JIMMA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT

DETERMINANTS OF EFFECTIVE INVENTORY MANAGEMENT PRACTICE AT PUBLIC HOSPITAL THE CASE OF SEKA WOREDA HOSPITAL

A THESIS SUBMITTED TO ON THE PARTIAL FULFILLMENT OF MASTER'S DEGREE IN BUSINESS ADMINSTRATION (MBA).

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DECLARATION

I hereby declare that this MA thesis is my original work and has not been presented for a degree in any other university, and all sources of materials used for this study have been duly acknowledged.

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ABSTRACT

The main objective of this research was to assess the determinants of effective inventory management at Seka Chekorsa Hospital. To achieve the objective, study adopted stratified random sampling method. The main respondents are stratified on the bases of their department. From the total population of 172 employees in the selected department120 respondents were determined by using the formula given by (Yamane T.)., (1967). *A case study was conducted and questionnaire was used to collect data. Quantitative data gathered coded and analyzed using Statistical Package for Social Sciences (SPSS) version 20 computer software. Descriptive statistics was used to analyze the data in frequency distributions and percentages. Multiple Regression analysis and ANOVA aided to analyze the degree of relationship between the variables in the study at 5% level of significance. The analysis showed that, Information technology and bureaucratic procurement procedure had the strongest positive correlation with effective inventory management at Seka Chekorsa hospital. In addition, knowledge and skill of the staff and fund of the hospital were positively correlated to effective inventory management. The study established that Information technology and bureaucratic procurement procedure was the most significant factor. This study recommended an improvement of bureaucratic procurement procedure within the hospital to avoid delays in delivery of inventories. This study also recommended an improvement of Information Technology within the hospital to reduce losses, stock out and storage costs associated with inventories. The Seka Chekorsa hospital should also improve the knowledge and skill of its staff and also ensure that allocate adequate fund and improve financing mechanisms, internal control and record keeping are well managed.*

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LIST OF ACRONYMS

EDI	Electronic Data Interchange
EOQ	Economic order quantity
ERP	Enterprise resource planning
FEFO	First expire first out
LIFO	Last In first out
MRP	material requirement planning
IFMIS	Integrated Financial Management Information System
JIT	Just-In Time
SMCH	St. Martin's Catholic Hospital
SCH	Seka Chekorsa hospital
VEN	Vital, Essential &Non-essential
VMI	Vendor managed inventory
WHO	World Health

List of Abbreviations and Acronyms

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CHAPTER ONE

1. INTRODUCTION

This chapter consists of Background of the study, Statement of the problem, objectives of the study, significance of the study, scope of the study and structure of the thesis.

1.1. Background of the Study

Inventory is the commodities, supplies, equipment, and other materials those are available in stock in an institution (Ministry of Medical Services, 2016). According to Miller (2010), inventory management involves all activities put in place to have the needed product or service. It coordinates the purchasing, manufacturing and distribution functions to meet the marketing needs and organizational needs of availing the product to the customers. Inventory management is primarily involved with specifying the size and placement of stocked goods. Inventory management plays an important role in every company as any ineffective inventory system will result in loss of customers and sales.

In the process of finding solution to sustenance of customers to maintain competitive market, all organizations including the health centers lay emphasis on areas such as marketing, accounting, auditing, customer care and public relation and relegate inventory management to the background. Lowe.(2002) states that 'inventory is a detailed list of goods'. It is impossible to offer any meaningful health service to the satisfaction of patients and clients without the availability of inventory. Quality health care essentially is dependent on the availability of quality inventory at the right time. In the absence of inventory, health service delivery is severally affected. People dying at the various hospitals in developing countries could be prevented and the pace of sick patients getting healed can be faster if inventory management is given the attention it needed in the various health facilities. The paradox is that while there is shortage of basic essential medications and other basic inputs at almost all public health facilities, a large number of varieties of some expensive drugs go waste as a result of lack of best practices of inventory management techniques. This leads to a reduced customer service. Martin, (2001), noted that customer relationships value is present especially in the service sector, because services are intangible, and the time customers have to evaluate services before deciding to make a purchase commitment is nonexistent. Poor inventory management in healthcare delivery raises a lot of concern that cannot be swept (removed) under the carpet as health is wealth. According to Brotherton, (2000), organizational wealth translates into organizational health financially. It is becoming imperative for managers of inventories in the health

sector to design and implement a flawless/perfect system of managing their stock of raw materials to assure quality of supply to the operating points to improve health care delivery in hospitals.

There is Studies have been done in relation to effective health commodity inventory management. For instance, study conducted in Indonesia on drug inventory management issues found that there is inefficient inventory management of drug in hospital due to less management awareness and this leads to increased inventory cost (Ilma Nurul Rachmania ,Mursyid HasanBasri, 2012).A study conducted by Lapide, (2010) state that, despite the government efforts in ensuring availability of drugs, there is a significant stock out period due to poor pharmaceutical management of ant malarial medicines in the public health facilities. This study does not address the weakness of stocks control system and their effects on the availability of drugs and medical supplies (Ilma Nurul Rachmania ,Mursyid HasanBasri, 2012).

Another study was undertaken by Kagashe, G. Massawe, (2012), the supply of medicines needs to be managed efficiently in order to prevent all types of wastage including overstocking, pilferage and expiry. This wastage reduces the quantity of medicines available to patients and therefore the quality of health care they receive. Both under stocking or overstocking and expiry of medicines highlight problems within the supply chain activities which include selection, quantification, procurement, storage, distribution and use. Akintonye, (2014), found that inventory management led to improved performance of German Service firms.Mehra, S. & Inman, R.,(2014) and Lapide, (2010),also concluded that use of technology in inventory management improved efficiency of manufacturing and service firms.

Due to the immense effort provided in the infancy implementation age of the new supply chain management system in Ethiopia, availability of drugs in government health facilities were reached 77% from below 50%(PFSA, Annual report, 2017). But different supportive supervisions reports indicated that indicators for existence of poor inventory control system like holding drugs for more than four months in their stock, failing to use stock recording formats and generating poor quality supply report data observed in government health facilities with worsen case in far sites from supplying agency.

According to PFSA,(2014), on the effective delivery of health services in Ethiopia, it was established that 60% of the health services were not performing well due to poor inventory management. The issues included lack of knowledge and skill of the staff, funds of health service

and information communication &technology. It is on this premise the study seeks to find out if supplier relationship management, fund of the hospital, knowledge and skill of the staff and Information technology influence effective inventory management at Seka Chekorsa hospital.

In Ethiopia few studies have been conducted in inventory management practice. For instance Wolde Abreha (2015) on the title of ″inventory management practices of Ethiopian electric utility″; in case of Addis Abeba city. The objective of the study was weather inventory management is one for service quality and strength of operation.

Daniel (2015) also studies an assessment of the factors influencing inventory control; in case of population service international Ethiopia. Those studies worked on government service sectors.

It is against these backgrounds that the researcher developed an interest in investigating inventory management practices in health commodity to try to identify inventory practices that ensures effective inventory management.

According to the discussions made among Seka Chekorsa Hospital workers and users and heard from some officials and from the researcher's practical observations, Seka Chekorsa Hospitals have not been successful in implementing effective health commodity inventory management practices due to numerous challenges they face in the course of their operations. As per the researcher knowledge up to date, there were a little studies conducted on determinants of effective health commodity inventory management practice in Ethiopia in general, and particularly non on this topic in Seka Chekorsa hospital. This study therefore, fills the gap by investigation the determinant of effective inventory management practice at Seka Chekorsa hospital

1.2. Statement of the Problem

Effective inventory management in health care supply chains is one of the key factors for success. The challenge in managing inventory is to balance the supply of inventory with demand. An organization would ideally want to have enough inventories to satisfy the demands of its customers and not to lose customers due to inventory stock-outs. On the other hand, the organization does not want to have too much inventory staying on hand because of the cost of carrying inventory (Oballah,etal 2015).

The problem of inventory management may be attributable to the failure, on the part of the top management officials, to give a deserved attention to the function of stores as well as their inability to employ the services of as well qualified stores officer to take charge of stores supervision and management. Added to this problem is the issue of the lack of storage facilities and the habit of

stores procedure violation by the top, the middle, and the junior cadre personnel's in the organization (Neef, 2001).

(Mungu, 2013)States that in hospitals, inventory management is set up to ensure an optimal stock level of medicine in general and essential medicine to enable satisfactory service that touches on human life unlike procurement in other sectors. Emergencies pose health threats that are of sudden onset in nature, are beyond the capacity of an individual/community to manage and are life threatening or will lead to irreversible damage to the health of individuals/community if not addressed. Thus inventory management is the heart of pharmaceutical system and poor management will lead to wastage of financial resources, shortages of essential medicines, average of others resulting in expiration and deadline in quality health care (USAID, 2012). Despite the threats, in most public hospitals patients are always turned away due to lack of essential drugs and infrastructural facilities. Unfortunately in developing countries, most organizations in the health sector, supply chain is not accorded central role in overall strategy (Margaret W. Njoroge, 2015)

Problems are likely to raise when inventory is not tracked properly, inefficiency and additional costs mount. Supplies get lost, shrinkage can go unchecked, stock-outs occur, critical equipment locations are uncertain, billing is inefficient since supplies are used without being associated to patient's record, and on-hand inventory can balloon unnecessarily. All of this leads to inefficiency and additional costs. A "sick" inventory arise due to individual decision making on frequency of reordering and quantity to be ordered, ad hoc structuring, inaccurate stock recording, lack of transparency, increase in complexity, and absence of systematic monitoring. These problems mainly arise due to lack of awareness or knowledge about of scientific stock keeping and warehouse practices. In developing countries, where budget is tight, overstocking of certain pharmaceutical items may block a substantial portion of the drug budget, resulting in insufficient funds for procuring drugs that are more important. For this reason, it is important to implement or upgrade an inventory control system in a public pharmaceutical supply to maintain a steady supply of drugs to the public. This ensures good health to all while minimizing the costs associated with inventory holding, lowering order processing, procurement or delivery costs, controlling stock levels and minimizing stock out conditions (Sullivan, (2001)). Public hospitals have a procurement department that is responsible for the provision of goods services to the hospitals with the aim of providing quality health care services in order to achieve customer satisfaction. They maintain inventory management system which is aimed at ensuring that facilities and equipment are supplied and delivered at the right time. The hospitals should consider implementing inventory management

practices for reduced costs and improved supply chain performance. This has a positive impact on reduction of mortality rate to the patients especially in responding to emergency cases.

There is few Studies have been done in relation to effective health commodity inventory management. For instance, study conducted in Indonesia on drug inventory management issues found that there is inefficient inventory management of drug in hospital due to less management awareness and this leads to increased inventory cost (Ilma Nurul Rachmania ,MursyidHasanBasri, 2012).A study conducted by Lapide, (2010) state that, despite the government efforts in ensuring availability of drugs, there is a significant stock out period due to poor pharmaceutical management of ant malarial medicines in the public health facilities. This study does not address the weakness of stocks control system and their effects on the availability of drugs and medical supplies (Ilma Nurul Rachmania ,MursyidHasanBasri, 2012).

In Africa frequent shortage of drugs which must be available 24 hours in a day and in all 365 days in a year identified, Cases reported in South Africa in May 2012 shortage of Anti-Retroviral drugs in six of the nations and in July 2012 Western Capes` Groote Schurz hospital experienced major drug shortages for essential medication such as insulin for the treatment of diabetes, steroids to treat inflammatory conditions and certain chemotherapy drugs related to Inventory control system inefficiencies and professionals work load (M.Kachwee, MrD.Hartmann., 2013).

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Azeb Semaheny (2015) Assessment of Health Commodities Inventory Management Practices And Challenges: This study it can be concluded that uses enterprise resource planning system and maintains data base for all suppliers reduce costs and ultimately improve quality of Service. The study was limited to inventory management practice and challenges

Health facilities must provide 24 hour services and accordingly, the need to keep stocks of certain medicines and other medical supplies to be able to discharge their duties effectively. It is generally held opinion that where stock management by health facilities is poor, delivery of healthcare is normally affected. These are among the issues that the study seeks to find answers to

As per the researcher knowledge up to date, there were a little studies conducted on determinants of effective health commodity inventory management practice in Ethiopia in general, and particularly non on this topic in Seka Chekorsa hospital. This study therefore, fills the gap by investigation the determinant of effective inventory management practice at Seka Chekorsa hospital

1.3. Objective of the Study

1.3.1. General Objective of the study

The main research objective is to assess the determinants of effective inventory management practices at SWH.

1.3.2. Specific objectives of the study

This particular study addresses the following specific objectives:-

- To assess the effect of information technology on the effectiveness of inventory management practice at Seka Chekorsa Hospital.
- To investigate whether bureaucratic procurement procedure can affect effectiveness of inventory management practice of the hospital at Seka Chekorsa Hospital
- To examine whether knowledge and skill of the staff can influence effective inventory management practice at Seka Chekorsa Hospital

- To investigate the effects of funds of the hospital on the effectiveness of inventory management practice at Seka Chekorsa Hospital

1.4. Research Questions

- Does Information technology affect effectiveness of inventory management practice of the hospitals at Seka Chekorsa Hospital?
- Does bureaucratic procurement procedure can affect the effectiveness of inventory management practice to improve hospitals performance at Seka Chekorsa Hospital?
- Does knowledge and skill of the staff influence the effectiveness of inventory management practice at Seka Chekorsa Hospital?
- Does fund of the hospital determine the effectiveness of inventory management practice of the hospital?

1.5. Significance of the Study

The findings of the study have importance to important to hospitals particularly to Seka chekorsa hospital, in providing relevant information of the determinants of effective inventory management practice on SWH. The Researcher was able to get detail understanding on the determinants of effective inventory management practice and related the findings to the real situation. Finally, it will be reference for many policy makers, researchers, students, NGOs and even other people who have close interest on the subject matter; Researchers on the subject matter will also refer this study as a literature review.

1.6. Scope of the study

The scope of this study was limited to examining four determinant factors (Information Technology, bureaucratic procurement procedure, fund of health care and Knowledge and skill of the staff) on effective inventory management at Seka Chekorsa hospital. Seka Hospital is one of public hospital in Jimma Zone directly under supervisory of Oromia Health Bureau. Also, this hospital becomes the first hospital for Seka Chekorsa and Shabe sombo woreda Health Centers. The Data was gathered from Pharmacy, nurses, midwifery, laboratory technician, human resource, storekeepers, Supportive staff and employee in finance with specific focus on those officers responsible for acquiring and managing the hospital stocks.

It does not include other variables beyond the qualified staff, funding, information technology and bureaucratic procurement procedure , factors such as over stock, under stock longer supplier lead time, long documentation factors which are not be explored.

The study was conducted at only in SEKA CHEKORSA HOSPITAL. Methodologically; this study was conducted based on sample (stratified sampling technique) research. The study was based on cross section time based in which data was collected between less than one-year time bounded.

1.7. Organization of the Study

This study is structured in five chapters. Chapter one is the introduction and provides the background of the research, problem statement, research objectives, research questions, hypotheses, scope and significance of the study, limitation of the research as well as the organization of the study. Chapter two reviews literature, empirical review. The chapter ends with a conceptual framework of the study. Chapter three covers the methods and procedures employed for the study. The research methodology outlines the research design, target population, sample size and sampling techniques, data collection instruments, reliability and validity of the instruments, methods of data analysis, and ethical consideration. Chapter four outlines data presentation, analysis and interpretation and Chapter five concludes and suggests possible recommendations.

