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## **Influence of Supply Chain Management Practices on Operational Performance of Public Health Institutions: Case of Kisii Level Five Hospital, Kisii County, Kenya**

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### ***Abstract:***

*This study dealt with the influence of supply chain management practises on performance in public health institutions in Kenya with interest in Kisii Level Five Hospital. This study was guided by the following objectives: to determine the influence of supplier relationship on performance, to determine the influence of information sharing on performance and to establish the influence of decentralised procurement on performance in Kisii Level Five Hospital. The study adopted descriptive design, with a target population of 110 respondents. Stratified, simple random and purposive samplings were used to select a sample size of 30 respondents. Data was collected using structured questionnaires administered to the sampled respondents and analyzed using descriptive statistics in form of means, percentages and frequencies. Presentation of data was in form of frequency tables. The study findings indicated that the respondents generally agreed that supply chain management practices have an influence on operational performance; it was evident that information sharing influences the operational performance in Kisii Level Five Hospital. The study established that the respondents were satisfied that decentralized procurement influences the operational performance in Kisii Level Five. The study recommends that for enhanced supply chain management practices on performance to be effectively realized, supply chain managers need to put efforts aimed at improving level of commitment in payment of suppliers, employing effective supplier development programs and supplier collaboration strategies. The study recommended that the staff working in the supply chain management should be taken for training since the majority of respondents did not have technical know how on supply chain management issues. The study recommended that the supplier relationship should be embraced in supply chain management. The study recommends a study to be carried to determine the degree to which information technology influences performance of the hospital with regard to risks and revenue generated.*

### **1. Background of the Study**

Organizations worldwide are progressively recognizing the critical effects of integrating with suppliers and customers in their business operations to gain competitive advantage. Supply chain management (SCM) presents a significant change in the way organisations view themselves and witness values created through the integration and coordination of supply, demand and relationships in order to satisfy customers in an effective and profitable manner both in the private and public sectors (Burges and Singh, 2006, Dorobek, 2006; Migiro and Ambe, 2008; Ambe, 2009). As a result, a number of studies on SCM have been undertaken in many different industries and sectors. However, majority of these related studies recognize that an effective SCM is a powerful tool to achieve cost advantage and a more profitable outcome for all parties within and beyond any organization (Zsidisin et al., 2000; Davis, 2008). It is for this reason that the concept has gained interest in the public sector in the recent years (Migiro and Ambe, 2008; Ambe, 2009). For example, countries like UK, US and Canada have for long employed SCM practices in the management of their procurement and logistics (Ambe, 2009).

The stream of supply chain management (SCM) practices is regarded as one of the most significant shift of modern management paradigm (Chen and Paularj, 2004). The core concept of SCM considers integrating suppliers with customers as a competitive strategy to improve operational and financial performance of organization (Li et al., 2006). Swink et al. (2007) asserts that there is a positive relationship between SCI and organizational performance. To effectively manage the supply chain and satisfy customer need, quality is a critical factor of concern in the production, provision of services and distribution activities. Forker et al. (1997) in their study show that supplier quality management (QM) practices lead to better performance and encourage firms to continue promoting QM practices throughout the supply chain, the health institutions both public and private are not an exception to this

scenario. Hence, supply chain quality management (SCQM) is an emerging issue to tackle such QM issues in all organizations along the supply chain (Lin et al., 2005).

According to Ho (2002), there is little consistency about the basic definition and content of SCM, but the definitions of SCM practices are divided by functional approaches among extant researches thus, critical to clarify the core meaning of SCI. Das (2006), indicates that the areas of SCI include customer and market integration, information integration, logistics and distribution integration, supplier integration, and purchasing integration. In the arc of supply chain practice an extensive integration both with suppliers and customers leads to largest performance improvement in organizations. Cousins and Mengu (2006) indicate that consistent involvement of both the buyer and the supplier facilitates the interchange of information and ideas between the parties; this is not an exception to health service provider institutions.

Richard (2008) asserts that building and maintaining a lean supply chain revolves around 4 practices, and mastering these practices leads to a lean and effective supply chain namely: Inbound practices (standardization and organizational behavior) or Outbound practices (Demand management and Waste management). Anand and Kodali (2008) revealed that demand management is the provision of products only when requested by the customer and at the pace of the customer. The suppliers at each level of the process must receive their downstream customer's demand and is done from the end customer all the way back through the SC in a meaningful way. Secondly waste management is where wastes or activities that do not add value during the conversion of resources (which are predominantly raw material) into a product or service as desired by a customer. Lean application is among sensible solutions being adopted by many countries around the world to address the issues of waste. Medical materials are expensive to procure and dispose and therefore the procurement systems and supply chain practices adopted must be integrated in a manner that minimizes losses and environmental damage as they help provide service to a number of patients visiting the hospital.

