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AN ASSESSMENT OF HEALTH COMMODITIES MANAGEMENT PRACTICES IN HEALTH CARE DELIVERY; A SUPPLY CHAIN PERSPECTIVE. THE CASE OF SELECTED HOSPITALS IN ASHANTI REGION-GHANA

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ABSTRACT

*Many developing countries spend sizeable sums on the purchase **of health commodities** yet an estimated 60–80% **of** their populations; particularly in rural areas do not have constant access to even the most **essential health commodities**. The regular provision **of** adequate amounts **of** appropriate **health commodities** is crucial if health services are to be effective and credible.*

This study therefore sought to assess the health commodities management practices in these selected hospitals and how they helped in improving health service delivery.

This study used a multi-method approach. Both quantitative and qualitative data were collected to answer the research questions. Both interviews and questionnaires were used to gather these data and analysis were done using words, graphs, tables and statistics. The one on one interviews and the administration of questionnaires was of an enormous help to the researcher for effective comparison of all responses.

After the study it was found that effective health commodities management makes efficient and enhances the health service delivery in these hospitals.

It is therefore important that staff of these hospitals is sensitized about the benefits of this all important concept to boost the performance of our health facilities in terms of the service delivery.

Keywords: Pharmaceuticals, Referral, Komfo Anokye, Management, Procurement, Antiretroviral

1.1 Background to the Study

Most leading causes of death and disability in developing countries can be prevented, treated or at least alleviated with cost-effective essential drugs. Despite this fact hundreds of millions of people do not have access to essential drugs. Although the relative frequencies of specific illnesses vary among countries, health services throughout the world are presented with a fairly common set of health problems for which essential drugs have an important role. Mortality figures across developing regions reflect a huge burden of illness that can be substantially reduced if carefully selected, low-cost pharmaceuticals are available and appropriately used. And even in industrialized countries escalating costs of health care have placed evidence-based and efficient health commodities management high on the agenda. Good health commodities management is an essential component of effective and affordable health care services globally. Within a decade after the first modern pharmaceuticals became available, efforts began to ensure their widespread availability. From the mid-1950s to the mid-1970s basic health commodities concepts began to evolve in countries as diverse as Cuba, Norway, Papua New Guinea, Peru and Sri Lanka. Over the last 20 years countries have acquired considerable experience in managing health commodities supply. Broad lessons that have emerged from this experience include: that national drug policy provides a sound foundation for managing health commodities; that wise health commodities selection underlies all other improvements; that effective management saves money and improves performance; that rational drug use requires more than drug information; and that systematic assessment and monitoring are essential. **(The Essential Monitor, 1998 Issue No 25&26)**

Reliable and affordable supplies of commodities are critical for the success of the health sector. They affect the quality of the services, and their availability and cost as well. An effective commodity management system must be in place to ensure their accessibility and effective use, both at the service delivery level and in referral services. (WHO, 2009)

Commodity management in the health sector should follow well-established principles but must be flexible and responsive to the varied settings and services offered to ensure effective health service delivery.

1.2 Statement of the Problem

The number, size and complexity of emergencies exceed any one health institution's capacities. Only through effective management, collaboration and coordination with partners will any health institution achieve its mandate on behalf of victims. Emergencies stretch any health institutions organization's capacity to deliver the most appropriate supplies (health commodities) where and when needed. Effective health commodities management in health facilities especially in Ghana leaves much to be desired. An instance recently is the management of the fresh outbreak of CSM in the northern Part of Ghana and I quote **"Fresh outbreak of CSM…. 17 killed in Upper west"**. Summarizing the story published the vaccine for the disease was not in stock and that upon request it would be manufactured. On the contrary the health experts knew that CSM was prevalent in the north because of existing weather conditions so all efforts should have been made to ensure proper health commodities management. The vaccine was just not available so countless people lost their lives**! (Daily Graphic, Tuesday 23rd February 2010, No 18158, page 1, 3, 24-25)**

This is one of the many problems encountered when there is no effective commodities management in these hospitals not to mention but a few, lack of logistical infrastructure to store drugs, improper monitoring of drug expiration times, poor procurement practices, distribution problems as well as usage problems

1.3 Research Objectives

The general objective of this research is to find out how effective health commodities management affects health service delivery in the chosen hospitals. The researcher further set out to achieve the following specific objectives.

1. To find out why these hospitals need to undertake Health Commodities Management.
2. To ascertain the benefits enjoyed by these hospitals with an effective Health Commodities Management system.
3. To find out what determines effective Health Commodities Management
4. To find out the challenges faced by these hospitals when undertaking Health Commodities Management.
5. To find out about the strategies used by these hospitals in carrying out effective Health Commodities Management.

1.4 Research Questions

1 Why do hospitals have to manage Health Commodities?
2. What are the benefits of effective Health Commodities Management to these hospitals?
3. What are the determinants of effective Health Commodities Management in these hospitals?
4. What are the challenges faced by these hospitals with regards to Health Commodities Management?
5. What are the strategies employed by these hospitals to deal with Health Commodities Management?