1.8. Limitation of the Study

Firstly, the study only focuses on a single hospital. Secondly, only few researches were conducted on related titles in Ethiopian context; which is the reason for why many materials were referred from abroad. . Another Limitation of this Study It does not include other variables beyond the qualified staff, funding, information technology and bureaucratic procurement procedure , factors such as over stock, under stock longer supplier lead time, long documentation factors which are not be explored.

CHAPTER TWO

2. LITERATURE REVIEW

This chapter contracts with concepts and theories that are applicable to the issues in this study. The chapter stretches an impression of Theoretical, Empirical literature and Conceptual Framework of the study that is linked to the research problem obtained in the previous chapter.

2.1 Theoretical Literature Review

2.1.1 Meaningq of inventory

Arnorld et al. (2008) define inventory as the materials and supplies that a business or institution carries either for sale or to provide inputs or supplies to the production process. All businesses and institutions require inventories. Often they are a substantial part of total assets. According to Render (2003) an inventory is any stored resources that are used to satisfy a current or a future need.

(C., (2006).)Define Inventory as a stock of goods that is maintained by a business in anticipation of some future demand. Inventory is the supply of raw materials, partially finished goods called work-in-progress and finished goods, an organization maintains to meet its operational needs. It represents a sizeable investment and a potential source of waste that needs to be carefully controlled. It managers keep too much inventory on hand, they will waste money storing it and lose money it inventories are damaged or stolen. (Stevenson, (2005)) explain the word inventory means a physical stock of material or goods or commodities or other economic resources that are stored or reserved or kept in stock or in hand for smooth and efficient running of future affairs of an organization at the minimum cost of funds or capital blocked in the form of materials or goods (Inventories).

Inventory refers to the value or quantity of raw materials, supplies, work in progress (WIP) and finished stock that are kept or stored for use as need arises (Lysons, K, and Gillingham, M, 2003) . Raw materials are commodities such as steel and lumber that go into the final product. Supplies include items such as Maintenance, Repair and Operating (MRO) inventory that do not go into the final product. Work in progress is materials that have been partly fabricated but are not yet completed. Finished goods are completed items ready for shipment (Kothari, Social research methodology , 2007).

2.1.2 Inventory management

Inventory management is the continuing process of planning, organizing and controlling inventory that aims at minimizing the investment in inventory while balancing supply and demand. (Desselle, 2009).

Smaros, et al. (2003) describe inventory as the largest and most tangible investments of any organization which also decides their success in operation. Inventory management involves planning, organizing and controlling the flow of materials from their initial purchase unit through internal operations to the service point through distribution.

Different inventory items vary in profitability as well as the amount of space they take up. Higher inventory levels result in increased costs for storage, insurance, spoilage and interest on borrowed funds needed to finance inventory acquisition (Shim, Siegel, 2008). As successful inventory management minimizes inventory, lowers cost and improves profitability, managers should appraise the adequacy of inventory levels, which depend on many factors, including sales, liquidity, available inventory financing, production, supplier reliability, delay in receiving new orders, and seasonality. An increase in inventory lowers the possibility of lost sales from stock outs and the production slowdowns caused by inadequate inventory. Inventory levels are also affected by short-term interest rates. As short term interest rates increase, the optimum level of holding inventory is reduced (Shim, Siegel, 2008).

2.1.3 Classification of Inventories

Inventories can be classified as those which play direct role during manufacture or which can be identified on the product and the second one are those which are required for manufacturing but not as a part of production or cannot be identified on the product. The first type is labeled as direct inventories and the second are labeled as indirect inventories. Further classification of direct and indirect inventories is as follows:

2.1.3.1 Direct Inventories

Direct inventories include the first one is Raw material inventories. They are used in the manufacture of product and can be identified on the product. In inventory control manager can concentrate on the bulk purchase of materials to save the investment, to meet the changes in production rate and to plan for buffer stock or safety stock to serve against the delay in delivery of inventory against orders placed and also against seasonal fluctuations. Second one is Work-in - process inventories or in process inventories they are of semi-finished type, which are accumulated between operations or facilities. As far as possible, holding of materials between operations to be minimized if not avoided this is because; as we process the materials the economic value (added labor cost) and use value are added to the raw material, which is drawn from stores. Hence if we hold these semi-finished material for a long time the inventory carrying cost goes on increasing, which is not advisable in inventory control. These inventories serve the following purpose: Provide economical lot production, cater to the variety of products, Replacement of wastages and to

maintain uniform production even if a sale varies. The other inventories include finished goods inventories. After finishing the production process and packing, the finished products are stocked in stock room. These are known as finished goods inventory. These are maintained to: To ensure the adequate supply to the customers, to allow stabilization of the production level and to help sales promotion program. Spare parts inventories are also including in direct material inventories. Any product sold to the customer, will be subjected to wear and tear due to usage and the customer has to replace the worn-out part. Hence the manufacturers always calculate the life of the various components of his product and try to supply the spare components to the market to help after sales service. The use of such spare parts inventory is: To provide after sales service to the customer and to utilize the product fully and economically by the customer. The last direct inventory items are Scrap or waste inventory: While processing the materials, we may come across certain wastages and certain bad components (scrap), which are of no use. These may be used by some other industries as raw material. These are to be collected and kept in a place away from main stores and are disposed periodically by auctioning.

2.1.3.2 Indirect Inventories

Inventories or materials like oils, grease, lubricants, cotton waste and such other materials are required during the production process. But we cannot identify them on the product. These are known as indirect inventories. (P. Rama, 2007 p.354-356)

2.1.4 Objectives of Inventory Management

According to (Stevenson, (2005)) inadequate control of inventories can result in both under and over stocking of items: Under stocking results in missed deliveries, lost sales, dissatisfied customers and production bottlenecks: over stocking unnecessary ties up funds that might be more productive elsewhere although overstocking may appear to be the lesser of the two evils. The price tag for excessive overstocking can be staggering when inventory holding costs are high and matters can easily get out of hand.

Inventory management has two main concerns. One relates to the level of customer service that is to have the right goods, in sufficient quantities, in the right place at the right time. The other relates to the cost of ordering and carrying inventories. There for the overall objectives of inventory management is to achieve satisfactory levels of customer service while keeping inventory costs within reasonable bounds. ((Stevenson, (2005))

Poul Hzipkin (2000) clarifies the fundamental objective of a good system of inventory management. They are: to be able to place an order at the right time from the right resource to acquire the right quantity and the right quality, to ensure adequate stock and end over is made by inventory control to

see that any department will get the commodity or other necessary item as and when required, to minimize inventory on hand, to maintain continuity in production and to make maximum use of storage capacity available.

2.1.5 The Benefits of Inventory Management

Inventory management increases profitability- Forecasting, controlling and managing inventory increases productivity, while reducing costs, resulting in greater profitability. Accuracy improvements & time savings, in addition to the reduction of fixing costly mistakes, can result in considerable cost savings across an organization. Inventory management improves decision-making Rapid, accurate data collection enables access to real-time business intelligence across all areas of your company Issue, event and project management tracking integrated with an inventory management system enables all associates to proactively identify & solve business issues. It increases customer satisfaction Responding to trends, seasonality, promotions & changing marketing conditions results in having the right products in stock for customers Properly identified products available to load enables customers to order & receive the correct Commodity Quickly Customer service tools integrated within an inventory management equips the entire company to deliver consistent, personalized care for your customers. (Poul H.Zipkin, 2000).

Inventory management helps businesses to be successful. It is a crucial part of any business success.

1. **Inventory Balance**: Good inventory management helps you to figure out exactly how much inventory you have. This makes it easier to prevent product shortages and keep just enough inventories on hand without having too much (PoulH.Zipkin, 2000).

2. **Accurate Planning**: Using smart inventory management, you can stay ahead of the demand curve, keep the right amount of products on hand and plan ahead for seasonal changes. This goes back to keeping your customers happy all year long (Stock, (2001)).

3. Employee Efficiency: You can empower your employees to help you manage inventory. Training employees to use barcode scanners, inventory management software and other tools helps them make better use of their time and it helps your business make better use of its resources, both human and technological World Health Organization (WHO, ,2016)

4. Inventory Tracking: If you have multiple locations, then inventory management becomes even more important because you need to coordinate your supplies at each location depending on differences in demand and other factors (Stevenson, (2005)).

5. Time Saving: Inventory management is a great time-saving tool. By keeping track of all the products you have on hand; you can save yourself the hassle of doing inventory recounts to make

sure your records are accurate. This once again requires inventory management software. (Panos Kouvelis, 2002).

2.1.6 Effectiveness of inventory management practice

According to Myowela and Alemanta (2011), effectiveness can be referred to doing more than before with the same resources as now (or less) which measures the impact that has been achieved that can be expressed either quantitatively or qualitatively. Effectiveness is the degree to which objectives are achieved and the extent to which targeted problems are solved. In contrast to efficiency, effectiveness is determined without reference to costs and, whereas efficiency means "doing the thing right", effectiveness means "doing the right thing".

The ability to identify and do certain things in a special way that will contribute positively to the organization can be views as being effective. According to Dumas (2008), Redshaw (2010) being effective in terms of organizational set up can be viewed by effective internal processes of an organization. Therefore, the degree to which target can be achieved by an organization is defined as being effective. The primary goals of organizational inventory management are to increase organizational effectiveness and efficiency to improve the ability of the organization to deliver goods and or services (Ronald, H 2005).

Effectiveness can also be defined as "the ability to identify and do the things that contribute to the organization". According to Redshaw (2010), organizational effectiveness can be defined in terms of the effectiveness of the internal processes of an organization. Consequently, effectiveness can also be defined as the degree to which targets are achieved within an organization (AI-Khalil et.al, 2004).

Effective inventory management practice for this study is defined as the ability to receive inventories with shorter lead time, using computerized record system, optimum utilization of inventories, utilization of storage capacity, and location of store and minimum carrying cost of inventories.

2.1.7 Determinants of effective inventory management practices

2.1.7.1 Staff proficiency

(Blog, 2013,)Says that for Stock control function to achieve a superior performance, it's necessary to recruit, train and develop personnel with the capacity and motivation to do better job. Qualified staff that is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions. For an organization to succeed, qualification is therefore a pre-requisite and must be matched with job requirement, hence the need to hire and develop ambitious personnel. If staff involved in stock control is not qualified

and competent, then there will be ineffectiveness in inventory control. Carter and price (1993) indicate that training of staff is vital if full use is to be made of their abilities and talents.

2.1.7.2 Bureaucratic Procurement Practice

Procurement encompasses the whole process of acquiring property and/or services. It begins when an agency has identified a need and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life (Waters, . 2003.)

As organizations become large and more complex, the authoritarian- paternalistic patter gave way to increased functional specialization with many layers of middle and lower management for coordinating organization effort (Kenneth & Kenneth, 2005). The advantages of bureaucracy are many folds; apart from consistent employee's behavior, it eliminates overlapping or conflicting jobs or duties and behavior of the system is predicable. Despite the above advantages, bureaucratic organization has some significant negative and side effect. Too much red tapes and paper work not only lead to unpleasant experiences but also to inefficient operations.

2.1.7.3 Funding

Health project financing encompasses resource mobilization, allocation, and distribution at all levels (national to local), including how providers are paid. Health project financing refers to "the methods used to mobilize the resources that support basic public health programs, provide access to basic health project services, and configure health project service delivery systems (Schieber & Akiko M, 2010). In many developing countries, household out-of-pocket payments form a large source of health financing and although user fees can prevent excessive use of services it can at the same time, create barrier into access health care when most needed(Zellner, S., O'halon, B., and Chandani, T., 2005).

A key factor in the effectiveness of local decentralized governments is the provision of an adequate level of revenue, as well as the authority to make decisions on expenditure (Schieber & Akiko M, 2010). Fiscal decentralization may also be designed to bring about cost containment and greater financial control. Here local priorities are mainly focused on streamlined and targeted programmers that should lead to greater efficiency when compared to programmers run by the center(Helfat, C. and Peteraf, M., 2007). Health project lack appropriate capacities for proper program based budgeting, and although Sub-Saharan Africa has seen injection of enormous amount of dollars in support to health care sector, but in many instances funds are allocated only to disease specific

projects ("vertical programming") rather than to broad based investments ("horizontal programming") Furthermore, the problem of corruption and mismanagement of these funds in many of the recipient countries are issues warranting urgent solutions (Ejughemre, 2013).

2.1.7.4 Information Technology

According to Susan & Michael, (2000) accuracy of inventory records is necessary to provide satisfactory customer service, determine replenishment of individual items; ensure that material availability meets repair or project demand, analyze inventory levels and dispose of excess inventory. Bailey and Farmer (1982) state that stock recording are expected to maintain particulars of receipt, issues and balances remaining in stock for each individual item held in the storehouse daily.

According to Susan & Michael (2003), Stock records provide the management with the information which is used to ensure accountability through stocktaking and stock audit exercise. Jessop and Morrison (1994) states that records can be posted manually but, where the volume and complexity of the documents handled is of major proportion mechanical methods are often to be more effective. Manual posting is comparatively slow, there is high risk of filling the wrong detail, and it can be easily misplaced or lost due to multiple handling as compared to Computer posting system.

2.1.8 Inventory Control Techniques

Inventory management relates to the tracking and management of commodities which includes the monitoring of commodities moved into and out of stockroom locations and the reconciling of the inventory balances. Some of the techniques used in managing inventories were discussed below:

2.1.8.1 EOQ

Economic Order Quantity (EOQ) which developed by F.W Harris in 1915 has been the most commonly used in practice. He mentioned that EOQ derives the optimal lot size for purchasing by minimizing the total operating cost. EOQ formula helps inventory manager to determine how many optimum products to buy. However, the classical EOQ model assumes such as: constant demand, constant lead time, fixed order cost per order, instantaneous replenishment, no stocks out allowed, no demand uncertainty and quantity discount aren't available. In order the above assumptions do not reflect in all situations, EOQ model must be modified in a real inventory system analysis (Rachmania, 2012).

Replenishment process also one of common practices in inventory control. Replenishment divided two types, which is continuous review and periodic review. Continuous review placed the order when the inventory declines to the re-order-point (ROP). While periodic review placed the order at

regular periodic intervals. ROP also used in inventory control to seek suitable level for replenishment. Another model in controlling inventory is safety stock. Safety stock must be considered where there is an uncertainty in demand; also safety stock is needed during the replenishment lead time when there is a mismatch between actual demand and expected demand (Rachmania, 2012).

2.1.8.2 ABC/VEN Analysis

This technique assigns items to three groups according to the relative impact or values of the items that makes up the group. Those thought to have the greatest impact, or value, for example, constituted the 'A' group, while those items thought to have a lesser impact or value were contained in the 'B ' and 'C' groups respectively ((Coyle, 2003).

The relevance of this theory to this study is that it suggests that though all categories of inventory is important, inventory must be categorized or classified in accordance to their relative impact or value and treated differently.

In many ABC analysis, a common mistake is to think of the 'B' and 'C' items as being for less important than the 'A' items and, subsequently, to focus most or all of management's attention on the 'A' items. A decision might be made to assume very high in-stock levels for the 'A' items and little or no availability for the 'B' and 'C 'items.

The fallacy here relates to the fact that all items in the A, B and C categories are important to some extent and that strategy to assure availability at an appropriate level of cost. The purpose of this classification is to ensure that purchasing staff use resources to maximum efficiency by concentrating on those items that have the greatest potential savings. Selective control will be more effective than an approach that treats all items identically (Lysons, K, and Gillingham, M, 2003).

