KOFORIDUA TECHNICAL UNIVERSITY

FACULTY OF BUSINESS AND MANAGEMENT STUDIES

DEPARTMENT OF PROCUREMENT AND SUPPLY SCIENCE

THE EFFECT OF INVENTORY MANAGEMENT ON THE OPERATIONS OF A PUBLIC HEALTH FACILITY: A CASE OF ADA EAST DISTRICT HOSPITAL

DAVIS LARBI WETTEY **04/2019/5769D**

RICHARD MENSAH **04/2019/5756D**

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF HIGHER NATIONAL DIPLOMA IN PURCHASING AND SUPPLY TO THE FACULTY OF BUSINESS AND MANAGEMENT STUDIES, KOFORIDUA TECHNICAL UNIVERSITY.

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DECLARATION BY THE STUDENTS

This research study is our original work and has not been presented to any other examination body. No part of this research should be reproduced without our consent or that of The Faculty of Business and Management Studies, Koforidua.The Technical University.

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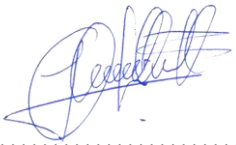

Sign: …….

Date: **16th MAY, 2023**

RICHARD MENSAH

04/2019/5756D

Sign……

Date…**16th MAY, 2023**

DECLARATION BY THE SUPERVISOR

I hereby certify that the preparation and presentation of this project work was supervised by me in accordance with the guidelines on the supervision of project work laid down by the school of business and management studies, Koforidua Technical University.

Name: Mr. Benjamin Adelwini Bugri

Sign

Date **16th MAY, 2023**

HEAD OF DEPARTMENT

PROCUREMENT AND SUPPLY SCIENCE

Dr. Anthony Ayakwah

SIGNATURE: ..  ……

DATE: ….**16th MAY, 2023**…….

DEDICATION

This project is especially dedicated to the lecturers, our supervisor and head of department (HOD) who helped and guided us to successfully complete this project work.

Also, I would like to dedicate this project to our dear fathers, who has been a wonderful supporter until our research was completed, to our beloved mothers, who has been encouraging us for months, and finally to GOD Almighty for giving us this opportunity to do our Higher National diploma which would not have been possible otherwise. This work is also dedicated to all aspiring students thank you

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ABSTRACT

The purpose of the study is to evaluate the impact of inventory management on the operations of a Public Health facility. The research was carried out at Ada East District Hospital with the aim of evaluating the impact of inventory management on the operations of a public health

facility. The main aim of the research was to find out how to maintain inventory at optimum level, so that it meets the requirement of the organization.

However, the organization has just a small storage facility. Questionnaire was designed using structured questions to collect primary data from the staffs of Supply Chain Management Unit in the Hospital. Questionnaire was used in the collection of data from the respondents. The questionnaires were of closed-ended and opened-ended questions coupled with nominal, ordinal and interval data respectively. The research data gathered by the team from the primary source will be edited and coded using data analysis software such as the SPSS version 16.0, Excel etc. The research result shows that inventory has effect on the organization by emulating good stock keeping and codifying items in the medical stores, but should be improve on it.

In view of this the researchers recommend that the organization should manage its inventory well in order to achieve its overall service objective.

CHAPTER ONE

INTRODUCTION

This chapter consists of background of the study, statement of the problem, purpose of the study, research questions, significance of the study, limitations of the study, scope of the study and organization of the study.

1.0 Background of the Study

Inventory is a current asset that should provide return on the capital invested. Inventory is merchandise purchased by merchandisers (retailers, wholesalers, distributors) for the purpose of being sold to customers. The cost of merchandise purchased but not yet sold is reported in the account Inventory or merchandise inventory (Bowersox et al, 2007).

Inventory Management is an act of managing stocks to meet customers‟ requirement. Stock should not be very large quantity, because it can increase the cost of inventory. Again, stock should not be insufficient because it can lead to loss of customers. Any excess stock raises cost with consequent effect on profit, sales, market share and overall performance.

Cooper et al, (2004) thinks that inventory is a large and costly investment; better management of corporate inventories can improve cash flow and return on investment. Nevertheless, most companies (retailers, wholesalers, and manufacturers) suffer through periodic inventory rituals.The term „supply chain management‟ can be conveniently divided into two areas: inventory management and distribution. Besides these two areas, there are many other decisions critical to streamlining the process such as facility location, material procurement, and adapting to changesin the environment.

Even though inventory management is not new in the retail environment, in the healthcare industry this has been traditionally considered as an area of low value. Recent studies have shown that remarkable savings and prospective income can be generated to enhance managementand inventory. It was estimated that a hospital could reduce its total expenses by at least two percent through better inventory management and distribution of finished medical materials. Everyone is an inventory controller, at home and at work. We all keep food, clothes, domestic items, paper, pensand many other goods. We also have shortages and emergency purchases. Some people regularlyhave to throw out the content of the refrigerator because they have been there for a while and changed in character (Wild, 2002).

1.1 Statement of the Problem

Currently, the inventory process is entirely manual, labor intensive, and difficult to monitor material levels. Par level stocking is dire not only to patient care, but also to Ada East District Hospital financial capability. Also critical is the effective capture of patient charges linked withthe use of supplies for patient care.

The Study would like to improve the efficiency and effectiveness of the Ada East District Hospital inventory management through automation with use of the existing Meditech information system. Meditech has the functional features to generate online supply requisitions, electronic ordering,and par level inventory management. When supplies are removed from the each of the four departments, nurses manually denote the usage so that a charge for the item is assigned to the patient's bill.

