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The Measures to Improve Inventory Management in Ghana Health Service

Kwansah Ebenezer Ofori-Ayeh
Kwame Nkrumah University of Science & Technology (KNUST)
Email: ekwansah@yahoo.com

Abstract
The research work focused on Inventory Management in practices in health service delivery organization and the case study was the New Edubiase Government Hospital. The main objectives of this study was to look at what inventory is and to come out with relevant criteria to improve upon inventory management practices in the New Edubiase Government Hospital (GHS). The specific objective includes identifying inventory management practices at the New Edubiase Government Hospital, determining if the inventory management practices are efficient and effective, and to investigate the challenges confronting the management of inventory in the Hospital. The researcher then gave a brief insight into the chosen case study organization. Stratified random sampling was adopted to select a sample size of sixty workers for the study. The investigator used the primary method of data collection to gather information for the study. The investigator found out that the materials ordered are not received on time, unauthorized personnel are allowed into the stores, and store keys are left at the security gate upon closure of work. Based on the findings, the researcher proposed some recommendations which include coordination between suppliers and stores to ensure faster delivery of supplies, bringing to an end unauthorized entry into the stores, and the store keys to be handled by only store staffs.

Keywords: *Inventory, Management Practices, Impact of Inventory*

STATEMENT OF THE RESEARCH PROBLEM

The major aim of inventory management is to ensure availability of materials to user department without delay and the prevention of stock out. The control of inventories has become such a heavy task that needs the attention of not only inventory practioners staff but also top management to provide the right structures for inventory operation. This has become more prevailing in today`s strategic management decisions, which is geared towards profitability and adding value. Bozarth and handfield (2007), inventory is such a critical resource in many organizations and efforts must be made to devote tools and techniques to manage it. In service providing industries including the New Edubiase Hospital, the desire is to implement the right policies and procedures that will best determine and regulate production schedules to establish requirements, parts, and materials needed to support service delivery and improve upon efficiency. Best practices in the management of drugs and non-drug consumables as well as information flow are the cardinal points in achieving quality health care. The surest way to maintain these critical factors is the proper management of inventory both within the firm and all its supply chain actors. This is not the case in in most public hospitals in Ghana. Inventory management in New Edebiase Hospital is not smooth. Poor inventory control has led to many problems which has affected the quality of health care in the hospital over the past years. Drugs and non-drug consumables availability has been below 60% in the hospital over the years according to statistics from the non-drug consumables and pharmacy unit of the hospital. This has resulted in prolonged sickness and in some cases death of the innocent patient. Shortages of essential drugs, non-drugs consumables and even oxygen for resuscitation account for about 15% of deaths recorded in the hospital (Hospital annual report, 2010). Moreover improper procedures for receiving, issuing, and disposal of non-drug consumables, and medicine have been the order of the day. This has contributed to increased patients dissatisfaction, prolonged illness, and increased needless death and has resulted in a decline in out-patient attendance. The challenge facing inventory is compounded as a result of rampant thievery and pilfering and serious audit queries over the years. (Hospital survey report, 2013)

I. METHODOLOGY

This chapter looked at the research methodology employed to achieve the objectives of the study. Kothari (2004), Research methodology is a practical way of finding solution to a research problem. It is a scientific way of understanding how research is done by unraveling the systematic steps employed by a researcher in confronting research problem to expose the logic behind them. Research methodology is thus used to find out, explain and compare truth or otherwise relating to a subject so as to prove, disprove, or add the existing knowledge available on

the subject matter. Research methodology denotes the process of arriving at the most dependable solution to a problem by providing a well-planned systematic gathering, analysis, and interpretation of data. This chapter looked at the methodology used to ensure that the objectives of the study is met focusing on the research design, research approach, research strategy ,population, sampling and sampling procedures, data collection, basis of data analysis, data validity and reliability, and a profile of the New Edubiase Government Hospital.

A. Research Design

According to De Vaus, (2001), the three main research approaches that can be adopted for a research study are qualitative, quantitative and mixed approach. The mixed method combining the two approaches was used for this research. The selected strategy used in this research was arrived at by considering the type of research questions posed. This study employed a case study because the research is accessing a scenario within the context of a real life situation. The study mostly used of quantitative technique but qualitative technique was also used as well and data was gathered from multiple sources. Data collection instruments used includes questionnaires, and observation.

B. Research Approach

This research used triangulation approach combining both the qualitative and quantitative methods of data collection because of the limitations of every method. The researcher was of the firm belief that the different approaches will complement each other. The research started with informal observation of inventory processes of the hospital before questionnaire was adopted to measure the impact of inventory management in service delivery with the aim of carry out statistical analysis.