2.1.8.3 JIT

Just-in-time (JIT) is one of the most talked about topics in materials planning primarily due to its tremendous success in the context of Japanese companies. JIT or zero-inventory system is an idealized concept of inventory management wherein we are able to supply whatever material is required, wherever required, and whenever required just in time with 100 % supply assurances without keeping any inventory on hand. Obviously, from the resource management point of view, nothing can be better than this, as there are no inventories, no shortages, and no replenishment orders placed. However, this concept necessitates that the suppliers (vendors) are local and are 100 % dependable; orders splitting with small orders without additional transportation costs is feasible, i.e., frequent deliveries are economically viable, and the requirements are firmly known. This also calls for a single vendor base and having long-term relationship with the vendor who has to be a

quality vendor. This also requires that the vendor has sufficient capacity to supply anytime without passing on the costs of overcapacity to the buyer (Springer, (2014)(Springer India, 2014).

2.1.8.4. VMI

A vendor managed inventory system (VMIS) helps in minimizing the company's holding of stock and forces the distributor to maintain goods which in turn secures the level of service of the retailer. (Zer, (2006)) (2006) argue that vendor inventory management can be described as supplier managed inventory or as continuous replenishment. According to Beamon et al (2006) the system is an initiative of partnering that encourages cooperation and the sharing of information between partners in a business. (Davis, 1989) explain that bar coding is a type identification employed by the technology of capturing information. Bar codes are used in tracking items such as stock in retail, records, people and machines. Some control systems used for inventories apply this technology in order to make stock tracking automatic this improves on efficiency and thus supply chain performance (Margaret W. Njoroge, 2015).

2.1.8.5 MRP

(Lysons, K, and Gillingham, M, 2003) material requirement planning as a product- oriented computerized technique aimed at minimizing inventory and maintaining delivery schedules. It relates the dependent requirements for the materials and components comprising an end product to time periods known as 'buckets' over a planned horizon (typically one year) on the basis of forecasts provided by marketing and sales and other input information. (Coyle, 2003)Explained material requirement planning as a set of logically related procedures, decision rules, and records designed to translate a master production schedule into time-phased net inventory requirements for each component item needed to implement this schedule.

(Lysons, (2003)), outlined the aims of material requirement planning as can used To synchronize ordering and To achieve planned and controlled inventories ; and ensure that required items are available at the time of usage or not much earlier and also used to promote planning between the purchaser and the supplier to the advantage of each. MRP tries to strike the best balance possible between optimizing the service level and minimizing costs and capital lock up (Ejughemre U. , (2013).)

2.2 Theories on inventory management

2.2.1 Scientific Management Theory

To investigate the influence of staff training on effective stores management, the study was based on scientific management theory. The theory basically consists of the works of Fredrick Taylor. Fredrick Taylor started the era of modern management in the late nineteenth and early twentieth

century's; Taylor consistently sought to overthrow management by rule of thumb and replace it with actual timed observations leading to the one best practice (Wisner, T. & Leong, G, 2011).

2.2.2 Theory of Inventory and Production

The theory of inventory and production is described as specialty in operations research and is commonly referred to as the mathematical theory of inventory and production (Baumer, . (2004)). The theory is concerned with the development and adoption of inventory and production systems that are effective and that will result in the minimization of institutional cost. In this connection, the theory studies the following organizational functions: supply chain, warehousing, manufacturing and production, spare part allocation, and logistics. According to (Helfat, C. and Peteraf, M., 2007), institutions should follow the following steps in order to have an effective inventory management system: (1) develop a mathematical model which describes the behavior of inventory; (2) design and adopt an optimal inventory policy with respect to the firm's mathematical model; (3) develop a computerized information processing system that will provide information on the current inventory levels; (4) use the current inventory levels information to apply the optimal inventory policy to replenish existing inventory levels. In addition, the theory of inventory and production considers and uses the following measures: ordering costs, shortage costs, holding costs, salvage costs, discount rates, and revenues.

2.2.3 Adaptive Structuration Theory

Based on Structuration theory intends to determine the effects of information technology on effective stores management. Structuration theory was first proposed by Anthony Giddens in his Constitution of Society in 1984, which was an attempt to reconcile social systems and the micro/macro perspectives of organizational structure. De Sanctis and Poole (1994) borrowed from Giddens in order to propose AST (adaptive structuration theory) and the rise of group decision support systems. AST provides the model whereby the interaction between advancing information technologies, social structures, and human interaction is described, and which focuses on the social structures, rules, and resources provided by information technologies as the basis for human activity. AST is a viable approach in studying how information technology affects effective inventory management in an organization because it examines the change from distinct perspectives.

2.2.4 Technology Diffusion Theory

Rogers' Diffusion of Innovation Theory tries to explain how adoption was made to new ideas as well as to innovations by suggesting in the theory, five innovation attributes through which adoption is effected, which are: "observability, compatibility, trial ability, relative advantage and complexity"

(Rogers, 1995). An attribute is said to have a relative advantage when the new innovations is seen to be better than the previous idea that it is replacing. Rogers' theory emphasizes that it is easier to implement innovations that show an improved advantage over that which was there before, making it easier to adopt. (Gakuru, (2012)) Adds that users would not adopt innovations that they did not see any relative advantage in them. The ability of an innovation to be easily adopted is that it has to be compatible with a previous idea, meet their experience in the past and fulfill existing values, meaning that there is a higher chance for an innovation to be adopted if it is more compatible. An innovation that is seen to be difficulty to use as well as to understand is said to be complex. New innovations are categorized from the simple to complex ones which define the relevance users find in them, where the ones seen as simple to operate are easily adopted (Greenhalgh et al, 2004).The ability to experiment with an innovation in least time is called trial ability, and if the user is able to test the item before full implementation saves them resources, energy and precious time and hence becomes easily adopted. The visibility of the innovation's results as seen by adopters is called observability, where the innovation becomes more adoptable if the outcomes are positive.

2.2.5 Theory of resources and capacities

As from the theory of resources and capacities it is habitual to consider that those sources are in internal and external factors of the enterprises. The entrepreneur, by means of the strategy combines these factors establishing his distinctive competencies. As from the theory of resources and capacities it is habitual to consider that those sources are in internal and external factors of the enterprises.

(Burns, 2009) Interpretation of multiple resources theory was that timing involves verbal resources at the perceptual/central stages, whereas search and tracking are 9 spatial tasks. This argument, though, still fails to explain the asymmetry. If anything, there should be minimal interference, as the tasks draw on separate resource pools. In the event of an interference effect, it should affect both tasks in a similar manner, rather than affecting one task while leaving the other untouched. On the other hand, working memory, with its central executive, can offer an explanation. The central executive controls attention and coordination functions, such as allocating attention between dual tasks. Mental arithmetic and timing both draw on the central executive, which is why bidirectional interference occurs between these two tasks. Simple visual search or tracking tasks.

As from the theory of resources and capacities it is habitual to consider that those sources are in internal and external factors of the enterprises. The entrepreneur, by means of the strategy combines these factors establishing his distinctive competencies. As from the theory of resources and

capacities it is habitual to consider that those sources are in internal and external factors of the enterprises.

2.2.6 Bargaining Theory of Distribution Channels

A critical factor in channel relationships between manufacturers and retailers is the relative bargaining power of both parties. In this article, the authors develop a framework to examine bargaining between channel members and demonstrate that the bargaining process actually affects the degree of coordination and that two-part tariffs will not be part of the market contract even in a simple one manufacturer–one retailer channel.

To establish the institutional and theoretical bases for these results, the authors relax the conventional assumption that the product being exchanged is completely specifiable in a contract. They show that the institution of bargaining has force, and it affects channel coordination when the complexity of nonspecific ability of the product exchange is present. The authors find that greater retailer power promotes channel coordination. Thus, there are conditions in which the presence of a powerful retailer might actually be beneficial to all channel members. The authors recover the standard double-marginalization take-it-or-leave-it offer outcome as a particular case of the bargaining process. They also examine the implications of relative bargaining powers for whether the product is delivered "early" (i.e., before demand is realized) or "late" (i.e., delivered to the retailer only if there is demand). The authors present the implications for returns policies as well as of renegotiation costs and retail competition.

2.2.7 Agency Theory

This was put forward by Jensen and Meckling (1976). They proposed that when a firm issues outside equity, it creates agency costs of equity that reduce the value corporate assets. Jensen's free cash flow theory alleges that if management is not closely monitored they will invest in capital projects and acquisitions that do not provide sufficient expected returns. Jensen and Meckling (1976) continue to argue that debt financing can help overcome the agency costs of external equity. The effect of employing external debt rather than equity financing is that it reduces the scope for managerial perquisite consumption, which can have an adverse effect on the value of the firm. With debt Outstanding, the most of excessive perks consumption will result in managers losing control of the company due to default and bondholders seizure of the company assets.

Thus external debt serves as a bonding mechanism for managers to convey their good intentions to outside shareholders. Because taking on debt validates that managers are willing to risk losing control of their firm if they fail to perform effectively, shareholders are willing to pay a higher price

for the levered firms. The use of debt to control the agency of external equity can be accomplished in two ways: Debt forces managers to be monitored by the public capital. If investor have negative view of managements competence, they will charge high interest rate on the money they lend to the firm or they will insist on restrictive bond covenants to constrain management's freedom or both. Outstanding debt limits management's ability to reduce firm value through incompetence or perquisite consumption, (Jensen, 1986). The discipline that debt provides has been further explored by Jensen (1989) and Ofek (1993). They argue that high leverage can provide benefits in the dynamic sense that companies with high leverage ratios may respond more quickly to the development of adverse performance than companies with low debt to equity ratios. Ofek (1993) argues that: A choice of high leverage during normal operations appears to induce a firm to respond operationally and financially to adversity after a short period of poor performance, helping to avoid lengthy periods of losses with no response. The existence of debt in capital structure may thus help to preserve the firm's going concern value. The above however, are still considered to be insufficient to outweigh the agency cost of debt. The cost entail writing detailed covenants into bond contracts which sharply constrain the ability of the borrowing firm's managers to engage in expropriate behavior. The agency cost reduces the benefits of the debt interest tax shield. However an optimal (value maximizing) debt to equity ratio is reached at the point where the agency cost of debt equals agency cost of equity.

2.3 Role of Inventory Management in Healthcare Delivery

An important role that inventory plays in the supply chain is to increase the amount of demand that can be satisfied by having product readily available when the customer needs it.(Michael, , 2011)

Quality care cannot be provided on time unless required material is available in adequate quality. Inventory management plays a crucial role in providing efficient healthcare in relation to three vital aspects of medical supplies used in the health facilities; availability, safety, and affordability.(Michael Narkotey,2012)

2.3 Empirical Literature Review

In Zimbabwe, (Lisa et al, .2003) on their study revealed that inventory management, storage and distribution of goods to users is efficiently done for example to hospitals drugs are distributed in an efficient manner because qualified people are employed with right qualifications and experience in materials related functions and the entire system of inventory management is computerized to ensure good performance.Case study in 2012 Munroe Regional case study where the hospital compared its utilization of automated inventory management technologies (Pyxis) to previous SCM practice in the operating room to determine its efficacy. The findings of this study indicated

automation helped save the hospital $2.7 million in the first nine months of Pyxis utilization. Another Case study in 2013 St. John's Medical Center case study. It is a more focused case study looking at the improvements Pyxis technologies created in their preoperative units. Findings included reduced supply stock-outs, increased staff satisfaction that in turn decreased a number of calls unit managers were receiving due to supply stock-outs and enabled clinicians to focus more on patient care, and increased work/charge capture. The case study concluded Pyxis technologies helped saves St. John's preoperative units $71,859 in the first year of use.(Silver, 2007), conducted a study on the relationship between information technology and staff training in inventory management. The study found out that there is no doubt that many institutions have embraced inventory management as way to increase efficiency and reduce cost.

In Malawi the Principal Secretary of Health Ministry et.al (2013) state that drugs stock outs were amounting to 95%. It was noted that causes were theft, tedious and bureaucratic process of procuring drugs and parallel system to purchase medication for treatment programmed.

A study conducted in China by Jianling et al (2010) on the Analysis of inventory Management in the China enterprises reveals that, in order for organizations to maintain exuberant competitive advantages and higher profitability, they need to pay more attention on stocks control system. He adds that organizations need to adopt effective stocks control methods in their internal control system and implement scientific stocks control ways. (Morgan, 2009) conducted a research study in United States of America on inventory management performance to Alien Technology Corporation. That was involved with pharmaceutical products where by other companies wins to supply pharmaceutical product to the government of United States of America because of its good customer services well organized and planned. The findings revealed that Alien Technology Corporation is almost 95% efficiency on inventory management practices where by the corporation manufactures products very high volume and at a low cost. The company provides a family of Radio Frequency Identification product for a variety applications including supply chain management, logistics to improve inventory management and reduce operating costs. According to (Haiyan., (2015).) Conducted research titled, "Empirical Study of an Automated Inventory Management System with Bayesian Inference Algorithm." It addresses the inefficiency and inconsistency associated with asset tracking and inventory management within large organizations. Specifically, it investigates two asset-tracking practices: manual inventory management versus automated inventory management. In Uganda, (Namagembe Sheila, (2010)) her study revealed that a significant positive relationship between information sharing and inventory management means that if chain partners implement information technologies and collaborate among each other, then

inventory management could improve, also in her study revealed that a significant positive relationship between inventory management and customer satisfaction means that in order to obtain high levels of customer satisfaction there is need for better inventory management.

(Mungu, 2013) on his research titled Supply Chain Management Practices and Stock Levels of Essential drugs in Public Facilities in Bungoma East Sub County The study concluded that inventory management practices ensures optimal stock levels. In 2009, Major Christopher Estridge, USAF, wrote his AFIT graduate research paper titled, "Material Management of Medical-Surgical Items at Military Healthcare Facilities." His research project looked to find the optimal inventory policy that provided the lowest total relevant cost while still providing an acceptable service level to the end customer for the AFMS to adopt. The overall focus of his research is geared toward stock ordering. It assesses the efficacy of the Defense Medical Logistics Standard (DMLSS) compared to two other ordering processes. His results are rather inconclusive as a multitude of variables come into play. Additionally, his work focused on an ideal stock procurement system across all branches of the military and not specifically best inventory management strategies at the unit level within a defined hospital.

The study by (Nyabwaga, (2013) "), titled the inventory management practices and Business performance for small scale Enterprises (SSEs) in Kenya revealed the following:-In the first research objective sought to determine the inventory management practices of SSEs, respondents were owners / managers of SSEs whom were asked to indicate their frequency of inventory budgeting, review of inventory levels and review of shelf-space allocation. The results showed that SSEs often prepared inventory budgets and reviewed inventory levels as mean 3.60 and 3.89 respectively. The SSEs however reviewed inventory levels more than they prepared inventory budget. These findings suggest that the inventory practices: inventory budgeting and review of inventory levels have been well understood by the SSEs' owners/managers and therefore they are likely to be in a position to effectively track down item quantities and balance availability with customer demand.

