

**SUPPLY CHAIN FACTORS AND PERFORMANCE OF PUBLIC  
HOSPITALS IN HOMA BAY COUNTY**

**BY**

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ADMINISTRATION**

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## DECLARATION

### Declaration by the Student

This is my original research project and has not been submitted to any other University for assessment or award of Degree.

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Sign:.....

Date:.....

### Declaration by the Supervisor

This research project has been presented to Nairobi University with my approval as the Supervisor

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## **ACKNOWLEDGEMENT**

Above all, I thank the almighty God for the adequate grace and energy to write this Research Project. Special thanks to my supervisor, Mr Gerald Ondiek for his tireless effort, time and guidance to make this project a success. My dear wife and children for your understanding and cooperation during my long absence from home to accomplish this demanding project. I cannot forget the constant guidance and financial support from my elder brother, George Odero which enabled me to attain this level of education. To my mother and late father, thanks for every support and guidance since my childhood.

## **DEDICATION**

This project is dedicated to my wife, children and close relatives and friends for their support and encouragement during this study.

## ABSTRACT

Despite the fact that many hospitals have recognized the significance of supply chain management practices, the application of methods, techniques and best practices that is well developed in the industrial sector still remain a big problem. This study attempted to answer the question: What is the relationship between supply chain factors and performance of Public hospitals in Homa Bay County? The county was chosen for the study because it has the highest HIV & AIDS prevalence in Kenya and also no similar research has been previously carried out. The study sought to: Identify the major factors of supply chain and Identify relationships between factors of supply chains and performance of public hospitals in Homa Bay County. Balance Score Card was the approach adopted to measure the performance of public hospitals, these included Financial Perspective, Innovation and Learning Perspective, Customer Perspective and finally the Internal Business Perspective. The study targeted 11 supply chain personnel in government hospital in Homa bay County. The study used Primary and Secondary data. Data was collected and analyzed by the researcher himself from all the public hospitals in Homa Bay County. From the findings, it was established that the respondents rated Level of technology (LOT) and Inventory management (IM) and Legislation (LEG) with mean of 3.45 and 3.45 in that order. The correlation result showed a strong positive relationship between Financial Perspective (FP) and Innovation and Learning (IL) with ( $r = .869$ ). The study concluded that Government Regulations, Inventory Management, Distribution Channels, Staff Competency, Level of Technology and Procurement Processes were moderate factors affecting supply chain in Government Hospitals of Homa Bay County. The study further revealed that performance of hospitals could be measured by financial perspective, Innovation and Learning perspective, Customer perspective and Internal Business Perspective. This study considered Balance Score card as the only method of measuring performance and therefore a future research was recommended to explore other available options for performance measurement so as to improve on this study.

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## **ABBREVIATIONS AND ACRYONYMS**

|              |  |
|--------------|--|
| <b>AAACH</b> | Accreditation Association for Ambulatory Health Care |
| <b>ANOVA</b> | Analysis of Variance                                 |
| <b>BSC</b>   | Balance Score Card                                   |
| <b>CP</b>    | Customer Perspective                                 |
| <b>DC</b>    | Distribution Channels                                |
| <b>EDI</b>   | Electronic Data Interchange                          |
| <b>ET AL</b> | And Others   |
| <b>FP</b>    | Financial Perspective                                |
| <b>HIV</b>   | Human Immunodeficiency Virus                         |
| <b>IBP</b>   | Internal Business Process                            |
| <b>IL</b>    | Innovation and Learning                              |
| <b>IM</b>    | Inventory Management                                 |
| <b>IT</b>    | Information Technology                               |
| <b>KEMSA</b> | Kenya Medical Supplies Agency                        |
| <b>KM</b>    | Kilometers   |
| <b>LEG</b>   | Legislation  |
| <b>LOT</b>   | Level of Technology                                  |
| <b>PP</b>    | Procurement Processes                                |
| <b>PPDA</b>  | Public Procurement and Disposal Act                  |
| <b>RBV</b>   | Resource Based View                                  |
| <b>SC</b>    | Staff Competency                                     |
| <b>SC</b>    | Supply Chain   |
| <b>VCT</b>   | Voluntary testing and Counselling Center             |
| <b>WHO</b>   | World Health Organization                            |

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background of the Study**

This section provides a detailed genesis of the study, definition of key concepts, explanations of some theories relevant to this study, statement of the problem, research objectives and concludes with the value of the study. This study focused on supply chain factors and performance of Public Hospitals in Homa Bay County.

Effective procurement and optimizations are some of the main arrears of concern in several health care industries locally and internationally. This is because, according to the health sector performance reports of 2013 and 2014, many health institutions are either ailing from shortage of drugs or holding expired drugs. Most health centers and even dispensaries are hardly stocked with the recommended medicines. This shows that high rate of expired drugs in dispensaries and other public hospitals portrays poor planning and high wastage of public resources in the counties and this affects efficient delivery of quality services (Researcher 2016)

World Health Organization (WHO, 2007) reported that an effective procurement procedure should provide the required medicines at the right quantity, place, time and price. In comparison, health care industries spend more money salaries and wages followed by hospital supplies with so many items moving from manufacturers to the final consumers in hospitals. This consequently calls for an efficient and effective management of supply chain units of hospitals to enable them achieve their short and long term goals.

As a result of lack of constant supplies, many hospitals in Kenya had been experiencing time-to-time shortages of pharmaceuticals therefore not being in a position to deliver better health care facilities to patients. A study by Transparency International-Kenya, (2001) revealed that shortage was causing a trail of misery for patients across the country. In many hospitals, patients had been asked to purchase these products from private chemists. In order to coordinate the supply of pharmaceutical products more effectively, Kenya Medical Supplies Agency (KEMSA) was established by the Kenya government in the year two thousand specifically to oversee the procurement and distribution of drugs to both public and private hospitals within the republic of Kenya. Homa Bay County was chosen for this study because no previous similar research had been conducted yet the County has the highest HIV prevalence rate in Kenya of 27.1% as per Kenya AIDS Response Progress Report of 2014. This study was anchored on certain theories as discussed below.

The theory of constraints on supply chain explains that firms have at least one financial or none financial limitation which hinders the achievement of one or more of their goals (Trietsch 2005; Cox, Jeff, Goldratt & Eliyahu 1986). The theory of contingency on the other hand states that there is no unanimously agreed formula of measuring performance for all organizations because each of them operate under different conditions. Theory of internal control refers to the policies and procedures which are meant to minimize or prevent errors and frauds in the organizations. The policies also aim to ensure that the organizations conduct their activities within the existing government regulations. The theory of resource-based view (RBV) states that an organization has competitive advantage over another if it has essential resources which that other organization doesn't have (Mwailu & Mercer) 1983).

### **1.1.1 Supply Chain Factors**

A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers, Mentzer et al. (2001). For the purposes of this study, supply chain factors are those affecting the supply chain performance of public hospitals within Homa Bay County. These factors include level of technology, staff competency, procurement processes, distribution channels, inventory management and legislation. Performance of hospital is normally affected by one or more of these Supply chain factors as discussed at length in chapter two of this study.

### **1.1.2 Performance of Public Hospitals**

Performance is the ability of an organization to achieve its desired objectives through proper management of its resources (Mahapatro, 2009). Shaw (2003) defined hospital performance according to the achievement of specific targets, either clinical or administrative. Performance of Hospital was looked at holistically to include community care and public health besides employment and social functions.