1.5 Research Methodology

A review of the literature will be conducted on health commodities management in order to develop research hypothesis. There are two sources from which data was collected for this research. These are the primary and secondary data. The primary source of data for this research involved the questionnaire, semi-structured interviews and observation. The secondary sources also involved journals, textbooks, unpublished thesis, magazines and bulletins. The main instruments used to collect primary data for the purpose of this research were interviews and questionnaires. . Since interviews allow the interviewee to describe the world as they experience it (Kvale, 1996; Rubin & Rubin, 1995), it was particularly important for this topic where there were not many materials available in the existing literature. According to Rubin & Rubin (1995), interviews serve as an extension of ordinary conversation and it allows for interaction "to achieve richness and depth of understanding". Two groups of participants were involved in the study. The first group represented core staff at these hospitals. The second group consisted of supporting staff at these hospitals. Questionnaires were sent to these hospitals to be given to respondents. Researcher made sure she helped respondents who were finding it difficult to answer the questions. Some questionnaires were administered electronically. Before that a letter explaining the purpose of the survey, the instructions, and confidentiality statement were made available to the participants. A population consisted of all elements; individuals, items or objects whose characteristics are being studied. The population that is being studied is also called the target population (Mann, 1995). The target population therefore, for this study comprised of core staff and supporting staff of the hospitals chosen as the case studies. The cases that make up this sample are: Bekwai Municipal hospital, Obuasi Government hospital and Komfo Anokye Teaching hospital and all in Ashanti Region. A purposive sampling approach was used since the sampled hospitals had different levels of health commodities management procedures; this method promoted a good comparative study. Hospitals in Ashanti region were considered because they were easily accessible to the researcher. A total number of 3 administrators (1 from each hospital), 9 stores personnel (3 from each hospital) 9 procurement personnel (3 from each hospital), 3 pharmacists (1 from each hospital), 9 doctors (3 from each hospital), 18

nurses (6 from each hospital) and 30 patients (10 from each hospital) were selected at random from each hospital This gives a total sample size of 81. To confirm the results of the questionnaire, interviews and discussions were conducted with the health administrators, core staff and supporting staff of these selected district hospitals.

Data analysis will use the SPSS software. Statistical tests will be run. Descriptive statistical tools such as Graphs, frequency tables, correlations and T-test will be employed. Also inferential analysis will be employed. Content Analysis was employed to analyze the verbal and non verbal interviews

1.6 Justification of Study

Commodities Management is very important to the success of almost all health institutions as they all rely on different kind of commodities like health and food. Health commodities management is an aspect of the bigger picture of commodities management. In many parts of developing countries and in Ghana especially, there are enormous gaps in meeting the demand for essential drugs and commodities. Substandard and counterfeit medicines are increasingly posing a public health threat, as they compromise treatment, help fuel antimicrobial resistance, and risk undermining the impact of health interventions overall.

This research is justified first of all because of the lack of research on this concept. During the preliminary studies before the research was carried out it was found that little research had been done on this topic. Secondly this research is justified because of the contribution this research is going to give to the already scanty information on this topic and finally carrying out this research will enhance the pool of research information by future researchers.

1.7 Limitation of Study

Almost every research work inevitably faces some basic limitations and this study is no exception. Time frame for the completion of this research was a major limiting factor which affected the conduct of a comprehensive research. Lack of readily organized data was also a limiting factor, however within the constraints; all attempts were made to undertake a valid comprehensive study

LITERATURE REVIEW

2.0 Introduction

2.1 Perspectives on the Definition of Health Commodities Management

Commodity management refers to overseeing the logistics of receiving, storing, transporting and distributing commodities along with maintaining commodity accounts and documents, preparing necessary commodity reports and keeping commodity losses to an acceptable minimum. (MSH, 2009) In the context of health services, commodities include reagents and test kits, laboratory equipment and supplies, condoms, vitamins, and other medical supplies and equipment such as specimen collection tools .However, it is recognized that the availability of commodities for related services is critical to the success of comprehensive health programs.

According to African Medical research Foundation (2009) commodity management is a set of activities and procedures that ensure that health commodities are available, accessible and of high quality.

Health commodities management has also been defined by GTZ (2007) as the activities that health care providers must perform to get sufficient quantities of health commodities — of assured quality, at a competitive price and in accordance with national and international laws — to the patients who need them, in a reliable and timely fashion.

2.2 The importance of Effective Health Commodities Management

The proper management of health commodities ensures that they are available and accessible to all staff serving patients at a health facility. Thus all staff has an important role to play in ensuring good commodity management even if they do not directly handle the commodities.

AMREF (2009) says Commodity management is important for the following reasons such as demand for health care services, Quality of health services, cost, prevents wastage, ensures continuous availability, ensures full supply and avoids irrational or incorrect use. These are explained in turn as follows:

2.2.1 Demand for Health Care Services

The availability of drugs, health commodities increases the demand for health care services. If the commodities are not continuously available and accessible, then a health facility is not able to offer the care and treatment required.

2.2.2 Quality of Health Care Services

Presence of commodities increases staff motivation to provide services. When commodities are not available, then staff feels discouraged since they are not able to offer good patient care.

2.2.3 *Cost*

Most health commodities are ***Costly*** to procure and to manage, yet most developed countries and Ghana inclusive have limited resources. Managing the commodities ensures that they are stored and distributed efficiently to prevent wastage.

2.2.4 Ensure Continuous Availability

Some health commodities example ART is ***life-long***. This means that continuous availability of the ARV drugs is required at the health facility where the patient receives his treatment.

2.2.5 Ensure Full Supply

Effective health commodities management ensures full supply at health facilities.

2.2.6 Prevent Wastage

Many health commodities have a short shelf-life, usually less than 2 years by the time they reach a health facility. Hence there is need for careful management to minimize expiries.