In South Africa, ((Musara, 2012) conducted a study and revealed that the majority of organizations are not applying Just In Time (JIT) inventory management principles, he added that there are challenges impeding the implementation of Just In Time (JIT) principles in the organizations, these challenges include, lack of reliable supplier networks, lack of capital and lack of knowledge of immediate financial gain among others, further more statistically significant positive correlations between the application of JIT inventory management principles and cost efficiency, quality and flexibility were found. It is therefore deduced that organizations can benefit significantly in terms of

improved quality of products, increased operational, costs cut and increased flexibility by applying the JIT inventory management principle. Demeter and Matyusz (2011) assessed the impact of lean practices on inventory turnover and suggested that firms that have widely applied lean practices have higher inventory turnover than those that do not rely on manufacturing. However, there may be significant differences in inventory turnover even among lean manufactures depending on their contingencies. They investigate various contingency factors, such as production systems, order types and product types influence the inventory turnover of lean manufacturers by use of cluster and correlation analysis to separate manufacturers based on the leanness. (Lapide L. , 2010) on his research titled Effectiveness of inventory management in service firms. The study confirmed that firms invested in inventory technology achieved reduced costs and improved efficiency. (Onyango, (2011))) studies on Supply Chain Management Practices and Performance in Cement Industry in Kenya the finding of the researchers was supply chain management led to minimal inventory levels, improved partnerships and communication and demand forecasting. The study by (Kitheka S. , (2012).)on Inventory management automation and the performance of supermarkets in western Kenya the study finds there was a positive linear relationship between inventory management automation and the performance of supermarkets. Though, the study was limited to supermarkets only.

Baldenius and Reichelstein (2000) examined inventory management from an incentive and control perspective. They demonstrated that the residual income performance measure based on historical cost accounting provided managers with incentives to make optimal production and inventory depletion decisions. The lower-of-cost-or-market rule is shown to be effective in situations where inventory may become obsolete due to unexpected demand shocks.

A study conducted in German by (Akintonye, 2014) on the effect of inventory management on performance of German Service firms, the findings revealed that inventory management led to improved performance however the study limited itself to service firms.

According to Margaret under the title “inventory management practices and performance of public hospitals in Kenya”. The regression results concluded that inventory management practices were positively related to performance of public hospitals in Nairobi and former Central province. The major limitation of this study is that it was limited to district hospitals in Nairobi and former Central Province Counties due to costs and time constraints. It would have been important for future researchers to consider investigating inventory management practices in public hospitals outside Nairobi County and former Central Province Counties to find out whether these findings will hold. The study recommends that government allocates more funds to public hospitals to be invested in

modern information technologies because this will lead to increased information sharing, reduction of costs and improved quality of health services.

According to (Banomoyng, 2014) Effective health commodities management has a great impact on the efficiency and effectiveness of the service delivery of hospitals in this country not forgetting the cases in this study as the research brought to the fore. However, the knowledge, practice and implementation of strategies of this all important concept was existent but on a much lower scale. KATH as a bigger and modern health facility needs to do more in this regard not forgetting other facilities in the country to improve health service delivery in this country leading to a healthier manpower for the development of this country.

In Ethiopia few studies have been conducted in inventory management practice. For instance WoldeAbreha (2015) on the title of ″inventory management practices of Ethiopian electric utility″; in case of Addis Abeba city. The objective of the study was weather inventory management is one for service quality and strength of operation.

AZEB SEMAHENY (2015) Assessment of Health Commodities Inventory Management

Practices And Challenges: This study it can be concluded that uses enterprise resource planning system and maintains data base for all suppliers reduce costs and ultimately improve quality of Service. The study was limited to inventory management practice and challenges

2.4 Summary of Empirical Review and Research Gap

This chapter has present relevant literature on the determinant of effective inventory management practice in different angles. The challenge of inadequate drugs on health facilities is due to poor communication and distribution practice. The literature indicated that the use of ICT in inventory management increase efficiency due to ease communication between distribution channels. Generally the factor affecting effective inventory management has reviewed in different angles. But there is no literature in context of Ethiopia, and almost of all they were limited to stock levels of essential drugs in public hospitals. Therefore, this study intended to fill those gaps by investigation the determinant of effective inventory management practice at Seka Chekorsa hospital

Table 2.1 Summary of Literature Review and Knowledge Gaps of Scholars

Scholars	Study	Major Findings	Knowledge Gaps
Akintonye (2014)	The effect of inventory management on performance of German Service firms	The findings revealed that inventory management led to improved performance.	The study limited itself to service firms
Mehra and Inman (2014)	Inventory management and efficiency of manufacturing firms	The study concluded that use of technology in inventory management improved efficiency	The study limited itself on manufacturing firms
Lapide (2010)	Effectiveness of inventory management in service firms	The study confirmed that firms invested in inventory technology achieved reduced costs and improved efficiency	The study did not address inventory management practices
Onyango (2011)	Supply Chain Management Practices and Performance in Cement Industry in Kenya	supply chain management led to minimal inventory levels, improved partnerships and communication and demand forecasting	The study did not focus on inventor management practices.
Kitheka (2012)	Inventory management automation and the performance of supermarkets in western Kenya	There was a positive linear relationship between inventory management automation and the performance of supermarkets.	The study was limited to supermarkets only
Mungu (2013)	Supply Chain Management Practices and Stock Levels of Essential drugs in Public Facilities in Bungoma East Sub County	The study concluded that inventory management practices ensures optimal stock levels	The study was limited to stock levels of essential drugs in public hospitals
AZEB SEMAHENY(2015)	Assessment Of Health Commodities Inventory Management Practices And Challenges:	This study it can be concluded that uses enterprise resource planning system and maintains a data base for all suppliers reduce costs and ultimately improve quality of Service.	The study was limited to inventory management practice and challenges
WoldeAbreha (2015)	″inventory management practices of Ethiopian electric utility″; in case of Addis Abeba city.	The study concluded that inventory management practices ensures optimal levels of service delivery	The study limited to service quality and strength of operation in electric service sector

Source: Author (2020)

2.5 2 Conceptual Framework

According to (Kombo D. K., (2009)), a concept is an abstract or general idea inferred or derived from specific instances. A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. (Mugenda O, Mugenda A

, 2003)Defined conceptual framework as a hypothesized model identifying the model under study and the relationship between the dependent and independent variables

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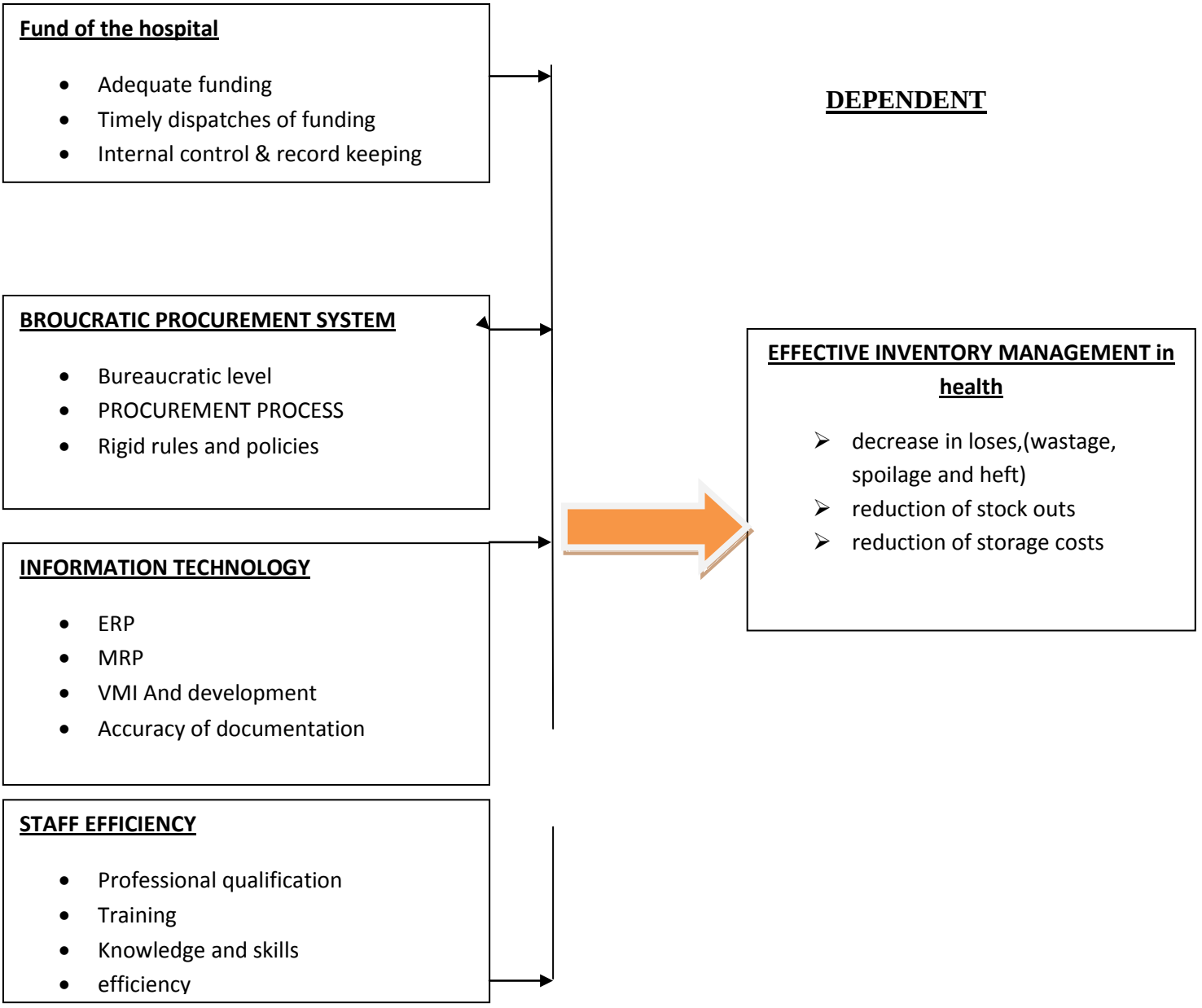
INDEPENDENT NDEPVARIABLE



Source: Adopted from Mohammed Rashid (2015) with modification

EFFECTIVE INVENTORY MANAGEMENT in health is the dependent variable which is been predicted by determinants of effective inventory management practices. The extent of this relationship is been tested in the research scope and study area SW HOSPITAL. Much works have not been done to determinants of effective inventory management practice. According to (Oballah, (2015).), inventory investment and inventory records accuracy have a positive influence on organizational. Also, (Anichebe, (2013) in their study also concluded that there is significant relationship between good inventory management and organizational effectiveness. Inventory management has a significant effect on organizational productivity. There is highly positive correlation between good inventory management and organizational profitability. The study concluded that Inventory Management is very vital to the success and growth of organizations. Finally, (Ogbo, (2014)) also sought to determine the relationship between effective system of inventory management system and organizational performance in the Seven-up Bottling Company in Enugu, Nigeria. They concluded that organizations benefits from inventory control management by way of easy storage and retrieval of material, improved sales effectiveness and reduced operational cost. The study also found that there is a relationship between operational feasibility, utility of inventory control management in the customer related issues of the organization and cost effectiveness technique are implemented to enhance the return on investment in the organization. Effective inventory control management is recognized as one of the areas management of any organization should acquire capability.

Therefore, this study sought to use the conceptual Framework in Figure 2.1 to determine determinants of effective inventory management practice on SEKA CHEKORSA WOREDA Hospital. It is from this conceptual framework that the research design of the study in the next chapter was made as well as the design of the data collection instrument and data collection and analysis.

CHAPTER THREE

3. RESEARCH METHODOLOGY

Introduction

This chapter gives an outline of the research methodology used in the study. Therefore, the research design, target population, sampling procedure and target population and sampling technique, types and source of data, a description of the method of data collection techniques is given. In the last part of this chapter the statistical method used to analyse the data, was discussed.

3.1 Research Design

The study was used descriptive research approach. A case study was chosen as the most appropriate research strategy. Saunders *et al.,* (2003) define a case study as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence".

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. A quantitative approach was followed. Burns and Grove (1993) define quantitative research as a formal, objective, systematic process to describe and test relationships and examine cause and effect interactions among variables.

A descriptive study design was used. A survey is used to collect original data for describing a population too large to observe directly (Mouton, 1996). A survey obtains information from a sample of people by means of self-report, that is, the people respond to a series of questions posed by the investigator (Polit and Hungler, 1993). In this study the information was collected through self-administered questionnaires distributed personally to the subjects by the researcher.

A descriptive survey was selected because it provides an accurate portrayal or account of the characteristics, for example behavior, opinions, abilities, beliefs, and knowledge of a particular individual, situation or group. This design was chosen to meet the objectives of the study, namely to assess determinants of effective inventory management practice at SWH.

3.2 Research Approach

Mixed research approach which advocates qualitative and quantitative approach was used so as to investigate the research problem in detail and to triangulate the findings of quantitative data with qualitative data finding

3.3 Types and sources of Data

To respond the stated research questions and to achieve the intended objectives, the study used both quantitative and qualitative type. For the proper achievement of the objectives of the study; the researcher was used primary data and secondary data source

- Primary Data Sources: The Primary data was gathered from respondents (whom are primary Sources). These are staff members and process owner

3.4 Sampling techniques

For the purpose of this study, the researcher has employed probability sampling particularly stratified sampling technique. The target population for the study was classified into different groups based on the departments and section in the firm which is directly related with inventory management of the organization. Then the samples were selected from each matrix according to their proportion to the total population. Since the information was requiring for the study needs different people who have knowledge and awareness about different inventory management practices/dimensions, regarding with inventory management of the hospital. The departments would be considering as matrix, from the data is collected, documents related to stock records from procurement and supply, nurses, midwifery, laboratory, store workers, pharmacy, finance department, supportive staff and human resource at the hospital.

Hence, a total of 172 employees were located in Seka Chekorsa hospital related to stock records, Procurement and supply, pharmacy, nurses, midwifery, finance, laboratory, supportive staff and human resource department at the hospital are selected as a target population of the study.

3.5 Sample Size

The main factor needed to considered in determining the sample size is to keep it manageable enough and also to enable the researcher to derive from it detailed data at an affordable cost in terms of time, finances and human resource Mugenda O, Mugenda A, (2003), the data is collected from pharmacy, nurses, midwifery, laboratory technician, human resource, procurement and supply, store keepers, supportive staff and employee in finance.

The researcher applies Yemane (1976) sample size determination formula to find the sample size of respondents.

$$n = \frac{N}{1+N(e)^2}$$

$=172/1+172(0.05)^2 = 120$

n= sample size need to choose

N= total population size of the study

e = error level which is 95% of confidence level

By using this sample size formula from the target population of 172 employees in the selected department the sample of the respondents are approximately 120 employees.

3.6 Target Population:

Table 3.1 sample size determination and Target population of study area

No	Strata	Total population	Percentage	Sample size
1	Finance	17	10	12
2	Pharmacy	15	8.3	10
3.	Store man	14	8.3	10
4.	Human resource	14	8.3	10
5.	Laboratory	15	8.3	10
6	Procurement and supply	15	8.3	10
7	Nurses	48	27.5	33
8	Midwifery	15	8.33	10
9	Supportive staff	19	11	13
	Total	172	≈100	120

Source: SEKA CHEKORSA HOSPITAL, 2020

The target population of this study was 172 employees of in SWH. The respondents were from all departments within the HOSPITAL since the inventory management practices was an issue that affects the entire organization. The target population of this study included all departments as shown by table 3.1 above.

3.7 Data Collection Methods

In order to generate relevant data for this study, primary data sources were considered. The primary data are those which are collected afresh and for the first time and thus happen to be the original in character. This means that the information resulting from it is more consistent with the research questions, interviews and direct practical participation. In this study, the primary data was collected through orderly designed questionnaire, interview.