Later the department supply areas are restocked from a general supply room. Currently, this process is entirely manual. This process can be automated through par level inventory methods through Meditech and bar coding. Meditech has bar coding capabilities. With bar coding and Meditech, supply replenishment can be made easy. Automation will improve the cost effectiveness and the efficiency of the inventory management process.

1.2 Purpose of the Study

The main objective of the study is to evaluate the impact of inventory management on the operations of a Public Health facility: with a case of Ada East District Hospital {AEDH} in Ada.

1.3 Objectives of the study

The objectives of this study is ;

To ascertain if there is maintenance of inventory at appropriate levels.

1.1.1 To minimize carrying cost of inventory.

1.1.2 To keep investment in inventory at optimum level.

1.1.3 To reduce the losses of theft, obsolescence & wastage etc.

1.4 Research Questions

In line with this study, we wish to seek answers to the following

a. To what extent can you ascertain if there is maintenance of inventory at appropriatelevels?

b. How can carrying cost of inventory be minimized?

c. In what ways can you keep investment in inventory at optimum level?

d. How can you reduce the various losses of theft, obsolescence & wastage etc. associatedwith inventory?

1.5 Significance of the Study

This research will go a long way to benefit Ada East District Hospital, Ada in their quest to ensure effective management of stock holding in their organization.

It is going to broaden and give AEDH a better understanding and alternative approach in stock holding.

It will also enable the researchers to identify how effective inventory management will facilitatethe operations within the public health sector.

1.6 Limitations of the Study

Staff reluctant, access to confidential information to help the researcher are abhor and busy of many staffs set as a hindrance to get adequate procedures to carry on this research.

1.7 Scope of the Study

The scope of the study is to evaluate the impact of inventory management operations at Ada East District Hospital {AEDH} in Ada, Ghana. The study will come under medical stores in conjunction with the Supply Chain Management Unit.

1.8 Organization of the Study

This research work was organized in five (5) main chapters,

Chapter one covers the general background of the study, statement of the problem, purpose of the study, research questions, significance of the study, limitations of the study, scope of the study as well as organization of the study.

Chapter two also deals with the review of related literature in the area of study. The chapter discuss theoretical and empirical framework of other research such as definitions of inventory, inventory management, planning of inventory, inventory carrying cost, inventory control, basic inventory planning and management, the need for holding stock, just-in-time, material requirement planning, material resource planning (MRP II), inventory replenishment systems, economic order quantity, safety stock, material handling, and inventory management techniques.

Chapter three covers the research methodology. This chapter discusses the research methodsused to collect data for the study. It focuses on the research design, population and sampling,facilities available for the study, data collection techniques, data collection procedures andanalysis.

Chapter four examines the data collected and other information gathered and analyzed to comeout with meaningful conclusion.

Chapter five provides the summary, conclusion and recommendation. It embraces the summaryof findings, conclusion and recommendations which would suit the impact of inventory management on the operations of a public health facility.

CHAPTER TWO

LITERATURE REVIEW

This chapter deals with definitions of inventory, inventory management, planning of inventory, inventory carrying cost, inventory control, basic inventory planning and management, the need for holding stock, just-in-time, material requirement planning, material resource planning (MRPII), inventory replenishment systems, economic order quantity, safety stock, material handling, and inventory management techniques.

2.0 The Concept of Inventory

Inventory simply means stockholding. It is an American term for describing raw materials, components, assemblies, consumables, work in progress and finished stock that are kept or storedfor use as and when the need arises. The term can also refer to detailed list of goods or articles ina given place. In some countries, inventory or stock is defined as the accumulation of material resources in a transformation system. Thus a manufacturing firm will only hold stock of raw materials, a tax office will stock of information and a park will hold stock of customers. According to Floyd et al, "Inventory" (1992) to many small business owners is one of the morevisible and tangible aspects of doing business. Raw materials, goods in process and finished goods all represent various forms of inventory. Each type represents money tied up until the inventory leaves the company as purchased products. Likewise, merchandise stocks in a retail store contribute to profits only when their sale puts money into the cash register.

According to Bowersox et al (2007) , Inventory Management is risky and risk varies dependingupon a firm‟s position in the distribution channel. The typical measures of inventory exposure are time duration, depth and width of commitment.

Again, Rushton et al (2000) define inventory management as a system that provides the ability torun the day-to-day detailed management and control of stock within a company. They are absolutely essential for the location of and their ability, if used effectively, to control the levels of stock within a system.

Also, according to Fawcett et al (2002) Inventory management implies a strategy embracing such consideration as inventory levels and replenishment policies. This will be influenced by market intelligence and forecasting.

Inventory Control or Stock Control is the system where the level of supply of stock are regulatedto maintain quantities without stock excess or stock deficiencies.

According to Jessop and Morrison (2004), stock control is the operation of continually arranging flows of materials so that stock balances are adequate to support the current rate of consumptionwith the due regard to economy. It includes the related process of provisioning which is the means whereby instructions are given for the placing of orders.

According to Baily and Farmer, the planning and control of stock is part of the whole process by which materials and products are made available where and when required.

2.1 Planning of Inventory

The objective of inventory planning and management is to determine and maintain the lowest inventory levels possible that will meet the customer service policy requirements stipulated in the customer service policy (Frazelle, 2002).