2.2.7 Incorrect/Irrational Use

Incorrect /irrational use of drugs makes them harmful, and may complicate treatment of the patient.

2.3 The Commodity Management Cycle

Management Sciences for health (2009) describes the commodity management cycle made up of various components and these components are listed and discussed below.

- Product selection
- Procurement
- Inventory management (with storage & distribution),
- Use

2.3.1 Product Selection and Effective Health Commodities Management

The product selection process allows you to lay a sound basis for selecting commodities. It guides by giving the reasons and criteria that should be used for deciding which products to procure AMREF (2009).

In any logistics system, products must be selected. In a health logistics system, product selection may be the responsibility of a national formulary and therapeutics committee, pharmaceutical board, board of physicians, or other government-appointed group. Most countries have developed essential drug lists patterned on the World Health Organization (WHO) Model List.

The committee's ability to select from among products is influenced by other elements of the logistics cycle. Perhaps the most important of these is the budget available to purchase the chosen products. For example, boards often choose generic drugs over name brands that may be more expensive.

Many programs supplement the development of essential drug lists (which focus on those products deemed most cost-effective in treating priority health problems) with programs to promote rational drug use. Rational drug use efforts aim to help prescribers choose the right product for each health problem and the correct quantity to dispense. Good dispensing practices and patient education on using drugs correctly are other elements of rational use programs.

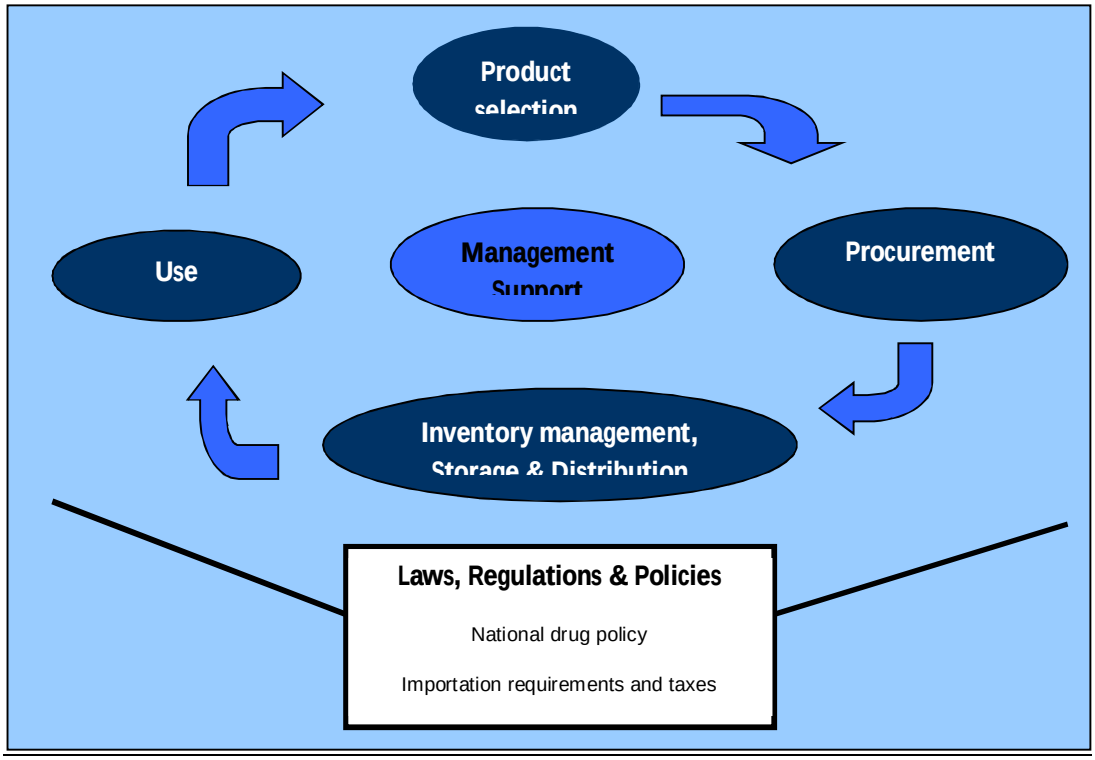

Figure 2.1: Commodity Management Cycle. Adapted from: Managing Drug Supply, 2nd Edition, Kumarian Press

2.3.2 Procurement and Effective Health Commodities Management

According to WHO (2000), fully one-third of the world's population does not have access to essential medicines. In Sub-Saharan Africa and South Asia the figure is closer to 50 percent WHO/WTO (2001). The problem is in part financial. The combination of donor support, multilateral loans, country financing, and out-of-pocket expenditures is inadequate to meet the growing need among poor populations for essential medicines, including contraceptives and other Reproductive health products. On closer examination, the inability of country programs to procure medicines effectively and efficiently is also a major cause of poor access. Procurement agencies in parts of the world where access is low are paying many times more than standard international reference prices for essential medicines, which effectively reduces product availability in clinics and hospitals (HAI 2006).