3.8 Data collection instruments and procedure

The researcher was used primary data sources to achieve objective of the research. Primary data were collected mainly using questionnaire and interview to the respondents. 24 major questions for respondents were prepared. This helps the researcher to confirm the data collected from respondent through the questionnaire. Finally, the modified questionnaire will be distributed to the respondents for the collection of data from the study sample. Factors affecting effectiveness of inventory management practice was measured using Likert scale with five responses strongly disagree, disagree, neutral, agree and strongly agree. "The Likert scale method was preferred to make questions interesting to respondents and thereby enhance their cooperation, ultimately to ensure maximum response rate."

Reliability and Validity of the instrument

3.9 Reliability of the instrument

Checking the validity and reliability of data collecting instruments before providing to the actual study subject is the core to assure the quality of the data (Kerr et al., 2006). The researcher had tried to avoid the error that likely happen due to shortage of instrument or inability of the instrument to measure what is intended to measure and crosses validate the response of the questionnaire with the document analyzed. Then, the improved language clarity of the questionnaire was used through refining the instruments and avoiding personal bias of the researcher. A performance of reliability test was used to check the consistency and accuracy of the measurement scales. After the dispatched questionnaires" were returned, necessary modification on items and complete removal and replacement of unclear questions were done.

3.8.2 Validity of the instrument

According to Mugenda and Mugenda (1999), validity of research tool has three components. The first is construct validity which deals with the consistency of the questions with the responses

intended by the researcher. This validity is assured by structuring the questionnaire according to the specific objectives. The second form of validity is content validity, i.e. the ability of an instrument to gather the data required for the analytical techniques suggested (Peil, 1996). This is assured using close ended questions to avoid irrelevant answers. To ensure internal validity of the questionnaire, the researcher also gave the draft questionnaire to the supervisors for review and recommendations which are made part of the final questionnaire. Construct validity is assured by rearranging the questions according the comments of the respondents in order to keep the flow of questions.

3.9 Method of Data Presentation and analysis

3.9.1 Descriptive statistics

After collecting all the necessary data, these data was coded and edited, to eliminate errors and ensure consistency. It involved categorizing, discussing, classifying and summarizing of the responses to each question in coding frames, basing on the various responses. This was intended to ease the tabulation work. It also helped to remove unwanted responses which would be considered insignificant. Data collected from the field with the use of study instruments was classified into meaningful categories. This enabled the researcher to bring out essential patterns from the data that would organize the presentation..

Both primary and secondary sources of data were analyzed using both qualitative and quantitative methods**.** The collected data was quantified and edited thoroughly. Later the data was coded and computed. The competed data had been tabled to the requirements. The influence of the variables designed for each factor has been quantified with Likert scale ranging from 1 to 5. Statistical tools such as mean, standard deviations, percentage, and frequency of occurrence were used to reach the objectives meaningfully and analyze and interpret the data.

Based on the nature of the data collected through questionnaires, interview, and documents, the following procedures and statistical tools were employed. Data was checked for consistency and completeness on daily basis then is coded, checked, and entered to computer. Finally, the statistical package for social sciences (SPSS) version 20 was used for processing and analyzing the data obtained from questionnaires. Descriptive statistics like frequencies, percentage and figure was applied to facilitate meaningful analysis and interpretation of research findings. Qualitative data obtained through interviews are analyzed through descriptive method of analysis.

Descriptive statistical tools like mean, standard deviation, percentage and frequency of occurrence and also the researcher was used inferential tools such as; Pearson’s correlation and multiple linear

regression to determine the effect of independent variables on effectiveness of inventory management practice from transformed qualitative data to quantitative.

3.9.2 Inferential Statistics

Inferential statistics is used to identify the degree of correlation between the variables using Pearson's Correlation. The model is tested by Multicollinearity Test, Normality Test and significance test using multiple linear regression models by using SPSS 20 version Excel will use for data analysis tools.

3.10 Model specification

To analyze the data, different kinds of statistical methods including descriptive statistics, and inferential statistics (correlation and multiple linear regressions) were employed to identify and predict the relation and contribution each of the significant predictors for the study objectives.

Finally, the results of both descriptive as well as inferential results were presented by appropriate figures and tables. Thus, the following multiple linear regression was developed to make the research more effective in analyzing the influences of in dependent variables (qualified staff, funding, and information technology and procurement procedure) on the dependent variable (effective inventory management practice).

Gujarati (1995) defines regression as follows

$$\mathbf{Y=\beta0+\beta1X1+\beta2X2+\beta3X3+Bx3+\beta4X4}$$

Where, Y= the dependent variable in the model, X_1 = *Information technology*, X_2 = bureaucratic procurement, X_3, staff proficiency =, X_4 = fund of the hospital

β0= is the constant, **α** represent the coefficient and

ui= is the error term.

ui = Y-β0 – β1X1 +β2X2 +β3X3 + β4X4

Multiple linear regression assumptions were conducted based on Gujarati (1995) and Fidell (2001). Checking goodness of-fit carry significant benefits for the research; because once the model is fitted it is effective in describing the outcome of variables.

Table 3.2 Co linearity Statistics'

Coefficients

Model		Collinearity Statistics	
		Tolerance	VIF
1	FUN	.533	1.876
	BP	.540	1.852
	ITT	.406	2.466
	STPRO	.487	2.054

Multicollinearity; it meant the presence of exact linear relationship between explanatory variables of a regression model. Therefore, independence of independent variables was tested by variance inflation factors and tolerance.

VIF (X_j) = 1/1-R_{ji}^2 Tolerance = 1-R^2, Where Xj= the jith explanatory variables regressed on the other independent variables, Rj^2= the coefficient of determination when the variable Xj regressed on the remaining explanatory variables.

Tolerance and Variance inflation factor (VIF) for independent variables were other methods of testing multi co linearity problem. According to (Keith, 2006), Tolerance (calculated as 1–R2 for each variable) measures the influence of one independent variable on all other independent variables. If the value of tolerance is less than 0.10, it shows that the multiple correlations with other variables were high and there was a possibility of multi co linearity problem in the research.

The other one was the VIF (Variance inflation factor), which is just the inverse of the Tolerance value (1 divided by Tolerance). The VIF is an index of the amount that the variance of each regression coefficient is increased over that with uncorrelated independent variables (Keith, 2006). According to (Keith, 2006; Shieh, 2010), the rule of thumb for a large VIF value is 10. When a predictor variable has a strong linear association with other predictor variables, the associated VIF is large (above 10) and is evidence of multi collinarity problem (Shieh, 2010). Small values for tolerance and large VIF values show the presence of multicollinearity (Keith, 2006).

As of Field (2006), Multicollinearity is not the problem of this model, because VIF of the model approaches to 1.The value of VIF ranges between1.876 to 2.054.The tolerance of the variables ranges between .406 and 0.540.

Normality; one of the linear regression assumption used to the normality of the distribution of residuals at each value of dependent variable. This means the errors are normally distributed and the plot of the values of the residual should be normal curve Keith, (2006). According to Gujarati (1995) ui are independently and normally distributed with mean zero and a common variance α^2 was given as; ui˜IN (0, α^2)The histogram graphically shows how each category (interval) accounts for the proportion of total observations and is more appropriate for large N samples Johns, et al. (1999). In our case, as can be observed in **Figure 4.1 of chapter 4** theoretical assumptions were met. Therefore, our data were normally distributed.

3.11 Description of study variables

The important variables investigated in the research are dependent and independent variables.

Dependent variable is a variable that is affected or explained by another variable. An independent variable is a variable that causes change in another (Sarantakos, 1998).

Dependent variable:

Effective inventory management: defined Effective inventory management practice for this study is defined as the ability to receive inventories with shorter lead time, using computerized record system, optimum utilization of inventories, utilization of storage capacity, and location of store and minimum carrying cost of inventories (AI-Khalil et.al, 2004).

Independent variable

Qualified staff: is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions.

Funding: Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period

Information technology: Information technology is a driving force of any firm as announced and Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold (Carter and Price 2010).

Bureaucratic Procurement Practice: Procurement encompasses the whole process of acquiring property and/or services. It begins when an agency has identified a need and decided on its procurement requirement. Procurement continues through the processes of risk assessment, seeking and evaluating alternative solutions, contract award, delivery of and payment for the property and/or services and, where relevant, the ongoing management of a contract and consideration of options related to the contract. Procurement also extends to the ultimate disposal of property at the end of its useful life (Waters, 2004).

3.11 Ethical consideration

In data collection appropriate ethical clearance was obtained from SWH. Confidentiality was ensured for the information by not recording the name of the respondent or other identifiers. While conducting the research, respondents was informed that the data collection process was carried out whenever they were willing to cooperate. In addition to this, any information collected via the instrument would never be used for any other purpose other than its academic intent i.e. the data would be kept confidential. They were also made to know that before it is publicized, the researcher will provide them the copy of the publication.

CHAPTER FOUR

4 RESULT PRESENTETION AND ANALYSIS

This chapter presents the data analysis, results, and interpretation of the findings. The findings are based on data collected by the use of questionnaire and key informant interview so as to assess determinants of effective inventory management at Seka Chekorsa hospital. The analysis is performed around the objectives for this study; however, other relevant details are added for better presentation of findings.

Response Rate

Out of the 120 questionnaires that were distributed 117 questionnaires were filled and returned successfully. This represents a response rate of 97.5% which was considered sufficient for making generalization of Seka Chekorsa hospital. This response is consistent with the response rate that was obtained by Waithaka (2012) who concluded that a response rate of 87 percent of a sample is sufficient in making generalization for the whole population. According to Mugenda and Mugenda (1999) this represents response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was considered to be sufficient.

Demographic Profile of Respondents

The following table summarizes the demographic profile of respondents by sex, age, marital and educational status of respondents. This aspect of analysis deals with personal data of respondents. Table 4.1 below shows the details of background information of respondents in tabular form.

Table 4.1 Demographic Characteristics of the Respondent

Item	Demographics	Frequency	Per cent
Sex	Male	74	63.2
	Female	43	36.8
Age	21-30	36	30.8
	31-40	73	62.4
	41-50	8	6.8
Educational background	Certificate	7	6.0
	Diploma	31	26.5

	First Degree	76	65.0
	Second Degree	3	2.6
Service year of respondents	<1year	5	4.2
	1-3years	15	12.8
	4-6 years	25	21.3
	7-9 years	45	38.4
	10 years & above	27	23.07
Marital status of respondents	Single	36	30.8
	Married	80	68.4
	Widowed	1	0.9
Department of the respondents work in	Finance	12	10.3
	Pharmacy	9	7.7
	Store man	10	8.5
	Human resource	10	8.5
	Laboratory	10	8.5
	Procurement & supply	10	8.5
Total		**117**	**100**

Source: Researcher's own Survey data, 2019

The above *table 4.1*: presents the background information of the respondent such as sex, age and educational qualification of the respondents. Accordingly, 74 (63.2) and 43 (36.8) of the respondents were male and female respectively. This shows the sample distribution is more dominated by males. As the same table depicts the majority of the respondents 36(30.8%) of them are between the age of 21-30 years, 73(62.4%) are between the age of 31-40 years and the remaining 8(6.8%) are between the age of 41-50 years. On the same table above educational levels of the respondents were presented. In this regard 7(6.0%), 31(26.5%), 76(65.0), are Certificate, Diploma and Degree holders respectively while educational background of the remaining 3(2.6%) are 2nd degree holders. This means that majority of those working in the organization had attained education up to university level and had gained rich information and they were conversant with the process, therefore they were appropriate for responding to our study questions.

Respondents of the questionnaire served the hospital for different period of time as per the result depicted in the table above. From the total respondents, 5(4.2%) of them are with the hospital for 1years and below, 15(12.8%) fall in between one to three years of service, 25(21.3%) are with the hospital for four to six years, 45(38.4%) are between seven to nine years and the remaining 27(23.03%) are in service of the hospital for above ten years. It is possible to state that majority of the respondents are with the hospital for a long period of time which means they know the hospital very well from which it is possible to get the required information for the study.

The study also examines the marital status of respondents and it has been presented in the above table shows marital status of respondents is such that 36(30.8%) are single, 80(68.4) respondents are married and only 1 respondents (0.9%) are widowed. This information indicates that majority of the respondents are married and assumed to lead families. On the same table above unit of the hospital respondents are working were presented. In this regard 12(10.3%), 9(7.7%), 10(8.5%), 10(8.5% 10(8.5%), 10(8.5%) 33(28.2%), 10(8.5%), 13(11.1) are Finance, Pharmacy, Store man, Human resource, Laboratory, Procurement and supply, Nurses , Midwifery and supportive staff respectively. This shows that the respondents comes from different unit of the hospital which is better to get full information

4.1 Descriptive Analysis of the study

Employees' responses for determinants of effective inventory management.

This section provides response of the employees to statements that assess the determinants of effective inventory management at Seka Chekorsa Hospital in light of the four independent variables and one dependent variable. These responses were analyzed and presented in detail. Responses of employees were measured on five point of likert scale with scales as 1= strongly agree; 2= Agree; 3=Not sure; 4= Dis agree; and 5 = Strongly Dis Agree

4.4.1. Employees Level of Agreement on Effect of Staff Knowledge and Skill on Effective Inventory Management At Seka Chekorsa Hospital.

Table 4.2 Response on influence of STAFF relationship

	Statements	SA	A	NS	D	SD	Statistics		
		%	%	%	%	%	N	Mean	Std. D
1	Staff skills on inventory management affect effectiveness of inventory management practice	35.9	41.9	6.0	10.3	6.0	117	3.91	1.17
2	Pre-employment training on inventory management can reduce losses associated with wastage	33.3	43.6	2.6	12.8	7.7	117	3.82	1.24
3	Qualified staff that is competent and skilled helps the hospital to achieve its goals and objectives by being efficient and effective in inventory management	38.5	39.3	2.6	13.7	6.0	117	3.90	1.22
4	Continuous training for the staff on inventory management can minimize shortages associated with inventory	39.3	37.6	2.6	13.7	6.8	117	3.88	1.25
5	Competent and qualified employees helps to minimize cost of inventory management	35.0	38.5	6.0	12.8	7.7	117	3.80	1.26

Source: Researcher's own Survey data, 2020

As illustrated in the table 4.2, concerning the statement, knowledge and skill of the staff can determine the effective inventory management of the hospital, 77.8% of the respondents revealed that responded positively to the statements. Only 16.0% of the respondents had responded negatively to the statements. The other 6.0 % think that they were not sure to the statement. The responses of the respondents show that skill and knowledge of the staff can influence the effectiveness of the inventory management.

Similarly, to the second statement that asks "if Pre-employment training on inventory management can reduce losses associated with wastage", large number of respondents about 76.9% demonstrated their agreement to the statement and about 2.6% of respondents are not sure and the remaining 20.5% of respondents are responded negatively to the statements. From this result it is inferred

that pre-employment training can reduce wastage of materials associated with effective inventory management.

Regarding to the statement, "qualified man power on inventory management can influence effective inventory management of the hospital," the table above illustrates that 77.8%, of the respondents responded positively to the statements to the statement qualified man power on inventory management can influence effective inventory management of the hospital. On the other hand 19.7% of the respondent responded negatively to the statements and 2.6% were not sure. This result implies that the qualified man power on inventory management can influence the effectiveness of inventory management.

