THE EFFECT OF INVENTORY MANAGEMENT ON THE PERFORMANCE OF NON-GOVERNMENT HOSPITALS

CASE STUDY: BISHOP CEASAR ASILI MEMORIAL HOSPITAL, LUWERO DISTRICT, UGANDA

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DEDICATION

This work is dedicated first of all to Almighty God without whom nothing would have been accomplished. I dedicate it also to my sisters (Missionary Sisters of Mary Mother of the Church) and to my beloved sister Dorcas and her family who have tirelessly supported me in all aspects. May the Lord bless you abundantly!

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LIST OF ACRONYMS

BCAH	Bishop Caesar Asili Hospital
WHO	World Health Organisation
MoH	Ministry of Health
FIFO	First In First Out
EOQ	Economic Order Quantity
VMI	Vendor Managed Inventory
JMS	Joint Medical Store
SPSS	Statistical Package for Social Scientists

ABSTRACT

The study "**effect of inventory management on the performance of Non Government Hospitals"** was aimed at assessing the contribution of inventory management to the performance of non- governmental hospitals in the delivery of basic health services in Uganda in collaboration with the Local Government – case study Bishop Caesar Asili hospital. Because of huge inventories maintained by most firms and a considerable sum of money committed to these inventories, it is absolutely essential to manage inventories effectively so as to avoid unnecessary costs.

The study was guided by the following objectives; to find out the effect of inventory management system as regards to inventory recording, inventory pricing and valuation and ABC analysis, to examine the effect of inventory records accuracy (inventory systems) on organisational performance, and to analyse the effect of inventory turnover. The study used a case design study which employed both qualitative and quantitative techniques.

The study used questionnaires to collect primary data and the field data was analyzed using Statistical Package for Social Scientists (SPSS) version 17.0 software.

The study revealed that, Non Government hospitals make successful contributions to health in certain circumstances and as such inventory records accuracy and pricing and valuation have a positive effect on their performance. The study further revealed that inventory turnover helps the hospital to determine the optimal levels of inventory a facility must have at a given time.

Thus, the study recommends that hospitals should ensure that inventory is well managed in all aspects and records are accurately kept at all times in order to boost performance. This can be done by training the pharmacy team, using computerised system other than only manual, adequately compensating staff and implementing Vendor Managed Inventory.

CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

This chapter of the study presents the background of the study, statement of the problem, general objective, specific objectives, research questions, scope of the study, significance of the study and the conceptual framework.

1.1 Background to the Study

This section presents the background to the study by providing an overview of the key concepts in the study, followed by a summary of the context in which the study was conducted. It thus dwells on inventory management, hospital performance, factors affecting hospital performance, hospitals in Uganda and Bishop Caesar Asili Hospital in that order.

1.1.1 Inventory management

According to Kotler and Keller (2006), inventory is defined as a stock of raw materials, work in progress, finished goods and supplies held by an organisation to facilitate operations, and they add on that inventory should be managed effectively and efficiently by application of vendor managed inventory systems so as to attain higher customer service levels. This is also asserted by Mustaffa and Potter, (2009). (Ilma & Mursyid, 2012) state that inventory management is pharmaceutical management and this means that without a healthy inventory management system, the pharmaceutical supply system as a whole will not be viable. Inventory management for pharmaceuticals involves ordering, receiving, storing, issuing and then reordering the needed list of items and also monitoring expiry dates. Poor inventory management in public pharmaceuticals supply systems leads to waste of financial resources,

shortage of some essential medicines or overstocking of others, resulting in expiration and decline in the quality of patient care and general service delivery (Abhimanu, 2014).

An unhealthy inventory management system is associated with inaccurate stock records, decisions on order frequency and order quantity, and a lack of systematic performance monitoring. It may be, as Madeeha et al. (2013) explores, that the perceptions of hospital pharmacists towards drug management and the reasons underlying stock-outs of some drugs is due to unhealthy inventory management system.

Unfortunately, as Abhimanu (2014) states that, many people and organisations do not know the importance of efficient inventory management or do not even appreciate what inventory management means. He adds that many organisations do not have systematic procedures or rules to guide staff on how to handle inventory and he attributes this lack of understanding of the basic issues of proper inventory management to most top managers.

According to Miller (2010), the aim of inventory control is to ensure constant or continuous supply of materials. It helps in maintaining sufficient stock of materials in periods of short supply and anticipated price changes, and in minimising the carrying costs. The scope of inventory management covers the following elements: replenishment lead time, ordering and carrying costs, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory balance, available physical space for inventory, quality management replenishment, returns and defective goods, demand forecasting. When these requirements are balanced in any organisation, it achieves an optimal inventory level which is an on-going process. Inventory management involves the monitoring of materials that move into and out of stock rooms, and reconciling the balance. The primary objective of determining or controlling the stock levels in any organisation is to strike a balance between the need for the materials and minimising the stock ordering and

holding/carrying costs. It helps to achieve a reasonable balance between holding costs on the one hand, and purchasing and shortage costs on the other. In order to maintain this balance, the relevant costs need to be identified and quantified, and then examined to know how they interrelate. It also helps in ascertaining inventory theft and expiration, knowing when inventories should be replenished, and determining the quantity of the necessary safety stock depending on the length of the lead time (Joffery 2012).

The key point about stock records, whether manual or computerised, is that they must be current and accurate in order to facilitate efficient management of the recording process because without current and accurate stock records, stock management cannot be tracked.

One of the primary reasons for holding stock in hospitals and any other organisations is to ensure availability of essential items all the time. In hospitals, the selection of the items to stock should be based on their value to public health and on the regularity and volume of consumption. In this case VEN (Vital, Essential, and Nonessential) and ABC (Activity Based Costing) analyses are useful tools to define which items on the list must be held in stock (Joffery 2012).

Any inventory control model or method used to manage purchasing must address the following three issues:

i. **Safety stock**- how much inventory was kept in reserve to prevent stock-outs.

ii. **Reorder frequency**- the period of time between successive orders for an item, also known as procurement period.

iii. **Reorder quantity**- the number of units specified when an order is placed.

Additionally, the available space for storage needs to be considered when determining target stock levels and the ordering and replenishment frequency (Burnt and Pinkerton 2009). In

addition to employees, equipment and the above key functions, an inventory management system can also be used in assessing the performance of non-government hospitals. Researchers have established that inventory costs in the healthcare sector are substantial and are estimated to be between 10% and 18% of total revenues (Madeeha et al, 2013) and these costs are particularly high if inventory is not well managed.

Inventory management has been recognised as one of the most important functions that have a huge impact on the overall performance of organisations, both profit-making and non-profit- making ones (Ilma and Mursyig, 2012). The major aims of the hospital inventory management and healthcare supply chain is to reduce healthcare costs without sacrificing the quality of service to the patient while at the same time improving the efficiency, effectiveness and productivity of a healthcare system.

Elsevier (2010) states that while many studies have addressed and redesigned inventory systems in an industrial setting; the field of operation management seems to lack a thorough understanding of the process of shaping inventory in a healthcare setting. He intended to fill this gap by exploring the process of reshaping a hospital inventory system for controlling medicines. Medicines and other medical supplies consumed form a biggest portion of hospital expenses. Chaowalit, Laksana and Jirapornchaic (2004) observe that rising costs of drugs and medical supplies directly affects the total expenses of any hospital. Thus, a hospital inventory system should be developed in a cost- effective manner. That is why they add on that an appropriate stock to each department is needed, but they caution that this should not be excessive because overstocking causes more financial problems. For example, overstocking leads to expiration of stock, stock theft and storage problems.

Oyella (2013) notes that one of the challenges identified by the executive team at Lacor Hospital in Gulu District is the need for the hospital's department of pharmacy to establish

optimal strategies for logistical support and technical assistance with regard to medication management. There is need to make responsible use of limited healthcare resources and assuring the integrity of the medicine supply chain as defined by the World Health Organisation (WHO) and the International Pharmaceutical Federation (FIP) statement on good pharmacy practice. This proves that though some researchers argue that supply chain complexities should be adjusted, what is already taking place impacts negatively on the stock of medicines and other medical supplies. Therefore, it is necessary to improve the system of inventory management, and to do so urgently. Moreover, in Uganda, there are supply chain leakages in many hospitals in spite of the use of stock cards by a facility to record the receipt and use or issue of medicine. As Marraine, et al. (2014), cited in McPake, et al, (1999), point out that it is very important that medicine received is actually used for patients because misappropriation of medicine and mismanagement of revenues have been found to have a negative impact on healthcare utilisation. A hospital's materials management must establish efficient inventory systems that ensure the hospital's ability to meet emergency demand (Khurana, et al, 2013).

1.1.2 Hospital performance

Hospital performance may be defined may according to the achievement of specified clinical or administrative targets, and that targets may relate to traditional hospital function such as diagnosis, treatment, care and rehabilitation as well as teaching and research (Shaw, 2003). Hospitals are complex organisations providing a multitude of services to patients, physicians and staff, which services include pharmaceutical, laboratory, surgical and administration ones among others. Therefore, a hospital is a healthcare institution providing patient treatment with specialised staff and equipment. The best-known type of hospital is the general hospital which has an emergency department. In Uganda, a district hospital is typically the major healthcare facility in its district. Specialised hospitals include trauma centres, rehabilitation

hospitals, children's hospitals and hospitals for dealing with specific medical needs, such as psychiatric problems.

Hospitals are usually funded by the public sector, health organisations, health insurance companies or charities, including in the form of direct charitable donations. Historically, private hospitals have often been funded by religious orders or charitable individuals and leaders (Harald, 2005). This is why, today, apart from hospitals funded by the public sector (government hospitals), we also have non-government hospitals which are funded through charities, though at times the government may offer them budgetary or non-budgetary support.

Hospital performance can be evaluated in terms of efficiency, quality of care, accountability, equity and resource mobilisation. The performance of a hospital is often defined by its capacity, the quality of its clinical care, and the degree of efficiency with which it uses its financial resources to make its services affordable. Absence of quality management systems in hospitals may lead to many challenges such as delays in releasing results due to insufficient quality systems, and delays in the supply chain, both of which lead to dissatisfaction among patients (Kalondu, 2013). On the other hand, hospital services are also measured by the number of outpatient visits and the number of inpatients admissions and discharges (Mukesh and Ramesh, 1996).

1.1.3 Other factors affecting hospital performance

However, Shaw (2003) argues that hospital performance should be measured by comparing what hospitals actually do with their original targets in order to identify opportunities for improvement. This measure can be done through regulatory inspection, public satisfaction, surveys, third party assessment and statistical indicators. Hospital performance is measured in four key functions:

i. Providing services

ii. Creating resource

iii. Financing

iv. Oversight/supervision.

Although hospitals have been relatively neglected, their high resource consumption implies that gains from improving the services they deliver may be substantial. Nevertheless, the challenges posed by hospital reforms are great.

Two other factors affect the performance of hospitals: government policy and the economic environment within which hospitals operate. Government policy regarding hospitals varies from country to country and over time even within the same country. As Mukesh and Ramesh, (1996) point out; some governments have recently taken a decision to grant greater autonomy to hospital operations so as to reduce the financial burden of hospitals on governments. Such policies affect the performance of hospitals as they find it difficult to raise the necessary funding, and are thus forced to operate less efficiently and effectively than they would want to.

For its part, the economic environment (or market forces) also affects the performance of any organisation, including hospitals. Several studies, for example Kumar, Subramanian and Yauger, (1997); Subhash and Raju, (2001) have confirmed this relationship in the business context in general and in the healthcare context in particular. This means that the economic environment has a lot of influence on the effective and efficient performance of organisations and hence hospitals as well. According to these studies, hospital performance was assessed in five areas of: ***growth in revenue, return on capital, success in new services, success in retaining patients and success in controlling expenses***. From this, there is a clear indication that the economic environment has a great impact on hospital performance.

The other factors affecting hospital performance include the following:

Government policy: Some governments have recently taken a decision to grant greater autonomy to hospital operations expecting to offer to reduce the financial burden of hospitals on governments (mukesh and Ramesh, 1996). This affects performance of hospitals in a way that funding in almost all aspects becomes a big challenge to these hospitals hence reducing on their efficiency and effectiveness.

Market orientation or economic environment is closely related to any organisation's performance including a hospital. Several studies have confirmed this relationship in the business context in general and in the healthcare context in particular as cited in Kumar, Subramanian and Yauger, 1997 by (Subhash and Raju, 2001). According to them, hospital performance was assessed in five areas of; growth in revenue, return on capital, success in new services, success in retaining patients and success in controlling expenses which clearly indicates that there is a great effect on the performance of hospital.

1.1.4 Hospitals in Uganda

Uganda has 102 hospitals, including tertiary and general ones (Michael, et al., 2012). **Tertiary referral hospital** also called a **tertiary hospital** is a hospital that provides tertiary care, which is health care from specialists in a large hospital after referral from primary care and secondary care. Beyond that general definition, there is no precise narrower or more formal definition, but tertiary centres usually include the following:

A major hospital that usually has a full complement of services including paediatrics, obstetrics, general medicine, gynaecology, various branches of surgery and psychiatry.

A specialty hospital dedicated to specific sub-specialty care (paediatric centres, Oncology centres, psychiatric hospitals). Patients will often be referred from smaller hospitals to a

tertiary hospital for major operations, consultations with sub-specialists and also when sophisticated intensive care facilities are required.

Medical dictionary defines a **general hospital** as that hospital in which many different types of ailments are given care. General hospital performance is measured in terms of operations management, patient safety, quality of care, customer and employee satisfaction, and productivity in terms of patients served. Self-accounting status in Uganda has been applied to some or all second- and third-level referral hospitals. There is no financial link between districts and higher levels of the system, but decentralisation of control over personnel is more advanced (Elsevier, 2010).

According to Marriane et al. (2012), Uganda is one of the many African countries struggling to develop adequate healthcare, particularly in regard to local treatment and access to drugs. The purpose of their research was to contribute to the understanding of how reducing supply chain complexity can improve health in developing countries. They established that less supply chain complexity can produce higher customer service in terms of less stock shortages. Stock shortages of life-saving drugs are a general problem in countries which lack financial and technical infrastructure and also it is caused by complicated supply chain management. Oyella (2013) states that one of the challenges identified by the executive team at Lacor hospital (a Catholic Church-operated private hospital in Gulu, northern Uganda) is the need to establish logistic support as regards to the use of drugs and other medical supplies, which implies that inventory management systems need be developed in a cost-effective manner as proposed by Chaowalit, et al. (2014). This will help the hospital to improve on its efficiency and effectiveness in service delivery in terms of time taken to serve the patients both inpatient or outpatient

Hospital performance in Uganda, like in any other sub-Saharan African country, experiences a severe human resource crisis as a result of long-standing economic and political factors. For example, in 2004, 30000 healthcare workers were employed country-wide, but an extra 5000 qualified staff were still needed to address the serious staff shortages (Nabirye, et al., 2011, cited in Dileman et al, 2007). This indicates that besides other challenges faced by healthcare facilities; staff shortage is a major challenge. For example the nursing shortage is reported to be so severe that there is one nurse for every 3,065 people in the country, which is overwhelming and can lead to stress, dissatisfaction and lack of motivation and commitment on the part of the nurses. According to (Amer, 2010), the ideal ratio of nurse to patient is 1:5. According to the parliamentary committee on health on the ministerial policy statement for health sector 2012/2013, there are inadequate health workers. Statistics show that doctor to patient ratio (1:24,725) and nurse/midwife to patient ratio (1:11,000). According to the 2011 Human Resources for Health Audit Report, with respect to the national level staffing, the proportion of the filled approved positions was found to be 58 percent and up from 56 percent in 2010.

1.1.5 Bishop Caesar Asili Hospital

Bishop Caesar Asili Hospital was set up in 1993 by the Religious congregation of the Missionary Sisters of Mary mother of the Church in Luwero District. The hospital is set on 12 acres of land in Luwero Town Council, and it is overseen by a Board of Directors and managed by a top management team composed of four (4) members: the Administrator, the chief finance, the Accountant and the Cashier. Administratively, the hospital is divided into a number of departments: Medical, Pharmacy, Accounting and Finance and Laboratory. In all, the hospital employs 70 people both medical and non-medical staff. On average Bishop Caesar Asili Memorial Hospital serves 3,652 inpatients and 19,821 outpatients per year as seen in the financial year 2014/2015.