Performance Measurement was evaluated by the use of Balance score card (BSC). Halme, (2010) stated that balance score card can be analyzed from four perspectives. These include: From the customer perspective which focuses on value addition through provision of excellent services to the customers. The second area is the internal business perspective. The third area is financial perspective which focuses on whether or not the organization is able to settle all its liabilities as and when they become due. The last approach is innovation and learning which focuses on the ability of the company to come up with new ideas which can give them competitive advantage over their competitors. For the purposes of this study, supply chain factors

(level of technology, staff competency, procurement processes, distribution channels and inventory management) were used to measure performance of Hospitals.

### **1.1.3 Supply Chain Factors and Performance**

Farrington and Lysons (2006) defined supply chain as a group of firms which collaborate to ensure value addition by providing goods and services closer to the customers. For this study, supply chain factors were those affecting the supply chain performance of public hospitals within Homa Bay County. These factors included level of technology, staff competency, procurement processes, distribution channels, inventory management and Legislation

Supply Chain Performance can be defined as the multiple measures of performance developed by the organization to gauge the ability of its supply chain to meet their long-term and short-term objectives. Performance measurement on the other hand is the process of quantifying the effectiveness and efficiency of action, Neely et al. (1995). The instrument which regularly supports the performance measurement process is referred to as performance measurement supply chain (PMS). A PMS maintains various metrics (performance measures) which are used for different purposes like supporting decision making and management control, evaluating the results, motivating people, stimulating learning, improving coordination and communication (Neely and Simons, 2005).

Performance Measurement can effectively be done through Balance Score Card (BSC). This approach was advanced in early 1990's by Robert Kaplan and David Norton of the Harvard Business School. BSC approach suggested that an organization can be viewed from four perspectives: customer, financial, internal business process and learning and growth. For each of these perspectives, the score card suggests that

we should develop metrics and collect and analyze data. BSC is not only a measurement system but also a framework which enables an organization to clarify its vision and strategy and later translate them into action.

#### **1.1.4 Public Hospitals in Homa Bay County**

A public hospital also known as government hospital is a health institution which is owned by a government and receives government funding. These hospitals are run and managed by government employees. The cost of health care services is usually cheaper in Public hospitals than private hospitals (Researcher, 2016)

There are eleven Public Hospitals according to Master Facility List for Homa Bay County. One of these is County Referral Hospital while the remaining ten are Sub County Hospitals as attached in appendix one.

### **1.2 Research Problem**

Despite the fact that many hospitals have recognized the significance of supply chain management practices, the application of methods, techniques and best practices that is well developed in the industrial sector still remain a big problem. This has significantly contributed to the current shortage of drugs and other essential supplies necessary to enable hospitals discharge their core duties effectively, Shah et al (2008).

Numerous previous studies have been done regarding health sectors in Kenya and globally. Al-Saa'da et al. (2013) researched about the effects of supply chain dimensions on service quality in Jordanian private hospitals, this study was limited to only private hospitals operating in Jordan, not including governmental or military hospitals in other parts of the world. Mutinda (2013) researched on factors affecting consistency in supply of pharmaceutical products in government hospitals in Kenya.



Ondigi (2015) researched on factors affecting public procurement of hospital supplies in public health institutions in Kenya (case study of Kisii teaching and referral hospital)

While it is evident that several studies have been done about health sector in Kenya and even globally, the need for this study was based on the premise Homa Bay County has the highest Human Immunodeficiency Virus (HIV) prevalence rate in Kenya of 27.1% according to Kenya AIDS Response Progress Report (2014) and that no previous research had been done on supply chain factors and performance of Hospitals in Homa Bay with a view to recommend how these hospitals can boost their performance to reduce the high HIV prevalence. This study attempted to answer the question: What is the relationship between supply chain factors and performance of Public hospitals in Homa Bay County?

### **1.3 Objectives of the Study**

This overall objective of this study was to establish supply chain factors that affect performance of public hospitals in Homa Bay County.

Specific objectives were;

- (a) To examine the effect of technology on performance of Public Hospitals in Homa Bay County
- (b) To determine the effect of staff competency on performance of Public Hospitals in Homa Bay County
- (c) To define the effect of procurement procedures on performance of Public Hospitals in Homa Bay County

(d) To explain the effect of distribution channels on performance of Public Hospitals within Homa Bay County

(e) To define the effect of inventory management on performance of Public Hospitals within Homa Bay County

(f) To examine the effects of government regulations on performance of public hospitals in Homa Bay County.

#### **1.4 Values of the Study**

This research will act as useful literature and reference for other future academicians and researchers who would wish to undertake similar studies. The management of hospitals will also be able to know the supply chain factors hence make better decisions on how to improve the performance of their hospitals

The research will provide useful information to government and non-governmental organizations in designing and implementation of policies for establishing effective supply chain management practices in public hospitals in Kenya

This research will be available online for the general public who would wish to enhance their knowledge about public hospitals within Homa Bay County especially with regards to supply chain factors and performance of hospitals at the time the study was undertaken. Future investors shall be able to make better investment decisions in health care based on the findings and recommendations from this study.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This section analyses previous research conducted by other scholars and academicians concerning supply chain factors and performance of hospitals. It begins with a review of theories underpinning the study, supply chain factors, Hospital performance and the conceptual framework under the study.

### **2.2 Theories Underpinning the Study**

Theories are concepts put forward to explain a given phenomenon which cannot be easily understood from its face value. Many researchers have agreed that several theories can explain one phenomenon. For the purposes of this study, theory of constraint, contingency theory, internal control and recourse based view theory have been adopted to explain supply chain factors and performance of public hospitals in Homa Bay County as discussed below

The theory of constraints on supply chain states that firms have at least one financial or none financial constraint which hinders the achievement of their goals (Trietsch 2005; Cox, Jeff, Goldratt & Eliyahu 1986). The theory of constraints is relevant to this study as organizations are now aware that their returns are inversely proportional to their constraints (Goldratts, 2004). This means they can minimize on their constraint so as to maximize on their returns.

Contingency theory on the other hand explains that there is no universally acceptable formula for measuring performance across all organizations because each of them operates under different conditions. This theory is relevant to the study as it allows managers to explore every reasonable option when addressing management issues so that their organizations can effectively achieve their desired objectives.

Theory of internal control is a key component of an organization's management and a basis for its safe and sound operation. The Ruttelman Report (1994) in (united kingdom) UK defined internal control as the whole system of controls, financial and otherwise, established in order to provide reasonable assurance of effective and efficient operations; internal financial control and Compliance with laws and regulations. The theory is relevant to the study because it enables organizations to outlines the internal control policies, procedures and rules to be followed when addressing the supply chain factors affecting the performance of Public hospitals in Homa Bay County.

Theory of resource-based view (RBV) of the firm emphases on the inside of the firm, its resources and capabilities, to explain the return and value of the organization (Penrose, 1980; Wernerfelt, 1984; Barney, 1991; Grant, 1991; Peteraf, 1993; Makhija, 2003). This theory is applied to explain differences in performance within an industry (Hoopes et al., 2003). The RBV of the firm explains that differences in performance happen when well succeeded organizations possess valuable resources that others do not have, allowing them to obtain a rent in its quasi-monopolist form (Wernerfelt, 1984). Resource Based theory of a firm is important in this study because it emphasizes on the need for every organizations, hospitals included to have the right resources and enough resources (knowledge and tools of trade) if they are to meet their short and long term objectives. This also means that organizations can use their resources as a competitive advantage over their competitors even when addressing the challenges affecting the performance in general.