The inventory planning process establishes the optimal inventory levels that must be maintainedto meet expected fulfillment service levels. Any two nodes in a supply chain can be viewed as having a supplier–consumer relationship as the material flows from one node to another. When

viewed as such, the node that acts as a consumer is placing demand on the node that acts as a supplier. This demand must be fulfilled by the supplying node at a user-specified fulfillment service level (Sehgal, 2009).In planning the inventory policies, specific inventory relationship must be considered. Management must strategically design relationships to determine inventorypolicy with respect to, when and how much to order. The inventory policy compels preferred inventory performance. The two key indicators of inventory performance are service level and average level (Bowersox et al, 2007).

2.2 Inventory Carrying Cost

The cost of carrying inventory is used to help companies determine how much profit can be made on current inventory. The cost is what a business will incur over a certain period of time, tohold and store its inventory. The carrying cost of inventory is often described as a percentage ofthe inventory value. This percentage can include taxes, employee costs, depreciation, insurance,and the cost of insuring and replacing items. (Frazelle, 2002)

Alnoor et al, (2008) define cost as resource sacrificed or forgone to achieve a specific objective.The sacrifice made therefore must bring to the company a return in the future and yield gain as well. Inventory costs are one of the major logistics cost for a large number of organizations suchas manufacturing and retail companies.

These costs are capital cost, risk cost, reorder cost, shortage cost, and holding cost etc.

2.2.1 Capital Cost

Sometimes called the interest or opportunity cost, this cost type focuses on having capital tied upin inventory costs a company (in contrast to using capital in some other financially productive

way). One way of calculating capital cost for inventory decision making requires identifying the firm‟s hurdle rate, the minimum rate of return expected of new investments (Langley et al, 2003).According to Stock and Lambert, “the opportunity cost of capital should be applied only tothe out-of-pocket investment in inventory”.

Capital cost is the cost of physical stock. There is financing charge that is the current cost of capital to a company or the opportunity cost of tying up capital that might otherwise producing abetter return of investment elsewhere (Croucher et al, 2006).

2.2.2 Risk Cost

Risk cost is the costs which occur as a consequence of pilferage, deterioration of stock, damageand stock obsolescence. The reduction in product life cycle and the fast rate of development and introduction of new product, and this become important aspect of inventory cost. It is the one which is frequently underestimated by many organizations such as health organization (Baker etal, 2006).

2.2.3 Reorder Cost

Reorder cost includes all the costs associated with the release of an order and accepting deliveryof materials. These costs may include the cost of generating and sending an order, transport, receipt, and quality checks (Rushton et al, 2006).

2.2.4 Shortage Cost

According to Waters (2003) shortage cost is usually very difficult to find accurately but they arethe reasons for holding stock in the first place. Many organizations are willing to incur the cost

of holding stock to avoid the even higher cost of shortages. The cost of shortage includes payment of overtime due to stock-outs, special administrative expenses due stock-out, loss of sales and loss of goodwill.

2.2.5 Holding Costs

Consist of all the costs for holding and storing materials. There are quite a few elements in this, but it can be summarize in three main components which are; financial cost, providing storage, and maintenance cost (Rushton et al, 2006).

2.3 Inventory Control

Inventory cost co-ordinates the purchasing, manufacturing and distribution functions to meet the marketing needs. This role includes the supply of current sales items, new products, consumables, spare parts, obsolescent items and all other supplies (Wild, 2002).

Inventory level should always be kept low to minimized cost of holding an order. On the other hand inventory should also not be less at hand. There are factors that influence inventory controlincludes; the unit of issue, lead time, cost of ordering, frequency of deliveries and, seasonal fluctuations.

2.3.1 The Unit of Issue

This may be in terms of quantity, weight, or numbers and is the smallest unit that is issued. Oncethis unit has been set for each item, all documents must be made out using that unit. One exception to this may be the purchasing requisition, which must be understandable to suppliers.If any alterations are necessary it is up to the individual firm to decide whether they should be

done by the purchasing department or done before sending the purchase requisition (Quayle, 2006).

2.3.2 Lead- Time

The total time that elapses between an order‟s placement and its receipt. It includes the time required for order transmittal, order processing, order preparation, and transit (Bardi et al, 2003). It is reasonable that an organization will hold supplementary goods to continue to operate whilewaiting for fresh deliveries to arrive.

2.3.3 Cost of Ordering

The necessary paperwork and labor cost are expensive, the frequency of ordering must be considered, particularly on low-value items (Quayle, 2006). This includes all the costs of the order but not the actual cost of the goods or services that are being paid for.

2.3.4 Frequency of Deliveries

Two factors affect this aspect of deliveries, the size and nature of the item, and the distance the goods have to travel. As you will realize, frequent deliveries over long distances are not very practical and are to be avoided as much as possible (Quayle, 2006).

2.4 The Need for Holding Stock

According to Baker et al (2010), there are a number of reasons why a company might choose orneed to hold stocks of different products. In planning any distribution system, it is essential to beaware of these reasons, and to be sure that the consequences are adequate but not excessively

high stock levels. The most important reason for holding stock is to provide a buffer between supply and demand. Croucher et al (2006) continued to give reasons for the need of holding stock which include: reducing production costs, accommodates variation in demand, to accountfor variable supply (lead) times, seasonal fluctuations and also to allow for price fluctuations/ speculation and work-in-progress.