The hospital serves not only Luwero District but also the neighbouring districts of Nakaseke and Nakasongola that do not have equivalent healthcare facilities. Although Bishop Caesar Asili Hospital established a reorder level for all types of drugs that it stocks, it sometimes experiences shortages of vital and essential drugs. An analysis of the stock of drugs maintained at the pharmacy that serves all the patients at the hospital lacked such stock. This is due to lack of sufficient funds with which to purchase new supplies, unwillingness of suppliers to supply hospital due to delayed payments, inadequately trained staff in the inventory management section and inadequacies of hospital stock management system as cited by Dorothy, Esther & Elizabeth (2015) .

In conclusion, hospitals run in a dynamic environment and emergency is part and parcel of their working environment. To be efficient and effective, hospital information systems should be fast, accurate and up-to-date in case of any emergency. The technology of any hospital or health care facility should be such that it will empower the work force to deliver the highest possible standard of care through all stages of the patient journey (Kumar, 2014).

1.2 Problem Statement.

In any hospital, available resources are used to provide essential medications to the ever increasing population. This is why in many hospitals pharmacy department is the biggest item in the hospital's budget. It is therefore important that hospitals ensure smooth supply of the required stock to ensure an uninterrupted supply. In order to do this, there must be effective and efficient management of inventory in the pharmacy (Dorothy, Esther & Elizabeth, 2015). Uganda has 102 hospitals, ranging from tertiary to general (Michael, et al., 2012). General hospital performance is measured in terms of operations management, patient safety, quality of care, customer and employee satisfaction, and productivity in terms of patients served. As suggested by Kalondu (2013), the absence of quality management systems in hospitals leads

to many challenges like delay to give patients results of diagnosis due to insufficient quality systems leading to patients' dissatisfaction. Madeeha, et al. (2013) explores the perceptions of hospital pharmacists towards drug management and reasons underlying stock-outs of some drugs. Dorothy, Esther & Elizabeth (2015), argue that effective inventory management in healthcare supply chains is a key factor for success. The challenge in inventory management is balancing the supply with the demand. Although Bishop Caesar Asili Hospital established a reorder level for all types of drugs, it sometimes experiences shortages of vital and essential drugs. Stock of drugs maintained at the pharmacy serves all the patients at the hospital but at times there are shortages of this stock. This can be due to lack of sufficient funds and inadequately trained staff in the inventory section and also inadequacies in the hospital stock management system (Dorothy, Esther & Elizabeth (2015). Oyella (2013) says that one of the challenges at Lacor hospital is the need to establish logistic support as regards the use of drugs and hence inventory management systems need to be developed in a cost-effective manner as shown by Chaowalit, et al. (2014). A hospital's materials management must establish efficient inventory systems that ensure the hospital's ability to meet emergency demand (Khurana, et al, 2013). Hence this research aims at establishing whether or not a relationship exists between the hospital's unsatisfactory performance and its inventory management system or whether the unsatisfactory performance of the hospital is a result of poor inventory management.

1.3 Broad Objective of the Study.

The general objective to this study is to assess the effect of inventory management on the performance of non-government hospitals, a case study of Bishop Caesar Asili hospital.

1.4 Specific Objectives.

a) To find out the effect of inventory management system in regard to inventory recording, inventory pricing and valuation and ABC analysis.
b) To examine the effect of inventory records accuracy (inventory systems) on organisational performance of the Hospital.
c) To analyse the effect of inventory turnover on the performance of Non government hospitals.

1.5 Research Questions

a) What is the effect of inventory management system as regards to inventory recording, inventory pricing and valuation and ABC analysis?
b) What is the effect of inventory records accuracy (inventory systems) on organisational performance?
c) What effect does inventory turnover have on the performance of non government Hospital?

1.6 Scope

1.6.1 Subject scope

Using Bishop Caesar Asili Hospital as a case study, the study focused on the inventory management system and the performance of non-government hospitals, with a view to establishing of the former on the latter.

1.6.2 Geographical scope

The study was conducted at Bishop Caesar Asili Hospital, Luwero District, about 75km by road to the north of Kampala, the capital city of Uganda. It is bordered by Nakasongola

District to the north, Kayunga District to the east, Mukono District to the south east, Wakiso District to the south and Nakaseke to the west. Luwero district is administered by the district administration whose headquarters is at Luwero. It has three (3) municipalities, that is; Bombo, Luwero, and Wobulenzi. The 2002 census estimated its population at about 336,600 with an annual estimated growth of 3.2% and in 2010 the population was 433,100. Agriculture is the main economic activity in the district and it is estimated that 85% of the population are agriculturalists. This involves both crops and animal husbandry. Bee keeping for honey is also becoming an increasing activity.

1.6.3 Time scope

The study covered a period of 3 years, from January 2013 to January 2016, so that enough data could be collected over a long enough period to render the findings valid and reliable. Research was conducted over a period of one (1) months, from 15th December 2015 to 14th January 2016.

1.7 Significance of the Study

This study is likely to benefit a variety of stakeholders in a number of ways. First of all, health policy makers and implementers, in both the public and the private sectors, are likely to be alerted to the importance of proper inventory management in hospitals, and to realize the regrettable consequences of faulty inventory management for the performance of hospitals. Hence, it is hoped that policy makers will formulate more appropriate inventory management policies, and that policy implementers, especially inspectors and managers, will improve their performance.

Secondly, hospital personnel, especially those directly concerned with inventory management, at Bishop Caesar Asili Hospital and in other hospitals, are expected to benefit

from the findings of this study by realizing the link between the inventory management function and the overall performance of hospitals. Thereafter, they are likely to strengthen their inventory management systems and improve their overall performance.

Thirdly, if policy makers and implementers as well as hospital personnel, benefit from the study as indicated above, then all those who will seek services at hospitals in the country will benefit from the improved hospital performance that will result in better service delivery by the hospitals.

Finally, scholars and students of public health are likely to use this research report as a source of reference; and the report may even inspire some scholars and students to conduct similar research in other health facilities, thereby enriching the existing body of knowledge.

1.8 Justification of the study

The justification of the study means highlighting the reasons for conducting the study as well as the importance of carrying it out (James, 2013). The biggest problem faced by most organisations including non government hospitals is lack of or poor inventory management systems (Oyella 2013). Keeping and maintaining required or appropriate stock levels is a challenge to many profit and non-profit making organisations. And this study seeks to address such issues and challenges. Dorothy, Esther & Elizabeth, (2013) carried out the research in order to find out the effect of inventory management practices on organisational performance. They found that inventory investment and inventory records accuracy have a positive effect on organisational performance in general. However, this research aims at assessing and analysing the effect of inventory management on the performance of non government hospitals. This research too will help the health policy makers to review their systems in the supply chain of drugs and general inventory control. The costs associated with stock can be addressed by this study of inventory management and performance of non-

government hospitals. In this research, the researcher will find out how inventory management systems and proper valuation of inventory affect organisational performance.

1.9 Conceptual Framework

The conceptual framework shows the independent variable operationalised in three (3) dimensions whose relationship is tested on the dependent variable. It shows how the variables of the study are linked, and it shows the main concepts of the study which was used as a guide in the analysis of the study findings, measurement of variable, conclusions and recommendations.

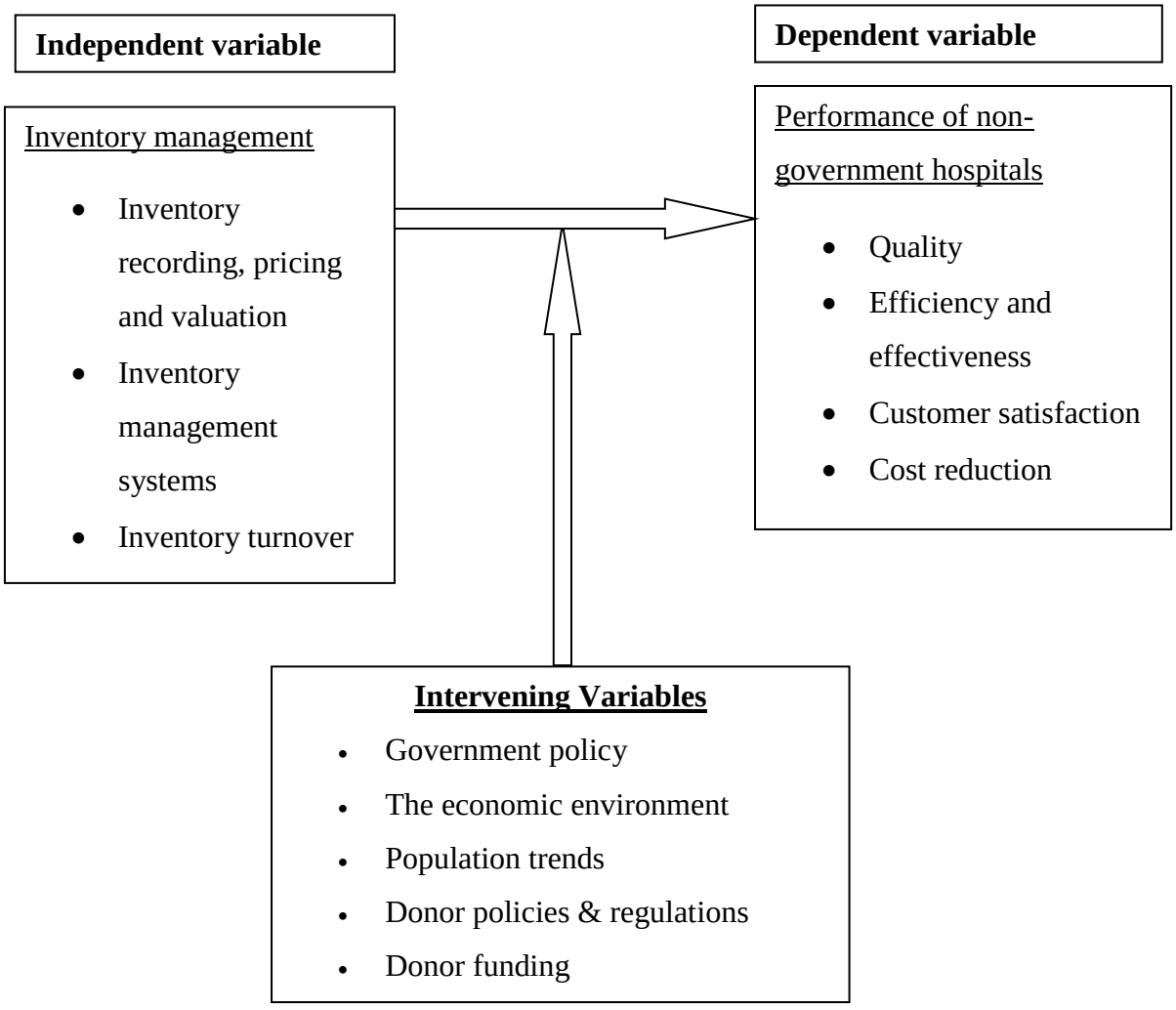


Figure 1.

Adapted from: Terry, 2009

As Figure 1 above illustrates, this study was premised on a conceptual framework according to which the overall performance of a hospital (the dependent variable) is largely determined or influenced by the operations of that hospital's inventory management system (the independent variable). In other words, the more comprehensive and efficient the inventory management system is, the better the performance of the hospital. However, as the above figure further illustrates, the influence of the independent variable on the dependent variable is not absolute: it is moderated by intervening variables, in the form of government policy, the economic environment, population trends, donor policies and regulations, and donor funding.

Inventory management has been recognised as one of the most important functions that have huge impact on the overall performance of an organisation whether profit or non-profit making as stated by Ilma and Mursyid (2012). Elsevier (2010) explains that an effective management of a pharmaceutical is required to ensure that 100% product availability at the right time, right cost and in good condition to the right customer.

You have not explained the relationship between some of the independent variables, dependent variables and moderating variables. Quote authors who discuss each of these concepts in relation to your study.

1.10.1 Stock recording, pricing and valuation

Stock recording is a prerequisite in every firm that stock issues and receipts are accurately recorded. Several stock records may be kept regarding a particular material. The most frequently means used to record stock in manual systems are Bin cards and Stock cards. Bin cards are kept for each item in the stock held and records all stock removed and added. This means that whenever an item is removed, it is recorded in the Bin card and the same is done

when an item is received and is the key figure in inventory control as supported by Terry (2009).

Computer system can also be used to record stock; for example using spreadsheet to show all the movements in and out of the stock. Stock taking can be periodical, that is, annually, or perpetual, that is, ongoing whereby the balance of stock is updated after every receipt and issue. It involves keeping a running balance on the stock cards after each material is received or issued. It is also known as continuous stock taking.

Stock can be priced and valued using the following methods:

i) **FIFO (First In First Out):** Using this method, issues are priced at the price of the oldest batch in stock until all units of the batch have been issued, then the price of the next is used. This a good practice to follow since it eliminates having expired goods which leads to losses in an organisation.

ii) **Weighted Average Cost:** This is a perpetual average method where the issue price is recalculated after each receipt taking into account both quantities and money value. With each receipt of goods, the average cost of goods held is recalculated. Any subsequent issues are then made at that price until a further receipt of goods necessitates the average cost to be recalculated.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction.

The study aims at establishing the relationship between inventory management and performance of non-government hospitals. The discussion under this part therefore shows the relatedness of the themes under inventory management; that is, 'stock recording, stock pricing and valuation', inventory management systems and inventory turnover', with the performance of non-government hospitals.

2.1 Inventory management

Kritchanchai & Meesamut, (2015) defines inventory management as a trade-off between the costs of keeping an inventory versus the benefits of holding it. High inventory levels result in increased carrying costs but lower the possibility of losing sales due to stock-outs. The main objective of materials management or inventory management is to have materials on hand when needed and to pay the lowest possible prices consistent with quality and value requirement.

Kotler and Keller, (2006) have both shown that inventory is a stock of raw materials, work in progress, finished goods and supplies held by an organisation to facilitate operations and thus should be managed effectively and efficiently by application of vendor managed inventory systems. This vendor managed inventory system leads to higher customer service level (Mustaffa and Potter, 2009). Inventory can be divided into merchandising and manufacturing inventories. This view has been supported in the work of Munabi, et al. (2014). Bassey, (2013) defines inventory management as the implementation of management's inventory policies in a manner that assures that the goal of inventory is met. Like Munabi, et al. (2013), he also says that inventory management involves planning and controlling in order to

determine which item to order and how often an item is influenced by actual or forecasted demand. Wanke, (2014) states that the key questions which inventory management seeks to answer are; when to order, how much and what quantity should be kept as safety stock. And also Wanke, (2011a) says that, it is a set of decisions that aim at matching existing demand with the supply of the products and material over space and time in order to achieve specified cost and service level objectives. Maintaining adequate inventory levels is very important for any business. While Chukwudi et al. (2014) and Adeyemi & Salami (2010) say that inadequate control of inventories can result in both under-stocking and over stocking of items, where under stocking leads to missed deliveries, lost sales, dissatisfied customers and over-stocking unnecessarily ties up funds that might be more productive elsewhere, Marraine, et al. (2012) say that reducing complexities and rigidities in supply chain inventory management can produce higher customer service in terms of less stock shortage.

Inventory management has been recognised as one of the most important functions that have huge impact on the overall performance of an organisation whether profit making or non-profit making as stated by Ilma and Mursyid (2012). As supported by Dimitrios (2014), effective management of a pharmaceutical is required to ensure availability of drugs at the right time, right cost, and in good condition to the right customer.

2.1.1 Stock recording, pricing and valuation.

Stock recording is a prerequisite in every firm that stock movements (issues and receipts) are accurately recorded. In some, several stock records may be kept regarding a particular material. The most frequently used method for recording stock in manual systems is Bin cards and Stock cards. Bin cards are kept for each item in the stock held. It records all stock removed and added. This means that whenever an item is removed, it is recorded in the Bin card and the same is done when an item is received. Stock record cards are necessary for

knowing the free stock balance and this is a notional not physical stock and is the key figure in inventory control. It includes both physical stock and outstanding replenishments less unfulfilled allocations or requirements as supported by Terry (2009).

Computer systems can also be used to record stock; for example using spreadsheet to show all the movements in and out of the stock. Stock taking can be periodical, that is, annually, or perpetual, that is, ongoing whereby the balance of stock is updated after every receipt and issue. It involves keeping a running balance on the stock cards after each material is received or issued. It is also known as continuous stock taking.

Pricing systems for charging purposes would not mean anything unless basic records are accurate and up to date. The system of issues, job recording, and scrap records must be continuously monitored to ensure its relevancy and accuracy. Pricing is important because it helps to know the cost of material used and to provide satisfactory basis for valuing inventory at hand.