Humphries and Wilding (2004) assert that despite the interest and employment of SCM practices in public institutions, much has not been done compared to the private sector. However, Essig & Dorobek (2006) argue that management of public supply chain raises various research questions that remain unanswered. This acts as a fundamental concept behind this study on public health institutions. Further, manufacturing companies recognized long time ago the strategic relevance of integrated supply chain management in boosting organization performance (Grando 2002) and on the contrary, healthcare institutions have traditionally overlooked the role of logistics and supply chain despite the fact that innovation in this area might offer tremendous improvement under different dimensions: efficiency, quality and safety (Aptel 1998). It is important to take into consideration both the specificities of healthcare institutions (e.g. variability of production processes, the role of professionals) and the peculiarities of public administration (e.g. the role of political institutions, the constraints posed by key principle such as equity, transparency and legality).

## **2. Statement of the Problem**

Supply chain management practices are adopted in institutions for better service delivery. KPMG report (2008) indicated that 90% of public institutions suffer from a number of malpractices related to procurement and supplies required for service delivery. The public procurement and disposal regulation if applied well in line with proper supply chain management practises would assist improve the procurement process in public institutions and facilitate efficient and effective service delivery. Swink et al. (2007) asserted that there is a positive relationship between supply chain integration and organizational performance, public reforms introduced aimed at improving the procurement-supply chain practices for purposes of service delivery to the general public in all public institutions. Despite all these efforts the management of multiple relationships across the supply chain, distribution channels and the point of use in the hospitals particularly in Kisii Level Five hospitals was still dismal in service delivery. The variability of efficiency in medical service, material provision in a supply chain tended to be amplified as one moved from one procurement system to another and the same applied on supply chain practices adopted. The potential dangers arise when the variability and distortion of supply chain practices and procurement systems occur. Effective supply chain practices ensure adequate client (customer/ patient's) satisfaction through reduced costs and service delivery. Today public hospitals are "customer driven" a logistics that is increasingly getting accepted. Humphries and Wilding (2004) in their past study asserted that despite the interest and employment of SCM practices in public institutions, much had not been done compared to the private sector. Further, Essig & Dorobek (2006) argued that management of public supply chain a rose various research questions that remain unanswered. This study therefore sought to assess the influence of supply chain management practices on the performance of public health institutions in Kenya with specific interest in Kisii Level Five hospitals, Kisii County

## **3. General Objective**

To assess the influence of supply chain management practices on operational performance of public health institutions in Kenya with specific interest on Kisii level five hospitals in Kisii County.

## **4. Specific Objectives**

- To determine the influence of supplier relationship practise on operational performance in Kisii Level Five hospitals.
- To determine the influence of information sharing practise on operational performance in Kisii Level Five hospitals.
- To establish the influence of decentralised procurement practise on operational performance in Kisii Level Five hospital.

## 5. Research Questions

- How do supplier relationships practise influence operational performance in Kisii Level Five hospitals?
- How does information sharing practise influence operational performance in Kisii Level Five hospitals?
- How does decentralised procurement practise influence operational performance in Kisii Level Five hospitals?

## 6. Significance of the Study

The choice of supply chain practices and performance in public health institutions was motivated by the fact that Kisii Level Five hospitals is considered as the hope for those seeking medical services in the greater south Nyanza region. The findings of this study were helpful to the management of public health institutions to bring on board the best procurement systems, supply chain practices to foster optimal performance in service delivery in these institutions in Kenya. The findings were also helpful to those who sought to establish the relationship between procurement, supply chain practices and mortality rate in public health institutions. To academicians the findings of this study bridged the gap between researched work and the grey areas that required further investigations.

## 7. Supplier Relationships

Bowersox and Closs (1996) assert that for effectiveness in the current's competitive business, companies must develop their integrated behavior to incorporated customers and suppliers. The philosophy of supply chain management is described as a set of activities that carries out the philosophy in a coordinated effort between the supply chain partners, such as suppliers, manufactures and customers (Greene, 1991). Thatte (2007) argued that strategic supplier partnership is a long-term relationship between the organization and its supplier. Gunasekaran et al (2001) asserted that a strategic partnership emphasizes long-term relationship between trading partners and promote mutual planning as a problem solving efforts. Strategic partnership between organizations promote shared benefits and ongoing collaboration in key strategic areas like technology, products, and market (Yoshino and Rangan, 1995; Thatte, 2007). Strategic partnerships with suppliers lead organization working closely and effectively with a few suppliers rather than many supplier that are selected on the basis of cost efficiency. The advantage of suppliers' involvement early in the product-design process: suppliers may offer cost effective design alternatives, assist in selecting better components and technologies, and aid in designing assessment (Tan et al, 2002; Thatte, 2007). Through close relationship supply chain partners are willing to share risks and reward, and maintain the relationship on long term basis (Landeros and Monczka, 1989; Cooper and Ellram, 1993; Stuart, 1993; Thatte, 2007). Toni and Nassimbeni (1999) identified that a long-term perspective between the buyer and supplier increase the intensity of firm-supplier integration. Firms that integrate with customers including: planning, implementing, and evaluating a successful relationship between the provider and recipient of both upstream and downstream of the supply chain. Therefore, customer relationship management (CRM) focus on inbound customer relationships and on outbound customer relationships in SCM. Customer relations related to the company's ability to communicate to the delivery of appropriate products and services to customers locally and globally in the right time, right place, and appropriate quantity and quality. Customer linkage especially sharing product information with customers, receiving customer orders, interact with customers to manage demand, after placing the order system, share the status of orders with customers on scheduling orders, and product delivery stage (Lee, *et al*, 2007).