### **2.3 Supply Chain Factors**

Mentzer et al. (2001) defines supply chain (SC) as the set of three or more entities either directly or indirectly involved in the upstream and downstream flows of

products, services, finances and information from the source to a customer. The vision of the supply chain as a holistic construct with close cooperation between the different organizational units has replaced the traditional picture of it as a collection of vertically organized functional units (Stadtler and Kilger, 2005). For the purposes of this study, supply chain factors were those affecting the performance of public hospitals within Homa Bay County. These factors included level of technology, staff competency, procurement processes, distribution channels, inventory management and regulations.

### **2.3.1 Technology in Supply Chain**

Use of Information Technology (IT) in supply chain management can be defined as the use of electronic equipment and devices especially computers and internet for processing, storing and transferring information across organizational boundaries (Subramani, 2004). Previous studies have shown that information technology is widely used locally and globally in managing effective supply chain functions in many organizations including healthcare industries (Breen & Crawford, 2005; Harland & Caldwell, 2007). In hospitals, Information Technology can be used when checking prices of certain drugs online, placing orders, paying suppliers and even in negotiations (Tippins, 2003). Hospitals can also use information technology in their logistics department to track transit goods and plan more effectively on distribution and delivery scheduling. Many firms also manage their inventory by use of barcodes and electronic data interchange (EDI)

### **2.3.2 Staff Competency in Supply Chain**

Like many other industries, health care sector should have qualified and competent staffs not only in their supply chain units but also in other department as well. Previous studies have shown that that competency level of any staff has a direct and

positive effect on that employee's output. Having competent staffs ensures increased delivery speed with minimal or no errors.

### **2.3.3 Procurement Process in Supply Chain**

Procurement refers to the process of acquiring property or services Hoekman et al (1997). Public procurement is that which is conducted and financed by public funds as per the guidelines of Public Procurement and Disposal Act (PPDA). Like many other organizations, Research have recommended that Hospitals should have flexible procurement procedures to enable them acquire essential goods and services within a shorter lead time during emergency situation.

### **2.3.4 Distribution System in Supply Chain**

Hospitals should have flexible distribution systems to ensure that essentials supplies can reach the intended recipients within a short duration during emergency situations. Long and rigid distribution systems is not only costly but also can lead to unwanted delays when the supplies are required as an emergency to save lives.

Burton (2008) recognized three categories of distribution channels. The first one is Intensive, where items are readily available in various outlets. The second being selective where there are few intermediaries between producers and customers. The final category is exclusive distribution where there are very few or no intermediary

### **2.3.5 Management of Inventory in Supply Chain**

Managing inventory in the supply chain is essential to secure higher customer service levels in health care industry. Keeping stock of items is expensive to organizations since it leads to certain costs which can be eliminated by the organization. These include storage charges, handling, insurance premiums, pilferage, breakages,

obsolescence and capital. Having the right amount of inventory to meet customer requirements is critical (Logistics Bureau, 2007).

Dooley (2005) stated that most organizations resorted to inventory cutback strategies due to their desire to cut cost. In order to achieve this objective, organizations should understand the unique demands of their needs so as to adopt the most effective strategy which also ensure smooth continuity in their operations.

### **2.3.6 Regulations in Supply Chain**

Regulations are rules and procedures to be followed when carrying out some activities. Supply chain in hospitals is governed by Public Procurement and disposal Act, Kenyan law of contract and Sale of goods Act of 179. These rules require that supply chain in public institutions including hospitals be conducted in accordance to some laid down procedures. The supply chain performance of hospitals depends on these rules and how they are implanted.

### **2.4 Hospital Performance**

Mahapatro (2009) defined performance as the ease with which an organization is able to achieve its desired objectives. Performance in organizations may take many forms depending on the purpose of the measurement. Different stakeholders usually require different performance indicators to enable them make accurate decisions (Manyuru, 2005).

For the purpose of this study, hospital performance was defined as ability of hospitals to meet the three specific outcomes; financial performance, product market performance and shareholders return.

Department of health and human services of United States (US) report of 2011 confirmed that performance of hospitals can be looked at from three different perspectives; Financial performance, Operational performance and clinical care. Financial performance looks at the ease with which the hospital can collect revenue for services already provided and also the ability to pay its liabilities as and when they come due. Operational performance looks at the time customers or patients wait in the queue before their needs are addressed. This looks at the efficiency of its accounts receivables and timely collection of payment for services rendered. Operations — which tracks the length of time it takes for a patient to receive an appointment in the practice, or measures patient satisfaction with the care received and finally Clinical Care—which measures how often care is delivered in accordance with evidence-based guidelines, or how effective that care is in improving patient outcomes

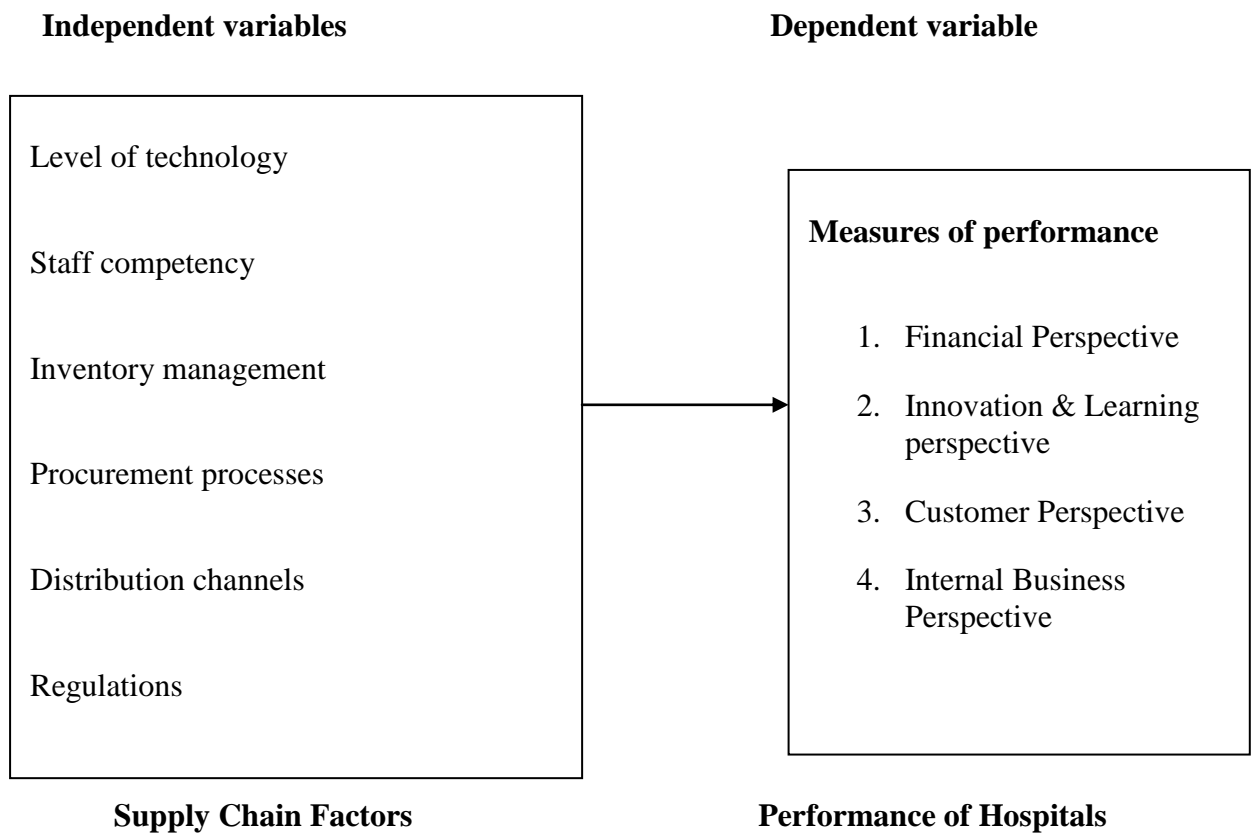
There are numerous justifications for an organization to measure its performance, these include; Quality improvement, Transparency and accreditation. Quality improvement aims to inform the organization on its areas of excellence and where there are gaps for adjustment. Transparency – allows all the stakeholders of the organization to have confidence that all operations are conducted in a fair and objective manner. Accreditation – This allows the organizations to receive recognition confirming that they have attained certain level of performance. These certifications are given after careful evaluation criteria by joint commission and the Accreditation Association for Ambulatory Health Care (AAACH).