The following are the inventory valuation and pricing systems or methods:

FIFO (First In First Out): Using this method, issues are priced at the price of the oldest batch in stock until all units of the batch have been issued, then the price of the next batch is used. Though most times this is not done, it would be a good practice to follow since it eliminates having expiry goods which lead to losses in an organisation (Terry, 2009).

Weighted Average Cost: This is a perpetual average method where the issue price is recalculated after each receipt taking into account both quantities and money value. With each receipt of goods, the average cost of goods held is recalculated. Any subsequent issues are then made at that price until a further receipt of goods necessitates the average cost to be recalculated. According to Drury (2008), inventory valuation methods are undergoing

constant change and development during which there are several methods as mentioned above.

2.1.2 Inventory management systems.

Inventory management system is a system used for tracking an organisation's inventory. It is good to use an inventory system which is easy to use and which will make the organisation more productive. This can either be computerised or manual though computerised system is more accurate, fast and thus efficient (Terry, 2009).

There are two broad divisions of inventory control systems that is, Reorder level and Periodic review systems.

i. Reorder level system

This is also called two-bin system. The characteristics of this inventory management system are:

- Pre-determined reorder level is set for each item.
- When the stock level falls to the reorder level, a replenishment order should be issued.
- Two-bin system means that the stock is initially drawn from the first bin and the replenishment order is issued when it becomes empty as the stock in the second bin is being used. This means that stock in the second bin equals to the lead time.
- The replenishment order quantity is the same as the EOQ (Lucey, 2003)

The advantage of the reorder level inventory management system is that it generates an automatic replenishment order at the appropriate time and it is appropriate for widely differing types of inventory within the same firm. However, with this system, many items may reach the re-order level at the same time thus overloading the re-ordering system.

ii. Periodic review inventory management system

This is sometimes called constant cycle system and it has the following characteristics:

- Stock levels of all items are reviewed at fixed intervals, for example every two weeks.
- Where and when necessary, a replenishment order is issued (Terry, 2009).

This system is very advantageous in that all stock is reviewed periodically in order to be able to eliminate obsolete items. Also larger quantity discounts may be obtained when a range of stock items is ordered at the same time (Lucey, 2003).

Standard inventory soft ware features may include:

- ✓ Alerts: these help to receive notifications of low inventory levels and check out items past due.
- ✓ Check-in and check-outs: Automate the check in and check-out of assets to employees, vendors or customers to ensure that no assets or inventory gets misplaced.
- ✓ Managing vendor: Maintain detailed supplier information (Sani, 2014)

2.1.3 Inventory turnover

Inventory turnover helps the organisation to know how to determine optimal inventory levels that should be maintained. This helps in making sure that the organisation does not experience stock outs at some point in its operations and it also helps to avoid over stocking. In line with this, there are dynamic inventory concepts which are very vital in maintaining optimal stock level. They include the following:

- Minimum stock level: This is quantity below which the stock of materials should not be allowed to fall. This is maintained to prevent stock outs in the stores and helps the organisation to avoid panic buying.

- Maximum stock level: this represents the uppermost or highest amount of stock the organisation can maintain at any time. It indicates the level above which stock should not be allowed to rise in order not to increase the holding costs.
- Reorder level: This is the level at which it becomes necessary to initiate a purchase order for a fresh supply. This level must be sufficient to the maximum consumption of materials during the reorder period.
- Economic Order Quantity: This represents the amount of stock to be ordered. If more is ordered at one time, then fewer orders were required per year which implies a reduction in the ordering costs. However, when fewer orders are made, large average stock of materials must be maintained which leads to increase in holding costs. Therefore, the optimal level is that quantity that will minimise both the costs of storage and those of placing an order and the optimum order size is what is called Economic Order Quantity (EOQ).
- Lead time: this is the time period between the date of the order and the date of delivery. The longer the lead time the higher the stock level that should be maintained and the shorter the lead time the lower the stock that should be maintained.
- Physical stock: This is the number of items physically in stock at a given time (Lucey, 2009)

2.2.0 Performance of Non-Government Hospitals

Any organisation performance can be measured in various ways, for example, Return on Investment and Return on Capital Employed (Terry, 2009). Measurement is central to the concept of hospital quality improvement. It provides a means to define what actually hospitals do to compare what they do with their original targets in order to identify opportunities for improvement (World Health Organisation Report 2003). The principle

methods of measuring hospital performance are regulatory inspections, public satisfaction, survey, third party assessment and statistical indicators. Inspection of hospitals measures minimum requirements for the safety of the patient and the personnel. Surveys always address what is valued by patients and the general public. These surveys are use to measure specific domains of patient experience and satisfaction. These standardised surveys also measure the performance against the explicit standards at national level as stated in the World Health Organisation Report 2003. Hospital performance may be defined according to the achievement of specified targets that are either clinical or administrative. Targets may relate to traditional hospital functions such as diagnosis, treatment, care and rehabilitation as well as teaching and research. However with the current trends, where hospitals do community outreach rather than concentration on the inpatient healthcare, hospitals' performance may be expected to include elements of community care and public health as well as social employment functions.

Kalondu (2013) says that the absence of quality management systems in hospitals may lead to challenges like delay in releasing results of diagnosis to patients due to inefficient quality systems in diagnosis sector. This may lead to patients going without treatment due to lack of clear diagnosis which still leads to unnecessary deaths and continuous infection in the community. He further investigated the effects of quality management systems looking at turnaround time, result accuracy, drug inventory and monitoring and evaluation. In support of the same idea, Mungu (2013) asserts that the supply chain management practices correctly applied in public health institutions can contribute greatly in monitoring the availability of essential drugs in these institutions. A number of studies for example (Arni, Juliana, Herhert, 2015) and (Claudine and Paul, 2015) have been carried out in the supply chain management targeting industries but no study has focused on the availability of drugs in public health institutions in general. This study assesses the effect of inventory management and supply

chain management practices on the stock levels of essential drugs. Market price fluctuations were identified as the most challenging factor that could affect stock levels of essential drugs in health facilities.

2.2.1 Quality management

Quality of healthcare can be measured based on the indicators of mortality and screening rates for specific illness (James, Marcy and Amar, 2010). Some measures of quality of healthcare depend on the purpose of the measure. Many measures of healthcare quality are used to determine the impact of quality on the dependent variable of interest. Measures of quality may depend on the indicators used, it can be basic inputs available and utilisation rates of services. International Organisation for Standardization certificate measures hospital performance and quality in terms of compliance with International standards for quality systems rather than in terms of hospital functions and objectives (World Health Organisation Report 2013). This report "The research for Universal health coverage" argues that universal health coverage – with full access to high quality services for prevention, treatment and financial risk protection cannot be achieved without the evidence provided by scientific research. According to the Joint Medical Stores Annual Report 2014/2016, incoming products are inspected on batch by batch basis following the JMS established and validated protocols to prevent receipt of substandard items using detection and isolation techniques. Storage conditions of all drugs and other medical supplies are monitored and controlled to ensure quality. An effective healthy commodity supply chain will ensure essential medicine and health supplies required by the people of Uganda. This means that they should be available and accessible to the population including the poor and most vulnerable so that the quality is maintained and this leads to customer satisfaction (MOH Report on National Pharmaceutical sector strategic plan 2015 to 2010).

2.2.2 Customer satisfaction and patients' safety

This is where customers feel that their needs, wants and expectations have been met by the service received. This is clearly indicated in the ISO 9000 standards adopted in 2000 to become more easily applied to healthcare and to include the assessment of outcomes and consumer satisfaction; for example to reduce patient mortality rates. It is imperative that they initiate appropriate medication therapy rapidly and continue to administer the therapy as scheduled. Patients have a right to receive and hospitals have an obligation to provide the right medication for the right reason at the right time. And for this to occur, hospital personnel should make sure that correct medications are available at the time they plan to administer them (Shaw, 2003).

2.2.3 Efficiency and effectiveness

Efficiency drug management is the key strategy in reducing costs of drugs and ensuring their availability in the healthcare facilities. Drug stock-outs is an evidence of an inefficient and ineffective management in a hospital. Effective supply chain management practices can reduce significant healthcare costs. The major aim of effective internal supply chain management is to fulfil patients' demands produced by the supply chain processes done in a timely manner with the lowest cost possible (Munabi, et al. (2012). Effective medicine administration can be practiced only where there is efficient drug management. Hence the role of pharmacists in the procurement team is very vital. These are qualified professionals who follow the principles of quality assurance. They are concerned with the principles of stock keeping and stock turnovers.

2.3.1 Record of inventory movements, pricing and valuation and performance of non-government hospitals

Record of inventory movement is a practice of controlling inventory by recording all the issues and receipts of items in stock. This helps in tracking the available stock which helps to know when and how much to order. For any organisation, it is a prerequisite that inventory movements are accurately recorded. This record can be done using bin cards or stock cards (Terry, 2009). Record of inventory movements involves recording and monitoring of stock levels, forecasting future demand and deciding when and how much so as not to experience stock outs or have redundant stock (Wanke, 2014). Stock records, whether manual or computerised must be current and accurate because it is impossible to manage the reordering process if stock movements cannot be tracked. Record of inventory movement has a greater influence on the performance of hospitals because if this is not accurately done, then the hospital can experience stock-outs or stock shortage of essential drugs (Mariane, et al. 2014) or expiratory of products (Chaowalit, et al. 2014) due to unnecessary over-stocking.

Stock pricing and valuation is very vital for any organisation. For a profit making organisation, setting an appropriate price helps the organisation in many more aspects like maintaining the market share, sales and profitability. For a non profit organisation, stock pricing and valuation helps it to know the value of stock in hand, which stock to sell first and at what price. Resent research (Mungu, 2013) has found that a market price fluctuation is the most challenging factor that could affect stock levels in health facilities.

In conclusion, inventory management is very crucial in terms of customer service with product availability and hence an important aspect of any organisation. Organisations should have right product in a right place and right quantity (right inventory levels) to meet the demands of their customers. Choosing the most adequate inventory model is essentially an

empirically based decision that may involve the use of simulation, scenario, analysis, incremental cost analysis as sited by Wanke (2014) in Silver (2009) and Rosa, et al. (2010).

2.3.2 Inventory management systems and performance of non-government hospitals.

Single inventory policy has been applied to entire types of drugs in hospitals, despite several different drug and demand characteristics. Shortages occur regularly, which may affect patients' lives, especially when vital drugs are being administered to them. However, hospitals cannot store a large amount of every drug because of limited space and budget. Kritchanchai and Meesamut (2015) assert that it is better to have a drug inventory policy or system suitable for each drug category rather than applying a single Min/Max policy for all categories.

It would be appropriate if a system consists of when to order, how much to order and how to handle the various types of drugs. In this case establishing a suitable policy for each demand type is the way to manage drug inventories in hospitals. This reduces the total inventory costs while still maintaining the service level of patients.

The Periodic Re-order level System is very vital in hospitals since a predetermined re-order level is set for each item and when stock level of a given item falls to the re-order level, a replenishment order is issued to ensure the availability of that item (Terry, 2009).

ABC Analysis

This is an inventory categorisation method which consists in dividing the items into categories of A, B and C. A being the most valuable items and C being the least valuable ones. This method aims at drawing managers' attention on the critical few (A-items) and not on the trivial many (C-items). This view was given by Collignon and Vermorel (2012). ABC analysis is the basis for material management process and helps to define how stock is

managed. It can form the basis of various activities including plans on alternative stocking arrangements, reorder calculations and can help determine at what intervals inventory checks are carried out; for example, for class A, items may be required to be checked more frequently than C class stores (Geoff 2006). It is very important in the management and performance of a hospital because using this method, the hospital pharmacist was in position to know how much to have in stock of each of the classes. For example; since 20% of the items in class A account for 70-80% of the consumption, the hospital pharmacist will pay more attention to class A than to those in class C (Kritchanchai and Meesamut 2015).

2.3.3 Inventory turnover and performance of Non-Government Hospitals

Inventory turnover is the number of times inventory is sold or used and replaced in a time period such as a year. And inventory turnover ratio is the number of units dispensed in relation to the average unit inventory. A higher turnover ratio and desired inventory availability, demonstrates the effective use of resources for distribution of products in the supply chain (Javaid, 2013).

$$\textbf{Inventory turnover ratio} = \frac{\textbf{units dispensed during a time period}}{\textbf{Average unit inventory during the time period}}$$

Inventory turnover helps the organisation to know how to determine optimal inventory levels that should be maintained. This helps in making sure that the organisation does not experience stock outs at some point in its operations and it also helps to avoid over stocking. In line with this, there are dynamic inventory concepts which are very vital in maintaining optimal stock level. They include the following:

- Minimum stock level: This is quantity below which the stock of materials should not be allowed to fall. This is maintained to prevent stock outs in the stores and helps the organisation to avoid panic buying.
- Maximum stock level: this represents the uppermost or highest amount of stock the organisation can maintain at any time. It indicates the level above which stock should not be allowed to rise in order not to increase the holding costs.
- Reorder level: This is the level at which it becomes necessary to initiate a purchase order for a fresh supply. This level must be sufficient to the maximum consumption of materials during the reorder period.
- Economic Order Quantity: This represents the amount of stock to be ordered. If more is ordered at one time, then fewer orders was required per year which implies a reduction in the ordering costs. However, when fewer orders are made, large average stock of materials must be maintained which leads to increase in holding costs. Therefore, the optimal level is that quantity that will minimise both the costs of storage and those of placing an order and the optimum order size is what is called Economic Order Quantity (EOQ) (Dorothy, Esther & Elizabeth, (2015).
- Lead time: this is the time period between the date of the order and the date of delivery. The longer the lead time the higher the stock level that should be maintained and the shorter the lead time the lower the stock that should be maintained.
- Physical stock: This is the number of items physically in stock at a given time (Lucey, 2009).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents and justifies the research design and methodology that was adopted by the study, the study area, the study population and sampling techniques used during the study, the data collection and analysis methods and tools used quality control, measurement of variables, ethical considerations and the limitations of the study.

3.1 Research Design

A research design is a plan for conducting research. It refers to the overall strategy that the researcher chooses to integrate the different components of the study in a coherently and logical way, thereby assuring effective address of the research problem. Martin (2005) defines research design as a plan, or structure or strategy of investigation or arrangement of conditions for collection and analysis of data.

There are different types of research designs which include action research, case study and survey. Action research design involves an understanding of the problem and then plans are made for some form of interventional strategy and then the interventions are carried out. Case study is an in-depth study of a particular research problem rather than a comprehensive enquiry. It is used to narrow down a very broad field; Dooley, (1995). Survey is a detailed investigation into the characteristics of a population as expressed at a particular point in time. It may collect data about attitudes, beliefs, opinions and practices. Survey can be cross-sectional and longitudinal. It is cross-sectional when participants are selected from the different categories of the members of the population and this can be in terms of age, sex, and position. Longitudinal survey is good for establishing prevalence phenomenon across the

whole population. The study essentially was a cross-sectional survey design within a case study design, using both qualitative and quantitative data collection and analysis methods and tools. Qualitative research is primarily exploratory research that is used to gain an understanding of underlying reasons, opinions and motivations. It provides insights into the problem and helps to develop ideas for potential quantitative research. It helps to go deeper into the problem.

Quantitative research is used to quantify the problem by way of generating numerical data or data that can be transformed into usable statistics. It is used to quantify attitudes, opinions, behaviours and other variables (Masembe, 2009). A cross-sectional survey design was adopted mainly because it is highly economical in that it enables a researcher to study a representative cross-section of a given phenomenon or population at a given point in time so as to be able to draw valid conclusions about the entire phenomenon or population over a much longer time span. Being short of both time and money the researcher found the cross-sectional survey particularly appropriate for the study. A case study design was also selected for very similar reasons: it enabled the researcher to conduct an intensive study of a single case over a limited area (in this case a single non-government hospital) in order to draw valid conclusions about the wider phenomenon that the case represents (all non-government hospitals in Uganda).

The study used both qualitative and quantitative methods of data collection and analysis because much of the data to be collected and analyzed, such as patients' opinions and feelings about hospital performance are not quantifiable, and are thus better elicited and analyzed using qualitative methods and tools. In addition, the researcher used quantitative methods and tools because some of the data collected and analyzed, such as numbers of patients served per unit time and quantities of specific medicines purchased, stored and dispensed, was numeric or quantifiable. Therefore, by using both qualitative and quantitative methods in

a methodological triangulation framework, the researcher was able to capture a comprehensive range of all the data necessary for the study.