The process of obtaining services, supplies, and equipment in conformance with applicable laws and regulations (USG 1996)—takes place locally, nationally, and internationally among a number of public, private, national, and local entities. The procurement process is inherently complex because it involves the coordination of MOH

agencies, funding sources, suppliers, and manufacturers. In low-income countries, the process is often constrained by limited human resources, inadequate financing, an absence of information on prices and suppliers, a lack of awareness of government and donor regulations, overlapping systems, and unsynchronized or outdated rules and guidelines. These constraints can contribute to delayed shipments, high prices, and, ultimately, reduced access to essential medicines for consumers. The lack of capacity to select, forecast, and quantify product require-ments, and to manage the procurement process, disrupts the distribution of health commodities to the client. In this context, commodity security cannot be strengthened unless procurement functions are made more effective.

2.3.3 Quantification

Quantification is not a new concept. For example, we quantify how many litres of milk we consume every day based on our budget and use that as the basis to purchase the milk. Similarly, in health commodities quantification refers to the process of calculating the *quantities* of specific commodities required for a health programme for a *givenamount of resources available*, e.g. for a given budget. For example, you may want to quantify the commodities needed for a HIV/AIDS programme in order to treat and care for 100 patients within a budget of 10 million Ghana cedis (Foster, 2009).

2.3.4 The Procurement Cycle

The procurement cycle can be illustrated by figure 2.2 where products have been procured from suppliers:

2.3.5 Procurement Methods

In Ghana, procurement in the public sector is governed by the Public Procurement Act, Act 663 (2003) and this act outlines the various methods of procuring health commodities.These methods are discussed.

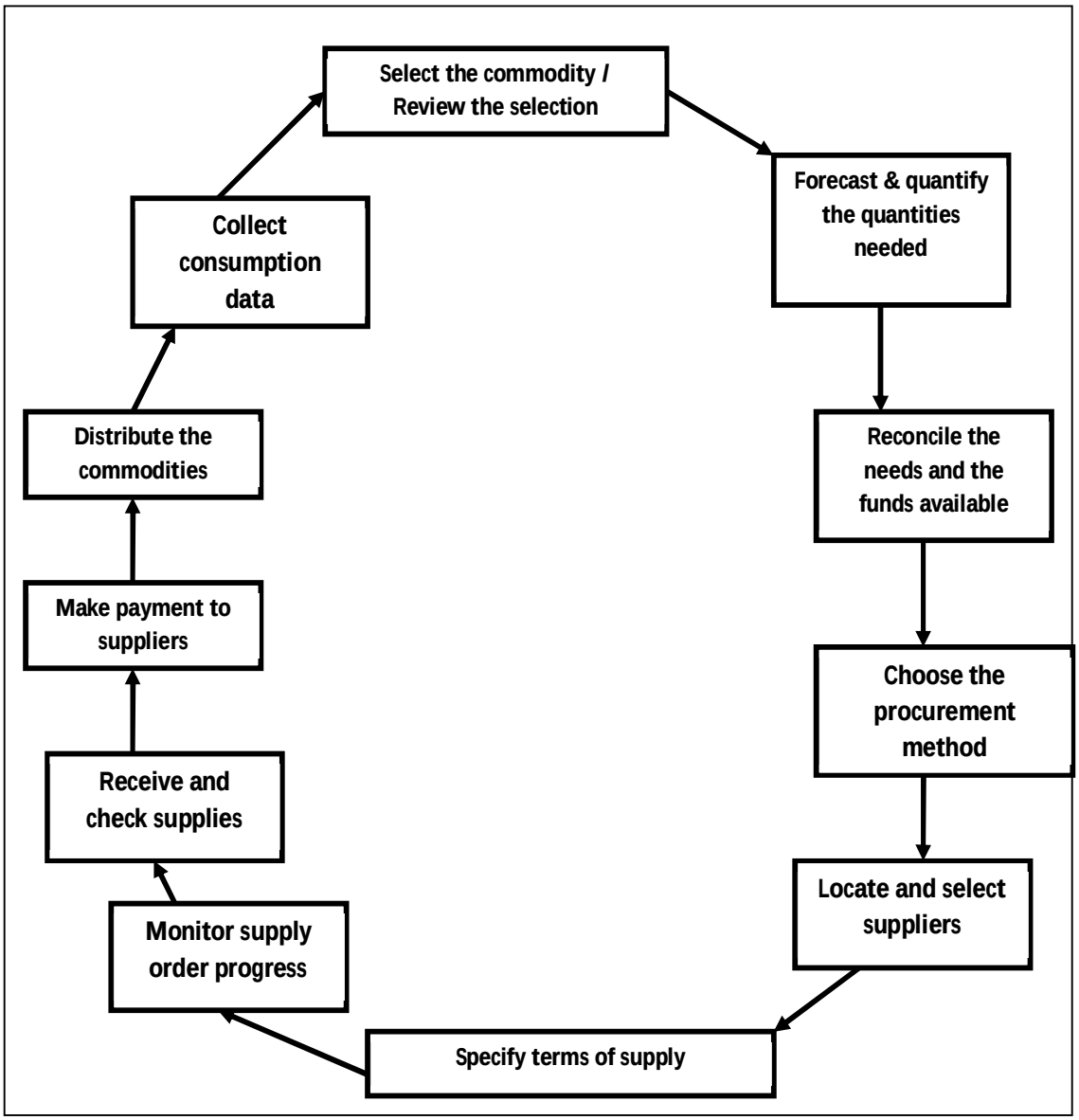

Figure 2.2: Procurement Cycle (AMREF 2009)

2.3.5.1Open tender

This is a formal procurement process in which local or international suppliers (or their representatives) are invited to submit bids for the supply of commodities under the terms and conditions stipulated in the tender. This method allows for the widest selection of potential suppliers. However it is a time-consuming and bureaucratic method.