## **2.5 Conceptual Framework**

The figures below represent the conceptual framework that was adopted for the purposes of this study.



**Figure 1: Conceptual Framework**



**Source: Researcher (2016)**

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This sub section of the study examines the approach that was used by the researcher to find answers to the problems under investigations.

### **3.2 Research Design**

This study was about supply chain factors and performance of public hospitals in Homa Bay County. It was carried out through a cross sectional survey. Cross-sectional survey was considered as appropriate because it allowed the collection of a large amount of data from a sizeable population within a shorter period. Survey research is an attempt to collect data from members of the population in order to determine the current status of that population with respect to one or many variables (Mugenda 2003). This approach was chosen for this study as it described the state of affairs as they existed without manipulation of variables (Kothari, 2004).

### **3.3 Population**

This study was a bout supply chain factors and performance of Public hospitals in Homa Bay County. Hospitals were grouped into two main categories (County referral and sub county referral hospital) for the purpose of this study. Given their relatively small number, census inquiry design was adopted so as to have a higher confidence level in the results.

**Table 1: Summary of Public Hospitals in Homa Bay County**

|                   |                          | f  | %    |
|-------------------|--------------------------|----|------|
| Types of Hospital | County Referral Hospital | 1  | 9.1  |
|                   | Sub County Hospitals     | 10 | 90.9 |

**Source: Master Facility List for Homa Bay 2016**

### **3.4 Data Collection**

Primary and Secondary data were used in this study. The former data was important because it provided firsthand information on the supply chain factors as discussed in the literature review and the same was collected using oral interviews, structured and unstructured questionnaire so as to capture every necessary data before analysis. Secondary data was obtained through Hospitals' minutes, medical journals, newspapers and magazines. Data was collected and analyzed by the researcher himself from all the public hospitals in Homa Bay County. Key staffs in supply chain units of hospitals were interviewed when collecting the necessary data for the study.

### **3.5 Data Analysis and Presentation**

Completed questionnaires from the field was checked and edited to ensure total accuracy before analysis. Regression analysis was employed to estimate causal relationships among supply chain factors plus performance of public hospitals. With the aid of SPSS version 18 software, the researcher performed multiple regressions analysis and estimated the beta values of factors and F – test statistics to determine their significance at confidence level of 95%. The regression equation of the study is shown below;

$$Y = c + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \alpha_5 X_5 + \alpha_6 X_6 + E$$

Where:

Y = Performance of public hospitals,

c = Constant

$\alpha_1, \alpha_2, \alpha_3, \dots, \alpha_6$  = the independent variable coefficients.

$X_1$  = Level of technology

$X_2$  = Staff competency

$X_3$  = Procurement processes

$X_4$  = Distribution channels

$X_5$  = Inventory management

$X_6$  = Legislation.

E = Error term

Results of this study are shown by tables and graphs. This has been enhanced with a brief description thereafter.

## **CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION**

### **4.1 Introduction**

A cross sectional analytical study design was adopted to assess the supply chain factors and performance of public hospitals in Homabay County. Eleven major hospitals in Homabay County were assessed and a structured questionnaires were administered to the staff working at the supply chain departments. In this chapter, the findings are presented in order of the study objectives. The results cover demographic characteristics of the respondents; the relationship between technology and performance of Public Hospitals, staff competency and performance, procurement procedures and performance, distribution channels and performance, inventory management and performance, regulations and performance of public hospitals in Homa Bay County.

### **4.2 Demographic Characteristics of Respondents**

This section presents findings on the demographic characteristics. Table 2 below shows the findings.

**Table 2: Demographic Characteristics of Respondents**

|        |                | f | %    |
|--------|----------------|---|------|
| Gender | Male           | 6 | 54.5 |
|        | Female         | 5 | 45.5 |
| Age    | 20 to 29 Years | 1 | 9.1  |
|        | 30 to 39 Years | 3 | 27.3 |
|        | 40 to 49 Years | 6 | 54.5 |
|        | 50 to 59 Years | 1 | 9.1  |

|                        |                                |    |      |
|------------------------|--------------------------------|----|------|
| Education Level        | Diploma                        | 10 | 90.9 |
|                        | Undergraduate                  | 1  | 9.1  |
| Duration in Employment | 5 to 10 Years                  | 9  | 81.8 |
|                        | 10 to 15 Years                 | 1  | 9.1  |
|                        | > 15 Years                     | 1  | 9.1  |
| Present Position       | Supply Chain Manager           | 1  | 9.1  |
|                        | Assistant Supply Chain Manager | 3  | 27.3 |
|                        | Supply Chain Officer           | 4  | 36.4 |
|                        | Others                         | 3  | 27.3 |

**Source: Researcher (2016)**

Table 2 above shows that 6 out of 11 respondents were male and 5 were female, this represented 54.5% and 45.5% in that order, the findings imply that government hospitals in Homa bay county employ male and female at almost the same rate. From table 2 it is also clear that 6 out of 11 respondents were between 40 and 49 years, 3 were between 30 and 39 years, while on 1 was between 20 and 29 years and another 1 out of 11 was between 50 and 59 years. This result represents 54.5%, 27.3%, 9.1% and 9.1% in that order. This means that most (54.5%) of respondent were between 40 and 49 years, this imply that employees in government hospitals in Homa bay county were between 40 and 49 years.

Table 2 also show that ten out of eleven respondents had attained diploma level of education and only one has attained undergraduate level of education, this represent 90.9% and 9.1% in that order. This shows that majority (90.9%) of respondents had attained diploma level of education and from the findings it is worth to point out that employees in government hospitals in Homa bay County are holder of diploma level

of education. It is also clear in table 2 that 9 out of 11 respondents had been in employment for 5 to 10 years, this represents 81.8% of the respondents and the results imply that majority (81.8%) of employees in government hospitals in Homa bay County have been in employment for between 5 to 10 years. Table 2 further illustrates that 3 out of 11 respondents were Assistant Supply Chain Manager, 4 were Supply Chain Officers and this represents 27.3% and 36.4% in that order.

### 4.3 Hospital Characteristics

This section presents findings on hospital characteristics, table 3 below shows the findings.