3.2 Area of the study

The study was conducted at Bishop Caesar Asili Hospital, Luwero District, about 75km by road to the north of Kamplala, the capital city of Uganda. It is boardered by Nakasongola District to the north, Kayunga District to the east, Mukono District to the south east, Wakiso District to the south and Nakaseke to the west. Luwero district is administered by the district administration whose headquarters is at Luwero. It has three (3) municipalities, that is; Bombo, Luwero, and Wobulenzi. The 2002 census estimated its population at about 336,600 with an annual estimated growth of 3.2% and in 2010 the population was 433,100. Agriculture is the main economic activity in the district and it is estimated that 85% of the population are agriculturalists. This involves both crops and animal husbandry. Bee keeping for honey is also becoming an increasing activity.

3.3 Study Population

Martin (2005) defines a study population as a complete collection of all the elements that are of interest in a particular investigation. It is the target population or the accessible population. A target population is the overall group to be studied. It is a population about which the researcher draws conclusion. It is a study of individuals taken from the general population who share a common characteristic such as age, sex, or health condition. The study was conducted in Luwero about 70km to the north of Kampala, the capital city of Uganda. The hospital covers an area of about 12 acres, has 100 beds has about 70 employees, (of which a population of 45 was taken for the study giving a sample size of 40 respondents) and treats an average of 54 Out- patients per day or 19,821 per year and on average it admits 10 patients per day or 3,652 per year. Users of this hospital (about 800,000 people) are mostly from poor

farming families. The study population was composed of all the hospital administrators, managers (Heads of Department) and staff (medical and non-medical).

Table 1: Sample size

Category	**Population**	**Sample**
Administrators	4	4
Heads of departments	5	5
Medical personnel	28	28
Pharmacy department	3	3
Others (eg. Cleaners etc)	5	0
Total	**45**	**40**

3.4 Sample Size

A sample size is a portion of the population, usually accessible population selected for a study. It is the number of elements to be chosen from the target population so as to constitute the required sample. The sample size should be large enough to get good and meaningful results about the entire population it represents. A sample is a sub-set of the population. It comprises members selected from a population. For example, if 100 members are drawn from a population of 500, then 100 make a sample (Masembe 2009). The researcher used the Krejice and Morgan table (1970) to establish the sample size needed from the population. This table helped the researcher to come up with an appropriate sample for the study. The sample size that was used for the study is 40 respondents.

Table 2: Table for Determining Sample Size from a Given Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—N is population size.

S is sample size.

3.5 Sampling Techniques

Sampling is the process of selecting a sufficient number of the right elements from the population so that one can study the sample and understand its properties; (Sekaran & Rogers 2013). Because the study population is composed of different categories, including hospital staff and Administrators and their respective sub-categories, the researcher used the stratified random sampling method. Stratified random sampling is a method used where the population is divided into groups or categories called "strata" according to the characteristics of the population (Masembe, 2009). With this method, each stratum is composed of items which are more homogeneous with respect to the characteristics to be studied. This method is used because it is more appropriate for it ensures that each population category and sub-category is proportionately represented in the sample. The population was divided into independent groups such as administrators, managers, medical staff and patients. The researcher established the percentage of the total population represented by each of these categories and sub-categories, and ensured that category and sub-category made a representative study sample. Finally, the number of respondents corresponding to each category and sub-category was randomly selected from the study population.

3.6 Data Sources

The researcher collected from both primary and secondary sources. According to Sekaran & Rogers (2013), primary data refers to information obtained firsthand by the researcher on the variables of interest for a specific purpose of the study. Primary data is data that is collected for the first time from the source for a specific purpose or study or enquiry. It is always original in nature and can be obtained by asking questions, observations or by carrying out an experiment. Primary data was collected from respondents through questionnaire administration and the hospital premises through observation of on-going activities and

events. This ensured access to first hand information from the sample on the subject of interest. Secondary data is data that already exists. This means that data has already been collected and passed through statistical process. Secondary data was obtained by reviewing relevant books, journals, government reports, newspaper articles, hospital documents and the Internet.

3.7 Data collection methods and techniques

This sub-section describes the methods and techniques that the researcher used to collect data for the proposed study. Several techniques can be used to collect data but many of these depend or vary with the data or type of research being conducted. Since the researcher used both primary and secondary data, for primary data (where information is not yet available and the researcher must look for it and collect it), the data collection technique that was used is questionnaires. A questionnaire is a device used for gathering facts, opinions, perceptions, attitudes and beliefs. It is a form consisting of a list of questions or statements calling for information about the respondents' behaviour or characteristic that the researcher wishes to measure. In other words, it consists of a set of questions to which the subject responds in writing (Martin, 2005). They can be open form or closed-form; where open-form questionnaires are made up of open-ended questions which allow respondents to give responses in their own words. On the other hand, closed-ended questionnaires are made up of close-ended items. Here questions were presented with the list of their possible responses for the respondent to choose from. The researcher provided instructions to guide respondents on how to answer the questions.

Secondary data is already available and it just needs extraction. The researcher in this case used literature review and document analysis of Bishop Caesar Asili Hospital including the analysis of personal records, government documents, health records and population records.

The researcher obtained data using questionnaires; whereby an appropriate questionnaire was prepared and given to the respondents to fill in the answers independently. These were then analysed by the researcher and came up with first hand information. The questionnaire was in English.

3.8 Data Analysis and Presentation

Data analysis is the process of systematically applying statistical and /or logical techniques to describe and illustrate, condense and recap and evaluate data. Having used questionnaires as collection tools, the researcher will use graphs, tables, and charts for data analysis and presentation. These will describe the mean, mode, median, standard deviation and the percentage of the variables.

3.9 Data Quality Control

This means that the administration of research instruments must consider the quality of the data to be collected. In this study, quality control will focus on ensuring the reliability and validity of the data collection tools.

3.9.1 Reliability of the research instruments

According to Martin (2005), reliability is the dependability and trustworthiness and in the context of a measuring instrument, it is the degree to which the instrument consistently measures whatever it is measuring. It is a test of how consistent a measuring instrument measures whatever concept it is measuring. This means that the reliability of a data control tool is the ability of the tool to collect the same data consistently over time if the study were to be repeated. To ensure reliability of the questionnaire to be used, the researcher formulated very simple and clear questions in each of the two tools. Thereafter, she carried out a test and re-test method by using the same tool on two groups of respondents but on two different and

well spaced occasions. The scores obtained on each occasion was recorded and compared for consistency. Since the results obtained were similar or identical, then the tools were declared reliable.

3.9.2 Validity of the research instruments

Martin (2005) defines validity as the appropriateness of the research instrument. It is a test of how well an instrument that is developed measures the particular concept it is intended to measure. Therefore, the validity of a tool is the ability of the tool to collect justifiable and truthful data. In order to ensure this, the researcher will use expert review; share it with experts in the area of study in order to have a valid tool.

3.10 Measurement of Variables

According to Martin (2005), measurement of variables is the assignment of numbers to objects, event or characteristics according to rules. This operationally defines the variable. The researcher used nominal measurement where numbers were assigned to observations as their names. This is common where grouping of individuals or objects is common and since the researcher needed to group the respondents according to their characteristics, then the researcher used the nominal scale as a measure of the variables.

3.11 Ethical Considerations

Research ethical considerations are regulatory codes of practice put in place by various professional organisations to guide researchers which should be considered by researchers at all levels (Dana & Allen, (2012). Following approval of this proposal by the relevant University authorities, the researcher started by obtaining a letter of introduction from the University. Using this letter, the researcher introduced herself to the political and administrative authorities of Luwero District and sought permission to conduct the study.

Having obtained that permission, the researcher went to Bishop Caesar Asili Hospital, introduced herself and her study proposal and sought further permission to carry out the study. The hospital Administrator acknowledged the researcher's introduction letter by signing and stamping on it as a sign of acceptance. While introducing herself to different authorities and potential respondents, the researcher clearly stated the topic of the study and explained its purpose and likely benefits. In addition, she informed every prospective respondent that participation in the study is voluntary, that whatever information they provide was treated with utmost confidentiality and that their own identities will remain strictly anonymous. Moreover, before any data collection exercise, the researcher agreed with the prospective respondent on the timing, duration and venue of the exercise. While writing the research report, the researcher acknowledged indebtedness to other writers' works wherever this was necessary. Finally, throughout the study and in the research report, the researcher endeavoured to observe the principle of *Do No Harm*. This means that the researcher worked towards minimising risks to participants. This was done by avoiding exposing participants to physical and psychological harm by using safe procedures of collecting the data.

3.12 Study Limitations

This study suffered from two types of limitations: intrinsic and extrinsic. Intrinsic limitations are those that relate to the research design and methodology adopted for the study. For example, the case study research design adopted has its limitations in that no case can be identical to another however similar the two may be. Therefore, it is possible that, in some significant respects, some of the findings may not be readily applicable to other non-government hospitals in Uganda. To guard against any negative consequences of this possibility, the researcher looked out for any significant differences that any hospital may exhibit relative to other non-government hospitals, and assessed the likely impact of that difference on the findings.

Given the study area and unit of inquiry, the sample size is likely to be small such that it will not give adequate data. The researcher will carry out document review to add on the data collected from the sample. The researcher will also devise means of as much data as possible which was sufficient enough to avoid high error associated with studying a small sample size.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

In this chapter, the findings about the effect of inventory management on the performance of Bishop Caesar Asilli Hospital are analyzed. The study was aiming at exploring the contributions or the effect of inventory management to the performance of non government hospitals. This would be found out by establishing whether respondents were aware that inventory practices would greatly contribute to the performance of Bishop Caesar Asili hospital.

Background information

There is currently no automated system in place, all data is captured manually in BCAH. Analysis of data particularly primary data and the findings is the core of any meaningful research work. The extent of application of the research work depends on careful presentation and analysis of data collection for the study. The findings in this chapter critically show the situation as it is for the various items that were studied regarding inventory management and the performance of Bishop Caesar Asili Hospital. The analysis would be represented on simple table and percentage.

The section presents information on the objectives of the study and the general understanding of the effect of inventory management on the performance of non government hospitals. It presents the effect of inventory management system (recording, pricing and valuation) on the performance of BCAH, the effect of inventory records accuracy and the effect of inventory turnover on the performance of BCAH. The analysis is presented in simple tables, pie charts and bar-graphs to mention but a few. The researcher distributed forty-one (41) questionnaires to the respondent and collected forty

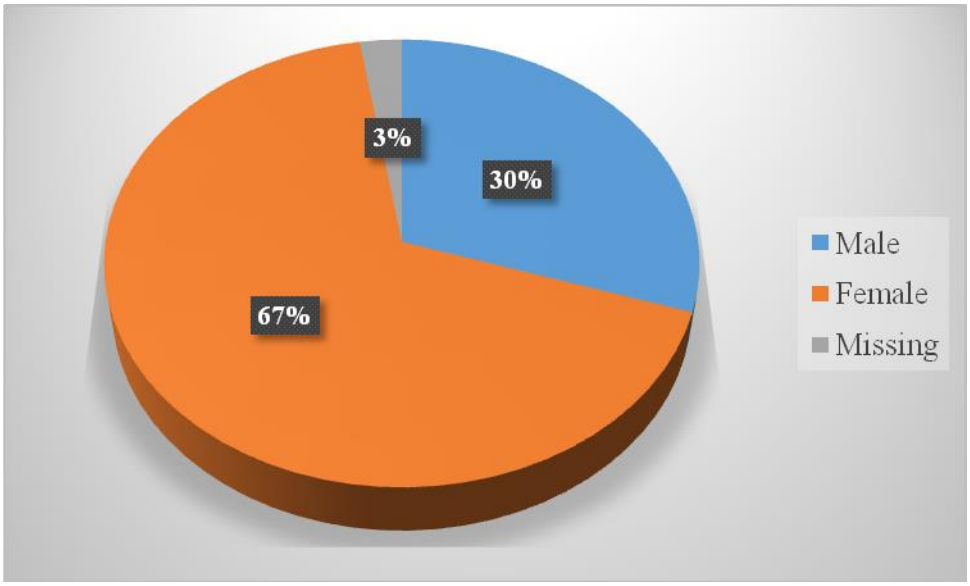
(40). The response rate of a survey is the measure of how many people were approached, (i.e. 'sampled') and how many actually completed the survey. It is usually assumed that the higher the response rate, the more likely the results are representative of the population, provided the sampling is appropriate in the first place. **http:**//www.daa.com.au/analytical-ideas/**response-rates.** Therefore, according to the survey, the response rate was 97.5% (40/41*100).

The analysis of the questionnaire distribution is as below:

Gender composition of respondents

The gender of respondents was established. This aimed at knowing how females and males actively participate in private or non government hospitals. This is shown in figure 1 below.

Figure 1: Gender of the respondents



Source: Field data, January, 2016

From the above findings, though 3% of the respondents did not fill in their gender, it can clearly be seen that there are many female employees in BCAH than males. The majority were females as compared to males. The number of females who participated in the study were 27 (67%) as compared to a less number of male respondents 12 (30%) that participated in the study This could be partly because of the nature of services offered in the hospital and the general percentage of females as compared to males in the real life. In former times, it was evident that all nurses are females and this could be the reason why there are more females than males in Bishop Caesar Asili hospital.

Years of experience

It is important to consider the years of experience for BCAH employees since this greatly affects the performance of the hospital. It also helps the management to know the way forward as far as peoples' experience and stay in the organisation is concerned. It is elaborated in the figure below.

Figure 2: Years of experience

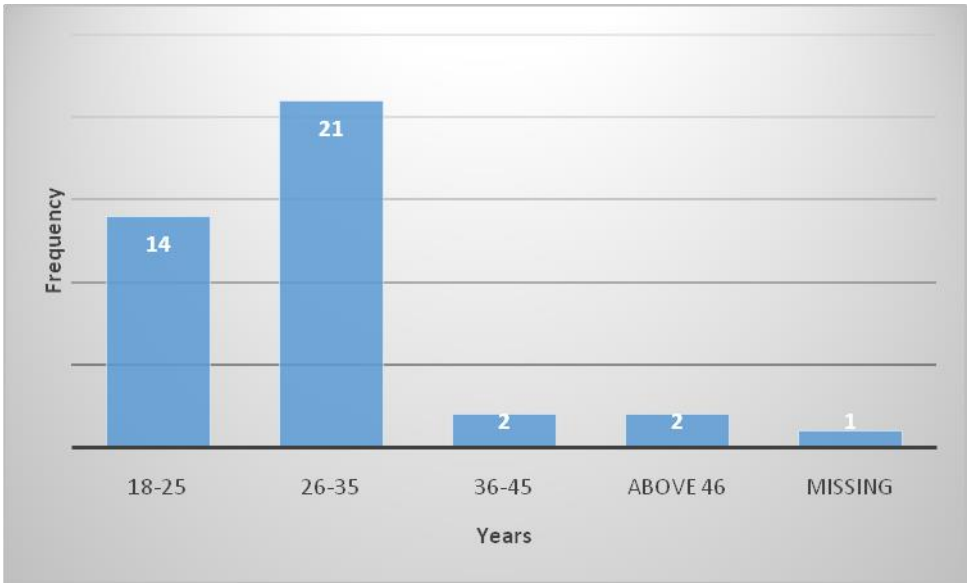
Source: Field data, January, 2016

From the above findings, it is evident that most of the employees in BCAH have experience ranging from 5 to 10 years; 28 members (70%). This has partly been an advantage to the hospital as far as performance and rapid growth is concerned. It is probable that this experience has not only been got while at the hospital but some of them joined the team of BCAH when they were already experienced.

Age composition of respondents

The age composition of the study respondents was also an important factor in the process of understanding the relationship effect of inventory management and performance of non government hospitals and especially in Bishop Caesar Asili Hospital. This was so because different age groups were assumed to understand the study variables differently yet considered vital to the study. According to the study findings the respondents in this regard are as in figure 3.