On same table the statement which asked respondents to identify their level of agreement on-continuous training for the staff on inventory management can minimize shortages associated with inventory was forwarded to participants in the sample. To this statement also large portion of respondents about 76.9% of them responded positively to the statements. On the contrary, only 20.5% responded negatively to the statements and 2.6%of respondent were replied not sure. From this result it is possible to conclude that continuous training on inventory management can influence effective inventory management by reducing shortage costs associated with inventory.

Finally regard to the statement about ''Competent and qualified employees helps to minimize cost of inventory management, 73.5% of the respondents responded positively to the statements, 6.0%of respondent were neither positive nor negative to the statements. Finally 19.7% respondents indicated negative response to the statements Since majority of the respondents agreed with the statement, it implies that Competent and qualified employees helps to minimize cost of inventory management, therefore the organization should ensure the competency of employee to minimization cost of inventory management. In conclusion the findings with regard to effect of knowledge and skill of the staff on effective inventory management, majority of respondents had positive perception or more than half of the respondent agreed or strongly agreed to the statements.

In conclusion the findings with regard to influence of knowledge and skill of the staff on effective inventory management; majority of respondents had positive perception and all interviewee agree with the same idea.

During interview as administrative director and process owner founded that on educational qualification of the employee the result shows that the employee has educational qualification of certificate and above but no one has directly related educational qualification to inventory

management.so, the unrelated educational qualification has negative impact on the effectiveness of inventory management

Therefore, from this finding it can be inferred that there is fundamental relationship between knowledge and skill of the staff and effective inventory management.

4.4.2 Employees' Level of Agreement on Effect of Bureaucratic Procurement Process on Effective Inventory Management

Table 4.3 Response on influence of BUROEUCRATIC PROCUREMENT PROCESS

	Statements	SA	A	NS	D	SD	Statistics		
		%	%	%	%	%	N	Mean	Std. D
1	adequate procurement process has led to minimization of losses associated with wastage in inventories	33.3	41.9	6.0	12.8	6.0	117	3.8376	1.19595
2	Efficient documentation of suppliers can minimize stock out costs.	38.5	39.3	-	7.7	14.5	117	3.794	1.40528
3	Adequate procurement process has led to minimization of supplier cost in hospital	28.8	46.2	6.8	11.4	6.8	117	3.709	1.39618
4	Long Procurement procedures on inventory affect effectiveness of inventory management practice at SWH	35.0	38.4	2.6	10.3	13.7	117	3.7094	1.39618
5	Inflexible bureaucratic systems of procurement contribute to poor health care delivery.	29.9	31.6	11.1	7.7	19.7	117	3.4444	1.48234

Source: Researcher's own Survey data, 2020

Concerning statement Inventory order size determination affect health care service delivery in SCH adequate procurement process has led to minimization of losses associated with wastage in inventories. The table 4.3indicates that 75.2%, of the respondents had responded positively and the

other 18.8% respondents had responded negatively to that adequate procurement process has led to minimization of losses associated with wastage in inventories. But the rest 6.0% did not sure about the statement. This result implies that adequate procurement process was led to minimization of losses associated with effective inventory management.

As illustrated in the table 4.3 above, regarding the statement, "Efficient documentation of suppliers can minimize stock out costs associated with effective inventory management", 77.8% of the respondents had responded positively and the other 22.2% of the respondents had responded negatively. This result implies that efficient documentation of suppliers can minimize stock out costs associated with effective inventory management.

As illustrated in the table above, regarding the statement, "Adequate procurement process has led to minimization of supplier cost in hospital'', 75% of respondents had responded positively to the statement. However, only 18.2 % of the respondents had negative responses to the statement, yet the rest 6.8% of them kept unsure about the statement. Since majority of the respondents responded positively to the statements, it implies that adequate procurement process has led to minimization of supplier cost in hospital.

With regard to the statement which respondents asked the effect of Long Procurement procedures on inventory affect effectiveness of inventory management at Seka Chekorsa Hospital, they replied with 73.4% of the respondent had responded positively that and 24% responded negatively and the rest 2.6% not sure about the statement . From this result it is possible to conclude that Long Procurement procedures on inventory an affect healthcare service delivery associated with effective inventory management at Seka Chekorsa Hospital.

Consistently regarding to the last statement, large share of respondents participated in the questionnaire 61.5%,of respondents had responded positively to the statement Inflexible bureaucratic systems of procurement contribute to poor inventory management practice of SWH.

However, only 27.4% of participants indicate their response negative to the statement, yet the rest 11.1% of them kept unsure about the statement. This results show thatInflexible bureaucratic systems of procurement contribute to poor inventory management practice of SWHassociated with effective inventory management. The interview conducted with key informants on the long procedures in procurement have made the purchase of goods and services difficult, as all of them have to follow step by step making the process cumbersome and discouraging, resulting into a lot of inefficiencies and irregularities.

In conclusion the findings with regard to influence of bureaucratic procurement procedure on effective inventory management; majority of respondents had positive perception and all

interviewee agree with the same idea. Therefore, from this finding it can be inferred that there is fundamental relationship between supplier relationship and effective inventory management.

4.4.3 Respondents' Level of Agreement on Influence of Fund on Effective Inventory Management.

Table 4.4 Response on effect of fund

	Statements	**SA**	**A**	**NS**	**D**	**SD**	**Statistics**		
		%	%	%		%	**N**	**Mean**	**Std. D**
1	There should not be lengthy process of budget release for the procurement of inventory in order to make effective inventory management	32.5	32.8	8.5	11.7	14.5	117	3.5299	1.43583
2	Sufficient fund is necessary to maintain sustainable relation with quality suppliers	32.9	40.3	6.8	11.5	8.5	117	3.6838	1.27745
3	Insufficient funding affects the effectiveness of inventory management	34.5	36.8	8.5	11.7	8.5	117	3.7094	1.28694
4	Adequate financing mechanism enhance the reduction of storage costs associated with inventory	40.2	36.8	3.4	7.6	12.0	117	3.8547	1.34719
5	To what extent do you agree that funding on inventory affects effectiveness of inventory management?	34.5	39,3	8.5	10.0	7.7	117	3.7692	1.24142

Concerning statement there should not be lengthy process of budget release for the procurement of inventory in order to make effective inventory management. The table indicates that 65.3% of respondents had responded positively to the statement and 8.5% of respondents indicated not sure with the statement. However, 26.2% of the respondents had responded negatively Since majority of the respondents responded positively with the statement, it implies that funds can be a constraining factor to effective inventory management when funds allocated cannot cater wholly for the organizations material requirements within the budget period.

Regard to the statement about ‘‘Sufficient fund is necessary to maintain sustainable relation with quality suppliers’’ 73.2% of the respondents responded positively to the statements, and 6.8% were neither positive nor negative to the statements. Finally 20 % respondents indicated negative response. Since majority of the respondents responded positively with the statement, it implies that sufficient fund is necessary to maintain sustainable relation with quality suppliers therefore the organization should ensure allocate sufficient fund to maintain sustainable relation with quality suppliers to ensure customer satisfaction.

In the same table the statement `Insufficient funding affects the effectiveness of inventory management` 71.3.0% of the respondents responded positively to the statements and 8.5% were neither positive nor negative to the statements. Finally 20.2% respondents indicated their response negatively. Since majority of the respondents responded positively to the statements, it implies that insufficient funding affects the effectiveness of inventory management therefore the organization should ensure allocate sufficient fund to ensure effectiveness of inventory management

Regard to the statement about which asked respondents to identify their level of agreement on- Adequate financing mechanism enhance the reduction of storage costs associated with inventory was forwarded to participants in the sample. To this statement also large portion of respondents about 77% of them responded positively to the statements. On the contrary, only 19.6% People responded negatively to the statements and 3.4% of respondent were neither positive nor negative to the statements. From this result it is possible to conclude that adequate financing mechanism enhance the reduction of storage costs which is affect effective inventory management.

Finally regard to the statement about which asked respondents to identify their level of agreement onto what extent do you agree that funding on inventory affects effective inventory management about 73.8%of them responded positively to the statements. On the contrary, only 17.7% People responded negatively to the statements and 8.5% of respondent were neither positive nor negative to the statements.. From this result it is possible to conclude that funding on inventory affects health

care delivery service which is affect effective inventory management. Therefore the organization should ensure proper mechanism for allocating funds on health care inventory to ensure effectiveness of inventory management.

The interview conducted with key informants on funding indicated that the allocated budget was not sufficient for the whole inventory management process. Because of this shortage of budget many materials that are very important for inventory management are not fulfilled (such as lack of modernized shelf, lack of store, lack of different modernized software on inventory control and storing materials.

In conclusion the findings with regard to influence of fund on effective inventory management; majority of respondents had positive perception and all interviewee agree with the same idea. Therefore, from this finding it can be inferred that there is fundamental relationship between fund and effective inventory management.

4.4.4 Respondents Levels of Agreement on Influence Of Information Technology On **Effective Inventory Management.**

This study tried to assess feelings of respondents towards effect of information technology on effective inventory management at Seka Chekorsa Hospital.

Table 4.5 Summary of respondents' level of agreement on effect of Information Technology On effective inventory management

	Statements	SA	A	NS	D	SD	Statistics		
		%	%	%	%	%	**N**	**Mean**	**Std. D**
1	Uses of IT enhances minimization of losses associated with waste	31.3	39.3	7.7	12.0	9.7	117	3.7863	1.24450
2	Lack of advance technology or use of manual inventory system will lead to in effective inventory management.	26.5	46.2	7.7	11.1	8.5	117	3.7094	1.21811
3	Use of information technology has boosted effectiveness of inventory management at hospital	50.4	37.6	6	-	14.1	117	4.1624	1.22444

4	Properly recording inventory to overcome overstocking and under Stocking is necessary to make effective inventory management practice in the hospital.	48.4	33.5	2.6	6	9.5	117	4.0940	1.2593
5	Vendor managed inventory system enhance the reduction of stock outs within hospital	34.5	41.2	5.1	6.4	12.8	117	3.7009	1.35357

Source: Researcher's own Survey data, 2020

As illustrated in the *table 4.5* concerning the statement, using IT enhances minimization of losses associated with waste, 70.6% respondents responded positively to the statement. Only 21.7% of the respondents had responded negatively to the statements. The other 7.7% think that they were not sure to the statement. Since majority of the respondents agreed with the statement, it implies that, IT enhance minimization of losses associated with waste, therefore the organization should ensure strict use of the existing information technology, real time data sharing and use of data for decision making and improving ownership as important steps to improve inventory management practice. Key informants pointed that use of quality and real time data for decision making are instrumental for minimizing wastage and reducing the inventory holding costs.

With regard to the statement about Lack of advance technology or use of manual inventory system will lead to in effective inventory management, about72.7.0%responded positively to the statement and only 19.6 % of respondents had responded negatively to the statements and 7.7% are not sure to the given statement. This response indicates that lack of advance technology or manual inventory system increase storage cost.

In the same table the statement `` Use of information technology has boosted effectiveness of inventory management at hospital, 88% of the respondents responded positively to the statement 6 % respondents were neither agreed nor disagreed. Finally 14% of respondents indicated their response negatively with the statement, it implies that Use of technology has boosted customer satisfaction levels at hospital therefore the organization should ensure information technology to customer satisfaction.

Regard to the statement about which asked respondents to identify their level of agreement on- Properly recording inventory to overcome overstocking and under Stocking is necessary to make effective inventory management practice in the hospital was forwarded to participants in the sample. To this statement also large portion of respondents about 81.9% of them responded positively to the statement. On the contrary, only 15.5% People indicated their response negatively

with statement and 2.6% of respondent were replied not sure. From this result it is possible to conclude that Proper recording inventory to overcome overstocking and under Stocking is necessary to make effective inventory management practice in the hospital.

Finally regard to the statement about ‘‘Vendor managed inventory system enhance the reduction of stock outs within hospital``. 75.7% of the respondents responded positively to the statement, and 5.1% were neither agreed nor disagreed. Finally 19.2% of respondents responded negatively with statement, it implies that Vendor managed inventory system enhance the reduction of stock outs within hospital, therefore the organization should ensure the Vendor managed inventory system.

The interview conducted with key informants on ICT of the organization revealed that the document handling system of the organization was manual and not supported by modernized technologies and soft wares on inventory management PPMS (Property management system) software is not installed or implemented in the organization and it affects negatively the effectiveness of effective inventory management practice at SWH.

In conclusion the findings with regard to influence of Information Technology on effective inventory management; majority of respondents had positive perception and all interviewee agree with the same idea. Therefore, from this finding it can be inferred that there is fundamental relationship between Information Technology and effective inventory management

4.4.5 Respondents Agreement On Determinants Of Effective Inventory Management Practice

Table4.6. Response on effective inventory management

	Statements	SA	A	NS	D	SD	Statistics		
		%	%	%	%	%	N	Mean	Std. D
1	Inventory management system of the hospital could not controlled problems associated with stock out.	33.3	39.9	6.0	14.8	6.0	117	3.8376	1.19595
2	Losses associated with waste could not controlled by hospital inventory management.	38.1	39.4	-	7.7	14.5	117	3.7949	1.40528
3	Daily checking and inspecting stock was not carried out prior to inventory placement.	30.2	46.2	6.8	10.0	6.8	117	3.7692	1.18456
4	The hospital Inventory management has problems to provide materials with required quality at the level of customer demand.	36.0	39.4	2.6	10.3	11.7	117	3.7094	1.39618

Source: Researcher's own Survey data, 2020

As illustrated in the *table 4.6* concerning the statement that asks respondents to identify their level of agreement on "Inventory management system of the hospital could not controlled problems associated with stock out,'' to this statement also large portion of respondents about 73.2% of them had positive responses to the statement, On the contrary, only 20.8% had negative response with statement and 6.0% of respondent were replied not sure. From this result it is possible to conclude that inventory management system of the hospital could not controlled stock out cost which minimizes the quality of effective inventory management.

Similarly regarding to the statement, "Losses associated with waste, could not controlled by inventory management could not controlled by inventory management of the hospital" table 4.7 indicates that, 77.8%, of the respondents had positive responses to the statement and Only 22.2% of respondents had negative response with statement Losses associated with waste, could not control by inventory management. This implies that inventory management of the hospital could not controlled losses which can influence the effective inventory management.

Regarding to the statement, "Daily checking and inspecting stock was not carried out prior to inventory placement to identify problems associated with inventory,'' the table above illustrates that 76.4.0%, of the respondents had positive responses to the statement daily checking and inspecting stock was not carried out prior to inventory placement to identify problems associated with inventory. On the other hand 16.8% of the respondent had negative response on this statement and 6.8% were not sure. This result implies that daily checking and inspecting stock was carried out prior to inventory placement can improve the effectiveness of inventory management.

Finally concerning to the last statement which asked respondents ''Inventory management of the hospital has problems to provide materials with required quality at the level of customer demand'' was forwarded to participants in the sample. To this statement also large portion of respondents about 75.4% of them had positive responses to the statement. On the contrary, 22.0% of respondents had negative response on this statement and 2.6 % of respondent were replied not sure from this result it is possible to conclude that providing materials with required quality at the level of customer demand is the problem of hospital inventory management which shows that there is a problem of effective inventory management.

In conclusion the findings with regard to determinants of effective inventory management practice and performance of Seka Chekorsa Hospital shows that; unable to control losses associated with inventory management, lack of Daily checking and inspecting stock, unable to Control problems

associated with stock out and Problems with providing materials with required quality at the level of customer demand are the main problems which reflects lack of quality for inventory management of the hospital.