2.3.5.2 Closed or Restricted tender

Similar to open tender but here the bidding is limited to suppliers meeting certain conditions, e.g. suppliers of a certain financial capacity, suppliers producing drugs of a certified quality. These suppliers are short-listed using a pre-qualification procedure. It assists by reducing the potentially large number of suppliers who may bid, as compared to the open tender.

2.3.5.3 Competitive negotiation

Here, the buyer selects a small number of suppliers and negotiates prices with them directly. It is useful for bulk procurements or for emergency supplies.

2.3.5.4 Direct purchase

The product is purchased directly from one supplier. This is the simplest method but usually very expensive since the buyer does not seek better value by checking out other suppliers. It's useful for small procurements or for emergency supplies.

2.3.6 Inventory Control, Storage & Distribution and Effective Health Commodities Management

After the product arrives in-country, it enters the inventory management and distribution system; this includes all the storage facilities and transport links at the various levels throughout the system. Adequate storage and inventory control is a challenge—many drugs expire before they can be used, or they are used irrationally. Eventually, and at the right time, the products reach the service delivery point, which might be a health facility, laboratory, or community health worker.

Finally, at the point of delivery to the customer, there is product use. Availability of health commodities alone does not ensure quality of care. Drugs must also be rationally prescribed and dispensed; and clients, especially providers, must be aware of the treatment guidelines for the products. Rational prescribing and use of drugs is a major challenge, even where STGs and EMLs exist. Physician training in rational prescribing is gaining ground but is still not widespread (DELIVER, 2003).

In the past, essential drugs, vaccines, and contraceptives were for the most part distributed using separate logistics systems. For vaccines and contraceptives, such systems were organized vertically to some extent, and because they were concerned with a far more limited range of products, the task was somewhat simpler.

A push has been made to integrate the distribution systems for drugs, vaccines, and contraceptives, although in most places separate systems are still operating, at least at the national level and often down to provincial levels. Vian and Bates (2003) noted a number of changes to the distribution systems in the past few years. In many countries, health sector reform programs included efforts to reform central medical stores to allow more autonomy and to introduce commercial incentives and improved management methods. In some cases, this reform has led to higher staff productivity, better performance, and more enforcement of payment policies. However, disruption in supply often occurs during central medical store transition phases. Increased integration of commodities, including contraceptives and vaccines, has also been noted. In some cases, it has decreased the amount and reliability of data collected on logistics, creating problems for needs estimation and for tracking of consumption (Vian and Bates 2003).

Another trend is the increasing use of private transporters and contracting out for transportation management; contracting transport can generate cost savings and improve services. Finally, a trend toward computerized systems exists, particularly involving the use of donor-financed software for improved management of logistics as well as a number of comprehensive assessment tools and indicator sets for evaluating drug supply systems. But the proliferation of software systems, with little coordination and not enough support and maintenance of complex and fragile computer systems, can be counterproductive, especially if paper-based systems that are difficult to reintroduce upon failure of the computer system are abandoned (Vian and Bates 2003).

2.3.6.1 Storage and Stocks Management

Drugs require secure storage in controlled climatic conditions and a reliable method of stock rotation. The FEFO rule (first expiry, first out) helps ensure that older stock is used up first. Security is another major consideration: access to the storehouse must be carefully controlled so that theft and embezzlement are minimized, and the persons who control access must themselves be trustworthy. Proper storage conditions, including minimizing exposure to heat, light, and humidity, are important for some drugs, but most drugs have proved remarkably resistant to poor conditions. Notable exceptions are tetracycline products, which become toxic when exposed to heat and oxytocin and ergometrine, which lose their potency when exposed to light and heat; all should thus be stored in the refrigerator. The same applies to insulin and, of course, most vaccines. Correct FEFO stock rotation will ensure that exposure to harsh conditions is minimized and that potency is preserved as much as possible. Ensuring good air circulation and preventing direct water contact are most important.

2.3.6.2 Management of Donated Drugs

Management of donated drugs is a major problem in some areas, particularly if an emergency has precipitated an influx of drug donations. The best strategy is to accept only invited donations of drugs that the facility has specifically asked for (WHO 1999a). Any drug that is neither vital nor essential, that is not labeled clearly with its generic name, that is expired, that is in a package that contains only a few days' dosage, or that is not on the national essential drugs list or on the facility's formulary should be discarded—and the pharmacist should feel no guilt and fear no sanctions about disposing of such materials. They take up space, require tracking like other drugs, and present a risk of being accidentally dispensed to a patient and causing the patient harm—a factor that must also be taken into account. Proper disposal can be a problem. These drugs constitute potential toxic waste, and they should be treated as such and disposed of so that they cannot be retrieved and sold (WHO 1999b).

2.3.6.3 Vaccine Management

Vaccines are delicate products that are destroyed if handled incorrectly. Vaccine management involves the use and distribution of vaccines, from the manufacturers to the end users. Aspects of vaccine management include inventory and forecasting, stock control, in-country distribution, storage and handling, equipment replacement plans, procedures for the use of the vaccine, monitoring of vaccine storage, transport management, and operational management.

Forecasting of vaccine needs is the first building block of an adequate management system. In 2002, 22 of 82 countries surveyed by UNICEF indicated that they had experienced a vaccine stock out. In addition to lack of resources, the main reasons cited included poor or late forecasting.