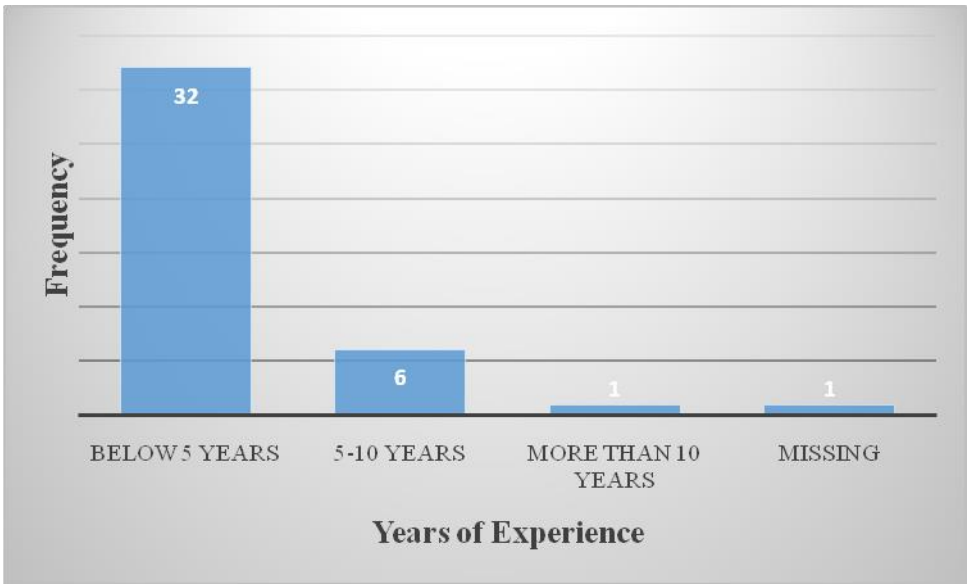
Figure 3: Age composition of respondents



Source: Field data, January, 2016

From the above graph, it is evidently seen that out of 40 respondents, 21(52.5%) of the employees of BCAH are aged between 26-35years. This indicates that the hospital has a strong human resource since many workers are in the strong age bracket. This contributes greatly to the performance of the hospital in all aspects. However, it raises great concern that only 2 employees are aged between 36-46 years. This indicates that there may be limited mentoring of the active age group which may be dangerous in the future. The age composition of the study respondents could therefore be important factor in generating valid information in relation to the issues of inventory management and performance BCAH.

Figure 4: Years worked in the Organisation



Source: Field data, January, 2016

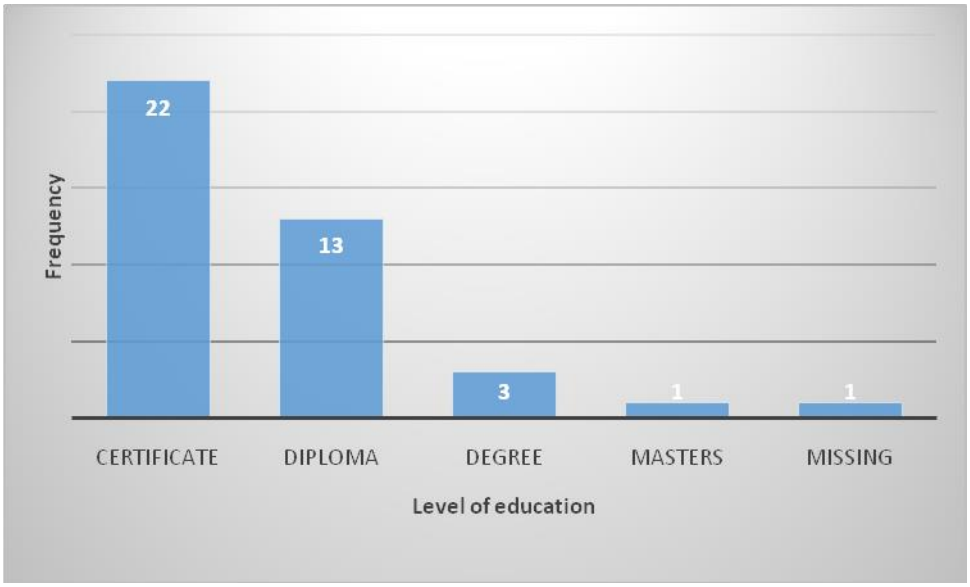
From the above findings, it is evident that most of the employees in BCAH have experience ranging from 5 to 10 years; 28 members (70%). Though the years worked in the hospital for some of the employees are few, this does not stop them from being experienced. It is probable according to figure 2 (showing years of experience) that most of these staff joined Bishop Caesar Asili hospital with already gained experience which is an advantage to the

hospital. This has improved performance in one way or another. Also the fact that the hospital can receive employees already experienced is a good sign towards improved performance.

Level of education of respondents

In order to get information from all categories of people, those that have attained Certificate, Diploma, Degree, and Masters Levels of education were all approached during the study process. This established the levels of education of the respondents as indicated in figure 5.

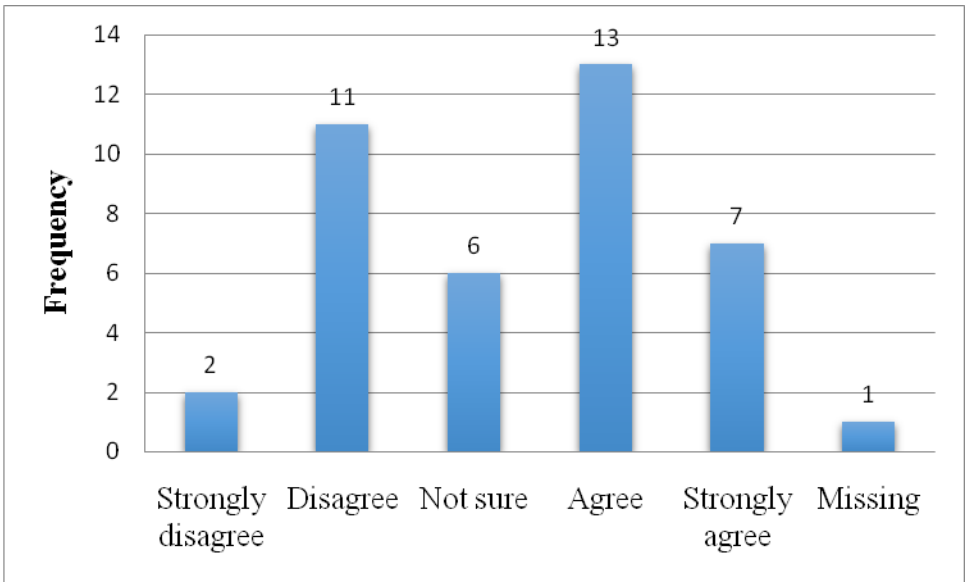
Figure 5: Level of education of respondents



Source: Field data, January, 2016

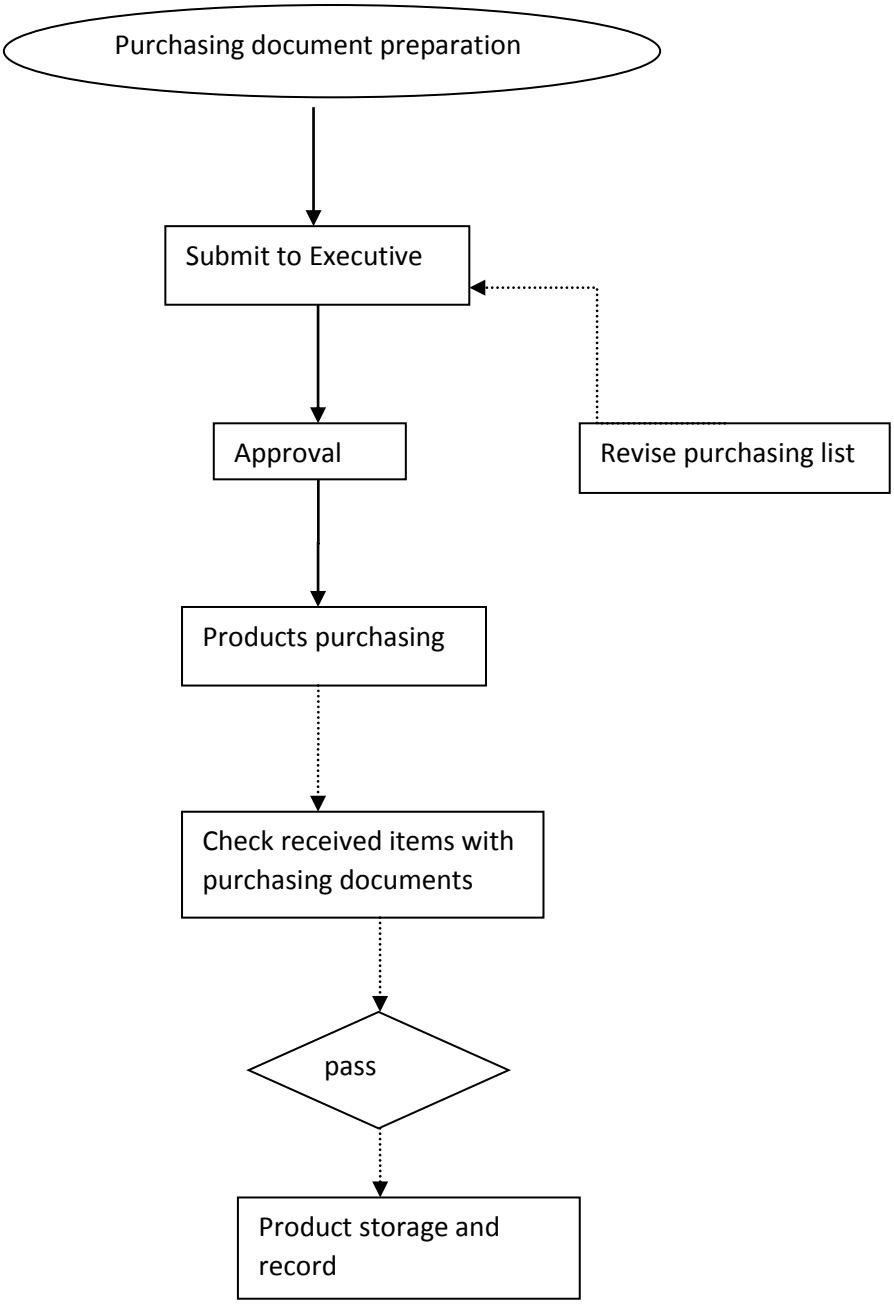
From the findings, it is clearly seen that most of the employees in the organisation have lower qualification that is, certificate holders. About 55% of the workers hold certificates in different fields. In my opinion, this could be partly the reason why some of the aspects in the hospital are not attended too efficiently for example, no well trained personnel for the pharmacy. On the other hand, most of these are females which indicate that the lower level workforce in the medical field is saturated by females though a smaller percentage of them may also be in the higher levels of the workforce.

Figure 6: Trained personnel is a challenge to inventory recording, pricing and valuation



Source: Field data, January, 2016

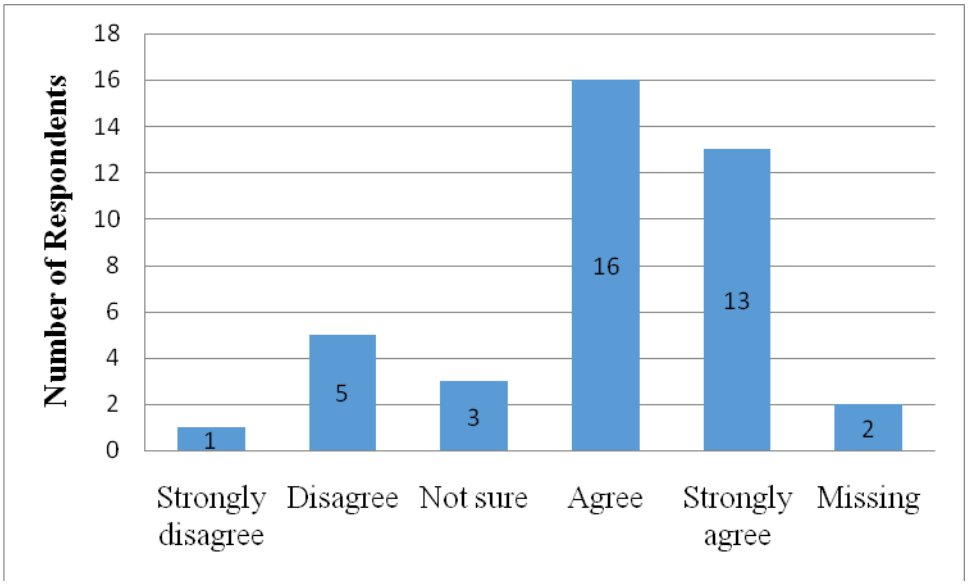
The study deduced that inadequate trained staff in inventory management section or pharmacy and insufficient funds given for inventory use contributes greatly to poor performance of BCAH. Thus improved customer service can only be realised with proper inventory management at the hospital. This is evidenced in the graph above where about 50% agreed (agree and strongly agree) to the statement. It is inappropriate that there is only one pharmacist in a hospital managing all purchasing for the hospital without any control from the purchasing committee. On one hand BCAH does well by the fact that they have three (3) workers in the drug store. However they do not have a purchasing committee to control purchasing of drugs and other medical supplies. The International Journal of pharmacy and pharmaceuticals science (volume 6, Issue 5, 2014), WHO suggests that no single individual should have total control of pharmaceutical purchasing and procurement but rather there should be a purchasing committee to review and approval all purchases. The top-down flow chart of improved purchasing and inventory management is shown below:



Effective medicine can be practiced only where there is efficient drug management. The role of pharmacists in the procurement team is vital. They are qualified professionals who follow the principles of quality assurance. They realize the particulars of the distribution chain and principles of efficient stock keeping and stock turnovers. They are familiar with the pricing and technical information related to drug products available within the markets. They act as an interface with clinical staff to ensure that all the medicines are available to

the patients through the use of appropriate stock management systems and dispensing software.

Figure 7: How up-to-date records have effect on inventory records accuracy



Source: Field data, January, 2016

The study deduced that accuracy of records has a positive effect on inventory management with the majority of the respondents agreeing and strongly agreeing that up-to-date records and proper accounts records have positive effect on inventory accuracy. This can include stock taking and inventory spot-checks. This is because in order to ensure accuracy and reliable stock records, there is need to do spot check, physical stock counting and measuring quantity of each of them in stock and then recording the results. It is therefore right to conclude that effective record management is an essential function of inventory management hence to improve inventory process, there is need to ensure that all records kept by the hospital are accurate.

Table 3: Recording and tracking of inventory movements as a good practice to control inventory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	2.5	2.7	2.7
	Not sure	4	10	10.8	13.5
	Agree	14	35	37.8	51.4
	Strongly agree	18	45	48.6	100
	Missing	3	7.5		
Total		40	100		

Source: Field data, January, 2016

Stock recording is a prerequisite in every firm that stock movements (issues and receipts) are accurately recorded. This is true in that when you record stock properly, this will help you to know which items are available and which are soon running out and this will ensure optimal stock in an organisation. From the table above, it is seen that 14 (35%) respondents agreed to this and more so 18 (45%) strongly agreed to the same fact. This is an indication that stock recording is a very important requirement in BCAH and indeed other organisations.

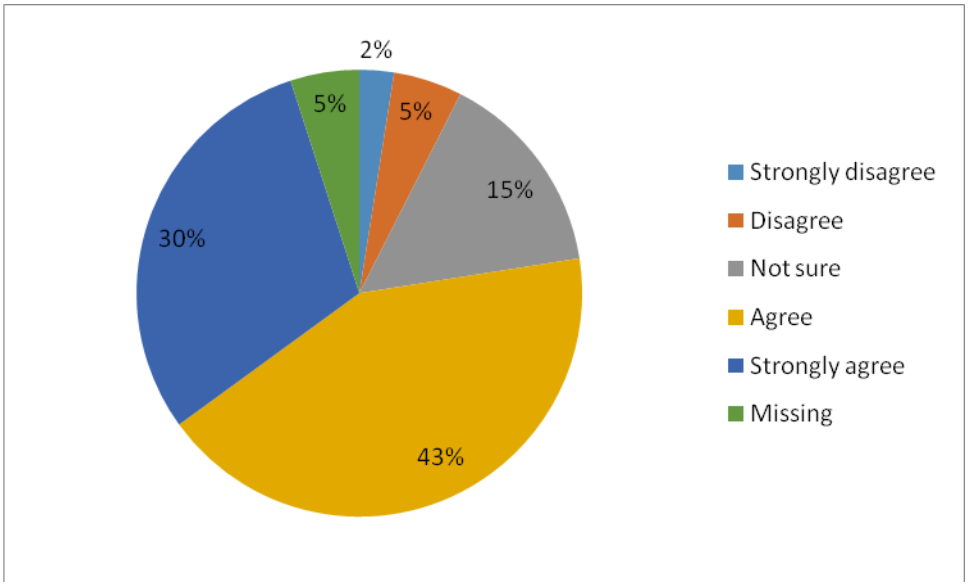
Table 4: When and how much inventory to buy as a prerequisite to solving stock out problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	2.5	2.7	2.7
	Disagree	2	5	5.4	8.1
	Not sure	3	7.5	8.1	16.2
	Agree	16	40	43.2	59.5
	Strongly agree	15	37.5	40.5	100
	Missing	3	7.5		
Total		40	100		

Source: Field data, January, 2016

Munabi, et al. (2013), states that inventory management involves planning and controlling in order to determine which item to order and how often an item is influenced by actual or forecasted demand. From the above table, it is clearly seen that many respondents agreed or strongly agreed to the fact that when and how inventory to buy is a requirement to solving stock-out problems. It is shown by 31 (77.5%) respondents. In my opinion, this requirement does not only solve stock-out problems but also solves wastages and stock getting expired. This is because when a hospital knows when to buy and in what quantities, then it cannot buy unnecessary drugs which help to reduce wastage and expiration of drugs.