## 8. Information Sharing in Supply Chain

Simatupang and Sridharan, (2002) defined information sharing as the access to private data between business partners thus enabling them to monitor the progress of products and orders as they pass through various processes in the supply chain.

## 9. Decentralised Procurement

Farmer and Weeler (2000), asserts that the purchasing process is very complex and it takes several steps according to each organization. The steps vary by product, industry and buying situation, but the most conventional is the definition of specifications, supplier selection, agreeing on the contract, ordering and lastly expediting. Wind and Thomas (2001) observed that organizational procurement process and composition of the buying centre tend to vary depending on two sets of factors: the procurement situation which can either be a new task purchase for extensive problem solving, a modified re-procurement for limited problem solving or straight re-procurement for routines response behaviour, and personal, inter-personal, organizational and environmental conditions. Baily et al. (2005) identify six factors that influence the procurement decision process namely quality, the right quantity, time, source decision-making, price and cost and purchasing negotiations.

The status and importance procurement by public entities requires a transition from thinking of it as a purely tactical activity to seeing it as a strategic activity. According to Lysons and Farrington, (2006), strategic sourcing is one of the most recent emerging issues in procurement. It is concerned with top-level, long-term decisions relating to high-profit, high supply risk strategic items and low-profit, high supply risk bottleneck products and services. It is also concerned with the formulation of long-term procurement policies by the purchasing entities, obtaining a wide and solid supplier base through partnership sourcing, reciprocal and intra-company trading and ethical issues. Public procurement is broadly defined as the purchasing, hiring or obtaining by any other contractual means of goods, construction works and services by the public sector. The items involved in public procurement range from simple goods or services such as clips or cleaning services to large commercial projects, such as the development of infrastructure, including road, power stations and airports.

In a study on obstacles of public procurement by Hunja (2001) study on public procurement, it is noted that in the previous years many developing countries did not see public procurement as having a strategic impact in the management of public resources. The Kenya Gazette Supplement No. 92, 2006, there are a number of types of procurement. A hybrid procurement system

mechanism is one in which each supplier gives not only a price, but also a supply curves depicting different prices for different quantities of items. This occurs normally when providers are able to give discounts for additional items serviced. The purchasing process includes many aspects, such as request for quotation (RFQ), supplier market analysis, supplier selection, contract negotiations, and purchase plan implementation. The hybrid procurement system embraces both Centralized and Decentralized procurements systems. Centralized purchasing system and decentralized purchasing system is a choice many companies have to make because very few companies employ a pure centralized purchasing strategy or a pure decentralized purchasing strategy. Decentralized purchasing system gives the local business unit more power to choose the best fit of suppliers and can effectively use local resources. The decentralized sourcing approach can be a choice for key commodity (Wittig, 1998). A hybrid procurement system that integrates both centralized and decentralized systems a process that is ideal for organizations that have different divisions and business units.

Studies have been carried out by experts on procurement before the Public procurement and Disposal Regulations to evaluate the efficiency of the procurement process and related systems in existence at the time, (Kipchilat, 2006). The major findings of the studies indicate that public procurement is not operating efficiently and the state loses a lot of money through shoddy deals related to procurement systems and supply chain practices adopted. In 1997, the Government in collaboration with the World Bank commissioned a study to assess the country's procurement processes and systems. The World Bank supported the study through the Public Procurement and Capacity Reform Project. This study identified the need for a comprehensive review and an implementation of a reform process in the procurement systems. The study revealed that the public procurement system in Kenya lacked transparency and fair competition. Further, procurement staffs were not adequately trained and lacked professionalism and absence of a professional body to oversee and instil discipline among procurement officers made officers in charge vulnerable to corruption.

Medical materials are expensive to procure and dispose and therefore the procurement systems and supply chain practices adopted must be integrated in a manner that minimizes loses and environmental damage as they help provide service to a number of patients visiting the hospital.