2.4.1 Just- In- Time Approach (JIT)

Generally, just-in-time systems are designed to manage lead times and to eliminate waste. Ideally, product should arrive exactly when a firm needs it, with no tolerance for late or early deliveries. Many JIT systems place a high priority on short, consistent lead times. This may helpto explain the recent popularity of "quick-response" systems for inventory decision making. (Coyle et al, 2003). Rushton et al, (2010) as cited in Bicheno (1991) „JIT aims to meet demand instantaneously, with perfect quality and no waste". Strictly speaking, this is not so much a clearly defined system of materials management but rather a more set of management philosophies that work together to create the desired effect. This approach was first developed in Japan by Toyota, the automobile manufacturer, in the 1970s. In its early days it was known as the „Toyota manufacturing system"or „Toyoterism". The most important effect of JIT purchasing is that with frequent purchasing the issue price is likely to be closer to the market price and in order to save on ordering costs, long term agreement may be entered into with suppliers.

2.4.2 Material Requirement Planning System (MRPI)

According to Jessop and Morrison (2004), defined material requirement planning system as consisting of a set of logically related procedures decisions rules and records designed to translate a master production schedule into time phase net requirements and the plannedcoverage of such requirement for each component inventory item needed to implement this schedule. Whilst, Langley et al (2003) also said material requirement planning system consists ofa set of logically related procedures, decision rules, and records designed to translate a master production schedule (MPS) into time-phased net inventory requirements and the planned coverage of such requirements for each component item needed to implement this schedule. An MRP systems meet their objective by computing net requirements for each inventory item, time-phasing them, and determining their proper coverage.

2.4.3 Material Resource Planning (MRPII)

Material resource planning requires considerable computing power to operate because of the inclusion of virtually all the activities within a production plant. Implementation of such a sophisticated computer-based system is an enormous task and should not be undertaken lightly (Oxley et al, 2006).

2.5 Inventory Replenishment Systems

According to Rushton et al, (2010) the aim of an effective inventory replenishment system is to maintain a suitable balance between the cost of holding stock and the particular servicerequirement for customers. The need for this balance can be illustrated by considering the disadvantages of low stock levels.

2.6 The Periodic Review System

The review system works on the premise that the stock level of the product is examined at regular intervals and depending on the quantity in stock, a replenishment order is placed (Croucher, 2010).

2.6.1 Fixed Point /Re-Order Level System

This is a specific stock level at which order will be placed. The same quantity of the product is reordered when that stock level is reached. Thus, for this system it is the time when the order is placed that varies (Croucher et al, 2010).

2.6.2 The Economic Order Quantity

Economic order quantity is an inventory model that determines how much to order by determining the amount that will minimize total ordering and holding costs (Coyle et al, 2010).

According to (Baker et al, 2006), the traditional method of calculating the appropriate quantity is known as the economic order quantity (EOQ) method.

It is calculated by $EOQ = \frac{\sqrt{2PD}}{UF}$

Where P= Cost of placing an order, D= Annual demand in units, U=Cost of a unit of inventory, F=Annual stock-holding cost as a fraction of unit cost, UF=Cost of holding stock per unit per year.

2.6.3 Safety Stock

The amount of safety stock inventory (SSI) that a firm invests out of the total inventory costs is a measure of the relative uncertainty of the product demand, component supply, or both. Where demand and supply are maintained constant (such as in JIT systems), SSI can be minimized. Therefore, in order to quantify the safety stock of a product, which is a function of the distribution of its supply and demand, it is necessary to understand the statistical nature of bothsupply and demand separately, since they may exhibit different behavior (Holsenback et.al, 2007).

The inventory a company holds beyond normal needs as a buffer against delays in receipt of orders or changes in customer buying patterns (Langley et al, 2003)

2.6.4 Obsolete and Excessive Inventory

Obsolete inventory has become a prominent phenomenon in most of the organizations. Many organizations are striving to avoid obsolete inventory and are also trying to avoid excessive inventory. The items when become obsolete are unusable and it does not yield any value to the services and in turn they consume valuable storage space in the warehouses, added are the taxes. These excessive costs may yield to increase in the overall facility costs. The organizations must implement steps and methods that can help inventory managers identify the excessive inventoryand make use of the excessive inventory before it turns out to be obsolete (Wild, 2002).

2.7 Material Handling

Material handling is defined as efficient short-distance movement that usually takes place withinthe confines of a building such as a plant or a warehouse and between a building and a transportation agency (Coyle et al, 2006).

2.7.1 Manual Handling

Most manual effort usually occurs in the order-picking area. Therefore, a company has to createan environment that motivates people to get the job done (Coyle, 2006). Stores personnel shouldbe careful about when using their strength in handling goods because there is the possibility of straining themselves. Practicing this method can cause damages or breakages to the goods if theyare not handled carefully.

2.7.2 Mechanical Handling

Material handling equipment consumes space in the warehouse and plant. This space facility is fixed, and the material handling systems must utilize this space effectively. Forklifts adapted with extensions can be twenty- five to thirty feet, thereby increasing the capacity utilization of the warehouse. (Bardi et al, 2003). Mechanical handling equipments helps store personnel because heavy goods can be transported easily, delicate goods can also be move and handle easily and also to think of safety reasons to the workers. A company should give the popularity principle some consideration, storing high- volume items at the shortest distance.

2.8 Inventory Management Techniques

There are a number of different tools and techniques that can be used to help with logistics process redesign. These range from ones that provide assistance with the initial categorization ofkey process objectives to those that offer a detailed assessment of the processes themselves andthus can be used to identify opportunities for improvement (Rushton et al, 2010).

2.8.1 Pareto Analysis

Pareto analysis is sometimes known as the 80/20 rule, this is a crucial method used in logistics for identifying the major elements of any business or operation. By identifying these main elements it is possible to ensure that, for analytical purposes, any assessment is based specificallyon the key aspects and is not taken up with the peripheral detail (Baker et al, 2010).