**Table 3: Hospital Characteristics**

|                       |                            | f  | %    |
|-----------------------|----------------------------|----|------|
| Hospital Category     | County Referral            | 1  | 9.1  |
|                       | Sub County Referral        | 10 | 90.9 |
| Duration in Operation | 5 to 10 Years              | 4  | 36.4 |
|                       | 10 to 15 Years             | 1  | 9.1  |
|                       | 15 to 20 Years             | 3  | 27.3 |
|                       | > 20 Years                 | 3  | 27.3 |
| Staff in supply chain | < 3                        | 10 | 90.9 |
|                       | No Supply chain Department | 1  | 9.1  |

**Source: Researcher (2016)**

Table 3 above shows that 10 out of the 11 government hospitals in Homa bay County were sub County referral hospitals , this represented 90.9% and it is in order to mention that majority of government hospital in Homa bay County were rated sub County referral hospitals. Table 3 also shows that 4 out of 11 government hospitals in

Homa bay County had operated for between 5 to 10 years, only 1 had been in existence for 10 to 15 years, 3 had been operational for 15 to 20 years and another 3 had been in existence for more than 20 years. This results represents 36.4%, 9.1%, 27.3% and 27.3% in that order. From the findings it was clear that slightly more than half (54.6%) of government hospitals in Homa bay County had been in existence for 15 and more years. Table 3 also shows that 10 out of 11 government hospitals in Homa bay County employed less than 3 staffs in supply chain department and this represented 90.9%. This finding means that majority (90.9%) of government hospitals in Homa bay County engage less than 3 staff in the supply chain department.

#### **4.4 Factors of Supply Chain**

In this section the researcher was concerned with establishing supply chain staff perception on factors of supply chain. The respondent were presented with a five Likert scale measure (where 1 represent no extent and 5 is very great extent) to rate the factors of supply chain in government hospitals in Homa bay County. Table 4 below presents the findings on factor of supply chain.

**Table 4: Factors of Supply Chain**

| <b>Factors of supply chain</b> | <b>LOT</b> | <b>SC</b> | <b>PP</b> | <b>DC</b> | <b>IM</b> | <b>LEG</b> | <b>Average</b> |
|--------------------------------|------------|-----------|-----------|-----------|-----------|------------|----------------|
| Mean                           | 3.45       | 2.91      | 2.73      | 2.91      | 3.45      | 3.27       | 3.12           |
| Std. Deviation                 | 0.688      | 0.539     | 0.467     | 0.539     | 0.688     | 0.786      | 0.618          |

**Source: Researcher (2016)**

Table 4 above presents the means of factors of supply chain in public hospitals in Homa bay County. The respondents rated Level of technology (LOT), Staff



competency (SC), Procurement processes (PP), Distribution channels (DC), Inventory management (IM) and Legislation (LEG) to be moderate factors of supply chain in government hospitals in Homa bay County with a mean of 3.45, 2.91, 2.73, 2.91, 3.45 and 3.27 in that order.

Table 4 also illustrates the standard deviations of factors of supply chain in public hospitals in Homa bay County. The standard deviations of Level of technology (LOT), Staff competency (SC), Procurement processes (PP), Distribution channels (DC), Inventory management (IM) and Legislation (LEG) are 0.688, 0.539, 0.467, 0.539, 0.688 and 0.786 in that order.

It is also worth to mention that table 4 shows that the average mean of factors of supply chain in public hospitals in Homa Bay County was 3.12 and this imply that respondents moderately rated the factors of supply chain, the average standard deviation is 0.618.

#### **4.5 Performance of Public Hospitals**

In this section the study sought to find out supply chain staff perception on performance in public hospitals in Homa bay County. The respondent were presented with a five Likert scale measure (where 1 represent no extent and 5 is very great extent) to rate the performance in public hospitals in Homa bay County. Table 5 below presents the findings on factor of supply chain.

**Table 5: Performance of Public Hospitals**

---

| Performance of public hospitals | FP    | IL    | CP    | IBP   | Average |
|---------------------------------|-------|-------|-------|-------|---------|
| Mean                            | 2.91  | 3.27  | 3.00  | 2.91  | 3.02    |
| Std. Deviation                  | 0.944 | 1.009 | 0.894 | 0.944 | 0.948   |

---

**Source: Researcher (2016)**

Table 5 above presents the means of performance in public hospitals in Homa bay County. The respondents rated Financial Perspective (FP), Innovation and Learning (IL) perspective, Customer Perspective (CP) and Internal Business Perspective (IBP) to be moderate performance measures in government hospitals in Homa bay County with a mean of 2.91, 3.27, 3.00 and 2.91 in that order.

Table 5 above also shows the standard deviations of performance in public hospitals in Homa bay County. The standard deviations of Financial Perspective (FP), Innovation and Learning (IL) perspective, Customer Perspective (CP) and Internal Business Perspective (IBP) to be moderate performance measures in government hospitals in Homa bay County are 0.944, 1.009, 0.894 and 0.944 in that order.

It is also worth to mention that table 5 shows that the average mean of performance in public hospitals in Homa Bay County is 3.02 and this imply that respondents moderately rate performance in public hospitals in Homa Bay County, the average standard deviation is 0.948.

## 4.6 Relationships between Factors of Supply Chains and Performance of Public Hospitals

### 4.6.1 Correlation Results

This section presents findings on the relationship between factors of supply chains and performance of public hospitals in Homa bay County. Table 6 below shows the findings

**Table 6: Relationships between Factors of Supply Chains and Performance of Public Hospitals**

|     | LOT   | SC    | PP     | DC    | IM    | LEG    | FP     | IL     | CP     | IBP    |
|-----|-------|-------|--------|-------|-------|--------|--------|--------|--------|--------|
| LOT | 1     | -.147 | -.198  | .392  | -.481 | -.437  | .224   | .380   | .163   | .378   |
| SC  | -.147 | 1     | .686*  | .313  | .392  | .536   | .571   | .418   | .415   | .179   |
| PP  | -.198 | .686* | 1      | .686* | .425  | .767** | .619*  | .598   | .718*  | .619*  |
| DC  | .392  | .313  | .686*  | 1     | .123  | .300   | .375   | .601   | .622*  | .571   |
| IM  | -.481 | .392  | .425   | .123  | 1     | .673*  | -.084  | -.052  | 0.000  | -.084  |
| LEG | -.437 | .536  | .767** | .300  | .673* | 1      | .576   | .527   | .569   | .441   |
| FP  | .224  | .571  | .619*  | .375  | -.084 | .576   | 1      | .869** | .829** | .776** |
| IL  | .380  | .418  | .598   | .601  | -.052 | .527   | .869** | 1      | .776** | .764** |
| CP  | .163  | .415  | .718*  | .622* | 0.000 | .569   | .829** | .776** | 1      | .829** |
| IBP | .378  | .179  | .619*  | .571  | -.084 | .441   | .776** | .764** | .829** | 1      |

**Source: Researcher (2016)**

Table 6 above shows that there was a strong positive relationship between Procurement processes (PP) and Staff competency (SC), with the ( $r = 0.686$ ).

There was also a strong positive relationship between Procurement processes (PP) and Distribution channels DC, with the ( $r = 0.686$ ) and Procurement processes (PP) was also found to have a strong positive correlation with Legislation (LEG), with the ( $r = 0.767$ ). It is also illustrated in table 6 above that Procurement processes (PP) and Financial Perspective (FP) had a strong positive correlation, with the ( $r = 0.619$ ). Procurement processes (PP) and Customer Perspective (CP) were also established to have a strong positive correlation, with the ( $r = 0.718$ ) and further table 6 illustrates that there is a strong positive relationship between Procurement processes (PP) and Internal Business Perspective (IBP), with the ( $r = 0.619$ ).