C. Research Strategy

The main research strategy for this work was a case study that conducted in GHS. The investigator attempted to identify logistic problems in GHS so as to propose a system approach to correct such problems identified. In order to understand and describe the inventory control at GHS and recommend improvements, the whole system was taken into consideration. It is not possible to just study every separate part and analyze them separately without interference from connected activities. How people act and behave, within the different parts of the inventory channel and control was examined to determine how inventory control is managed to achieve desired results. The aim of this thesis is to investigate how inventory management impacts on service delivery, and therefore the most suitable strategy for this thesis is the systems approach since many different parts and activities are analyzed both separately and as a system to find a better way to manipulate inventory to impact positively on service delivery at GHS.

D. Population for the Study

The entire workforce of the GHS constituted the population made up of one hundred and fifty-seven (157) workers from fifteen (15) units within the hospital aside the store unit for the study. The target group included workers who are directly linked to the management of inventories such as management of the hospital, stores personals, and the end users within the hospital.

E. Sampling and Sampling procedures

The project was conducted using use the entire workers of the GHS as it sampling frame. A sampling frame is defined by Given (2008) as "the individual elements within population who have the opportunity to be included in a given sample". GHS hospital has five (5) core management members who operate as managers of the hospital, and the store staff strength is ten (10) personnel with the rest of the workers as end users of the store function. A sample size of 0ne hundred and twenty (120) respondents was used for this study. The sample size comprised of the five (5) core management members of the hospital, all ten (10) store personnel and forty-five (105) end users from the various unit with three (3) respondents selected from each of the fifteen (15) units. This sample size in the opinion of the researcher will yield a holistic overview of information for the appraisal of the hospitals inventory management practice as proposed by Krejcie and Morgan (1970). According to Krejcie and Morgan (1970), the need for a representative statistical sample in empirical research has created a demand for an effective method to be used in determining the optimal sample size in any research work. They proposed a formula for determining sample size for known and unknown population and according to their table for a sample size in a known population, a sample size of 113 for a population of 160 is adequate representation of that population. Stratified sampling method is used to select

respondents from the 15 units of the GHS. Stratified sampling is preferred by the researcher because it eliminates the influence of bias in the selection of respondents. Kothari (2004), "stratified sampling method is mostly adopted when population within which the sample which is to be drawn is not homogeneous to obtain a representative sample". Stratified random sampling is a simple systematic random sampling, obtained when the population is divided into a number of sub groups called strata and a simple sample is drawn from each stratum. In order to obtain the sample size, all workers name in each unit was assign a number and the numbers from each department are then put into a separate bowl. An assistant was blindfolded and asked to pick 105 workers with 7 from each of the 15 unit within the hospital and used as a sample for this study. The 105 workers from the various units was added to the 10 store staffs and 5 core management members to add up to 120 respondents to be used as sample size for this work.

F. Procedure for Data Collection

This project used of both primary and secondary methods of data collection. The researcher refer to various publications including books, journals, articles, newspapers, reports obtained from libraries, GHS, and the internet on the subject matter to explore added information to help in providing answers the questions set in the problem definition. The primary data was collected through a number of visits to the study area where personnel were interviewed and questionnaires administered. The questionnaires employed the use of the likert scale technique. According to Kothari (2004), "in a Likert scale, the respondent is asked to respond to each of the statements in terms of several degrees, usually five degrees (but at times 3 or 7 may also be used) of agreement or disagreement. Each point on the scale is assign a mark score. Answers with the lowest acceptance level is the least score (say 1) and the highest acceptance level is given the highest score (say 5)". Kothari (2004) further state that "the Likert-type scale is simple to construct, highly acceptable because under it, respondents answer each statement in the instrument, and it takes much less time to construct and answer". As a means of obtaining more information on the topic, the researcher used observation method of data collection.

G. Method of Data Analysis

The data collected from the primary sources were edited to select the relevant data for the purpose of this study. Responses from the respondents were presented and analyzed in a simplified form. Statistical techniques used to analyze the data included simple tables, percentages, pie chart, and bar graph using SPSS because these statistical techniques are simple and easy to understand.

H. Data Validity and Reliability

Dawson (2007), in every quantitative data analysis, validity and reliability are paramount. Quantitative researchers strive to prove that their chosen method measures exactly what they intent to measure. They strive to ensure that their measurements are dependable and consistent to eliminate errors or bias, either from the respondents or from the researcher. A good research work must have a high degree of reliability and should also pass the validity test. Given (2008) "In research, validity is basically goodness or acceptability of a study whereas reliability is the dependability, consistency, and/or repeatability of a project's data collection, interpretation, and/or analysis". Reliability is also where a research instrument yield the same or similar results when it is used in another environment under the same condition and validity refers to a situation when research instrument measure what it is intended to record. To ensure validity, all questionnaires were self-administered to the right persons within the case study organization by the researcher and only data that was collected was analyzed. Questionnaires were pre-tested on a few selected respondents before they were finally administered to test for reliability.