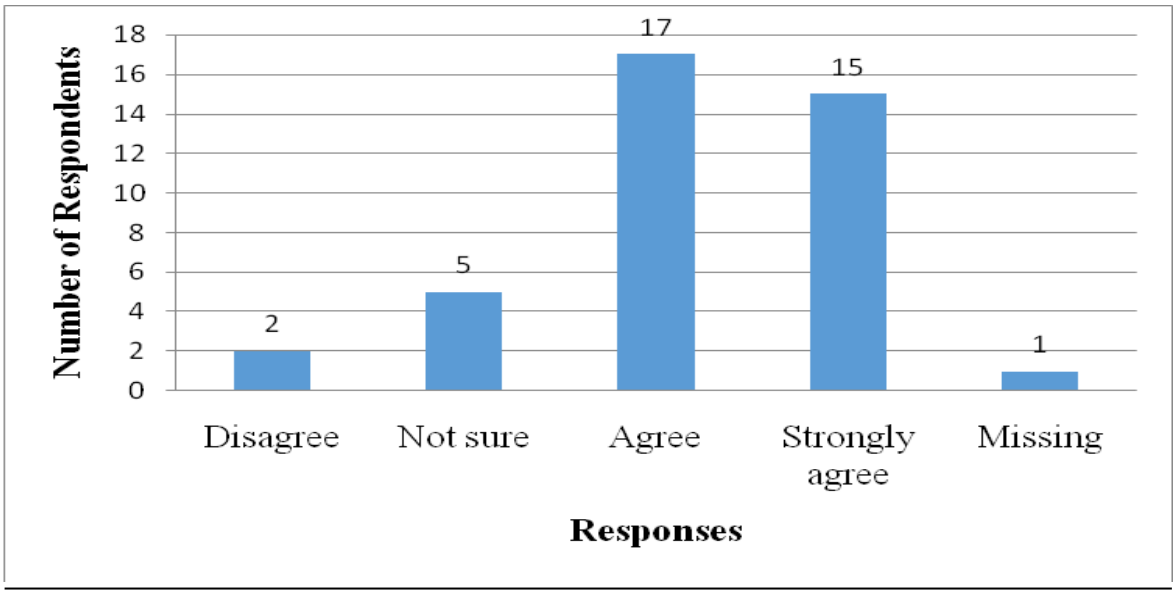
Figure 8: Record of inventory has a greater influence on the performance of Bishop Caesar Asili Hospital



Source: Field data, January, 2016

The study also found out that accuracy of records have a positive and direct effect on inventory management with the majority of respondents strongly agreeing that up-to-date records and proper accounts records have a positive effect on inventory accuracy. It is therefore apparent that effective record management is a very vital function of inventory management. This means that in order to improve inventory process, there is need to ensure that all records kept by the organization are accurate, (Dorothy, Esther & Elizabeth, 2015**).**

Figure 9: Relationship between experienced and trained staff and inventory recording



Source: Field data, January, 2016

The study deduced that there is indeed a relationship between experienced and trained staff and proper inventory recording. From figure 9 above, it is clearly seen that 17 (42.5%) respondents agreed and more so 15 (37.5%) strongly agreed to the fact. This in my opinion is true because in any hospital there are various transactions which need the staff especially in the pharmacy to be properly trained and experienced in order to be able to record what they receive in the pharmacy and what is taken out. In other words, they should be able to monitor the receipts and issues in order to know what stock they still have. This will eventually lead to good customer service and effective and efficient performance in the hospital since there will be no stock-out problems. This means that the hospital should establish optimal strategies for logistical support and technical assistance with regard to medication management (Oyella, 2013).

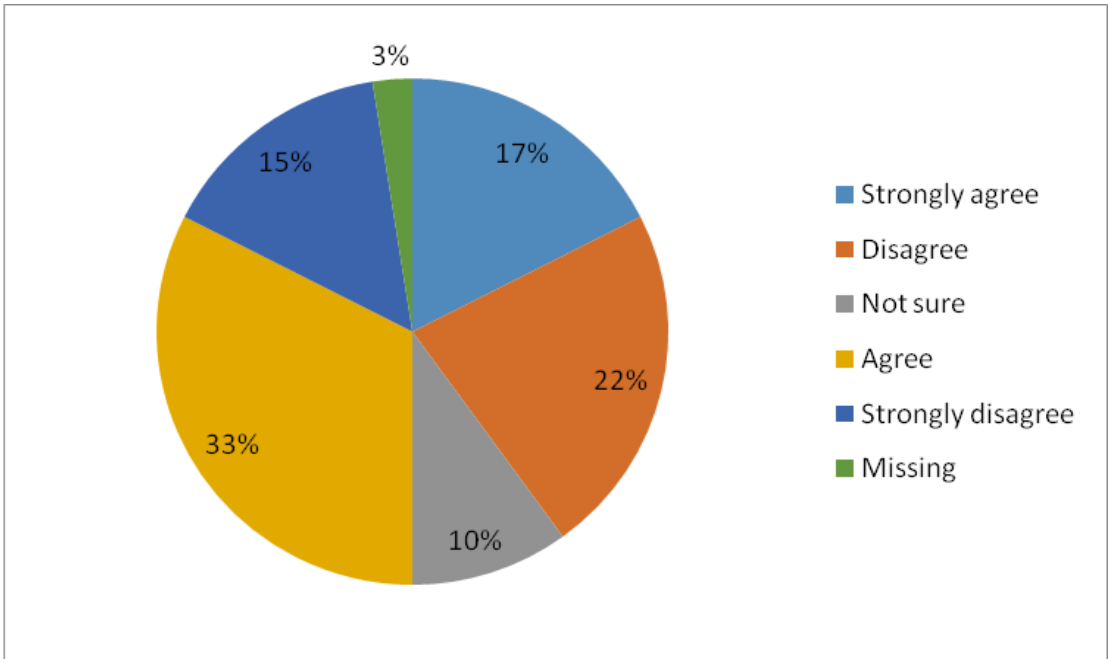
Table 5: Showing responses of how stock pricing and valuation are essential in managing inventory

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	2.5	2.7	2.7
	Disagree	2	5	5.4	8.1
	Not sure	6	15	16.2	24.3
	Agree	17	42.5	45.9	70.3
	Strongly agree	11	27.5	29.7	100
	Missing	3	7.5	100	
Total		40	100		

Source: Field data, January, 2016

From table 4 above, it is evident that stock pricing and valuation are essential in managing inventory. Seventeen, 17 (42.5%) respondents agreed and eleven, 11 (27.5%) strongly agreed to this fact. Stock can be priced or valued using FIFO (First In First Out) or Weighted Average Cost. In FIFO, issues are priced at the price of the oldest batch of stock and in Average Cost method, issue price is calculated after each receipt taking into account both quantities and money value Terry (2009). This helps the organisation at any given time to know the value of its stock and the price at which issues are made by simply looking at the stock cards.

Figure 10: Lack of use of drug list and inappropriate administration of drugs as the chief factors contributing to stock outs.



Source: Field data, January, 2016

From the pie chart above, it is clearly evident that a bigger number of the respondents agree to the fact that lack of use of drug list and inappropriate administration of drugs are the chief factors contributing towards drug stock-out in Bishop Caesar Asili hospital. This implies that the respondents understand and concur with having a drug list in the hospital as a way of minimising drug shortages. This drug list also will help the hospital not to over stock. All in all, the list will keep the health facility with all the necessary and essential drugs and a general optimum stock hence reducing unnecessary costs and wastages.

Table 6: Shortage of drugs occurs regularly due to inappropriate management system

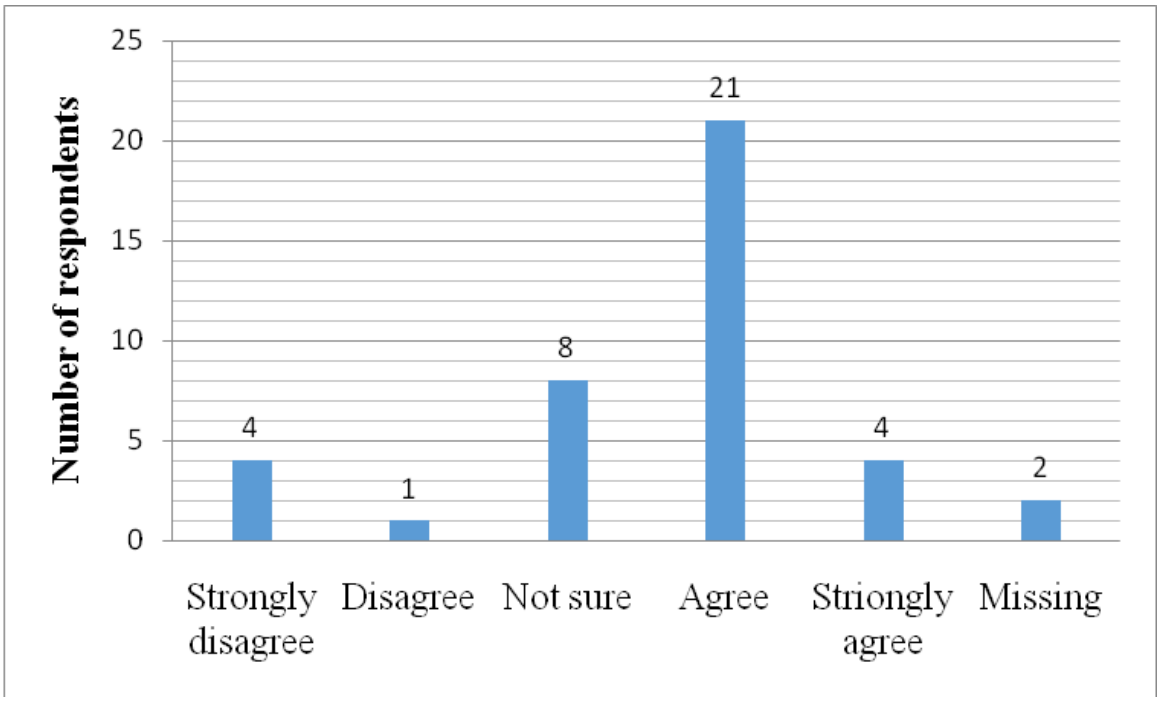
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	3	7.5	8.1	8.1
	Disagree	5	12.5	13.5	21.6
	Not sure	3	7.5	8.1	29.7
	Agree	17	42.5	45.9	75.7
	Strongly agree	9	22.5	24.3	100.0
	Missing	3	7.5	100.0	
Total		40	100.0		

Source: Field data, January 2016.

Shortage of drugs occurs in any healthcare facility due to inappropriate management system. This means that there is lack of planning and controlling in order to keep track of what is going out and how much in terms of drugs is needed at a given time. If this is not done, obviously the facility will experience drug shortage. Therefore, maintaining optimal levels is very important for any business because inadequate control of inventories can result in both under-stocking and overstocking of items where under-stocking leads to missed deliveries and over-stocking leads to unnecessary tying up of funds that might be more productive elsewhere (Adeyemi & Salemi, 2010).

So from the above table 5, it is clearly seen that 17 (42.5%) respondents agree and 9 (22.5%) strongly agree to the fact that shortage of drugs occur regularly due to inappropriate management system in the pharmacy or inventory store. This means that BCAH needs to improve on its systems in the pharmacy in order to avoid shortage of drugs which lead to poor customer service and poor performance of the healthcare facility.

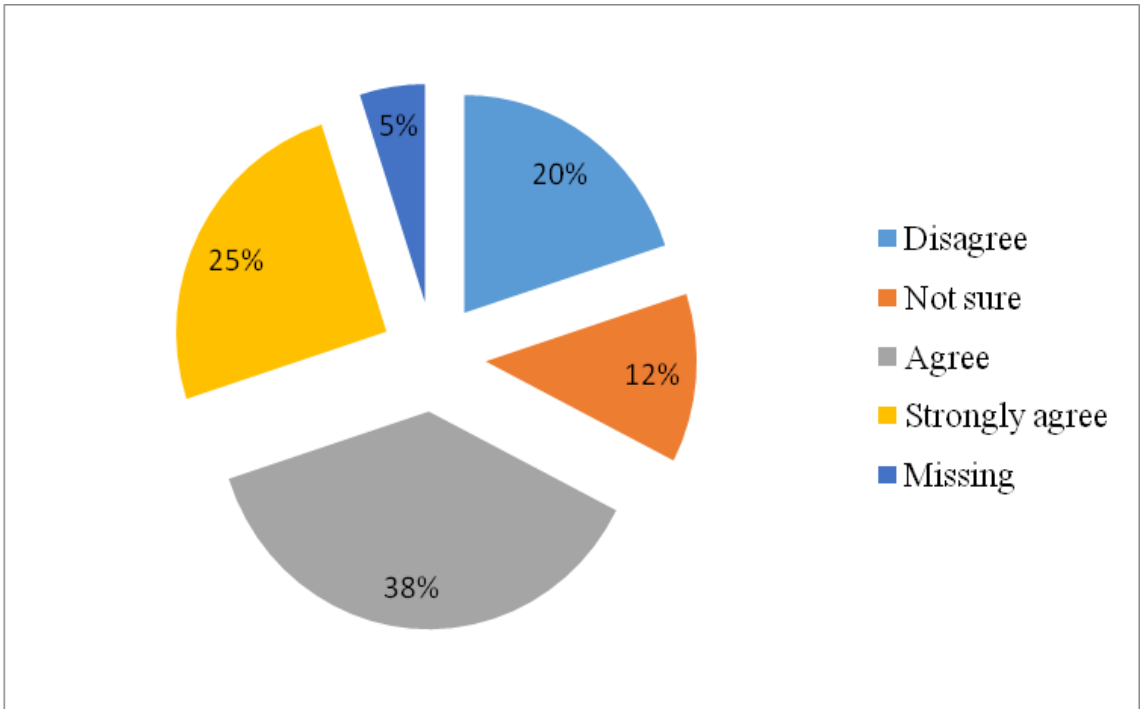
Figure 11: Drug inventory suitable for each drug item in Bishop Caesar Asili Hospital



Source: Field data, January, 2016

From figure 11 above, it is evident that 21 (52.5%) respondents agreed that BCAH has a drug inventory for each drug item. In addition, 4 (10%) of the respondents strongly agreed to the same. Having a drug inventory for each drug item is very essential in an hospital because it helps the pharmacists to know which drugs go fast and which ones go slowly hence helping them to know how much of each item to buy in order to avoid unnecessary wastages.

Figure 12: Response on how the system used for controlling stock in the hospital at times leads to under stocking



Source: Field data, January, 2016

From the above figure, though 20% respondents disagree and 12% are not sure, it is clear that a bigger percentage (38%) agree and 25% strongly agree that the system used at the hospital at times leads to under-stocking. It was found out that the hospital uses manual system for controlling stock as evidenced in the figure above. This means that there is need to revise the system of the hospital for controlling stock in order to eliminate this problem of under-stocking which leads to inefficiency and ineffectiveness.

