps-in-making-it-work>
- Fritz, I. (2006). Managing a Humanitarian Supply Chain Response. In F. instituteGibson, C. (2013). *Financial Reporting and Analysis. Using Financial Accounting Information* (13th ed.). South-Western Cengage, USA: South-Western Cengage Learning.
- Gonzalez, J.L. and Gonzalez, D. (2010). *Analysis of An Economic Order Quantity and Re-Order Point Inventory Control Model for Company XYZ*. California Polytechnic State University. San Luis Obispo: Unpublished Project
- Gunasekaran, A., Kobu, B. 2007. Performance measures and metrics in logistics and supply chain management: areview of recent literature (1995-2004) for research and applications. *International Journal of ProductionsResearch* **45**(12):2819-2840.
- James, H. (1998), “Inventory Management and Purchasing often overlooked as a profit center” – Construction Equipment distribution Magazine.

- Kaplan, R.S. (2001), "Strategic performance measurement and management in nonprofit organizations", *Nonprofit Management and Leadership*, Vol. 11 No. 3, pp. 353-70
- Kaushal, V. (General Manager, Amrita Institute of Medical Sciences), *Materials Management in Healthcare*, www.scribd.com/doc.
- Kothari, C. (2004). *Research Methodology. Methods and Techniques* (2nd ed.). New Delhi: New Age International (P) Limited, Publishers
- Lambert, D.M. (2004). The eight essential supply chain management processes. *Supply Chain Management Review*
- Lysons, K, and Gillingham, M (2003), *Purchasing and Supply Chain Management*, 6th Edition, Harlow, Financial Times/Prentice Hall, London.
- Ogbo, A.I. (2011). *Production and Operations Management*. Enugu: De-verge Agencies Ltd.
- Schonberger, R. (2008). *Best Practices in Lean Six Sigma Process Improvement. A Deeper Look*. Hoboken, New Jersey, USA: Published by John Wiley and Sons Inc
- Singh, J.A.C. and Mirchandani, P. (2006). Performance measurement for not-for-profit organizations. *The Chartered Accountants*, 1754-1758..
- Stock, J. R., and Lambert, D. M. (2001), *Strategic Logistics Management*, 4th Edition, McGraw-Hill Companies, New York, USA.

Whiting, M.C., and Ayala-Öström, B. E., (2009) Advocacy to promote logistics in humanitarian aid, *Management Research News*, Vol. 32 Iss: 11, pp.1081 – 1089

Appendices

Appendix I: Questionnaire

Questionnaire

The structured questionnaire presented is purely for data collection on Strategic inventory management practices and service delivery of Humanitarian organizations in Kenya. Data collected shall be treated with utmost confidentiality and the overall purpose is for academic furtherance.

Section I: Bio data

1.Position held:

Please tick (✓) where appropriate

Finance Manager [] Procurement Manager []

StoreManager [] Field Manager []

Others.....

2. How long have you worked in this position

Please tick where appropriate

Below 2 years [] Between 2-5 years [] Between 6-10years []

Between 11-15years [] Between 16-20 years[] Above 20years[]

3. What is your education background?

Secondary [] College [] Diploma [] University Degree []

Graduate Degree []

4. How long has the organization been in operation?

Please tick (✓) where appropriate

Below 5 years [] Between 6-10 years [] Between 11-15 years []

Between 16-20 years [] Between 21-25 years [] Above 25 years []

5. Gender

Male [] Female []

6. Name of Institution.....

Section II: Inventory management practices

Rate the following Inventory management practices at your organization

Please indicate by ticking (✓) on the appropriate statement as per the scale

below: 1 – Strongly Agree, 2 – Agree, 3 – Neutral, 4 – Disagree, 5 – Strongly

Disagree

No.		1	2	3	4	5
1.	Economic Order Quantity					
	The firm inventory management is organized in a logical way					
	The firm plans their inventory replenishment on a timely basis					
	The firm minimizes storage costs by use of EOQ					
	The firm reduces the cost of inventory management by use of EOQ					
	The firm reduces wastages of inventory by use of EOQ					
	The firm ensures that inventory supply does not hit stock outs					

	The firm clearly forecasts hence making inventory available by use of EOQ					
2.	Re-order level					
	The firm understands their re-order levels					
	The firm knows when to order and when not to order					
	The firm reduces lead time by use of re-order level					
	The firm reduces cost of inventory management by use of re-					
	The firm reduces wastages by use of re-order level					
	The firm knows when to order and when not by use of re-order					
	The firm achieves optimal efficiency by use of re-order level					
3.	Just-in-time					
	The firm reduces inventory levels					
	The firms items desired arrives just in time for use					
	The firm does not have tolerance for late or early deliveries					
	The firm maintains first enough material in just the right time just the right place at to make just the right amount of product					
	The firm coordinates movement of Inventory by use of JIT					
	The firm matches demand and supply by use of JIT					
	The firm saves cost of inventory management by use of JIT					
	The firm reduce warehousing space by use of JIT					
4.	Vendor Managed Inventory					
	The firm avoids stock outs by use of VMI					
	The firm inventory delivered on time by use of VMI					
	The firm saves on finance and time by use of VMI					
	The firms coordinates movement of inventory by use of VMI					
	The firms achieves high inventory utilization by use of VMI					

5.	Activity based Costing					
	The firm allocates time and money in inventory by use of ABC					
	The firm determines the importance of items by use of ABC					
	The firm determines the control level placed on the items by use of ABC					

Section III: Service Delivery.