2.8.2 ABC Analysis

ABC analysis, is simply the refinement of the idea of there being two categories of stock into services of three categories, is widely employed.

Category A items, small in number, high in usage value- the „vital few" from a financial point of view.

Category B items, medium number, medium usage value „normal items"

Category C items, high number, low usage value „Trivial many".

Classification of Stock Items

Stock may be classified in a variety of ways for storage, handling and control purposes

A High usage value

B Medium usage value

C Low usage value

Identification and Coding of Materials

The wide variety of materials and components moving in and around an enterprise is constantly being referred to, for one purpose or another, by the departments of the organization. This kind of confusion can lead to a number of inefficiencies in a company and result in financial losses and unnecessarily high costs. It is vital, therefore, that a common means of identifying materialsupplies is devised and implemented firmly throughout the company (Quayle, 2006).

Benefits of a Coding System of Identification

The application of a coding system may the following benefits: identify each item accurately; itwill become a common means of reference by all functions throughout the organization. It will obviate the need for the repeated use of descriptive titles; it will assist in the simplification or rationalization and subsequent standardization of materials, it provides a better means ofrecording and analysis. And it also provides a better means of physically controlling stocks andhelp to prevent unnecessary duplication of stocks (Quayle, 2006).

Inventory Classification

Inventory classification helps users to segregate products into more manageable groups with similar demand and supply characteristics. These groups are then managed together for setting up service-level targets, inventory targets, and other inventory policy parameters. This makes themaintenance and understanding of the master data simpler. Inventory classification can be doneusing various techniques, from simple database queries to automated data mining and data discovery selected technique depends on the maturity of the users, data available, volume and quality of data, and complexity of the classification criteria (Sehgal ,2009).

CHAPTER THREE

RESEARCH METHODOLOGY AND ORGANIZATIONAL PROFILE

This chapter gives an overview of the response from the interview conducted of the organization, analysis of the data, organizational profile and the research methodology. In order to do so, qualitative (case study) and quantitative study methods (survey statistical analysis) were adopted. The qualitative method allows a prior view of the general construct or categories intended to be studied and their relationships.

3.0 Research Design

Among these instruments are the survey, observation, questionnaire and interview. This research is perfectly on an assessment study. The researcher mainly adopted the questionnaire and, in some cases, conducted interviews in soliciting for this study. The questionnaire is design in both open-ended and close-ended to give way to respondents to choose from alternatives provided and also give answers where necessary.

3.1 Population and Sampling

The researcher evaluates the impact of inventory management in supply chain Unit at AEDH for the study. The target population constitute staffs at the supply chain department (6), Medical stores (24) and other (4) key management staff were selected for the purpose of the study which sum up to thirty-four employees of the various sector. Therefore, sample of the population is used to represent the entire population of SCMU‟s study at AEDH in relation to inventory management.

3.2 Data Collection Instrument

Questionnaire was used in the collection of data from the respondents. The researcher chose these instruments because they allow the respondents to provide relevant and factual information. The questionnaires were of closed- ended and opened-ended questions coupled withnominal, ordinal and interval data respectively. The questionnaires will indicate only a line to befollowed up and not to explore in depth any issues raised. The respondents were given time limitto return the questionnaires for reliable and valid data analysis with ethical consideration. The research data gathered were twenty-five (25) from the primary source and will be edited and coded using data analysis software such as the SPSS, Excel etc. This is due to inconveniences‟ oftime and disclosure of some personality.

3 .3 Data Collection Procedure

A total of thirty-four (34) questionnaire were managed by the researcher and the respondents were given a period of one week to fill the questionnaires. The one-week period was to be free from pressure and to provide relevant and factual answers to the items in the questionnaire. During this same period of questionnaire administration, interview was also conducted on contact with the respondents and the result was impressive.

3.4 Primary Data

Primary data is the data collected on the field of study. Questionnaires were made to have holistic and undiluted firsthand information about the research.

3.4 Secondary Data

Second data refers to any information not collected for the immediate study at hand but already collected for some other purposes. It is collected from sources other than the original source. Secondary data were obtained from published books and internet to aid the researchers in their study.

3.5 Data Analysis

Descriptive statistical methods are used to analyze the data. The quantitative approach was used to analyze the data in the form of graphs, frequency table and simple percentages. The data collected from both sources were edited for effective conclusions to be made and to make the research achieve its objectives. The resultant findings were represented on charts and graphs for visual affirmation.

3.6 Brief Analysis of Ada East District Hospital

In the 1990s, a hospital was situated on the ridge overlooking Ada Township designated as African and European hospital.

As their names implied, the African sided treated African whiles the European side treated European.

By 2000, the need to construct a new hospital to cater the fact increasing population in Ada and therefore Greater Accra region arose.

3.7 Mission Statement

Its mission statement states that "Ada East District hospital seeks to provide quality service to meet the needs and expectations of all clients.

This will be achieved through well-motivated and committed staff applying best and innovative extending the boundaries of excellence in everything they do.

As provided in the chance health services and hospital act 525, 1996. The key functions of AEDH are:

- To provide proper health care to support health services provided by Ghana health services.
- To become one of the best government hospitals in Ghana.
- To undertake research into health issues of the people in the country.

3.8 Vision of Supply Chain Unit of Ada East District Hospital

The vision of the supply chain unit is to become the center of excellence in the training supply. However, their mission is to procure goods and services, storage, distribution, monitoring and evaluation of all goods and proper disposing of obsolete equipment and machines at the right time to ensure that the hospital achieves its objectives at the lowest possible cost.