## 10. Performance

Performance includes tangibles like costs and intangibles like time factors. Through improving these factors to perform in the supply chain means to gain efficiency and effectiveness. (Kim & Shunk, 2000). The ability of the firms to react quickly to customer demand is depending on the reaction time of suppliers to make volume of changes. Competitive advantage emerges from the creation of supplier competencies to create customer value and achieve cost and/or differentiation advantages, resulting in market share and firm profitability, (Thatte, 2007). To obtain competitive advantage, firms need to set up barriers that make imitation difficult through continual investment to improve the firm advantage, making this a long-run cyclical process. Souza and William (2000) suggested that cost and quality is part of competitive advantage dimension. Wheelwright (1978) and Thatte (2007) also suggest cost, quality, dependability and speed of delivery as some of the critical competitive priorities for manufacturing. (Vokurka et al., 2002) the competitive advantage dimensions included price/cost, quality, delivery dependability, and time to market (Zhang, 2001). Koufteros et al. (1997); describe the following five dimensions of competitive capabilities in the SCM practices: competitive pricing, premium pricing, value-to-customer quality, dependable delivery, and product innovation. Thatte (2007) suggested that dimension of competitive advantage includes: price, quality, delivery dependability, time to market, and product innovation.

## 11. Critique of existing literature

Many researchers concluded that supplier relationship, information sharing and procurement system are factors influencing performance of organization. Many previous researches explored the importance of integrating suppliers, manufacturers, and customers or supply chain integration (Frohlich and Westbrook, 2001; Clinton and Closs, 1997) (i.e. supply chain management) so as to obtain flexibility and speed. Literature also revealed that supply chain if well managed can lead to cost reduction, order fulfillment and customer satisfaction. The growth of supply chain aims to improve profitability, customer response and ability to deliver value to the customers and also to improve the interconnection and interdependence among firms. Due to market expanding from domestic market to global market increase customer demands, for instance demanding lower prices, faster delivery, higher quality products or services and increase the variety of items (Braunscheidel, 2005).

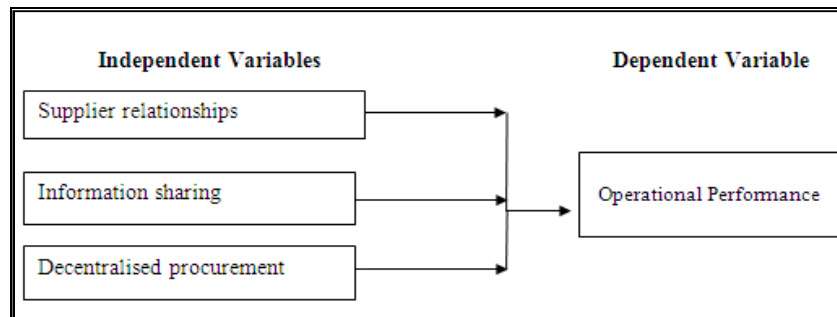


Figure 1: Conceptual Frameworks

## 12. Methodology

### 12.1. Research design

The study used descriptive research design because it assessed the nature of prevailing conditions. It involved collection of data in order to answer research questions on how supply chain management practices influences operational performance (Oso and Onen, 2005).

### 12.2. Target Population

Population was the entire group of individuals' events or objects having common observable characteristics which the researcher wanted to generate the results of the study (Mugenda & Mugenda, 1999). The study target population was 150 consisting of 9 supply chain officers, 14 hospital management team, 27 work station in charge, 30 clinical officers, 20 medical officers and 50 suppliers

### 12.3. Sample size and sampling procedure

A sample is a smaller group obtained from accessible population. At least 10% of the target population is enough and representative (Mugenda & Mugenda, 2003). Simple random, stratified and purposive sampling technique was applied to select a sample for this study. This was necessary since there were sub-groups in the target population whose responses were important in achieving the objectives of this study. The respondents in this study were selected randomly from Kisii Level Five Hospital as a study unit. The study sample size will be 30 respondents.

### 12.4. Validity of instrument

Validity is the degree to which a test measures what it supports to measure. The research exposed the instrument to experts in research for judgement (Borg & Gall, 1982). The researcher also conducted a pilot study whereby inappropriate questionnaire items were discarded, rephrased and merged. Piloting was done at Nyamache Level 4 hospital.

### 12.5. Reliability of the instrument

To test for reliability, Cronbach Alpha Co-efficient was calculated on the piloted questionnaire. Cronbach Alpha is used as a measure of the internal consistency of items in the questionnaire. Theoretically, alpha varies from 0 to 1, and a test with a Cronbach alpha of 0.75 indicates that the test was 75% reliable in practice, so that the higher the Cronbach alpha, the more reliable the test results will be. The Cronbach alpha for this study was 0.9131 which is equivalent to 91.3% and higher than 75%. Thus the research instruments used were more reliable.