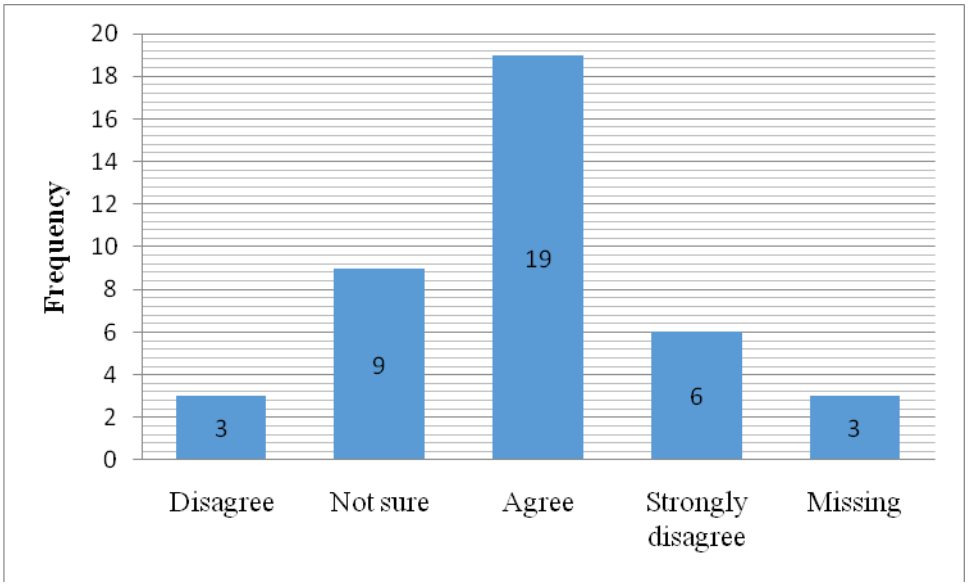
Table 7: Responding to whether a predetermined reorder level is set for each item

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	2.5	2.8	2.8
	Disagree	6	15	16.7	19.4
	Not sure	13	32.5	36.1	55.6
	Agree	11	27.5	30.6	86.1
	Strongly agree	5	12.5	13.9	100
	Missing	4	10		
Total		40	100		

Source: Field data, January, 2016

From the above table, it is evident that BCAH does not use a predetermined reorder level for each drug item. Only 27.5% agreed and 12.5% strongly agreed to this. This means that the remainder 60% of the respondents either disagree or are not sure as to whether the hospital has a predetermined reorder level for each item. Therefore, if drug inventories can be controlled at a suitable quantity with clinical importance concerns, patients should receive their required drugs at the right times and this will help the hospital to manage the expenditure more effectively while achieving patients safety levels.

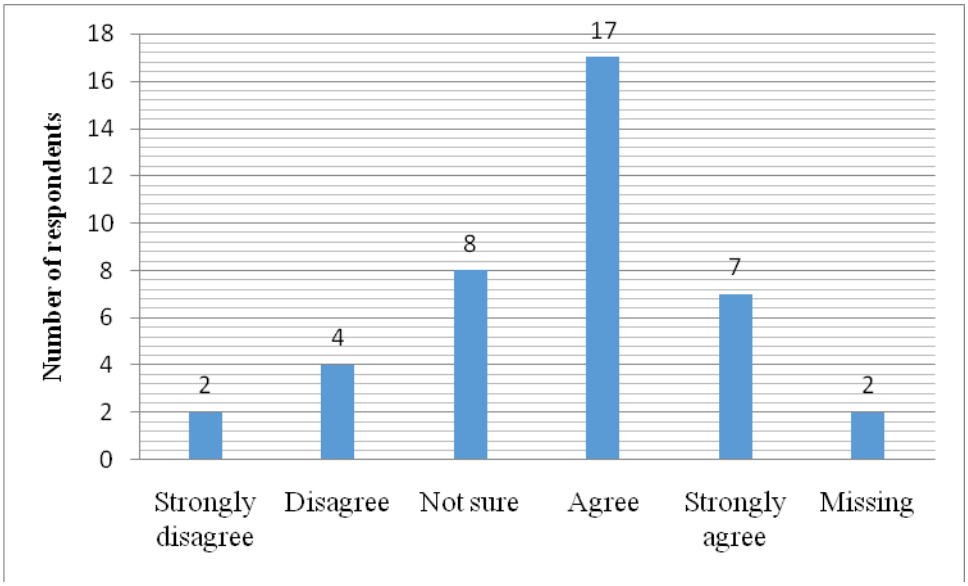
Figure 13: Response to how Periodic re-order level system is very important in Bishop Asili Memorial hospital



Source: Field data, January, 2016

A hospital's materials management must establish efficient inventory systems that ensure hospital's ability to meet emergency demand Khurana, et al. (2013). Periodic review inventory management system sometimes called constant cycle system is where stock levels of all items are reviewed at fixed intervals, for example every two weeks and where and when necessary, a replenishment order is issued. This system is very advantageous in that all stock is reviewed periodically in order to be able to eliminate obsolete items. Also larger quantity discounts may be obtained when a range of stock items is ordered at the same time (Lucey, 2003). From the above figure, it is analyse that 19 (47.5%) respondents agreed that periodic re-order level system is very important in BCAH. This is because it helps them to know which items of stock are available and in what quantities so as not to dissatisfy their customers. This is compared to a small number of respondents 6 (15%) who strongly disagreed and 3(7.5%) who disagreed to the fact.

Figure 14: Responses to whether there is an appropriate computerized system for tracking stock movements for Bishop Asili Memorial Hospital



Source: Field data, January, 2016

Table 8: Inventory turnover

Details/statement	D and SD	Not Sure	A and SA	Missing	Total
Inventory turnover help hospital determine optimal stock levels	4 (10%)	4 (10%)	29 (72.5%)	3 (7.5%)	40 (100%)
Inventory turnover greatly contributes to appropriate stock turnover	6 (15%)	13 (32.5%)	19 (47.5%)	2 (5%)	40 (100%)
Proper ordering and acquisition practices of Bishop Caesar Asili memorial hospital contribute greatly to optimal stock levels	9 (22.5%)	8 (20%)	21 (52.5%)	2 (5%)	40 (100%)
Inventory turnover has an effect on holding costs of Bishop Caesar Asili memorial hospital	10 (25%)	12 (30%)	14 (35%)	4 (10%)	40 (100%)
Inventory turnover has an effect on service delivery of Bishop Caesar Asili memorial hospital.	5 (12.5%)	7 (17.5%)	26 (65%)	2 (5%)	40 (100%)
High inventory turnover leads to low costs of operation of the hospital	10 (25%)	10 (25%)	15 (37.5%)	5 (12.5%)	40 (100%)
High inventory turnover is strongly related to effective customer service in Caesar Asili memorial hospital	9 (22.5%)	11 (27.5%)	17 (42.5%)	3 (7.5%)	40 (100%)
High inventory turnover leads to stock outs in Bishop Caesar Asili memorial hospital.	7 (17.5%)	11 (27.5%)	20 (50%)	2 (5%)	40 (100%)

Source: Field data, January, 2016

Inventory turnover helps the hospital to determine the optimal levels of inventory. This is true in that depending on how faster the inventory moves, it helps the management to know when and how much to order. This helps to reduce under stocking/overstocking hence eliminating the problem of stock-outs. This is important as it leads to quality services of the hospital and customer satisfaction. It is clearly seen in table 7 that a big proportion of the respondents (72%) agree to the fact that turnover helps the hospital to determine its optimal stock levels. Dorothy, Esther and Elizabeth, (2015) argue that inventory turnover have effect on holding costs , on service level and leads to low cost of operation of BCAH. The findings also indicate that majority of the respondents agree that inventory turnover is strongly related to customer service in the hospital. On the other hand, it is seen that still the majority of the respondents say that inventory turnover leads to stock outs in the hospital. This could be due to insufficient funds as earlier analysed. This is possibly because when inventory moves out faster than it is replaced, then there is a likelihood of running out of stock. In my opinion, when stock moves out very fast, there is a likelihood of reduced costs in terms of expiration of stock and since stock is well monitored, there is also reduced pilferage which increases profitability of the hospital hence better performance.

Table 9: Performance of non government hospitals (Bishop Caesar Asili hospital)

Details/statement	D and SD	Not Sure	A and SA	Missing	Total
Inventory management contributes greatly to the quality of performance of Bishop Caesar Asili memorial hospital	2	5	31	2	40
	(5%)	(12.5%)	(77.5%)	(5%)	(100%)
Inventory management helps in Inventory planning and scheduling in the hospital	2	4	33	1	40
	(5%)	(10%)	(82.5%)	(2.5%)	(100%)
Bureaucracy in supply chain leads to effective and efficiency performance of Bishop Caesar Asili memorial hospital	8	11	19	2	40
	(20%)	(27.5)	(47.5%)	(5%)	(100%)
Does Insufficient fund towards inventory contribute greatly to lack of efficiency and effectiveness of Bishop Caesar Asili memorial hospital	9	12	17	2	40
	(22.5%)	(30%)	(42.5%)	(5%)	(100%)
Inadequate trained staff in the inventory section or pharmacy of Bishop Caesar Asili memorial hospital hinders customer satisfaction in the hospital	9	7	23	1	40
	(22.5%)	(17.5%)	(57.5%)	(2.5%)	(100%)
Improved customer satisfaction can be realized when there is proper inventory management	7	6	26	1	40
	(17.5%)	(15%)	(65%)	(2.5%)	(100%)
Insufficient funds for various activities pause a challenge in the proper and expected performance of Bishop Caesar Asili memorial hospital	4	13	22	1	40
	(10%)	(32.5%)	(55%)	(2.5%)	(100%)
High inventory turnover leads to cost reduction for Bishop Caesar Asili Memorial Hospital	11	11	16	2	40
	(27.5%)	(27.5%)	(40%)	(5%)	(100%)
Effective stores management contribute to high levels of customer satisfaction	6	4	27	3	40
	(15%)	(10%)	(67.5%)	(7.5%)	(100%)

Source: Field data, January, 2016

As suggested by Kalondu (2013), the absence of quality management systems in hospitals leads to many challenges like release of delayed results of diagnosis due to insufficient quality management systems leading to patients' dissatisfaction. Stock shortages are a general problem for many healthcare facilities as stated by Marianne et al., (2012). One of the causes of these shortages is lack of inventory planning and scheduling. This means that inventories are not brought in when they are needed and in the right quantities and quality. There is need to improve on the logistics processes regarding the supply chain in many organisations in order to improve the performance. From table 8 above, it is clearly seen that 33 respondents (82%) agreed to the fact that inventory management helps in inventory planning and scheduling in the hospital. This helps them to know how much to order and when and the quality to be ordered.

Bureaucracy in supply chain leads to effective and efficient performance of an organisation. Mungu (2013) asserts that supply chain management systems which are correctly applied in public institutions can contribute greatly in monitoring the availability of drugs in these institutions. This is true in that theft of stock will be controlled since for a transaction to take place, at least many officers will have checked and approved it which reduces the risk of misstatement and pilferage. However, in my own view, such a practice when not well handled may lead to delays and hence customer dissatisfaction. From table 8 above, it is seen that 19 respondents (47.5%) agree that the practice of bureaucracy in supply chain leads to effective and efficient performance of Bishop Caesar Asili Hospital. It is therefore necessary for the hospital and indeed any other type of business to consider doing away with unnecessary procurement procedures which leads to delays in procurement thus impacting negatively on inventory management.

Inventory is one of the items that cost a lot of money in an organisation. This means that for an organisation not to run short of this inventory it must be well equipped with enough funds. Therefore, from the study, it is deduced that insufficient funds in Bishop Caesar Asili hospital somehow contribute to lack of efficiency and effectiveness. It is seen that 42.5% of the respondents agreed to the fact as compared to 22.5% who disagreed. This is true in my opinion in that with limited financial resources, it is hard to have the stock you want in terms of quantity and quality and in the right time. This affects effectiveness and efficient of any organisation's performance.

It is true that customer satisfaction can be realised where there is proper inventory management. This is because it ensures that there is enough stock of material where and when it is needed. This for example means that a patient will not leave an hospital without being given the drug he/she wants as a result such a customer will leave satisfied and will appreciate such a healthcare facility. On the other hand, if customers keep bouncing due to lack of drugs at the right time, they remain dissatisfied which such a healthcare facility's services and this reduces the rating of such organisation. Form table 7 above, it is evident that the majority of the respondents 26 (65%) agree to the fact that improved customer satisfaction can be realised when there is proper inventory management. This is also evidenced in the table where a big percentage of respondents, 27 (67.5%) agree to the fact that effective stores management contributes to high levels of customer satisfaction.

4.1 Conclusion

Inventory control is an important factor in the management of non government hospitals and indeed any business organisation. Therefore, having examined the significance of inventory control and performance of non government hospitals, it can be concluded that inventory control has an effect on the performance Bishop Caesar Asili hospital. This is because it helps the organization in achieving its organizational objectives and goals. One need not over look the fact that maintaining inventories is a means of achieving and meeting the organizational goals and also balancing the need for product availability against the need for minimizing stock holding and handling cost.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the conclusion and recommendations for improving inventory management in healthcare facilities with a special emphasis on Bishop Caesar Asili hospital and all hospitals in Uganda.

5.1 Summary of findings

The study found out that sock pricing and valuation are essential in managing inventory in the hospital and any other organisation. 28 (70%) of the respondents agreed to this fact and this is also supported by Terry (2009) who says that appropriate methods of stock pricing and valuation should be used in order to know the value of stock held in the hospital at any given time.

The study also found out that accuracy of stock records has a positive effect on inventory management and on the performance of Bishop Caesar Asili hospital. This involves proper account records such as use of bin cards, stock taking and also carrying out spot-checks.

This indicates that effective records management has a great impact on the performance of the hospital as this minimises theft and any kind of stock loss of both drugs and other medical supplies. This is true by the fact that 80% of the respondents agreed that stock records accuracy is a prerequisite in the hospital whereby receipts and issues are accurately and timely recorded. This helps the hospital to know what items are soon running out of stock and those that are available hence helping them to manage the ordering time. However, this can be possible when the staff are adequately trained to carry out proper inventory recording.

Inventory turnover helps the hospital to determine the optimal levels of stock. This is true in that depending on how faster the inventory moves, it helps the management to know when and how much to order. This helps to reduce on under stocking/overstocking hence eliminating the problem of stock-outs and unnecessary costs for example, expiry of drugs. This is important as it leads to quality services of the hospital and customer satisfaction. It is clearly seen that a big proportion of the respondents (72%) agree to the fact that turnover helps the hospital to determine its optimal stock levels. Also Dorothy, Esther and Elizabeth, (2015) argue that inventory turnover has effect on holding costs , and service level and also leads to low cost of operation of BCAH. The findings also indicate that majority of the respondents agree that inventory turnover is strongly related to customer service in the hospital. On the other hand, inventory turnover leads to stock outs in the hospital. This could be due to insufficient funds as earlier analysed. This is possibly because when inventory moves out faster than it is replaced, then there is a likelihood of running out of stock. In my opinion, when stock moves out very fast, there is a likelihood of reduced costs in terms of expiration of stock and since stock is well monitored, there is also reduced pilferage which increases profitability of the hospital hence better performance.

5.2 Conclusions

The effect of inventory management as regards to inventory recording, inventory pricing and valuation and ABC analysis

Generally, the role of inventory management has consistently increased in the health care industry and in pharmacy purchasing and stores management. This is a reason enough that proper inventory management should be upheld by all hospitals if they are to satisfy the customers and improve their performance.

Well organized inventory management system reduces problems of over stocking, dead stock of drugs, and also decreases the time spent in gathering and taking care of drug stock control. This is because the drug store can be orderly and with all necessary stock cards, it is easy to know which type of drug is getting out of stock and that which is still much in stock. This is very essential to the performance of any hospital since it reduces wastage hence reducing the total costs of the hospital. This obviously indicates that there will be increase in profits of the hospital.

Efficient drug management is the key strategy in reducing the costs of drug and ensuring their availability in the healthcare facilities. High incident of drug stock-out is diverse and causes perpetual problems including inadequate resources and weak health care systems. For example, when patients come to a healthcare facility and do not get the services they need simply due to stock- outs; it reduces the image of such facility which later weakens the hospital's systems.

> *"Effective inventory management control is recognised as one of the areas management of any organisation should acquire capability. The ability for any organisation to evolve effective inventory control management system will depend on the extent to which it perceives its benefits it stands to gain from such a program. Organisation gain a lot from effective inventory control management system and some of the benefits include: optimal use of resources, cost reduction, improved profitability, and reduction of waste, easy storage and retrieval of stock". (Ogbo and Onekanma, 2014 p.177).*

<u>The effect of inventory records accuracy on organisational performance</u>

Due to lack of adequately trained personnel and failure to implement the essential drug list leads to drug stock-outs at Bishop Caesar Asili Hospital. This means that hospital

pharmacists have failed to play an effective role in the efficient management and improved pharmaceutical care services. The role of a pharmacist as an integral member of the healthcare team has to be acknowledged by all the stakeholders of the hospital and this will lead to capacity building through training of the pharmacists. This will increase inventory records accuracy at the hospital.