In this study was comparable with the study done in China the Analysis of inventory Management in the China enterprises reveals that, in order organizations to maintain exuberant competitive advantages and higher profitability, they need to pay more attention on stocks control system. He adds that organizations need to adopt effective stocks control methods in their internal control system and implement scientific stocks control ways (Pallangyo,2014).

Therefore; Seka Chekorsa Hospital should concentrate on improving the determinant factors for effective inventory management practice so as to improve its performance identified in this finding and reforming all the recommendations described at the end of this study from the finding of this study

Inferential Analysis

Correlation Result

According to Wajahat (2010), before the start of regression analysis it is important to check the correlation test between dependent variable and independent variables. The Pearson correlation scale ranges from -1 to +1, any value greater than zero indicates a positive direct relationship between the two variables, which implies that every increase in the independent variable will lead to the increase in Dependent variable, while any value less than zero indicates a negative indirect relationship between two variables, that means that every increase in the independent variable will-lead to the decrease on the dependent variable (Hafiz, 2007).so that the researcher use Pearson correlation to measure the degree of linear relationship between the independent and dependent variable. The correlation result of the study discussed on the below table.

Table; 4:7 Pearson correlation coefficients analyses result.

Correlation

		Eff	BP	FUN	STPRO	ITT
SD	Pearson Correlation	1	.668**	.369**	.453**	.704**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	117	117	117	117	117
BP	Pearson Correlation	.668**	1	.321**	.430**	.673**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	117	117	117	117	117
FUN	Pearson Correlation	.369**	.321**	1	.653**	.537**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	117	117	117	117	117
STPRO	Pearson Correlation	.453**	.430**	.653**	1	.592**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	117	117	117	117	117
ITT	Pearson Correlation	.704**	.673**	.537**	.592**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	117	117	117	117	117

**. Correlation is significant at the 0.01 level (2-tailed).

The *table 4.7*, Depicts the level of associations in between variables. Accordingly, there is significant relationship in between Information technology and determinants of Effective inventory management (r= .704, N= 117, p < 0.001), there is significant relationship in between Fund of the hospital and determinants Effective inventory management (r= .369, N= 117,p < 0.001), there is significant relationship in between bureaucratic procurement process and determinants of Effective

inventory management (r= .668, N= 117,p < 0.001), and there is significant relationship in between knowledge of staff and Effective inventory management

(r= .453, N= 117, p < 0.001). Thus, it is evident that the dependent variable (Determinants of Effective inventory management and Effective inventory management) was influenced positively by all the four independent variables.

4.5.2. Multiple linear Regression Assumptions

4.5.2.1. Co linearity Statistics

Table 4.8 Co linearity Statistics'

Coefficients

Model		Co linearity Statistics	
		Tolerance	VIF
1	FUN	.533	1.876
	BP	.540	1.852
	ITT	.406	2.463
	STPRO	.487	2.054

a. Dependent Variable: eff inv.

Source: Researcher's own Survey data, (2020)

Tolerance and Variance inflation factor (VIF) for independent variables were other methods of testing multi co linearity problem. According to (Keith, 2006), Tolerance (calculated as 1–R2 for each variable) measures the influence of one independent variable on all other independent variables. If the value of tolerance is less than 0.10, it shows that the multiple correlations with other variables were high and there was a possibility of multi co linearity problem in the research.

The other one was the VIF (Variance inflation factor), which is just the inverse of the Tolerance value (1 divided by Tolerance). The VIF is an index of the amount that the variance of each regression coefficient is increased over that with uncorrelated independent variables (Keith, 2006). According to (Keith, 2006; Shieh, 2010), the rule of thumb for a large VIF value is 10. When a predictor variable has a strong linear association with other predictor variables, the associated VIF is large (above 10) and is evidence of multi **Co linearity** problem (Shieh, 2010). Small values for tolerance and large VIF values show the presence of multi co linearity (Keith, 2006).

As it was depicted table 4.9 above, the tolerance value for each independent variable was above 0.10 and the VIF value for each independent variable was below 10. Therefore, the tolerance and

VIF test methods of testing the multi co linearity of the study showed as there was no multi co linearity problem in this study.

Normality Test

Normality assumption is around the mean of the residuals is zero and used to determine whether a data set is well modeled by a normal distribution or not and also to indicate un underlying random variable is to be normally distributed (Gujarati.2009). There the researcher was used histogram methods of testing the normality of the data. If the residuals are normally distributed about its mean of zero, the shape of histogram should be a bell-shaped and regression standardized residual plotted between -3.3 and 3.3. From the figure below data normality can be indicated

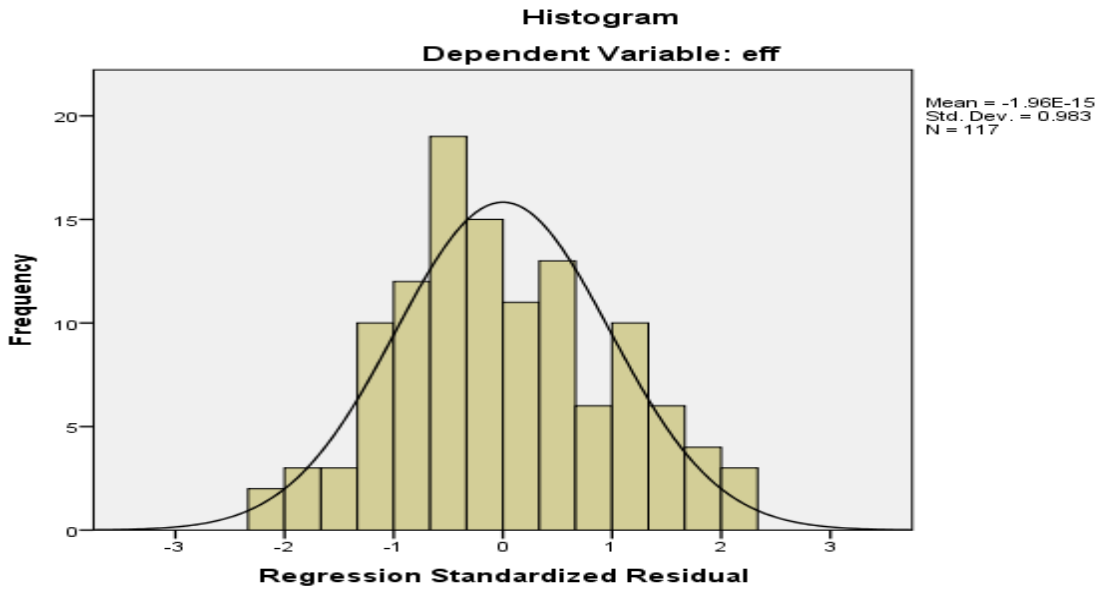


Figure 4.1 Histograms that shows Normality test

Source: SPSS output data, 2020

4.5.3 Heteroscedasticity test Heteroscedasticity is the equality or violation of the residuals for every set of values for independent variable. So the researchers assume that errors are spread out constantly between the variables. Heteroscedasticity problem exist when scatter plot is greater than 3.3 and less than 3.3. Therefore, as it was indicated in figure 4 below the data did not violate

Heteroscedasticity assumption and instead it was homoscedastic.

Figure 4.2: Scatter plot Heteroscedasticity test result

Source; Survey result, 2020

4.5.4 Model Summary

After the model assumption was checked presentation and interpretation of the analysis output is mandatory. The prediction or estimation of the value one variable (the dependent or the predicted variable; called as Y from one or more independent or predictor variables (called as X) (Keith, 2006).

Table 4.9: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.840[a]	.706	.696	.51240

a. Predictors: (Constant), qualified staff ,funding, information technology, bureaucratic procurement

b. Dependent Variable effective inventory management

Source; Survey result, 2020

The above table show that R value is 0.840 which indicates there is a positive relationship between effective inventory management and independent variables namely; qualified staff, funding, information technology and bureaucratic procurement. In the model summary adjusted R square tells us the goodness fit of the model and its value which is 0.706 means the four all independent

variables are able to measure/predict effective inventory management at 69.6 (0.696x100) percent. The marginal value provides the impact that unit changes in the individual independent variable have on effective inventory management when all other variables are held constant.

The model summary explains the extent to which change in the dependent variable can be explained by the change in the independent variables or percentage of variation in the dependent variable (effective inventory management) that is explained by all the four independent variables(staff proficiency , bureaucratic procurement, Information Technology and funding).the four independent variables that where studied, explain 69.6% of the health care service delivery of the company as represented by adjusted R2.This implies that other factors not studied in this research contribute 31.4% on Effective inventory management. In other words The model summary explains the extent to which change in the dependent variable can be explained by the change in the independent variables or percentage of variation in the dependent variable (determinants of effective inventory management) that is explained by all the four independent variables, bureaucratic procurement process, fund of the hospital, knowledge and skill of the staff and Information technology). The four independent variables that are studied and explain 69.6% of the determinants of effective inventory management of the company as represented by adjusted R2. This implies that other factors not studied in this research contribute 30.49% on effectiveness of inventory management. The marginal value provides the impact that unit changes in the individual independent variable have on effective inventory management when all other variables are held constant.

4.5.5 ANOVA

Table 4.10: ANOVA

ANOVA[s]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	56.563	4	14.141	143.528	.000[b]
	Residual	11.034	112	.099		
	Total	67.597	116			

a. Dependent Variable: effe. Inv. Man.

b. Predictors: (Constant), STPRO, BP, FUN, ITT

Source: Researcher's own Survey data, 2020

As indicated in table4. 10 the total sum of square (67.597) is equal to the sum of explained sum of square (56.563) and residual sum of squares (11.034). The study of these total sum squares is known as analysis of variance (ANOVA) from regression point of view. To assess the statistical significance of the result, it is necessary to look in the table labeled ANOVA. The ANOVA table

indicates the model as a whole is reasonably fit and significant association between independent variables and effective inventory management. This means the value of F is 14.141 (mean square of regression divided by mean square of residual), and it is significant at p value 0.000 ($p<0.05$). It can be calculated that this dimensions have significant impact on effective inventory management in SEKA CHEKORSA HOSPITAL. The beta coefficient was indicated as the following table.

4.5.6 Coefficients of determination

Table 4.11: coefficients of determination

Table 11: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.046	.426		7.141	.000		
	FUN	.025	.440	.424	1.474	.043	.533	1.876
	BP	.065	.430	.487	1.338	.024	.540	1.852
	ITT	.129	.400	.580	4.600	.001	.406	2.463
	STPRO	.058	.320	.279	1.764	.037	.487	2.054

a. Dependent Variable: eff. inv. man.

Source :(Own survey, 2019)

**** Significant p<.05%, p<.01**

The coefficient table depicts that the significant regression coefficients, such as information technology bureaucratic procurement, staff knowledge and skill and funds of hospitals all are significant at p=0.05. This significance level tells us that those variables uniquely contribute to the regression equation thereby making a significant contribution to the prediction.

From the finding in the above table 4.11 the established regression equation was

$Y = \beta O + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4$

$Y= 0.046+ 0.129X1 + 0.065 X2 + 0.058X3 + 0.025X4$

This means:

Y = 0.046 + 0.129Information technology + 0.065 bureaucratic procurement + 0.058 staff proficiency + 0.025 fund of the hospital.

From the above model, holding staff proficiency, bureaucratic procurement, Information technology and funding support to a constant zero health service delivery would be at 0.046. It was established that a unit increase in staff proficiency would cause an increase in effectiveness of inventory management practice by a factor of 0.058. While a unit increase in bureaucratic procurement practice also cause an increase in effectiveness of inventory management practice by a factor of 0.065 and further unit increase in, Information technology would cause an increase in effectiveness of inventory management practice by a factor of 0.129 and an increase in funding would lead to increase in effectiveness of inventory management practice by factors of0.025. All the significant values were found less than 0.05

The dependent (Y) and independent (X) variables relationship can be explained as;

$Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4e$, where $\beta0$ is constant, βn is the coefficient of independent variables (Satendraet, 2011). The researcher was used UN standardized beta coefficients to compare or prioritize the effect of independent variables on independent variable and to construct regression equation. If we substitute the coefficient from the above table, the equation becomes = 0.046+ 0.129X1 + 0.065 X2 + 0.058X3 + 0.025X4

This means:

Y = 0.046 + 0.129Information technology + 0.065 bureaucratic procurement + 0.058 staff proficiency + 0.025 fund of

Effective inventory management = 0.046+ (0.129) Information technology + (0.065) bureaucratic procurement + (0.058) staff proficiency + (0.025) fund of hospitals. From this we can understand that the marginal values provide the impact that a unit change in the individual independent variables has on different effective inventory management when other variables are held constant

4.6 Discussion of the finding/model interpretation

Linear multiple regression was performed to test the spotted independent variables to answer the research questions based on the research problem and objectives. All the four independent variables included in analysis were significantly affecting effective inventory management. All the significance values were found to affect effective inventory management significantly at less than 0.05 probability levels. These were qualified staff, funding, information technology and bureaucratic procurement. Each of them were evaluated and presented as follows

4.6.1 QUALIFIED STAFF: is competent and skilled will help the organization to achieve its goals and objectives by being efficient and effective when carrying out their various functions. The model result showed that qualified staff has positively and significantly affect the effective inventory

management practice of the organization at less than 5% significant level and beta value of 0.058. More ever the beta value implies that an increase in well trained qualified staff by one unit leads to an increase in effectiveness of inventory management by 0.058 unit. There for the organization should employee qualified employees to increase effectiveness of inventory management practice. The research carried out by Bailey and Farmer (1982 agrees with this finding say that, if staff involved in stock control is not qualified and competent, then there will be ineffectiveness in inventory control.

4.6.2 FUNDING: Funds can be a constraining factor to effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. The model result showed that funding. The model result showed that funding has positively and significantly affect the effective inventory management practice of the organization at less than 5% significant level and beta value of 0.025. More ever the beta value implies that an increase in funding by one unit leads to an increase in effectiveness of inventory management by 0.025 unit. This finding was consistent with (Dobler et al. 2000). According to Dobler et al (2000), funds can be a constraining factor for effective inventory control when funds allocated cannot cater wholly for the organizations material requirements within the budget period. Resources lead to a better organizational commitment and also overcome organizational obstacles. Sufficient resources also lead to organizational implementation success and project implementation success the stature of financial management in the organization can affect adversely its effectiveness and in the finance resource application in various activities.

4.6.3. INFORMATION TECHNOLOGIESIS a driving force of any firm as announced and Computers are the key tools of ICT which aids in stock control by ensuring that user requirements are satisfied through computation of the perfect number of stock to dispatch and stock to hold. (Carter and Price 2010).The model result show that has a positive and significant effect on effective inventory management practice of the organization at p value ≤ 0.05 and beta value of 0.129The beta value implies that an improvement in information technology by one unit will increase the effectiveness of inventory management practice by 0.129.These finding agrees with findings of Chaffy & Wood (2005), who found that effectiveness of an inventory management system depends on the quality of information it takes in and the capacity of the organization information technology (IT)

4.6.4. **BUREAUCRATIC SYSTEMS OF PROCUREMENT**. The study sought to establish the extent to which respondents agreed with the above statements, from the study findings, majority of

the respondents agreed that inflexible and bureaucratic systems of procurement contribute effective inventory management practice of the organization at p value ≤0.05 and beta value of 0.065 The beta value implies that an improvement procurement process, by one unit will increase the effectiveness of inventory management practice by0.065. The above findings concurs with the findings by (Kenneth, 2005) according to Kenneth (2005), bureaucracy expects conformity in behavior rather than performance since employees are treated impersonality and they are expected to rely on rules and policies, they are unwilling to experience individual judgment and avoid risks.