## 13. Data Analysis and Presentation

### 13.1. Response Rate

Strata	Frequency	Percentage %
Supply department	2	6.70
Hospital management team	3	10
Work station in charge	5	16.70
Clinical officers	6	20
Medical officers	4	13.30
Suppliers	10	33.30
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 1

### 13.2. Gender of Respondents

The Kenyan constitution requires that in any public sector there should not be more than two thirds of either gender. The analysis sought to establish the above constitutional requirement and the results were tabulated as below

### 13.3. Analysis of the Respondents' Gender

Gender	Frequency	Percentage%
Male	20	66
Female	10	34
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 2

### 13.4. Respondents Level of Education

The study sought to establish the level of education of the respondents.

### 13.5. The Level of Education for Respondents

Level of Education	Frequency	Percentage%
Diploma course	18	60
Certificate course	5	16.60
Graduate	2	6.60
Form 4 and below	2	6.60
Post-graduate	1	3.60
Form 6(Advanced level)	2	6.60
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 3

### 13.6. Tenure in Kisii Level Five Hospital

The Study sought to find out the duration of time that respondents had worked with Kisii Level Five hospitals. The table shows the response obtained from the field.

### 13.7. Duration That Respondents Have Worked At Kisii Level Five Hospital

Duration (years)	Frequency	Percentage%
0-5 years	12	40
6-10 years	9	30
Above 10 years	9	30
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 4

### 13.8. The Role of Respondents in the Purchasing and Supply Chain Management

The study sought to establish the role of the respondents in the purchasing and supply chain management.

### 13.9. Role of Respondents in the Purchasing and Supply Chain

Category	Frequency	Percentage%
User	24	80
Procurement Staff	2	6.67
Tender Committee Members	2	6.67
Procurement Committee Members	1	3.33
Inspection Committee Members	1	3.33
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 5

The table shows that 80% were users, 6.67 % were Procurement Staff, and tender Committee members respectively, 3.33 % were members of the Procurement Committee and Inspection Committee respectively. This implies that each relevant category of committee according to PPDA (2005) was represented giving an assurance that respondents are aware of supply chain management practices in Kisii level five hospitals in Kisii County.

### 13.10. Supply Chain Management issues

#### 13.10.1. Members Trained, Attended Seminar/Workshop on Purchasing and Supplies Management

The study sought to find out whether staff have been trained or taken seminars on purchasing and supplies matters.

#### 13.10.2. Responses on Training/Seminars or Workshops on Procurement Matters

Response	Frequency	Percentage%
No	29	96.67
Yes	1	3.33
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 6

#### 13.10.3. Supplier Observing Lead-Time Specified In the Local Purchase Order

Lead-time is the period between when the need is conceived to the time when need is fulfilled. The study sought to establish whether supplier do observe lead-time specified in the order.

13.10.4. Suppliers Observing Lead-Time Specified In the Purchase Orders

Response	Frequency	Percentage%
No	18	60
Yes	12	40
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 7

The table reflects that 60% of the respondents were not observing lead-time specified in the orders while 40% were observing. This implies that most users are not getting their requested supplies within the specific time. This provides a probable explanation on the problem of shortage and stock-out in Kisii Level Five Hospital forcing clients to outsource goods, works and services.

13.10.5. Inspection of Goods Works and Services

The study sought to find out who inspect the goods, services and works procured.

13.10.6. The Responsibility of Inspecting Goods, Works and Services

Responses	Frequency	Percentage%
Hospital Inspection Committee	62	96.67
KEMSA	01	3.33
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 8

The table indicates that 96.67% of the respondents were in agreement that inspection of goods, works and services were being inspected by the Hospital Inspection Committee while 3.33 % felt that inspection was done by KEMSA. Since the hospital has inspection and acceptance committee, it is performing its functions right. This indicates that to an extent to which the hospital handle the supply.

13.11. Supplier Relationships influence Operational Performance

The study sought to determine the influence of supplier relationship on operational performance in Kisii Level Five hospital, the respondents were asked to rate various factors/issues outlined in the supplier relationship which are considered important in the supplier chain management of goods, works and services.

Factors	No influence	Less Influence	Moderate influential	More Influence	Most influential	$\sum f_i$	$\sum f_i w_i$	$\frac{\sum f_i w_i}{\sum f_i}$
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>			
Tendering	-	01	01	20	8	30	125	4.16
Meeting user Specifications -		2	6	18	4	30	114	3.8
Price Competitiveness	01	13	10	4	2	30	83	2.76
Sound Suppliers Relationship	01	18	6	2	3	30	78	2.60
Timely Delivery	-	17	7	3	3	30	82	2.73
Reporting to PPOA	18	3	06	2	1	30	55	1.83

Table 9

The table indicate that supplier relationships influence operational performance of Kisii Level Five Hospital is in tendering whose means score was 4.16. The respondents were moderate influential whether the supplier relationships influence operational performance in meeting user specifications as reflected in the score of 3.8, price competitiveness had a score of 2.76, sound supplier relationship had a score of 2.60, There was little compliant to timely delivery with a mean scores 1.83. However, the hospital has not complied with PPDA (2005) in reporting to Public Procurement Oversight Authority. This implies that there is an influence from the supplier relationship on the operational performance in Kisii Level Five Hospital.