These results imply that availability of competent procurement staff, streamlining of distribution channels among government hospitals in Homa bay County had led to embracing of proper procurement processes. The results also implied that government hospitals in Homa bay County observe the set down legislation on procurement that is why there exists a strong positive correlation between Procurement processes (PP) and legislation (LEG),

The strong positive correlation between Procurement processes (PP) and Financial Perspective (FP) could be as a result of proper financial management practices adopted by government hospitals in Homa bay County, this also could imply that funds was always available to uphold procurement processes. The strong positive correlation between Procurement processes (PP) and Customer Perspective (CP) could be as a result of availability of good customer service that was directly linked to procurement processes and finally the correlation between Procurement processes (PP) and Internal Business Process could be the outcome of proper management of business processes at government hospitals in Homa bay County.

Table 6 also reveals that there exists a strong positive relationship between Distribution channels (DC) and Customer Perspective (CP) with ( $r = 0.622$ ). This shows that if well managed, distribution channels can lead to customer satisfaction. Table 6 also shows that there was a strong positive relationship between Inventory management (IM) and Legislation LEG with ( $r = 0.673$ ) and this shows that conformity with legislation on procurement processes yield proper inventory management at government hospitals in Homa bay county.

It was also in order to note that table 6 above showed a strong positive relationship between Financial Perspective (FP) and Innovation and Learning (IL) with ( $r = .869$ ), Financial Perspective (FP) was also found to have a strong positive correlation with Customer Perspective (CP) and Internal Business Perspective (IBP) with ( $r = 0.829$  and  $r = 0.776$ ) in that order. In addition, Innovation and Learning (IL) was also found to strongly correlate with Internal Business Perspective (IBP) with ( $r = .764$ )

#### **4.6.2 ANOVA Results for Relationship between Factors of Supply Chains and Performance of Public Hospitals**

This section presents the Analysis of variance results on relationship between factors of supply chains and performance of public hospitals, table 7 below shows the findings.

**Table 7: ANOVA Results for Relationship Between Factors of Supply Chains and Performance of Public Hospitals**

|     |            | Sum of Squares | df | Mean Square | F      | Sig. |
|-----|------------|----------------|----|-------------|--------|------|
| FP  | Regression | 8.802          | 6  | 1.467       | 54.768 | .001 |
|     | Residual   | .107           | 4  | .027        |        |      |
|     | Total      | 8.909          | 10 |             |        |      |
| IL  | Regression | 9.170          | 6  | 1.528       | 6.041  | .052 |
|     | Residual   | 1.012          | 4  | .253        |        |      |
|     | Total      | 10.182         | 10 |             |        |      |
| CP  | Regression | 6.286          | 6  | 1.048       | 2.444  | .203 |
|     | Residual   | 1.714          | 4  | .429        |        |      |
|     | Total      | 8.000          | 10 |             |        |      |
| IBP | Regression | 8.611          | 6  | 1.435       | 19.290 | .006 |
|     | Residual   | .298           | 4  | .074        |        |      |
|     | Total      | 8.909          | 10 |             |        |      |

**Source: Researcher (2016)**

The researcher was concerned with establishing relationship between factors of supply chains and performance of public hospitals. The study adopted The Scheffe procedure at the 0.05 level of significance. From the above results it is evident that Financial Perspective (FP) has a ( $p = 0.001$ ), Innovation and Learning (IL) perspective has a ( $p = 0.052$ ), Customer Perspective (CP) has a ( $p = 0.203$ ), and Internal Business Perspective (IBP) has a ( $p = 0.006$ ). The results imply that statistical significance exists in only one of the tested variable for, instance Financial Perspective (FP) has a ( $p = 0.001$ ).

### 4.6.3 Regression Results

#### 4.6.3.1 Regression Results for Financial Performance

This section presents the regression results for financial performance of public hospitals in Homa bay County, table 8 below shows the findings.

**Table 8: Regression Results for Financial Performance**

|    | R    | R <sup>2</sup> | Adjusted R <sup>2</sup> | Std. Error of the Estimate |
|----|------|----------------|-------------------------|----------------------------|
| FP | .994 | .988           | .970                    | .164                       |

**Source: Researcher (2016)**

The value of R represents the multiple correlation coefficients which measure the quality of the prediction of the dependent variable. From table 8 above it is evident that the R = 0.994 for Financial Perspective (FP) which shows a strong level of prediction. The R<sup>2</sup> which is the coefficient of determination for Financial Perspective (FP) = 0.988 indicating 98.8% and the other 1.2% is not explained and this imply that supply chain factor affect Financial Perspective (FP) of government hospitals in Homa bay County.

#### 4.6.3.2 Regression Results for Innovation and Learning

This section presents the regression results for Innovation and Learning of public hospitals in Homa bay County, table 9 below shows the findings.

**Table 9: Regression Results for Innovation and Learning**

|    | R    | R <sup>2</sup> | Adjusted R <sup>2</sup> | Std. Error of the Estimate |
|----|------|----------------|-------------------------|----------------------------|
| IL | .949 | .901           | .752                    | .503                       |

**Source: Researcher (2016)**

Table 9 shows that the R value for Innovation and Learning (IL) = 0.949, which shows a strong level of prediction. The  $R^2$  which is the coefficient of determination for Innovation and Learning (IL) = 0.901 indicating 90.1% and the other 9.9% is not explained and this imply that supply chain factor affect Innovation and Learning of government hospitals in Homa bay County.

#### **4.6.3.3 Regression Results for Customer Perspective**

This section presents the regression results for Customer Perspective of public hospitals in Homa bay County, table 10 below shows the findings.

**Table 10: Regression Results for Customer Perspective**

| <b>Regression results</b> | <b>R</b> | <b>R<sup>2</sup></b> | <b>Adjusted R<sup>2</sup></b> | <b>Std. Error of the Estimate</b> |
|---------------------------|----------|----------------------|-------------------------------|-----------------------------------|
| CP                        | .886     | .786                 | .464                          | .655                              |

**Source: Researcher (2016)**

Table 9 above shows that the R value for Customer Perspective (CP) = 0.886, which shows a strong level of prediction. The  $R^2$  which is the coefficient of determination for Customer Perspective (CP) = 0.786 indicating 78.6% and the other 21.4% is not explained and this imply that supply chain factor affect Customer Perspective (CP) of government hospitals in Homa bay County.

#### **4.6.3.4 Regression Results for Internal Business Perspective**

This section presents the regression results for Internal Business Perspective of public hospitals in Homa bay County, table 11 shows the findings.



**Table 11: Regression Results for Internal Business Perspective**

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| <b>Regression results</b> | <b>R</b> | <b>R<sup>2</sup></b> | <b>Adjusted R<sup>2</sup></b> | <b>Std. Error of the Estimate</b> |
|---------------------------|----------|----------------------|-------------------------------|-----------------------------------|
| CP                        | .983     | .967                 | .916                          | .273                              |

---

**Source: Researcher (2016)**

Table 11 above illustrates that the R value for Internal Business Perspective (IBP) = 0.983, which shows a strong level of prediction. The R<sup>2</sup> which is the coefficient of determination for Internal Business Perspective (IBP) = 0.967 indicating 96.7% and the other 3.3% is not explained and this imply that supply chain factor affect Internal Business Perspective (IBP) of government hospitals in Homa bay County.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

This chapter presents the summary, conclusions and recommendations from the study. It is divided into five sections including summary of the study, conclusion based on the findings and discussions in chapter four, recommendations, limitations of the study and suggestions for further research.