The study found out that inventory records accuracy has a great effect on the performance of Bishop Caesar Asili hospital. Inventory or stock control is a quantitative control technique with strong financial implications. It is therefore important for hospitals to know the optimum order level of all the drugs. This means that maintaining proper inventories is a means of achieving and meeting the organizational goals and objectives since optimal drugs can balance both product availability against the stock costs of ordering and handling. Hence the research concludes by saying that the concept of inventory records accuracy serves as an effective tool for cost control and performance efficiency of any healthcare organization and indeed any other type of organization.

The effect of inventory turnover on the performance of non government hospitals

The research found out that inventory turnover helps the hospital to determine the optimum level of inventory needed at a given time. This helps the team responsible to know when and how much to order hence reducing unnecessary costs of overstocking and under stocking. This has been asserted by Dorothy, Esther and Elizabeth, (2015) and indeed this is strongly related to customer service because failure to manage inventory turnover can lead to stock out which result into loss of sales and customer dissatisfaction in the hospital. However, the research also found out that sometimes inventory turnover itself leads to stock-outs especially due to insufficient funds for replenishment of stock in time.

5.3 Recommendations

Based on the study and analysis, a number of recommendations are suggested in terms of inventory management as regards to inventory recording, inventory pricing and valuation and ABC analysis. These are:

Exposure visits by the staff of BCAH to other pharmacies to borrow a leaf on how they manage their stock. This is very essential in that it will help the staff to learn how other healthcare facilities control their stock. It is a kind of bench marking so that they will be able to adopt some of the best practices of those hospitals to help them improve on their own. This too will increase their moral and motivation to improve on the way they are committed to their own job hence improving on the general performance of the hospital.

The study also recommends top management in most organizations to emphasis on the proper inventory management techniques and measuring of efficiency deviations to identify weaknesses in the process of managing inventories. The management need to modernise its inventory management system in order to increase efficiency and effectiveness in performance. This calls for collaboration across all parties and also using sophisticated technologies which cannot be easily manipulated by any party. These may include bar code scanners.

The effect of inventory records accuracy on organisational performance

Training the staff especially those working in the pharmacy. The hospital should provide training centre and educate the workers on how to manage inventories and cost to enable them have ideas and knowledge of the task allocated to them.

This will help in the improvement and efficiency of inventory and cost control in the organization. The researcher recommends that staff working in the drug store or pharmacy

should be well trained on all aspects of stock control so that they are well equipped with efficient knowledge to help them carry out their work properly. This will definitely reduce on the overall costs of the hospital as this will eradicate unnecessary costs due to obsolete drugs, theft of drugs and emergency ordering of drugs which is very costly.

Need to use more of computerised system than the manual one. It was found out that the hospital mainly uses manual system of controlling stock which is tiresome and inefficient at times especially when the staffs are tired. It is prone to many mistakes as compared to the computerised system. Hence it is recommended that at least the hospital uses some computerised system in recording and tracking the stock movements which will help in maintaining accuracy of stock thus avoiding stock-outs and over-stocking on the other hand.

The staff should adequately be compensated to avoid pilferage and poor record keeping of stock. This is important in that staffs who are well remunerated will scarcely think of stealing drugs to go and sell for his personal gain simply because he feels he is satisfied with what he is given. Since inventory management is not an easy task to carry out, based on this fact, it is pertinent that those that are empowered to perform this task should be adequately compensated so they would not result to unconventional practices like pilfering and poor record keeping of stock but rather be a source of motivation to them.

As far as the effect of inventory turnover on the performance of non government hospitals is concerned, the study suggests the following recommendations:

To curb various challenges in the hospital, the hospital should consider implementation of a vendor managed inventory to lower incidences of stock-out situations, increase the levels of customer services and reduce costs due to an increase in inventory turns and a decrease in the levels of safety stock and greater transparency in supply chain management. VMI also

helps in the establishment of a long trustworthy relationship between the supplier and customer resulting in more loyal customers and thus secured sales.

5. 4 Recommendations for further research

The study recommended that for improved performance in non government hospitals and indeed other hospitals, further research should be done on the role and effectiveness of use of computerised systems in inventory management. This can enhance more efficiency and effectiveness in managing inventories with minimal costs in terms of money and time.

BIBLIOGRAPHY

BOOKS

ADEYEMI, S.L. and SALEMI, A.O., 2010. *Inventory management: A tool of optimising resources in a manufacturing industry.* Nigeria.

BASSEY, M.R., 2013. *Inventory control as an effective tool for cost control in an Organisation*. Nigeria.

BURNT, D., SHEILA, P., and PINKERTON, R., 2009. *Supply Management*. 8th Edition. McGraw Hill/Irwin.

DRURY, C., 2008. *Management and Cost accounting*. 5th edn. London: Thomson Publishers.

JAMES, B., MARCY, D., & AMAR, R., 2010. *Analysis of the medication management system in seven hospitals.* Montreal: Notre Dame West.

JAMES, B.E., 2013. *The contribution of non government organisations in delivery of basic health services in partnership with local government*. South Sudan.

JOFFREY, C., and Joanes, V., 2012. *ABC Analysis*.

KALONDU, S.M., 2013. *Effects of quality management system on treatment of tuberculosis patients.* Kenya.

KHURANA, S. , CHHILLAR, N. & GAUTAM, V., 2013. *Inventory control techniques in medical stores of a tertiary care neuropsychiatry hospital in Delhi*. Health, **5**, 8-13. doi: 10.4236/health.2013.51002.

KOTLER, P. & KELLER, K.L., 2006. *Marketing management*. New Jersey: Pearson Prentice.

KRITCHANCHAI, D., & MEESAMUT, W., 2015. *Developing inventory management in the hospital*. Mahido University: Thailand.

KUMAR, A.S., & SURESH, N., 2008. *Production and operations management.* 2nd edition. New Age International Publisher.

LUCEY, T., 2009. *Costing*. 7th edition. London: Thomson Publishers.

MADEEHA, M., MOHAMED, A., ASRUL, A.S. & AZMI, H., 2013. *Why hospital pharmacists have failed to manage antimalarial drug stock-outs in Pakistan: A qualitative insight.* Hindawi Publishing Corporation.

MARTIN, E. A., 2005. *Social science research: Conception, Methodology and Analysis.* Kampala*:* Makerere University Printery.

MASEMBE, K., 2004. *Basic Business Statistics. Business study books*: Kampala.

MILLER, R., 2010. *Inventory Control: Theory and Practice*. New Jersey: Prentice Hall.

MUKESH, C., & RAMESH, G., 1996. *Improving hospital performance through policies to increase hospital autonomy: Implementation guidelines. Data for decision making project.* Harvard University: Boston.

MUNGU, S.S., 2013. *Supply Chain Management practices and stock levels of essential drugs in public health facilities in Bungoma East Sub-County*. Kenya: University of Nairobi.

OGBO, A.I., & ONEKANMA, I.V., 2014. *The impact of effective inventory control management on organisational performance: A study of 7up bottling Company Nile Mile*. Enugu: Nigeria.

SANI, N.H., 2014. *Applicable inventory control models for agricultural business managers: Issues and concerns. Abubakar, Tafawa BalewanUniversity:* Nigeria.

SEKARAN, U., & BOUGIE, R. 2013. *Research methods for business*. 6th edition. Chennai: Library of Congress Catalogue

SHAW, C., 2003. *How can hospital performance be measured and monitored?* Copenhagen, WHO Regional Office for Europe (Health Evidence Network report.

WANKE, P., 2014. *Production and inventory management journal: A conceptual Framework for inventory management focusing on low-consumption items*. Brazil.

JOURNAL ARTICLES

CHAWOWALIT, M., LAKSANA, C. & JIRAPORNCHAI, S., 2014. *International journal of pharmacy and pharmaceautical services:* Purchasing and inventory management by pharmacist of a private hospital in North East of Thailand. Pathum Thai: Thailand.

CHUKWUDI, J.O., HYCINTH, C.I., OPARA, J. & KALU, G.O., 2014. Application of inventory model in determining stock control in an organisation. *American journal of applied mathematics and statistics, 2014, vol 2, No. 5.*

DIMITRIOS, P., 2008. The effect of inventory management of firm performance*: International journal of productivity and performance management. University of Patras*: Greece.

DOROTHY, O., ESTHER, W., & ELIZABETH, W.W., 2015. Effect of inventory management practices on organisational performance in public health institutions in Kenya. *International journal of education and research. volume 3 No. 3, 2015.*

ELSEVIER, 2010. The shaping of inventory systems in health services: A stakeholder analysis. *The international journal of production Economics*: vol.133, Issue 1.

GEOFF, B., 2006. "Reconstructing inventory management theory", *International journal of operations and production management,* vol. 26, Issue 9.

ILMA, N. R., & MURSYID, H. B., 2012. Pharmaceutical inventory management issues in hospital supply chains. *Scientific and academic publishing,* vol. 3 (1): 1-5.

KUMAR, A., 2014. To study the work flow of material management and analysing the inventory techniques of pharmacy department in Tertiary care hospital. *International journal of Economics, Commerce and Business Management.*

KUMAR, P., & BAHI, R.N., 2005. The effect of inventory management on organisational performance: *International journal of innovative science, engineering and technology.* vol.1 Issue 4, June 2014.

MARIANNE et. al., 2012. "Improving health in developing countries: Reducing complexity of drug supply chains". *Journal of humanitarian logistics and supply chain management.* Vol.2, Issue 1 pp. 54-84.

MUSTAFFA. N.H &POTTER.A.(2009),"Healthcare supply chain management in Malaysia: a case study" .Supply Chain Management: *An International Journal*.

SUBHASH, C.L., & RAJU, P.S., 2001. The impact of environmental uncertainty on the market orientation-performance relationship. *Journal of Economics and social Research* 3(1) 2001, 5-27.

ONLINE SOURCES

*http://*www.daa.com.au/analytical-ideas/response-rates [accessed on 5/04/2016]

REPORTS

Joint Medical Store Annual report 2014/2015. Reliable Health solutions.

Metropolitan Health Annual Report 2012. Key performance indicators.

Ministry of Health (MoH) Report on National Pharmaceutical sector strategic plan 2015 to 2020.

World Health Organisation Report 2013. The research for universal health coverage.

Parliamentary committee on health on the ministerial policy statement for health sector 2012/2013

APPENDICES

Appendix I: Questionnaire

Dear Respondent,

The researcher (Tumuhamye Betty) is a student of Bachelors in Business Administration and Management (BBAM) at Uganda Martyrs University. Am carrying out research on the "**effect of Inventory Management on performance of Non-Government Hospitals; a case study of BISHOP CEASAR ASILI MEMORIAL HOSPITAL-LUWERO"**. You are kindly requested to participate in this research by answering questions indicated below. The data you provide shall be used for academic purposes only and will be treated with utmost confidentiality. Thank you very much for your cooperation.

PART A: PERSONAL INFORMATION OF THE RESPONDENT

1. Name (Optional)……..

2. Gender

a) Male ☐ b) Female ☐

3 Age

a) ☐ 18-25 years ☐ b) 26-35 years ☐ c) 36-45 ☐ years d) 46 +

4. Working experience

a) Less than 1year ☐ b) 1-5years ☐ c) 6-10 years ☐ d) 11and above ☐

5. How many years have you worked in this organization?

a) Below 5years ☐ b) 5-10years ☐ c) More than 10years

d) Others specify ☐

6. Highest level of Education

a) Certificate ☐ b) Diploma ☐ c) Degree ☐ d) Masters ☐

e) Others specify ☐ …….....…….

Tick in the appropriate box basing on this likert scale

Scale	1	2	3	4	5
Particulars	Strongly Disagree (SD)	Disagree (D)	Not Sure (NS)	Agree (A)	Strongly Agree (SA)

PART B: INVENTORY RECORDING, PRICING AND VALUATION

Details	**SD**	**D**	**NS**	**A**	**SA**
Up to date records have an effect on inventory records accuracy					
Recording and tracking of inventory movements is a good practice of controlling inventory					
Deciding when and how much inventory to buy is prerequisite to solving stock out problems					
Record of inventory movement has a greater influence on the performance of Bishop Caesar Asili Memorial Hospital					
Inventory recording needs an experienced and trained staff					
Stock pricing and valuation are essential in managing inventory of Bishop Caesar Asili Memorial Hospital					
Market price fluctuations pause a challenge to inventory levels of Bishop Caesar Asili Memorial Hospital					
Lack of trained personnel is a challenge to inventory recording, pricing and valuation in Bishop Caesar Asili Memorial Hospital					

PART C: INVENTORY MANAGEMENT SYSTEM

Details	**SD**	**D**	**NS**	**A**	**SA**
Lack of use of drug list and inappropriate administration of drugs are the chief factors contributing towards drug stock outs of Bishop Caesar Asili Memorial Hospital					
Shortage of drugs occurs regularly due to inappropriate management system in the pharmacy or inventory store					
Bishop Caesar Asili Memorial hospital has a drug inventory policy suitable for each drug item					
The current system of the Hospital is automated and alerts when to order, how much to order and how to handle various types of drugs					
Details	**SD**	**D**	**NS**	**A**	**SA**
The system used for controlling stock in the hospital at times leads to under stocking/overstocking					
Periodic re-order level system is very important in Bishop Asili Memorial hospital.					
A predetermined reorder level is set for each item					
There is an appropriate computerized system for tracking stock movements for Bishop Asili Memorial hospital					

PART D: INVENTORY TURNOVER

Details	SD	D	NS	A	SA
Lack of use of drug list and inappropriate administration of drugs are the chief factors contributing towards drug stock outs of Bishop Caesar Asili Memorial Hospital					
Shortage of drugs occurs regularly due to inappropriate management system in the pharmacy or inventory store					
Bishop Caesar Asili Memorial hospital has a drug inventory policy suitable for each drug item					
The current system of the Hospital is automated and alerts when to order, how much to order and how to handle various types of drugs					
The system used for controlling stock in the hospital at times leads to under stocking/overstocking					
Periodic re-order level system is very important in Bishop Asili Memorial hospital.					
A predetermined reorder level is set for each item					
There is an appropriate computerized system for tracking stock movements for Bishop Asili Memorial hospital					
Inventory turnover helps the hospital to determine optimal inventory levels that should be maintained					
Inventory turnover greatly contributes to appropriate stock turnover					
Proper ordering and acquisition practices of Bishop Caesar Asili memorial hospital contribute greatly to optimal stock levels					
Inventory turnover has an effect on holding costs of Bishop Caesar Asili memorial hospital					
Inventory turnover has an effect on service delivery of Bishop Caesar Asili memorial hospital.					
High inventory turnover leads to low costs of operation of the hospital					
High inventory turnover is strongly related to effective customer service in Caesar Asili memorial hospital					
High inventory turnover leads to stock outs in Bishop Caesar Asili memorial hospital.					

PART E: PERFORMANCE OF NON GOVERNMENT HOSPITAL

Details	SD	D	NS	A	SA
Inventory management contributes greatly to the quality of performance of Bishop Caesar Asili memorial hospital					
Inventory management helps in Inventory planning and scheduling in the hospital					
Bureaucracy in supply chain leads to effective and efficiency performance of Bishop Caesar Asili memorial hospital					
Does Insufficient fund towards inventory contribute greatly to lack of efficiency and effectiveness of Bishop Caesar Asili memorial hospital					
Inadequate trained staff in the inventory section or pharmacy of Bishop Caesar Asili memorial hospital hinders customer satisfaction in the hospital					
Improved customer satisfaction can be realized when there is proper inventory management					
Insufficient funds for various activities pause a challenge in the proper and expected performance of Bishop Caesar Asili memorial hospital					
High inventory turnover leads to cost reduction for Bishop Caesar Asili Memorial Hospital					
Effective stores management contribute to high levels of customer satisfaction					

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THANK YOU VERY MUCH

Appendix II: Authorization Letter

Uganda
Martyrs
University

making à difference

Office of the Dean
Faculty of Business Administration and Management

Your ref.:
Our ref.:

Nkozi, 6th January, 2016

To Whom it may Concern

Accepted
11th Jan 2016

BISHOP ASILI HOSPITAL
11 JAN 2016
P. O. Box 168, Luweero

Dear Sir/Madam,

Re: Assistance for Research:

Greetings and best wishes from Uganda Martyrs University.

This is to introduce to you TUMUHAMYE BETTY who is a student of Uganda Martyrs University. As part of the requirements for the award of the Degree of Bachelor of Business Administration and Management of the University, the student is required to submit a dissertation which involves a field research on a selected case study such as a firm, governmental or non governmental organization, financial or other institutions.

The purpose of this letter is to request you permit and facilitate the student in this survey. Your support will be greatly appreciated.

Thank you in advance.

Yours Sincerely,

Fr. Edward Ssemwogerere
Associate Dean

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