13.11.1. Assessing whether supplier relationships influence operational performance

The study sought to establish whether supplier relationships influence operational performance in Kisii Level Five Hospital.

13.11.2. Assessing whether supplier relationships influence operational performance

Response	Frequency	Percentage%
Yes	26	87
No	4	13
<b>Total</b>	<b>30</b>	<b>100%</b>

Table 10

Eighty seven (87%) percent of respondents indicate that supplier relationship has made work easier in Procurement department while 13% indicates that it has not made work easier. The purpose of PPDA (2005) was to establish procedures for procurement and disposal of unserviceable, obsolete or surplus stores and equipment by public entities so as to achieve the objectives of economy and efficiency, integrity and fairness, increased transparency and accountability as well as and increased public confidence, build supplier relationship PPDA (2005) (2). If supplier relationship is making working easier in procurement unit at Kisii Level Five Hospital, then seemingly these objectives are being met. The study agrees with Bowersox and Closs (1996) who assert that for effectiveness in the current competitive business, companies must develop their integrated behaviour to incorporated customers and suppliers. Also the study agrees with Forker et al. (1997) who asserts that supplier quality management (QM) practices do lead to better performance and encourage firms to continue promoting QM practices throughout the supply chain, the health institutions whether public or private are not an exception to this scenario.

13.11.3. The influence of information sharing on operational performance

The study sought to determine the influence of information sharing on operational performance in Kisii Level Five hospital.

13.11.4. Analysis of the influence of information sharing on operational performance

Factors	No extent 1	Less extent 2	Moderate extent 3	Great extent 4	Very great extent 5	$\Sigma f_i$	$\Sigma f_i w_i$	$\frac{\Sigma f_i w_i}{\Sigma f_i}$
Maximized economy and efficiency	01	4	19	6	-	30	90	3.00
Increased Public confidence	4	18	3	2	3	30	72	2.40
Promoted Competition	9	10	7	4	-	30	66	2.20
Promoted integrity and fairness	16	6	4	4	-	30	56	1.86
Increased Transparency and accountability	20	4	2	4	-	30	50	1.66

Table 11

Indicates that user and procurement staff indicated that information sharing influences operational performance to a moderate extent on whether the objective of information sharing influences in maximizing economy and efficiency had been met as evidenced by the average score of 3.00 The respondents on whether there was an increase in public confidence and promotion of competition as shown by the mean score of 2.40 and 2.20 respectively. The extent that information sharing on operational performance in Kisii Level Five hospital promoted integrity and fairness; or increased transparency and accountability which both had an average score of 1.86 and 1.66 this implies that information sharing does not increase the operational performance in Kisii Level Five hospital. . Apart from product performance, the non product dimensions of the exchange are important for the formation of customer satisfaction (Ruekert and Churchill 1984). For a buying firm, both the supplier's flexibility and information sharing seem to be critical for its overall satisfaction (e.g., Mohr and Spekman 1994).

13.11.5. The influence of decentralised procurement on operational performance

The study sought to establish the influence of decentralised procurement on operational performance in Kisii Level Five hospital. Table 12; Shows rates of response obtained from the field.



13.11.6. Analysis of Ratings on the influence of decentralized procurement on operational performance

Factors	No influence 1	Less influence 2	Moderate influential 3	Great influential 4	Very Great influential great extent 5	$\sum fi$	$\sum fiwi$	$\frac{\sum fiwi}{\sum fi}$
Open tendering process	-	-	-	18	12	30	132	4.40
Implementation of Committee Minutes	-	-	-	30	-	30	120	4.00
Alternative methods of procurement	-	-	18	6	6	30	108	3.60
Annual Procurement Plan matched with annual budget	-	6	6	18	-	30	102	3.40
Relationship with Suppliers 6	-	6	-	12	6	30	96	3.20
Professionalism of Procurement staff	-	24	-	6	-	30	96	2.40

Table 12

**14. Summary of Findings, Conclusion and Recommendations**

The study analysis showed a strong agreement between independent variables and dependent variable within the organization. This was evident in that if supplier relationships, proper information sharing and adoption of decentralised procurement are practised in Kisii Level Five hospitals they will leads to reduced cycle time, increased customer satisfaction and better service delivery. This was in relation with literature which revealed that the stream of supply chain management (SCM) practices is regarded as one of the most significant shift of modern management paradigm (Chen and Paularj, 2004). The core concept of SCM considers integrating suppliers with customers as a competitive strategy to improve operational and financial performance of organization (Li et al., 2006)

The institution had a functional supply chain department with tender and procurement committees that help in the procurement process. KEMSA was also identified as the major supplier in the organization. Supplier relationship was major practice in supply chain management in that the response obtained indicated that the goods and services delivered are of good quality and in time.