The supply chain management makes a lot of contribution towards the achievement of the hospital's vision by providing an uninterrupted flow of service and materials from the right source, at the right quantity, at the right time, at the right quality and at economic cost to enhance value for money to help in achieve AEDH"S vision, mission and objectives.

CHAPTER FOUR

RESULTS AND DISCUSSION

This is the fourth chapter of the research report and it covers the findings and analysis of the results of the questionnaire, interviews and personal observations from the field of research.

4.0 Respondents Demographic Profile

This section gives background information about the twenty-five respondents engaged in the study. Analysis and discussions have been made on the gender, educational, working experience and positional backgrounds of the respondents.

4.1 Gender of Respondents

Majority of the managers representing 68% are males and 32% representing of the respondents are females, respectively. This indication shows that, males personnel dominates in the department and less females being employed, and the difference is due to the fact that the populations of males who actively participate of the inventory in the storehouses. The magnitude chosen were thus, fair representation of the total population that assured objective result.

Table 4. 1 Position of the Respondents

Departments	Number of Respondents	Position of Respondents (%)
Purchasing	3	12
Inventory	5	20
Stores	3	12
Procurement	7	28
Expediting	2	8
Monitoring	1	4
Senior Supply	1	4
Supply Officer	3	12
TOTAL	**25**	**100**

SOURCE: Researcher's Field survey, May 2022

Table 4.1 Positions of respondents in the organization. Majority of the respondents 7 representing (28%) are procurement officers. Also, 5 of the respondents representing (20%) of Inventory controller which arranged in stock management in the store houses. Whereas, 3 respondents representing (12%) are Stores Superintendent whose responsibility is to re-design the information received from various officers and then, report it to the management for reviewas well as the supply officer of 3 respondents (12%) interrogates the movement of in-flow and out-flow of available inventories within the store house. 3 respondents (12%) are purchasing officers and their duties are to negotiate with available suppliers and makes desirable buying decisions to the department thus; value for money. Lastly, 1respondent (4%) is a senior officer

who gives instruction the supply officer to factor creativity. Above all they operate in chain activity.

Table 4.2 Working Experience of Respondents

Working Experience	Respondents Responses (%)
1-3	60
4-6	24
7-10	12
Above 10	4
TOTAL	**100**

SOURCE: Researcher's Field survey, May 2022

From table 2, it demonstrated that, (60%) of the respondents have acquired 1 to 3 years working experience and this is say that they have enough knowledge of procurement and supplychain processes, whereas; (24%) of the respondents have 4-6 years working experience of evaluating the impact of inventory management on the operations of a Public Health facility. (12%) of the respondents gave their view that they've 7-10years working experience in the supply chain management units (scmu) and had developed many strategies useful to the growthand development in the service. Finally, (4%) of the respondents had more than 10 years working experience in the supply chain units and had contributed a lot to Ada East District Hospital (AEDH).

4.3 Findings and Analysis

The main findings that emanated from the research execution are discussed and analyzed as follows: Policy of Inventory management with regard to the Hospital, Level to determine inventory policy with respect to when or how to order, Carrying cost to maintain an inventory inthe organization, The rate of store function with the organisation and so on.

Table 4. 3 Policy of Inventory management with regard to the Hospital

Policy of inventory management	**Accumulated**	**Percentage**
Centralized	10	40
Decentralized	10	40
Both	20	5

SOURCE: Researcher's field survey, May 2022

Table 3 above, Centralized accounted for Ten (10) representing 40% and also Decentralized accounted for Ten (10) whiles both are accumulated for Twenty (20) representing five (5%), respectively. This information has shown that, almost centralized and decentralization are basically used to manage procurement principles in the hospital. Frazelle (2002) explained that "The objective of inventory planning and management is to determine and maintain the lowest inventory levels possible that will meet the customer service policy requirements stipulated in the customer service policy." This has revealed the best practicing in sub-units to enhance inventory to effect changes in customer services in the hospital.

Table 4.4 Level to determine inventory policy with respect to when or how to order

Level to determine inventory policy	Number of respondents	Respondent's Responses (%)
Maximum stock level	5	20
Minimum stock level	8	32
Reorder level	12	48
TOTAL	**25**	**100**

SOURCE: Researcher's field Work, May 2022

From table 4, Maximum stock level of when or how to order respondents 5 representing (20%), while the minimum stock level respondents 8 representing (32%) and Reorder level respondents12 representing (48%), respectively. Based on the records, reorder level is predominantly used inthe hospital as compared with maximum stock level and minimum stock level. The reorder levelis the amount expressed in units of issues at which ordering action is indicated in time for the materials to be delivered before stock falls below the minimum inspection i.e. the lead time.

Table 4.5 Carrying cost to maintain

Carrying cost to maintain an inventory in the organization		
Carrying cost	**Number of Respondents**	**Respondent Responses (%)**
Capital	16	64
Storage	8	32
Insurance	1	4
TOTAL	**25**	**100**

SOURCE: Researcher's field survey, May 2022

From the above sixty-four (64%) percent representing (16) of the capital and Thirty-two (32%) percent represent the storage, whiles Two (2%) percent represent an insurance of which carryingcost is high when maintaining inventory in the organization. However, this portrays that storagesystem was highly enhances the inventory management as compare to capital and insurance of carrying cost as high when maintaining inventory. The department believed that inventories represent money, and as such not be misappropriating. As supported by Frazelle (2000), in the literature view that "Inventory carrying cost (ICC) is the product of the average inventory value(AIV) and the inventory carrying rate (ICR). The ICR includes the cost of investing in inventory, storing and handling, obsolescence, taxes, insurance, and shrinkage due to damage and/or pilferage.