### **5.2 Summary**

The study sought to establish supply chain factors and performance of public hospitals in Homa bay County. The respondents rated Level of technology (LOT), Staff competency (SC), Procurement processes (PP), Distribution channels (DC), Inventory management (IM) and Legislation (LEG) to be moderate factors of supply chain in government hospitals in Homa bay County with average mean of 3.12 and standard deviation of 0.618.

The respondents rated Financial Perspective (FP), Innovation and Learning (IL) perspective, Customer Perspective (CP) and Internal Business Perspective (IBP) to be moderate performance measures in government hospitals in Homa bay County with a with average mean of 3.02 and standard deviation of 0.948.

The correlation result show a strong positive relationship between Procurement processes (PP) and Staff competency (SC), Distribution channels (DC), Legislation (LEG), Financial Perspective (FP), Customer Perspective (CP) and Internal Business Perspective (IBP) with the ( $r = 0.686$ ,  $r = 0.686$ ,  $r = 0.767$ ,  $r = 0.619$ ,  $r = 0.718$  and  $r = 0.619$ ) in that order.

It is also evident from the findings that there exists a strong positive relationship between Distribution channels (DC) and Customer Perspective (CP) with ( $r = 0.622$ ), Inventory management (IM) and Legislation LEG with ( $r = 0.673$ ), Financial Perspective (FP) and Innovation and Learning (IL) with ( $r = .869$ ), Financial Perspective (FP) and Customer Perspective (CP) and Internal Business Perspective (IBP) with ( $r = 0.829$  and  $r = 0.776$ ) in that order. In addition, Innovation and Learning (IL) was also found to strongly correlate with Internal Business Perspective (IBP) with ( $r = .764$ )

The ANOVA results for this study showed that Financial Perspective (FP) has a ( $p = 0.001$ ), Innovation and Learning (IL) perspective has a ( $p = 0.052$ ), Customer Perspective (CP) has a ( $p = 0.203$ ), and Internal Business Perspective (IBP) has a ( $p = 0.006$ ). Further the results illustrate that  $R = 0.994$  for Financial Perspective (FP),  $R^2 = 0.970$ . R value for Innovation and Learning (IL) is  $R = 0.949$ ,  $R^2 = 0.752$  and R value for Internal Business Perspective (IBP) is  $R = 0.983$  and  $R^2 = 0.916$ .

### **5.3 Conclusion**

The study sought to establish supply chain factors and performance of public hospitals in Homa bay County and from the findings it is concluded that;

Level of technology (LOT), Staff competency (SC), Procurement processes (PP), Distribution channels (DC), Inventory management (IM) and Legislation (LEG) are factors of supply chain in government hospitals in Homa bay County, albeit on a moderate level.

Financial Perspective (FP), Innovation and Learning (IL) perspective, Customer Perspective (CP) and Internal Business Perspective (IBP) were established to be measure of performance in government hospitals in Homa bay County although moderately.

Procurement processes (PP) is influenced by Staff competency (SC), Distribution channels (DC), Legislation (LEG), Financial Perspective (FP), Customer Perspective (CP) and Internal Business Perspective (IBP).

Distribution channels (DC) influence Customer Perspective (CP), Inventory management (IM) influence Legislation (LEG). Financial Perspective (FP) influence Innovation and Learning (IL), Customer Perspective (CP) and Internal Business Perspective (IBP). In addition, Innovation and Learning (IL) influence Internal Business Perspective (IBP) with ( $r = .764$ )

#### **5.4 Recommendations**

The study recommends that the management remains committed to offering satisfactory health care services to patients through a sense of positive commitment in ensuring adequate funding that supports investment in ICT resources in the supply chain department.

There is need to establish independent compliant units within the institutions to ensure that rules and regulations are adhered to in order to curb malpractices that reduces effectiveness of supply chain performance.

The study recommends establishment of stronger networking and collaboration platform that facilitates sharing of real-time information between supply chain partners.

The study further recommends flexible systems that allow for modern state of art technology like just-in-time supply of the required items to reduce storage-related cost.

### **5.5 Limitations of the Study**

Some of the limitations of the study include:

The research targeted only 11 high volume Government Health Institutions in Homa Bay County as a representative of many health facilities in Kenya. This was limited due to financial constraints. More objective findings would be possible given an extension of the research to include either entire County of Homa Bay or Kenya as a whole. The study was also constrained by time as the researcher had to balance between the research undertakings and other work related commitments.

### **5.6 Suggestions for Further Research**

This study looked at balanced score card as the only way of measuring performance of Public Hospitals. Further studies can improve on this by exploring other methods of measuring performance so as to address the gaps left by this study.

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## APPENDICES

### Appendix I: Letter of Introduction



**UNIVERSITY OF NAIROBI**  
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Ref: CHSS-SOB D61/78149/2015

October 3, 2016

#### TO WHOM IT MAY CONCERN

The bearer of this letter Joanes Odera

**REGISTRATION NO: D61/78149/2015**

The above named student is in the Master of Business Administration Degree Program. As part of requirements for the course, he is expected to carry out a study on "Supply Chain Factors and performance of public hospitals in Homa Bay County". He has identified your organization for that purpose. This is to kindly request your assistance to enable him complete the study.

The exercise is strictly for academic purposes and a copy of the final paper will be availed to your organization on request.

Your assistance will be greatly appreciated, thanking you in advance.

Sincerely,

**DR. NIXON OMORO**  
**ASST. COORDINATOR, SOB, KISUMU CAMPUS**

03 OCT 2016

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## Appendix II: Population of the study

**Table 12: Public Hospitals in Homa Bay County**

|    | Facility Name                 | Sub County        | Ward             | Type                     | Owner   |
|----|-------------------------------|-------------------|------------------|--------------------------|---|
| 1  | Homa Bay District Hospital    | Homa Bay Township | Asego            | County Referral Hospital | Ministry of Health                              |
| 2  | Mbita Sub County Hospital     | Mbita             | Mbita            | Sub County Hospital      | Ministry of Health                              |
| 3  | Ogongo Sub County Hospital    |                   | Lambwe           | Sub County Hospital      | Ministry of Health                              |
| 4  | Ndhiwa Sub County Hospital    | Ndhiwa            | Ndhiwa           | Sub County Hospital      | Ministry of Health                              |
| 5  | Kandiego Sub County Hospital  | Rachuonyo North   | East Karachuonyo | Sub County Hospital      | Ministry of Health                              |
| 6  | Kendu Sub County Hospital     |                   | West Karachuonyo | Sub county Hospital      | Kenya Episcopal Conference-Catholic Secretariat |
| 7  | Kabondo Sub County Hospital   | Rachuonyo South   | Kabondo          | Sub County Hospital      | Ministry of Health                              |
| 8  | Rachuonyo Sub County Hospital |                   | Kasipul          | Sub County Hospital      | Ministry of Health                              |
| 9  | Rangwe Sub County Hospital I  | Rangwe            | Rangwe           | Sub county Hospital      | Ministry of Health                              |
| 10 | Suba Sub County Hospital      | Suba              | Gwasi            | Sub County Hospital      | Ministry of Health                              |
| 11 | Marindi Sub County Hospital   | Suba              | Homabay Town     | Sub County Hospital      | Ministry of Health                              |

**Source: Researcher (2016)**

## **Appendix III: Questionnaires**

Joanes Odera

P.O. BOX 1696 - 40100

KISUMU

Mobile: 0728 440 212

Dear Respondent,

This research will enable successful completion of my studies at Nairobi University as a requirement for every student before graduating. The topic of the study is “*Supply Chain Factors and Performance of Public Hospitals in Homa Bay County*” The data collected shall purely be used for academic purposes and confidentiality is highly guaranteed. Kindly therefore respond to each of the questions bellow as accurate as possible.