*14.1. Determining the influence of supplier relationship practice on operational performance*

Findings from the study revealed that supplier relationships influence operational performance of Kisii Level Five Hospital is in tendering whose means score was 4.16. The respondents were moderate influential whether the supplier relationships influence operational performance in meeting user specifications as reflected in the score of 3.8, price competitiveness had a score of 2.76, sound supplier relationship had a score of 2.60, There was little compliant to timely delivery with a mean scores 1.83. However, the hospital has not complied with PPDA (2005) in reporting to Public Procurement Oversight Authority. This implies that there is an influence from the supplier relationship on the operational performance in Kisii Level Five Hospital. 87% of respondents indicate that supplier relationship has made work easier in Procurement department while 13% indicates that it has not made work easier. The purpose of PPDA (2005) was to establish procedures for procurement and disposal of unserviceable, obsolete or surplus stores and equipment by public entities so as to achieve the objectives of economy and efficiency, integrity and fairness, increased transparency and accountability as well as and increased public confidence, build supplier relationship PPDA (2005) (2). If supplier relationship is making working easier in procurement unit at Kisii Level Five Hospital, then seemingly these objectives are being met

*14.2. Influence of information sharing practice on operational performance*

User and procurement staff indicated that information sharing influences operational performance to a moderate extent on whether the objective of information sharing influences in maximizing economy and efficiency had been met as evidenced by the average score of 3.00. The respondents on whether there was an increase in public confidence and promotion of competition as shown by the mean score of 2.40 and 2.20 respectively. The extent that information sharing on operational performance in Kisii Level Five

hospital promoted integrity and fairness; or increased transparency and accountability which both had an average score of 1.86 and 1.66 this implies that information sharing does not increase the operational performance in Kisii Level Five hospital.

#### *14.3. Influence of decentralised procurement practice on performance*

The study established that the respondents were satisfied that decentralized procurement influences the operational performance in Kisii Level Five Hospital through the following services offered which are closer to them, open tendering process with the mean score of 4.40. They further indicated their satisfaction on the implementation of committee minutes with a mean score of 4.00. Use of alternative Procurement methods satisfied them with an average score of 3.60. Annual procurement plan matched with allocated budget; and the buyer/suppliers relationship were satisfied with average scores of 3.40 and 3.20 respectively. However they are satisfied with professional qualification of procurement staff with a mean score of 2.40. This implies that respondents are satisfied with most of decentralized procurement issues since it influences the operational performance in Kisii Level Five Hospital.

The respondents argued that goods are procured locally using decentralized systems. Decentralization of health systems is a major policy reform that has been promoted by many international agencies and by national governments. Respondents argued that centralized systems are often a cumbersome burden demanding too much information that is not used or useful to those expected to provide the information, KEMSA was also identified as the major supplier in the organization implying that Drugs supplied were of high quality and they were availed for use in time.

#### *14.4. Conclusion*

In all, the respondents generally agreed that supply chain management practices have an influence on operational performance with regard to quality, customer satisfaction, cost reduction and reduced cycle time. Collectively, the three aspects of supply chain management practices were found to influence the performance of the health sector. The study also established that KEMSA was the major supply of Drugs in Kisii Level Five Hospital for it was found to have supplied for a period of at least ten years. Suppliers were also involved in opening of tenders in the hospital, which clearly illustrated a strong relationship that exists between the hospital management and the supplier

The study found out that despite the fact that information flow was free to suppliers and hospital management as every computer in the institution was connected to internet and intranet and were installed with both enterprise resource planning and electronic data interchange. From the response received through a questionnaire, it was evident that information technology contributed did not influence the operational performance in Kisii Level Five Hospital.

The study established that the respondents were satisfied that decentralized procurement influences the operational performance in Kisii Level Five Hospital through the following services offered which are closer to them, open tendering process, the implementation of committee minutes, Use of alternative Procurement methods, Annual procurement plan matched with allocated budget and the buyer/suppliers relationship, professional qualification of procurement staff. The study concluded that there is an influence from the supplier relationship on the operational performance in Kisii Level Five Hospital; supplier relationship has made work easier in Procurement.

#### *14.5. Recommendations*

The study recommends that for enhanced supply chain management practices on performance to be effectively realized, supply chain managers need to put efforts aimed at improving level of commitment in payment of suppliers, employing effective supplier development programs and supplier collaboration strategies. The study recommends that the supplier relationship should be embraced in supply chain management since it influences the operational performance in an organization.

The study recommends that the staff working in the supply chain management should be taken for training to get skills of update technology as far as supply chain is concerns, since the majority of respondents do not have technical knowhow on supply chain management issues. This might be a probable reason for non-compliance as they were not aware of what is required for compliance in supply chain management and the respondents indicated that they have little knowledge of PPDA (2005) the Act and this might be having an effect on supply chain management practices and operational performance of Kisii level five hospitals in Kisii County.