4.7 Summary of findings

The major findings from this study showed that Information technology and bureaucratic procurement process affects had the highest influence in effective inventory management practice and hospitals performance in Seka Chekorsa hospital β value 0.129 and 0.065 and significance level 0.001, 0.002 respectively.

The major findings from these study findings agree with literature review by Helfat, C. and Peteraf (2007). Who suggested that the use of ICT is a strategic communication tool that improves the organization's competitiveness, allowing cost reduction and permitting the company's effectiveness Information technology succeeds the best when all the different factors have been taken into account.

The major findings from this study also showed that Bureaucratic procurement process had an influenced on effectiveness of inventory management β value of 0.065 and significance level of 0.024 and This is in line with literature review mentioned by Iloranta (2008) who observed that effective supplier relationship can make the procurement process more cost and time efficient. And also this is in line with literature review mentioned by Iloranta (2008) who observed that effective supplier relationship can make the procurement process more cost and time efficient.

The study further found out that knowledge and skill of the staff will help the organization to achieve its goals and objectives. The major findings from this study showed that also knowledge and skill of the staff influenced effectiveness of inventory management β value of 0.058and significance level of 0.037 and therefore, knowledge and skill of the staff affects effective inventory management if not taken into account during implementation of tasks. And also this is in agreement with literature review by Ejughemre (2013) argue that for the Company's function to achieve a superior supply performance, it is necessary to recruit, train and develop personnel with the capacity and motivation to do better work.

Similarly fund of the hospital can also influence Effective inventory management β value 0.025 and significance level of 0.04.This finding also agreed with the research conducted by with literature review Schieber and Akiko (2010) who established that health project financing is a key determinant of health project performance in terms of equity, efficiency, and quality which affects effective inventory management if not taken into account during implementation of project.

From the findings in the questionnaire provided for Respondents' to know their Level of Agreement on Influence of Fund on Effective Inventory Management.; majority of respondents had positive perception and all interviewee agree with the same idea. Therefore, from this finding it can be inferred that there is fundamental relationship between fund and effective inventory management.

CHAPTER FIVE

5 SUMMERY, CONCLUSIONS AND RECOMMENDATIONS

Based on result presentation and analyzed and interpreted in chapter four of the study, the following summary, conclusions and recommendations/suggestion are made.

5.1 Summary of Findings

This thesis aimed at investigating the determinant of effective inventory management at Seka Chekorsa hospital. Respondents of different unit of the hospital were participated on the study. These include: Pharmacy, nurses, midwifery, laboratory technician, human resource, Procurement and supply, store keepers, Supportive staff and employee in finance. The dependent variable is effective inventory management whereas the independent variable includes: Information technology, bureaucratic procurement process, knowledge and skill of the staff and fund of the hospital. Accordingly, there is an association between independent variable and dependent variables, in which the magnitude of association are strong.

The major findings from this study showed that Information technology and bureaucratic procurement process affects had the highest influence in effective inventory management practice and hospitals performance in Seka Chekorsa hospital β value 0.129 and 0.065 and significance level 0.001, 0.024 respectively.

The major findings from these study findings agree with literature review by Helfat, C. and Peteraf (2007). Who suggested that the use of ICT is a strategic communication tool that improves the organization's competitiveness, allowing cost reduction and permitting the company's effectiveness Information technology succeeds the best when all the different factors have been taken into account.

The major findings from this study also showed that Bureaucratic procurement process had an influenced on effectiveness of inventory management β value of 0.065 and significance level of 0.024 and This is in line with literature review mentioned by Iloranta (2008) who observed that effective supplier relationship can make the procurement process more cost and time efficient. And also this is in line with literature review mentioned by Iloranta (2008) who observed that effective supplier relationship can make the procurement process more cost and time efficient.

The study further found out that knowledge and skill of the staff will help the organization to achieve its goals and objectives. The major findings from this study showed that also knowledge

and skill of the staff influenced effectiveness of inventory management β value of 0.058and significance level of 0.037 and therefore, knowledge and skill of the staff affects effective inventory management if not taken into account during implementation of tasks. And also this is in agreement with literature review by Ejughemre (2013) argue that for the Company's function to achieve a superior supply performance, it is necessary to recruit, train and develop personnel with the capacity and motivation to do better work.

Similarly fund of the hospital can also influence Effective inventory management β value 0.025 and significance level of 0.04.This finding also agreed with the research conducted by with literature review Schieber and Akiko (2010) who established that health project financing is a key determinant of health project performance in terms of equity, efficiency, and quality which affects effective inventory management if not taken into account during implementation of project.

From the findings in the questionnaire provided for Respondents' to know their Level of Agreement on Influence of Fund on Effective Inventory Management.; majority of respondents had positive perception and all interviewee agree with the same idea. Therefore, from this finding it can be inferred that there is fundamental relationship between fund and effective inventory management.

As per the output of regression analysis made to depict all variable are determinant factor of effective inventory management, it is, Information technology, bureaucratic procurement, knowledge and skill of the staff and fund of the hospital which could determine effective inventory management chronologically.

5.2 Conclusion

During the investigation the researcher used both descriptive and inferential statistics and based on the findings made the research project to an end by outlining the following classic conclusion

In relation to the objective of the study, which was to examine the determinants of effective inventory management in Seka Chekorsa hospital perception of respondents towards four determinant factors, namely; Information technology, bureaucratic procurement, fund of the hospital and knowledge and skill of the staff the following are the major conclusions.

This study revealed that all independent variable (information technology, bureaucratic procurement, fund of the hospital and knowledge and skill of the staff) can determine the Dependent variable (effectiveness of inventory management), is perceived as positively by majority of the respondents

The correlation result displayed that, the four factors affecting effectiveness of inventory management practice (Information technology, bureaucratic procurement, fund of the hospital and knowledge and skill of the staff were positively core related to effectiveness of inventory management and organizational performance. Therefore, from these quantitative results it can be infer all independent variables strongly and significantly correlated to dependent variable (effective inventory management) in Seka Chekorsa hospital.

Regression finding further show that, Information technology at β value 0.129 and followed by bureaucratic procurement at β value.0.065, Knowledge and skill of the staff at β value.0.058 and fund of the hospital at β value 0.025 respectively. Therefore, from these quantitative results it can be deduced all independent variables strongly and significantly determine to dependent variable (effectiveness of inventory management) in Seka Chekorsa hospital.

Therefore, The Hospital should concentrate on improving the determinant factors of effective inventory management identified in this finding in order to improve its performance.

In short

- ✓ The study reveals that if staff involved in inventory management is not qualified and competent, then there will be ineffectiveness in inventory control. Therefore, to achieve a superior performance, it's necessary to recruit, train and develop personnel with the capacity and motivation to do better job, thus the study concluded that the skills possessed by staff had a positive effect on the effectiveness of inventory management practice.
- ✓ Absence of sufficient and timely dispatch of funds results in failure to achieve the planed goals, under stocking of inventories, poor utilization of both human and physical resources. The availability of sufficient resource leads to a better organizational commitment and also ability to overcome obstacles
- ✓ As indicate from regression analysis It can be concluded that information technology affected or has influence on the effectiveness of inventory management. The lack of immediate update of inventory records used in stock control leading to inefficiencies in updating previously accumulated documentation work and finally indirect violation of inventory control regulations due to late entry. Failure to have a specific time or date for posting of inventory records greatly affected inventory control.
- ✓ As indicate from regression analysis It can be concluded that long bureaucratic procurement process affected or has influence on the effectiveness of inventory management. The procurement process, documentation and reporting and communication

should be well managed so that inventory management of the hospital service can be improved.

There where long bureaucratic related purchase difficulties experienced in SCH. The long procedures in procurement have made the purchase of goods and services difficult, as all of them have to follow step by step making the process cumbersome and discouraging, resulting into a lot of inefficiencies and irregularities.

Therefore, The Hospital should concentrate on improving the determinant factors of effective inventory management identified in this finding.

5.3 Recommendation

Based on the findings and conclusion, the researcher forwarded the following recommendations.

- The qualified staff is very essential in improving the effectiveness of inventory management so; the organization has to focus on improving the qualification of human resource through training and upgrading.
- The inventory management higher officials have to prepare the plan that improves the shortage of budget and trying to allocate the appropriate budget for inventory management systems.
- For the HOSPITAL OROMIA HELTH BUREAU must allocate sufficient budget the Hospital and management allocating sufficient budget for different department is very essential in making them effectively so it recommended that the hospital has to allocate sufficient budget for inventory management.
- This study also recommends improvement of bureaucratic procurement process which can enhance effective inventory management at Seka Chekorsa hospital. As indicate from regression analysis It can be concluded that long bureaucratic procurement process affected or has influence on the effectiveness of inventory management. The procurement process, documentation and reporting and communication should be well managed so that inventory management of the hospital service can be improved.
- Since this information technology have effect on effectiveness of inventory management of the organization. The organization should find the means by which this problem solved. This may include install or avail the software which work off line thus the documentation problem of the organization can solve.

5.4 Limitation of the study

The study was mainly focused on factors affecting effectiveness of inventory management practice on SEKQ CHEKORSA HOSPITAL. But there might have factors beyond qualified staff, funding, information technology and Bureaucratic procurement procedure that can determine inventory management practice effectiveness. And those factors were not addressed by this study. This study also conducted only in SEKQ CHEKORSA HOSPITAL as a case study so the finding of the study may not fully represent all other organization.

5.5 Future Research Direction

Despite the successes scored during the study, some factors have not been properly accounted for due to its scope. In this regard, the researcher recommends further research in the following areas:

This study was done only on one hospital which is found in Jimma zone Seka Chekorsa woreda, there is need to further the study to include more hospitals in the zone. Secondly more determinants like government clear rules and regulation of public institution need to be considered in further studies to give us more understanding of the determinants of effective inventory management in public hospital. Therefore:-

- Future researcher should investigate other factors that determine effective inventory management practices.
- Future researcher can investigate on factors affecting effectiveness of inventory management practice by taking large sample from different large hospitals.

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APFNDIX 1 RESEARCH QUESTIONARIES

JIMMA UNIVERSITY COLLAGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF MANAGEMENT

SECTION A:
QUESTIONNAIRE FOR STAFF OF SEKA CHEKORSA HOSPITAL

Dear all Subject:
This questionnaire is prepared to collect data from the respondents in order to "the determinants of effective inventory management at Seka Chekorsa Hospital. **"** I am a student of Jimma University College of Business and Economics Department of MBA. First of all I would like to forward my heartfelt gratitude and respect to you for administering this questionnaire honestly and responsibly. The questionnaire is designed to collect the necessary information to undertake a research on '' **the determinants of effective inventory management** at Seka Chekorsa Hospital**. For** the partial fulfillment of the requirement for the degree of Masters in Business administration (MBA). The information that you provide will remain confidential and will be used for the purpose of this research only.

SECTION A: BACK GROUND INFORMATION ON THE RESPONDENT (Please tick, X, in the appropriate Box)

1. Gender ; **A/**Male ☐ **B/** Female ☐
2. Age ;**A/** Less than 20 years ☐ **B**/21 -30 years ☐ **C**/ 31-40 years ☐
   D/41-50 years ☐ **E**/ 51 years & above ☐
3. Marital Status: **A/** married ☐ **B/**Single ☐ **C**/ Separated ☐ **E/**Divorced ☐
4. Educational status;**A** / Certificate ☐ **B** /. Diploma ☐ **C**/1st Degree ☐
   D /Master's degree ☐ other please specify……
5. Which unit of the hospital do you work ; A/ Pharmacy ☐ B / Laboratory ☐
   C / nurse ☐ other, please specify……:
6. Current position: **A** / Management ☐ **B**/ senior staff ☐ **C**/ Junior staff ☐
7. Years of Service; **A**/ Less than 1 years ☐ **B** / 1 – 3 years ☐

C / 4 – 6 years ☐ **D /** 7 – 9 years ☐ **E /** 10 years and above ☐

SECTION (B): DETERNINANTS OF EFFECTIVE INVENTORY MANAGEMENT

Use the key below answering the following questions: Apply a tick, X, where applicable using the follow SA – Strongly Agree,

A – Agree ,

NS – Not Sure,

D – Disagree

SD – Strongly disagree

No.	**A. Information Communication & Technology**	1 SD	2 D	3 NS	4 A	5 SA
1	Uses of IT enhances minimization of losses associated with waste					
2	Lack of advance technology or use of manual inventory system will lead to in effective inventory management.					
3	Use of information technology has boosted effectiveness of inventory management at hospital					
4	Properly recording inventory to overcome overstocking and under Stocking is necessary to make effective inventory management practice in the hospital.					
5	Vendor managed inventory system enhance the reduction of stock outs within hospital					
	B. Bureaucratic procurement	1 SD	2 D	3 NS	4 A	5 SA
1	adequate procurement process has led to minimization of losses associated with wastage in inventories					
2	Efficient documentation of suppliers can minimize stock out costs.					
3	Adequate procurement process has led to minimization of supplier cost in hospital					
4	Long Procurement procedures on inventory affect effectiveness of inventory management practice at SWH					

5	Inflexible bureaucratic systems of procurement contribute to poor health care delivery.					
	C. FUNDING	1	2	3	4	5
		SD	D	NS	A	SA
1	There should not be lengthy process of budget release for the procurement of inventory in order to make effective inventory management					
2	Sufficient fund is necessary to maintain sustainable relation with quality suppliers					
3	Insufficient funding affects the effectiveness of inventory management					
4	Adequate financing mechanism enhance the reduction of storage costs associated with inventory					
5	To what extent do you agree that funding on inventory affects effectiveness of inventory management?					
	D. Staff proficiency	1	2	3	4	5
		SD	D	NS	A	SA
1	Staff skills on inventory management affect effectiveness of inventory management practice					
2	Pre-employment training on inventory management can reduce losses associated with wastage					
3	Qualified staff that is competent and skilled helps the hospital to achieve its goals and objectives by being efficient and effective in inventory management					
4	Continuous training for the staff on inventory management can minimize shortages associated with inventory					
5	Competent and qualified employees helps to minimize cost of inventory management					
	E. Effective Inventory Management	**1**	**2**	**3**	**4**	**5**
		SD	**D**	**NS**	**A**	**SA**
1	Inventory management system of the hospital could not controlled problems associated with stock out.					

2	Losses associated with waste could not controlled by hospital inventory management.					
3	Daily checking and inspecting stock was not carried out prior to inventory placement.					
4	The hospital Inventory management has problems to provide materials with required quality at the level of customer demand.					

Source: adopted from; Kariuki James Ng'ang'a (2013) and Bhandari (2017) with some modification by the researcher

Thank you for sparing your precious time.

APPFNDIX 2: KEY INFORMATIVE INTERVIEW GUDE LINE

Jimma University

Department of Management

Key informative interview guideline

Using semi structured interview guide interview will be held with one purposely selected key Informant to collect in-depth information about determinants of effective inventory management: information technology, bureaucratic procurement procedure, fund of the hospital and knowledge and skill of the staff.

1. Do you believe that the information technology can influence effective inventory management of Seka chekorsa hospital? How?
2. Do you believe that the bureaucratic procurement procedure of the hospital service can influence inventory management of the operation? How?
3. Do you believe that fund of the hospital affect effective inventory management? How?
4. Do you believe that the knowledge and skill of the staff in the organization can determine the inventory management of the organization? How?