At the country level, emphasis is being put on the use of new tools, such as the vaccine vial monitor. This heat-sensitive label is a time-temperature indicator used to ensure that the vaccines have not been damaged by excessive exposure to heat, to identify weaknesses in the cold chain, and to take vaccines beyond the cold chain to children who have no access to fixed health facilities.

Together with the increased use of vaccine vial monitors, the gradual adoption of the multidose vial policy contributes to the reduction of wastage. This policy of using opened multidose vials of vaccine in subsequent immunization sessions applies to all multidose vials of liquid vaccine containing thimerosal (WHO 2000). The policy was formulated in 1996 but its adoption remains limited.

2.3.7 Logistics Management Information system and Effective Health Commodities Management

WHO (2009) states that designing an effective and sustainable supply chain system for drugs and other commodities is important and can be complex. A correctly run distribution system should also keep drugs in good condition, rationalize drug storage points, use transport as efficiently as possible, reduce theft and fraud and provide information for forecasting needs. This requires a good management of the system along with a simple but well-designed information system in place.

Data for decision making is crucial to the operation of any logistics system. Commodity procurement and financing, shipment scheduling, and routine ordering, among others, cannot be accomplished without accurate logistics data.
An agile LMIS captures the right amount and types of data from all levels of the system in a timely manner and ensures an uninterrupted supply of ARV drugs despite unpredictable and rapid changes in consumption.

2.4 Management Support and Effective Health Commodities Management

The commodity management cycle is held together by a good management support system. Management for health sciences (2009) and the components are discussed below.

2.4.1 Organization and staffing
A logistics system can only work if well-trained and efficient staff place orders, move boxes, and provides goods to clients. Health programs must be organized to provide the appropriate resources (for example, supervision authority and technical knowledge) to complete logistics activities. Organization and staffing, therefore, are an important part of the cycle. Logistics staff must make the six rights a top priority for a logistics system to work properly.

2.4.2 Budget
Budgeting affects product selection, the quantity of products procured the amount of storage space available, and the number of staff working in logistics. Logistics activities must receive sufficient funding in the budget if the whole system is to operate effectively.

2.4.3 Supervision.
Supervision of the logistics system keeps it running smoothly and helps anticipate needed changes. Effective supervision helps avoid problems or resolves them quickly before they grow into crises.

2.4.4 Evaluation
Evaluation of the logistics system can help demonstrate the impact of the system on other elements.

2.5 Alternate systems of Health Commodities supply

The Essential Monitor (1998) looks at alternative systems of commodities supply and these are discussed.

2.5.1 Central medical stores *(CMS)*
This is a conventional drug supply system, in which drugs are procured and distributed by a centralized government unit; a central medical store should serve the public through the selection, procurement, storage, sale, and distribution of good-quality, safe, and cost-effective pharmaceuticals and health commodities for use in the diagnosis, treatment, and prevention of disease. In a number of countries, the CMS is part of a broader procurement and distribution unit. The procurement function is often set apart in a separate purchasing department or procurement unit, with the CMS managing the warehousing and distribution only. In Ghana, for example, the MOH's PSD has management responsibility for both the CMS and a separate Procurement Unit that purchases essential medicines, consumables, and capital goods for the MOH. In this model, a procurement unit for health sector goods completes the bidding and tendering process directly or manages third party procurement agents acting on its behalf. This model does not

preclude contracting out some components of the supply chain, such as transportation. One of the main drawbacks of the CMS model is the potential for political interference and the lack of accountability and performance resulting from high staff turnover.

The following are some of the functions and services of this model:

- procurement, warehousing, and distribution of medicines and medical supplies;
- quality assurance of medicines;
- drug information services; and
- training in materials management.

2.5.2 Autonomous Supply Agency

An ASA is a central store managed by an autonomous agency that reports to the government or is managed by a private firm under government contract. The ASA model is similar to the CMS model but usually operates with different financing mechanisms, such as a revolving drug fund (RDF) and different governance structures. An example of an operational ASA is the Medical Stores Department (MSD) in Tanzania, which has its own legal framework, incorporated in the Medical Stores Tender Board Act No. 13 of 1993. After the Tanzanian National Pharmaceutical Company (NAPCO) was liquidated in 1997, most of its functions were taken over by the newly formed MSD, which today is the major procurement, warehousing, and distribution body in Tanzania. This was a way to bring strong procurement management into the public sector and satisfy the demands of stakeholders for a more effective and efficient use of public resources. Under its mandate, MSD can contract with outside agencies (NGOs) to procure on its behalf; it uses ICB procedures and economies of scale to achieve competitive prices for pharmaceuticals and other health commodities. There is a risk element in the governance and accountability of ASAs. Good oversight and auditing, along with performance monitoring and evaluation, are minimum requirements.

2.5.3 Direct delivery system

This is a decentralized, non CMS approach in which drugs are delivered directly by suppliers to districts and major facilities. The government drug procurement office tenders to establish the supplier and price for each item, but the government does not store and distribute drugs from a central location;

2.5.4 Primary Distributor System

Another non CMS in which the government drug procurement officeestablishes a contract with a single primary distributor, as well as separate contracts with drug suppliers. Theprimary distributor is contracted to manage drug distribution by receiving from the suppliers, storing, and distributing all drugs to districts and major facilities;

2.5.5 Fully private supply

In some countries, drugs are provided by private pharmacies in or near governmenthealth facilities. It is possible to identify some advantages and disadvantages for each of theabove systems and to make some theoretical comparisons, but true comparisons of cost-effectiveness have not been made. In part this is because other issues have made such comparisons very complex.