Hospitals should adopt decentralised procurement when they need emergency products since a hospital is a life saving institution. This is because getting drugs from KEMSA requires a long process.

#### *14.6. Areas of further studies*

This study was carried out in a Public Hospital; the study recommends a similar study to be conducted in the private hospitals to determine influence of supply chain management practices on operational performance. The study recommends a study to be carried to determine the degree to which information technology influences performance of the hospital with regard to risks and revenue generated.

## **15. References**

1. Bommer, O. B., & Treat. (2001). Strategic assesment of the supply chain interface: a beverage industry case study. *International Journal of physical distribution and logistics management* , 31, 11-25.
2. Bowersox, C. D. (1996). *Logistics management: The intergrated supply chain process*. McGraw-Hill.
3. Braunscheidel, M. (2005). *Antecedents of supply chain agility: An embirical investigation*, Published Dissertation. Buffalo: Faculty of the graduate school of the state university of New York.

4. Chen. (2001). Planning for ERP system: Analysis and future trend. *Business process management Journal* , 7, 374-386.
5. Chen, P. A. (2004). Towards a theory of supply chain management: The constructs and measurements. *Journal of operations management* , 22, 119-50.
6. Chen, P. A. (2004). 'Understanding supply chain management: Critical reserch and a theoretical framework'. *International Journal of production research* , 42, 131-163.
7. Christopher, M. (1992). *Logistics and supply chain management*. London: Pitman.
8. Christopher, P. H. (2004). 'Building the resilient supply chain'. *International Journal of Logistics management* , 15, 1-13.
9. Christopher, T. D. (2002). The supply chain strategy conundrum: To be lean or agile or to be lean and agile? *International journal of logistics: Research and applications* , 5, 299-310.
10. Clinton, C. D. (1997). Logistics strategy : Does it exist? *Journal of business logistics* , 18, 19-44.
11. Clode, D. (1993). A survey of UK manufacturing control over the past ten years. *Production and inventory management Journal* , 34, 53-56.
12. Cooper, & Lambert, P. (1997). Supply chain management: more than a new name for logistics. *International Journal of logistics management* , 8, 1-14.
13. Ellram, M. (1991). Supply chain management: The industrial organization perspective. *International Journal of physical distribution and logistics management* , 21, 13-22.
14. Frohlich M, W. R. (2001). Arc of intergration : An international Study of supply chain strategies. *Journal of operation management* , 19, 185-200.
15. Giannocero, P. P. (2002). Inventory management in supply chains: A reinforcement learning approach. *International Journal of production economics* , 78, 153-161.
16. Goldman, & Nagel, P. (1995). *Agile competitors and virtual organizations: Strategies for enriching the customer*. New york: Van nostrand reinhold.
17. Gunasekaran, P. A. (2001). Perfomance measures and metrics in a supplychain environment. *International journal of operations and production management* , 21, 71-87.
18. Lampart, C. M. (2000). Issues in supply chain management. *Industrial marketing management* , 29, 65-85.
19. Lee, H. (2004). The tripple a supply chain. *Harvard business review* , 82, 102-112.
20. Lummus, D. L. (2003). Supply chain flexibility: Building a new Model. *Global journal of flexible systems management* , 4, 1-13.
21. Mentzer, M. S. (2004). Developing and measuring supply chain concepts. *Journal of business logistics* , 25, 63-99.
22. Mugenda, M. M. (1999). *Research methods; Quantitative and Qualitative approaches*. Nairobi: Penguine books.
23. Orodho, J. (2005). *Elements of education and social science research methods*. Bureau of education research. Nairobi: Institute of research and development, kenyatta university.
24. Rao, S. (2000). Enterprise resource planning: Business needs and technologies. *Industrial management & data systems* , 100, 81-88.
25. Simatupang, S. R. (2002). The Collaborative supply chain. *International Journal of logistics management* , 13, 15-30.
26. Subba, L. S., & Ragu-Nathan. (2006). Development and validation of a measurement instrument for studying supply chain management. *Journal of operation management* , 23, 618-641.
27. Thatte, A. (2007). *Competitive advantage of a firm through supply chain responsiveness and supply chain management practices*. Published PHD Dissertation .
28. Wortmann, J. (2002). *Evolution of ERP systems, proceedings of the conference of the manufacturing value chain chain*. Scotland: Troon.
29. Yoshino, M. &. (1995). *Strategic alliance: an entrepreneurial approach to globalization*. Boston: Havard Business School.
30. Zairi, M. A.-m. (2000). Supply chain re-engineering using enterprise resource planning(ERP) sytems: an anlysis of SAP R/3 implementation. *International Journal of physical distribution and logistics management* , 30 No 3/4, 296-313