Kindly provide the following information about service delivery on your organization

No.	Service delivery measure	Measure	2012	2013	2014	2015
1.	Customer Satisfaction	%				
2.	Service delivery innovation	Number				
3.	Number of customer complains	Number				
4.	Average time taken to serve customer	Minutes				
5	Number of Compliments from customers	Number				

Thank you for your valuable contribution

Appendix 11: List of Health Humanitarian organization in Kenya

ORGANIZATION	COUNTY
ADEO	Nairobi, Busia, KajiadoNarok
Aga Khan Foundation	Nairobi
Action Africa Help Intl (AAHI)	Nairobi, Narok, kajiado, Mara and Kakuma
AfriAfya	Nairobi, kajiado, Kibwezi
Action Aid International	Nairobi
Africa institute for health and development- AIHD	Nairobi
AMREF Health	Nairobi
APDK- Association for the Physically Disabled of Kenya	Nairobi, Busia, Eldoret, Embu, Kisii,Kisumu,Machakos, Nakuru
APHRC- Africa population and health research centre	Nairobi
Aids Healthcare Foundation Kenya	Nairobi, Mombasa

Basic Needs UK in Kenya	Nairobi
Cmeda Kisumu	
ChristoffelBlinden Mission (CBM)	Nairobi
Consortium for National Health and Research (CNHR)	Nairobi
Catholic Relief Services	Nairobi
CARE	Nairobi
CHAK- Christian Health Association of kenya	Nairobi
Centre For the Study of Adolescence (CSA)	Nairobi,Kisumu, Mombasa,Bungoma
CLUSA- Cooperative league of USA	Nairobi
CPDA- Christian Partners Development	Kakamega, Mombasa
Deaf Aid	
Elizabeth Glaser Pediatric Aids	Kisii,Kisumu,Nairobi

Foundation	
Engender Health	Nairobi
FHI - Family Health International	Nairobi
FHOK- Family Health Options Kenya	Nairobi, Kajiado, Nakuru, Meru, Thika, Mombasa, Eldoret, Kisumu, Kakamega.
Fred Hollows Foundation Kenya	Nairobi
family Support Initiative	Nairobi
Food for the Hungry	Nairobi
Global Communities(formerly CHF)	Nairobi
GOAL Kenya	Nairobi
Great Lakes University Kisumu (GLUK)	Kisumu
Helpage Kenya	Nairobi
HAIA Health Action International Africa	Nairobi

Healthrights International Kenya	Nairobi
Health Rights Advocacy Forum(HERAF)	Nairobi
Hope Worldwide Kenya	Mombasa,Nairobi
ICL- I Choose Life	Nairobi
International Medical Corps	Nairobi
Internews in Kenya	Nairobi
Intrahealth International	Nairobi
international Centre for Reproductive Health	Mombasa
International Committee For Development of people (CISP)	Kilifi
JHPiego	Nairobi
KANCO- Kenya AIDS NGOs Consortium	Nairobi Mombasa,Kakamega,OngataRonga,nyeri.Machakos,Nakuru
Kenya Association of Muslim Medical Professionals	Nairobi

Kenya Association of Professional Counsellors	Mombasa, Kisumu,Eldoret
Kenya Association for the welfare of people with Epilepsy-KAWE	Nairobi
KCDF	Nairobi
KENAAM- Kenya NGOs Alliance against Malaria	Nairobi
KICOSHEP	
KRCS- kenya Red Cross Society	Nairobi
Kenya Consortium to Fight AIDS TB and Malaria	Nairobi
Kenya Episcopal Conference	Nairobi
Kenya Society for the blind	Nairobi
Kenya Women Living with AIDS- KENWA	Nairobi, Nyeri,Thika,Muran'ga
Life Care and Supprt Centre -	Nairobi

LICASU	
LVCT Health	Nairobi,Kisumu
Marie Stopes International Kenya	Nairobi,,Laikipia,Nakuru,Uasin-Gishu,Transzoia,Kericho,Kisii,Kisumu,Kakamega,Bungoma,Mombasa,Malindi,
MAP INTERNATIONAL	Nairobi
Mildmay Kenya	Kisumu,Nairobi,Western
Mothers2Mothers	Nairobi
Malteser	Nairobi
NEPHAK- National Empoerment Network of People Living with HIV/AIDS in Kenya.	Nairobi
NMAAK	
NOPE - National Organisation of peer Educators	Nairobi
PATH	Bungoma,Kakamega,Migori,Kisumu

Pathfinder International	Nairobi
International Plan Parenthood Africa	
Provide International	Nairobi
PSI Kenya	Nakuru,Nyeri,Mombasa,KisumuKakamega,WajirEmbu,Nairobi,
Ripples International	Meru
Rural AIDS Prevention and development Organisation (RAPADO)	Migori
Samaritans Purse	Nairobi
Save The Children	Nairobi, Bungoma,Wajir,Mandera,Garisa,Turkana,
SOWED Kenya	Nairobi
Sight Savers International	Nairobi
Supreme Council of Kenyan Muslims	Nairobi
SWAP- Safe Water and AIDS project	Kisumu

WEMIHS- WemIntergrated Health Services	Thika
Wajir South Development Association	Nairobi
World Neighbours	NAIROBI
World Relief	Nairobi
World Friends	Nairobi
Women in Fishing Industry Projects	
World Vision	Nairobi
COECSA	Nairobi
Operation Eyesight	Nairobi
ACHESEREM	Nairobi
Helen Keller International	Nairobi
HANDICAP INTERNATIONAL	Nairobi
SOS Children's Villages	Nairobi

Micronutrient Initiative	nairobi
Morris Moses Foundation	Nairobi
Community capacity Building Initiative	Nairobi
M Health Kenya	Nairobi
Johnstone Kuya	Nairobi
Ace Africa	
DSW	

Source.www.hennet.or.ke