Regards,

Yours faithfully,

### **PART A: General Questions**

1. Your names.....
2. Sex            (a) Man            (b) woman
3. Name of the Hospital where you are working (Optional).....
4. Type / Category of hospital where you are working  
(a) County Referral Hospital            (b) Sub County Referral Hospital
5. How long has this Hospital been operating?  
(a) Less than five years    (b) Five to ten years  
  
(c) Ten to fifteen (d) Fifteen to twenty years  
  
(e) Over twenty years

6. Number of staffs working in the supply chain department?

(a)  $\leq 3$  staffs                      (b) 3 - 5 staffs   (c) 5 - 7 staffs

(d) Over 7 Staffs                      (e) We do not have procurement & Supply chain Department

7. How old are you?

(a) Twenty to twenty nine years                      (b) Thirty to thirty nine years

(b) Forty to forty nine years                      (c) Fifty to fifty nine years

(d) Sixty and above years

8. Which academic certificate do you have?

(a) Diploma                      (b) First Degree                      (c) Master Degree

(d) Doctoral Degree                      (e) Other Qualifications (Please clarify) .....

.....

9. Present position at your establishment.

(a) Manager                      (b) Assistant Manager

(c) Officer (specify).....

10. Duration of your current employment (In years)

(a) Less than 4                      (b) Four to nine

(c) Nine to fourteen                      (d) over fourteen

## PART B: Implementation of Supply chain factors

Please indicate the extent to which each of the bellow factors has been adopted in your organization by ticking (√) inside the relevant box. Use the following key: V.G.E = Very Great Extent, G.E= Great Extent, M.E=Moderate Extent, S.E=Small Extent, N.E=No Extent

**Table 10: Supply Chain Factors**

| Supply Chain Factors |   | V.GE | G.E | M.E | S.E | N.E |
|----------------------|---|------|-----|-----|-----|-----|
|                      |   | 5    | 4   | 3   | 2   | 1   |
| 1                    | Use of technology in Supply Chain department              |      |     |     |     |     |
| 2                    | Hiring of highly competent & qualified procurement staffs |      |     |     |     |     |
| 3                    | Adoption of flexible Procurement processes                |      |     |     |     |     |
| 4                    | Adoption of a reliable and flexible distribution channels |      |     |     |     |     |
| 5                    | Adoption of an effective Inventory management controls    |      |     |     |     |     |
| 6                    | Implementation of government legislation in procurement   |      |     |     |     |     |

**Source: Researcher (2016)**

### **PART C: Supply chain factors and performance of Hospitals**

The following are some of the supply chain factors. Kindly indicate how each of them contributes to the performance of your organization. Use the following Key: V.G.E= Very Great Extent, G.E= Great Extent, M.E=Moderate Extent, S.E= Small Extent and N.E= No Extent (Tick the most appropriate box)

**Table 11: Performance of Supply Chain Factors**

| <b>NO.</b> | <b>Supply Chain Factors</b> | <b>V.G.E</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|-----------------------------|--------------|------------|------------|------------|------------|
| 1.         | Level of technology         |              |            |            |            |            |
| 2.         | Staff competency            |              |            |            |            |            |
| 3.         | Procurement processes       |              |            |            |            |            |
| 4.         | Distribution channels       |              |            |            |            |            |
| 5.         | Inventory management        |              |            |            |            |            |
| 6          | Legislation                 |              |            |            |            |            |

**Source: Researcher (2016)**

### **PART D: Supply chain factors and measures of performance.**

The following are supply chain factors. Please indicate the extent to which each of them is affected by the measure the performance in your organization. Use the following Key: V.G.E= Very Great Extent, G.E= Great Extent, M.E=Moderate Extent, S.E= Small Extent and N.E= No Extent (Tick the most appropriate box)

| <b>NO.</b> | <b>(1) Level of technology</b>   | <b>V.GE</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|-------------|------------|------------|------------|------------|
| 1.         | Finance view                     |             |            |            |            |            |
| 2.         | Learning and Innovation approach |             |            |            |            |            |
| 3.         | Consumers approach               |             |            |            |            |            |
| 4.         | Core Business approach           |             |            |            |            |            |

| <b>NO.</b> | <b>( 2) Staff competency</b>     | <b>V.G.E</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|--------------|------------|------------|------------|------------|
| 1.         | Finance view                     |              |            |            |            |            |
| 2.         | Learning and innovation approach |              |            |            |            |            |
| 3.         | Customers approach               |              |            |            |            |            |
| 4.         | Core business approach           |              |            |            |            |            |

| <b>NO.</b> | <b>(3) Procurement processes</b> | <b>V.GE</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|-------------|------------|------------|------------|------------|
| 1.         | Finance view                     |             |            |            |            |            |
| 2.         | Learning and Innovation approach |             |            |            |            |            |
| 3.         | Customers approach               |             |            |            |            |            |
| 4.         | Core business approach           |             |            |            |            |            |

| <b>NO.</b> | <b>(4) Distribution channels</b> | <b>V.G.E</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|--------------|------------|------------|------------|------------|
| 1.         | Finance view                     |              |            |            |            |            |
| 2.         | Learning and Innovation approach |              |            |            |            |            |
| 3.         | Customers approach               |              |            |            |            |            |
| 4.         | Core business approach           |              |            |            |            |            |

| <b>NO.</b> | <b>(5) Inventory management</b>  | <b>V.G.E</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|--------------|------------|------------|------------|------------|
| 1.         | Finance view                     |              |            |            |            |            |
| 2.         | Learning and Innovation approach |              |            |            |            |            |
| 3.         | Customers approach               |              |            |            |            |            |
| 4.         | Core business perspective        |              |            |            |            |            |

| <b>NO.</b> | <b>(6) Legislation</b>           | <b>V.G.E</b> | <b>G.E</b> | <b>M.E</b> | <b>S.E</b> | <b>N.E</b> |
|------------|----------------------------------|--------------|------------|------------|------------|------------|
| 1.         | Finance view                     |              |            |            |            |            |
| 2.         | Learning and Innovation approach |              |            |            |            |            |
| 3.         | Customers approach               |              |            |            |            |            |
| 4.         | Core business perspective        |              |            |            |            |            |

## **PART D: Other Information**

Please share your honest feedback regarding each of the following questions.

1. In what areas does your organization use Information Technology when conducting its day to day operations?.....

.....  
.....

2. What strategies does your organization use to ensure that staffs are highly qualified and competent for the specific tasks assigned to them?

.....  
.....  
.....  
.....

3. Which distribution channels does your organization use to procure the hospital supplies?.....

.....  
.....  
.....

4. Which documents does your organization use to maintain its inventory / manage the movement of store items? Please explain

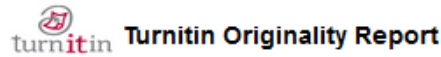
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Thanks so much for your participation

**Joanes Otero**



## Appendix IV: Originality Report



supply chain factors and performance of  
public hospitals in homa bay county by  
Joanes Owuor

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