Table 4. 6 The rate of store function with the organisation

Rate of store function	**Number of Respondents**	**Respondent responses (%)**
Highly effective	20	80
Ineffective	3	12
Not good	2	8
TOTAL	**25**	**100**

SOURCE: Researcher's field survey, May 2022

It is shown that, twenty (20) of the respondents representing 80% was highly effective for store function in the organisation ; whiles three (3) of the respondents representing twelve (12%) percent was ineffective for store function and two (2) of the respondent representing (8%) percent was not good. The above have shown as that the store regulates most of its function

when it comes to supply chain in the organization. It is highly effective transaction or transit where major activities or all the services department depends on to fulfil their works in terms oftools, materials and drugs for the hospital. The hospital operates different stores, one medical store (Hospital materials and equipment's) and other store for general goods.

Table 4.7 Organization methods of handling goods and materials

Methods of handling goods and materials	**Number of Respondents**	**Respondent's responses (%)**
Manually	19	76
Mechanically	2	8
Electronically	2	8
Manual & Electronically	2	8
TOTAL	**25**	**100**

SOURCE: Researcher's field survey, May 2022

Table 7, explains that the handle of goods manually accounted for seventy six (76%) percent respondents by nineteen (19); those who believed that mechanical handling was used accountedfor eight (8%) percent's represented two (2) respondent; those who believed both manual and electronic handling used accounted for eight (8%) percent represented two(2) respondent. As (Coyle et al, 2006) explained that "Material handling is defined as efficient short-distance movement that usually takes place within the confines of a building such as a plant or a warehouse and between a building and a transportation agency. From the captured above, they almost use manual handle of goods which is high risk and breakages could easily occur. The restless recognized.

Table 4.8 Authority to Sign Issue of Goods in the store's department

Authority to sign	Number of Respondents	Respondent's Responses (%)
Stores Personnel	8	32
Procurement	17	68
TOTAL	25	100

SOURCE: Researchers' Field survey, May 2022

Table 8, shows that the eight (8) respondents of store personnel representing (32%) percent whiles seventeen (17) respondents of procurement manager representing sixty-eight (68%) whohas the authority to sign for issue of goods in the store department. According to Quayle (2006),the unit issue may be in terms of quantity, weight, or numbers and is the smallest unit that is issued. Once this unit has been set for each item, all documents must be made out using that unit.Once exception to this may be the purchasing requisition, which must be understandable to suppliers. If any alterations are necessary, it is up to the individual firm to decide whether they should be done by the purchasing department or done before sending the purchasing requisition. Base on the above information, it is shown that almost all signing issue of goods is done by the procurement officer.

Table 4.9 Levels of placing an order of goods within the organization

Levels of placing an order	Number of Respondents	Respondent's Responses (%)
Reorder level	19	76
Minimum stock level	4	16
No responds	2	8
TOTAL	**25**	**100**

SOURCE: Researcher's Field survey, May 2022

Table 9, above indicates nineteen (19) respondents of re-order level representing seventy-six (76%) percent; Minimum stock level respondents was four (4) representing sixteen (16%) and No responds was two (2) representing eight (8%). This means that the hospital place goods at re-order level. Moreover, some respondents quoted minimum stock level and others no responds. Most often financial crunch may occur in management leading to order minimum stock level.

Table 4.10 Codification of items in the inventory management

Codification of Items	Number of Respondents	Respondent Responses (%)
Yes	12	48
No	13	52
TOTAL	**25**	**100**

SOURCE: Researcher's Field survey, May 2022

From the above table shows that those respondents whose says “yes” to codified of items representing twelve (12) of forty-eight (48%) percent and “No” to codification of the items representing thirteen (13) of fifty-two (52%) percent. As Quayle (2006) stated in his book that “Codifying wide variety of materials and components moving in and around an enterprise is constantly being referred to, for one purpose or another, by the departments of the organization.This kind of confusion can lead to a number of inefficiencies in a company and result in financiallosses and unnecessarily high costs.” The above information indicates, Majority of the receiveditems are coded to a clear identifiable of different varieties. For instance, some of the drugs packages look alike and without a clear code numbers some misplace the others.

Table 4.11 Impact of inventory management in the hospital

Impact of Inventory Management	**Respondent Responses (%)**
Proper stocking keeping	25
No responds	25
Proper policy implementation	12
Coding items and inventory control software	17
Economic order quantity	4
Inadequate space	17
TOTAL	**100**

SOURCE: Researcher’s Field survey, May 2022

Table 11, indicates that 25% of the respondents suggest that proper stock keeping should be doneby the medical store whiles No responds representing 25% and 12% of the respondents respondthat the hospital should improve Proper policy implementation. 17% respondents represent thecoding of items& inventory control software which is a modernized system making faster and convenient identifiable of goods. Inadequate space 17% of the respondents show concerned that there is unavailability spaces in the storehouse to hold goods and materials. 4% of the respondents view that the supply chain management unit (SCMU) should be keen with economic order quantity for estimation of goods to incur minimum cost and to maximize profit to the hospital. The hospital may be able to reduce its higher expenses by at most five out of the six views, which will bring a good replenishment of inventory and cost savings, respectively.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The main objective of the study is to evaluate the impact of inventory management on the operations of a Public Health facility and this is the concluding chapter which seeks to give the summary of the findings, conclusion, suggestions and recommendations.