The introduction of policies on user charges, decentralization, contracting-out and privatization all have an impact on the drug supply system.

2.5.6 Centrally Managed Parastatal

A parastatal organization is a company or agency owned or controlled wholly or partly by the government. Public procurement by parastatal organizations is regulated by the specific laws that establish these organizations; in addition, the parastatal promulgates its own financial and procurement regulations and claims certain autonomy. However, despite the autonomy these companies claim to have, they are often subject to political influence. Since the mid-1990s, many

Sub-Saharan African countries have established divestiture strategies for privatizing or liquidating their parastatals, mainly for economic reasons. An example of a functioning parastatal in the field of pharmaceutical and health commodities procurement and distribution is the Ashanti Regional Medical Supplies Agency (This parastatal functions with a board of directors and includes representation from the Ghana Medical Association (GMA). Their mandate includes the procurement, warehousing, and distribution of health commodities. Currently, it operates a cash-and-carry *pull system* for health commodities on behalf of the public sector. Generally, parastatals make their own decisions on procuring health commodities, ideally based on price and quality. This includes the selection of generic versus branded products.

2.6 Challenges in Health Commodities Management

Inadequate availability of and access to essential health commodities are major barriers to the delivery of essential health care in developing countries. A recent survey in Nepal found that the availability of 32 selected essential reproductive health (RH) commodities in public sector outlets was less than 25 percent Rao and Thapa (2005). In a companion study in Nicaragua, only 20 percent of these medicines were available to public sector clients PATH (2005).

Efforts to address this challenge have focused on seeking additional and diversified funding sources and procurement channels. These efforts are essential. Adequate funding to purchase commodities and functional procurement mechanisms are prerequisites for any program. However, these efforts have resulted in a more complex procurement environment involving more choices and requiring greater coordination. They have increased the burden on existing systems already struggling with limited human and organizational capacity. In this context, it is therefore crucial to understand how to strengthen procurement management systems and untangle the combinations of options and strategies available to public health sector procurement programs.

The main objective of effective health commodities management is to ensure that the necessary products are available where and when they are needed, in the correct quantities and that they are used properly. Barriers to achieving these objectives can occur at any of the four stages of the health commodity management cycle and these as discussed below The Essential Monitor (1998) outlines these major challenges.

2.6.1 Restricted selection

Outdated national guidelines for testing, diagnosis and treatment that are inconsistent with recent international (e.g. WHO) guidelines and best practices often cause health care managers to make unwise choices. A dearth of accurate data and information about the quantity and quality of the products required also undermines their work. Selection may be restricted by long in-country delays in approving medicines and diagnostics that have already been approved by stringent regulatory authorities (WHO Selected Medicine Information Systems or the U.S. Food and Drug Administration, for example). Furthermore, few governments have chosen to exercise the flexibilities that allow for the domestic production of generic medicines in public health emergencies such as HIV epidemics. A further challenge is the widespread availability of counterfeit and substandard medicines

2.6.2 Poor procurement

Three main challenges to rational procurement are poor quantification, opaque or corrupt procurement and tender practices and procedures, and poor financial management and payment methods. Inaccurate quantification is common in the absence of reliable data on illness and usage. It leads to shortages of essential medicines and other supplies and wastage; for example, owing to the purchase of stocks of medicines not used before

their expiry dates. Poor payment systems and methods can lead to manufacturers refusing to fill subsequent orders and stock-outs — which can put the lives of thousands of people at risk. In addition, health care managers in many needed to develop sound procurement and supply plans — a critical part of Global Fund applications for financial support, as well as of good housekeeping. They may also be unaware of the numerous tools and methods available for quantification and procurement, be unaware of best practices and may choose uncertified suppliers. The result: poor quality medicines and other products are more likely to be purchased, causing patients and the general public to distrust health care providers and whole health systems.

2.6.3 Undermined distribution

Distribution includes storage and inventory management, physical distribution and tracking of products nationwide. The distribution of goods is frequently handicapped by inadequate infrastructure, excessive centralization and the lack of effective management information systems. It is also undermined by a shortage of warehouses and transport vehicles ,poor roads and broken bridges, missing links in and poor management of the cold chain (a fatal flaw for heat-sensitive antiretroviral),and clinics without secure storage space. The information systems for tracking stock and associated documentation may also be poorly managed, leading to gaps in the control of orders at all levels. Front-line healthcare providers lack the knowledge, or may not be legally authorized, to place orders. Mismanagement of distribution is therefore common, leading to both the over supply of unnecessary products and the under supply or stock-outs of essential items, including life-saving and other essential medicines.

2.6.4 Irrational use

The correct medicine for the correct patient, taken at the correct time, in the correct quantity and correct way, for the correct period and with the correct precautions is crucial. This calls for accurate prescribing, wise dispensing and good advice .Unfortunately, rational use is often undermined by economic factors, inaccurate information (sometimes deliberately provided by the supplier to increase consumption and sales), System weaknesses and a lack of public knowledge about usage. System weaknesses include, for instance, outdated national guidelines that do not recommend the use of pediatric formulations of HIV medicines and diagnostics for children. Many children in low-income countries, therefore, rely on adult formulations of HIV medicines that are cut by hand — and receive inexact doses. The widespread shortage of skilled health workers (in rural clinics in sub-Saharan African countries, for example)is a critical factor that contributes to their rational use of health care products, as does widespread corruption, theft and fraud. Furthermore, extreme poverty among patients and their families often results in the misuse of drugs provided free of charge: for example, poor people often sell their medications to pay for food for other family members. In many countries as well, lack of education and widespread ignorance about disease, treatment and human rights prevent at-risk populations from asserting their needs, demanding quality services and ensuring rational use. The failure of countries to empower at-risk populations contributes to this malaise.