DISCUSSIONS

Measures to Improve Inventory Management

In analyzing measures to improve inventory management, as part of inventory management practices in the hospital, priority was given to delays in stock replenishment, regular calculation of safety stock to ensure that it is updated, quarterly procurement meeting, delays in approval of items to be procured, and the automation of stores activities.

In all the questions posed, respondents were instructed to indicate their preferred option for each statement by ticking (×) in the right column on the 5 likert scale where 1= Strongly Agree, 2=Agree, 3=Neutral, 4= Disagree, and 5=strongly disagree. The table below is the result of respondents' answers in percentages.

Table Measures to Improve Inventory Management

MEASURES TO IMPROVE INVENTORY MANAGEMENT	1 %	2 %	3 %	4 %	5 %
There is no delay in replenishment of stock	5.08	5.08	22.04	27.12	40.68
Safety stock is calculated on a regular basis to ensure that they are up to date	1.70	66.10	28.81	3.39	
Operating inventory categories include safety stock, replenishment stock, obsolete stock	62.71	35.59			1.70
The hospital holds quarterly procurement meeting	6.78	59.32	23.73	6.78	3.39
There is no delay in approval of items to be procured by entity head	1.70	11.86	8.47	30.51	47.46
Frequency of order is determined based on calculations that minimizes overall cost		64.41	32.20	3.39	
The stores activities have been automated		1.70	18.64	15.25	64.41

Source: Field survey, July, 2016

As indicated in Table 4.8.1 above, on the issue of no delay in replenishment of stock, 5.08% strongly agreed, and another 508% agreed that there is no delay in replenishment of stock, 22.04% remain neutral, 27.12% disagree, and 40.58% strongly disagreed. These indicate that there is always some delays in the replenishment of stock. On the issue of whether safety stock is calculated on a regular basis to ensure that they are up to date, 1.70% strongly agreed, 66.10% agreed, 28.81 are neutral, and 3.39% disagreed. This indicated that safety is stock is calculated but is is not done on a regular basis. When respondents were asked if operating inventory categories include safety stock, replenishment sock and obsolete stock, answers indicated 62.71% strongly agreed and 35.59% agreed. This means that the hospitals operating inventory include safety stock, replenishment stock and obsolete stock. 6.78% strongly agreed, 9.35% agreed, 23.73% remained neutral, 6.78% disagreed, and 3.39% strongly disagreed that the hospital hold quarterly procurement meeting. The researcher was shown minutes as evidence of this meeting. On the issue of whether there is no delay in approval of items to be procured by the entity, 1.70% strongly agreed, 11.86% agreed, 8.47% remained neutral, 30.51% disagreed, and 47.46% strongly disagreed. The body language of the store staff reveal that there is delay in approval of items to be procured by the entity as a result of beaucratic procedures and also because the head of the institution is a surgeon, he is mostly not in the office to approve for the procurement of items. Respondent were asked to answer if frequency of order is determined based on calculations that minimizes overall cost and responses shows that 64.41%, 32.20% and 3.39% agreed, remained neutral, and disagreed respectively. This means that frequency of order is basically not determined by calculations that minimize overall cost. Finally respondents were asked if the stores activities have been automated and responses indicated that .70% agreed, 18.64% remain neutral, 15.25% disagreed, and 64.41% strongly disagreed. Observation at the stores shows that things are done manually and that the stores activities have not been automated.

CONCLUSION

The study revealed that replenishment of stock is always delayed. Safety stock is always calculated on regular basis and the operation inventory categories include safety stock, replenishment stock, and obsolete stock. The hospitals holds quarterly procurement meeting, however there is delays in the approval of items by the Entity Head, and the activities of the stores is done manually with no automation of such activities.

Recommendations

Looking at the problems faced in the stores department, the following recommendations were made for implementation to enhance inventory management practices in GHS. There should be coordination between store and suppliers to ensure that materials ordered are received on time. Ledgers and other records must be updated on time to ensure that ledger and physical balance tally to help detect theft early. Emergency orders are to be given the due

attention it deserves to prevent needless suffering and death of clients. Dispatch dock, and receipt dock should be decouple from within the storeroom to reduce incidence of pilfering. Orders are to be based on quantity discount and EOQ to ensure the best value for money spent is achieved. Unauthorized entry into the stores must be brought to an end. This is to prevent pilfering, theft, and accidents within the stores. Store keys must always be in the possession of store staff for security reasons and also prevent unauthorized entry into the store. The method of stocktaking be it periodic or continuous stocktaking must be known. Duration if stocktaking must also be known. Items stored in store must be coded for easy identification to reduce delays in serving requisition from user department. Items must be delivered as soon as ordered from the stores for smooth operations. User department are to be consulted before procurement of items to ensure that what is needed is what is bought to prevent wastage in the system. Authority for approval of items to be supplied to the hospital must not be delayed to prevent item stock-out at the stores. Electronic gadgets such as computers should be employed to help keep records and reduce stress on store staff.

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