5.0 Summary of Findings

Firstly, the research conducted identified that Ada East District Hospital mostly used both centralized and decentralized of planning policies in inventory management at the supply chain management unit to satisfy the needed materials in the various departments across board. The organization uses strategic level in major decisions in inventory management, but actual factor operational level to eliminate any loop-holes as far as inventory management is concern.

Moreover, the researcher also identified that at the medical stores most of their goods are not coded. For this reason, the organization would face crises in the near future. Since new method of stocking in the warehouses are introduced and the competitors may choose to use to support their operations against its rival.

Furthermore, the findings also show that, Ada East District Hospital mindful of controlling of inventory in the hospital. Simply because the inventory is money at hand to use to effect changes in the organization. So, cost should be tied up to materials and managing resources effectively and efficiently to propagate best output in the institute.

5.1 Conclusion

Inventory management has increase into an extremely level to meet the rising challenges in most hospitals in Ghana, Ada East District Hospital has already submerged in the practice of this activities over a decade and have tried maximum best to enhance their working activity. Moreover, the researcher had a revelation that the effective inventory management concept at the hospital had positive impact, but there is still short fall in the practice which demand more ideasto improve upon to make an effectual change in the hospital.

5.2 Recommendations

The following recommendations were made to Health Institutions, policy makers as well as Ada East District Hospital.

Firstly, the research observed that items in the storehouse were not coded which makes it difficult in identifying items resulting in obsolescence and pilferage. Besides all, the researcher recommends to all health institutions for that matter Ada East District Hospital that, correct stock coding system should be put in place for easily identification.

Also, good methods of handling materials, the researcher noticed that most of the materials handle at the medical stores are done manually. The health and safety issue involves inventory keeping has to be considered, there are certain kinds of items which is somehow heavy, technically automated machine has to operate such as Forklifts; trolley for carriage to destination. The researcher encourages various Health Institutions to get these more devices to make material handling faster, convenient, and preventing spoilage of fragile items. Furthermore, creating storage space, the researcher identifies that the storage space for inventory management is less adequate. Maybe, if the hospital would not be able to provide enough space

then the procurement officer can choose just-in-time system approach to meet the lead time. The researcher recommends to the policy makers within the various Health Institutions including Ada East District Hospital to provide more storehouses to keep the hospital materials.

Furthermore, stock level, the researcher identified that there is an imbalance at the stock level in the inventory. Sometimes it falls below and also rises higher which frustrate the demand forecasting in the ordering of goods. Reorder level set at the best to stimulates ordering quantity. The researcher recommends that the management should forecast demand to meet the adequate demand of stock level in the inventory management.

Lastly the researcher recommends that Ada East District Hospital should provide enough facilities to accommodate their items or goods to prevent costs that may arise from damages and pilferage.

5.3 Suggestions for further Research

The researcher could not cover all the areas in Health Institutions due to limited time. It is therefore suggested that, in future research, the researcher could cover all the areas within the various Health Institutions in Ghana. It is the wish of the researcher that anyone who picks this project work will improve upon the weaknesses of this research.

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APPENDIX

KOFORIDU POLYTECHNIC

QUESTIONNAIRE FOR STAFF OF ADA EAST DISTRICT HOSPITAL

The Researcher is a student writing a long essay on "impact of inventory management on the operation a public health facility". A case of Ada East District Hospital

It would be appropriate if you kindly answer the questions below. The exercise is purely academic purpose and so the anonymity and confidentiality of your view will be highly upheld. Please only your personal view point should be entered.

It is the believe of the researcher that the response collected would give a fair view of the effectiveness and efficiency in the inventory management of the company.

APPENDIX 'A'

Stores Operation

1. Sex: Male ( ) Female ( )
2. Age group:
   a. 16 – 20
   b. 21 – 25
   c. 26 – 30
   d. 31 – 35
   e. 36 – 40
   f. 41 – 45
   g. above 45

3. What type of stores do you operate?

   a. Central store b. Subsidiary store

4. How do you classify goods to be stored?

   a. chemical b. Plumbing material c. Stationery d. General goods

5. Where do you receive your stocks?

   a. Warehouse b. Stockyard

6. Who is responsible for the receipt of goods?

   a. Stores officer b. purchasing officer

7. Where do you off load your stock?

   a. Warehouse b. Stock yard

8. What problem(s) do you encounter when offloading?

   a. Damages b. Theft c. Breakages

9. What document(s) normally accompany goods to be received?

   a. copy order b. Waybill

APPENDIX 'B'

Inspection of Goods

10. Do you inspect for quality and quantity of goods?

    Yes ( ) No ( )

11. If yes, how do you inspect the goods?

    a. Sample inspection ( )

    b. 100% inspection ( )

    c. Batch Inspection ( )

12. Who is responsible for inspection of stocks?

13. What do you do to reject goods?

APPENDIX 'C'

Storage of Goods

14. What type of storage facility or facilities do you normally use?

    a. Bin ( )

    b. Shelves ( )

    c. Pallet ( )

    d . Tank ( )

15. What quantity level do you keep to control stock?

    a. economic order quantity ( )

    b. maximum stock level ( )

    c. reorder level ( )

16. What stock taking measures do you use?

    a. periodic ( )

    b. continuous ( )

17. How often do you take stock?

    a. weekly ( )

    b. monthly ( )

    c. quarterly ( )

    d. annually ( )

18. What type of handling method do you use?

    a. manual ( )

    b. mechanical ( )

19. What type of mechanical equipment do you use?

APPENDIX 'D'

Issuing of Goods

20. What criteria do you use when issuing of goods?

    a. Verbal request ( )

    b. Written request ( )

21. Who authorize issue?

    ……

22. What document do you require when issuing?