DATA ANALYSIS AND INTERPRETATION

4.1 Reliability Analysis

To achieve reliability and validity of the questionnaire, the Cronbach's alpha for 29 questions (Items) was calculated.

Table4.1 Reliability Analysis

Total(N)	Cronbach's Alpha	Number of items
50	0.82	29

Source: fieldwork, 2010

From the analysis the Cronbach's alpha for the twenty nine (29) questions was found to be 0.82 which is above the standard of 0.70. This means the questions are reliable and valid.

4.2 Descriptive Summaries

4.2.1 Background of respondents (Interviewees) and Responses

Core Staff and supporting staff represented the following: Bekwai District hospital, Obuasi Government Hospital in Kumasi. Most of the staff interviewed had at least three years working experience with their various organizations. Staff at various departments shared common views about how health commodities are managed in these hospitals.

Out of the 81 questionnaires administered to staff of these hospitals, 50 questionnaires were retrieved. 16 questionnaires were retrieved from Bekwai district hospital, 16 from Obuasi government hospital and 18 questionnaires from KATH all representing a percentage of 32,32and 36%.

Table 4.2 Respondents Institution

Institution	Frequency	Percent
Bekwai Municipal hospital	16	32.0
Obuasi Government hospital	16	32.0
KATH	18	36.0
TOTAL	50	100.0

Source: Field work, 2010

Fig 4.1.2 Job Title of Respondents

Fig 1: A graph representing the analysis on Job Title of Respondents
Source: fieldwork, 2010

All the respondents were core and supporting staff of these hospitals. Out of 50 questionnaires retrieved, 3 were Hospital administrators, 9 were Medical doctors, 12 were Nurses, 3 were procurement bosses, 3 were Heads of stores, 3 were Pharmacists and the others represented procurement officers and supply officers (Fig 1) This meant that basically the procurement and stores departments of these various hospitals were the larger population signifying that the opinions of members of these departments were very important to the success of this research not in the least trying to play down the roles of the other staff of the hospital.

4.3 Knowledge on Health Commodities Management

This section comprised of questions that tested respondents on the level of knowledge of the research topic.

4.2.1 In this hospital health commodities management involves?

This question comprised of four definitions of health commodities management and respondents were asked to disagree or agree

Table 4.3Analysis of definitions on health commodities management

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variables	Total(N)	Mean	Standard deviation
Overseeing the logistics of receiving, transporting and distributing commodities	50	4.52	0.86
Maintaining commodity accounts and documents, preparing commodity reports and keeping commodity losses to an acceptable minimum	50	4..54	0.81
A set of activities and procedures that ensure that health commodities are available, accessible and of high quality	50	4.64	0.83
The activities that health care providers perform o get sufficient commodities of assured quality at competitive prices in accordance with national and international laws	50	4.34	1.06

Source: Fieldwork, 2010

It was found out that respondent's knowledge about the research topic was quite high on the whole. With means of 4.52, 4.54, and4.64, with corresponding standard deviations of 0.86, 0.81, and 0.83 representing the dispersion, showing less variability of opinions of the respondents confirms this fact. However respondents showed high variability in opinions with the last definition with a standard deviation of 1.06 confirming this fact.

4.3.2 We have a good understanding of commodities management, benefits, importance, trends and strategies.

This agreement statement was made to find out further the knowledge base of the staff of the hospitals under study concerning the concept.

Table 4.4 Good understanding of commodities management

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Good understanding of HCM	50	4.36	1.05

Source: fieldwork, 2010

Respondents agreed to a little extent that they had a good understanding of commodities management, benefits, importance, trends and strategies. A mean of 4.36 confirms this fact. A standard deviation of 1.05 further supports the fact that there was a high variability in opinions concerning this statement. This is mainly coming from other departments other than procurement and stores who have a satisfactory level of knowledge about this all important concept. (Table 4.3)

4.4 Effective Commodities Management Practices

This section looked at what the hospitals do in terms of managing health commodities. It focused on laws (locally and internationally) under which health commodities are procured, proper inventory, storage and distribution systems and the prevention of incorrect/irrational use. The section comprised of four questions and these are discussed below.

4.4.1 We are very particular about the product selection process in this hospital

This statement wanted to find out whether the hospitals were very particular about product selection.

Table 4.5 Analysis on product selection

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Hospital	Mean	Standard deviation
Product selection	18	KATH	3.28	1.45
	32	Districts	3.03	1.40

Source: fieldwork, 2010

Product selection, which is a major step in the commodity management cycle, was almost non existent in the district hospitals and KATH. In all the hospitals under study, they had a procurement plan drawn up and this involved leaders in each department sending a requisition of items needed in that department at the particular period. A mean of 3.28 for KATH shows that product selection was non existent. A standard deviation of 1.45 shows variable views on the fact that the hospital was very particular about product selection. At the district hospitals, the same procedures were existent. A mean of 3.03 and a standard deviation of 1.40 support the fact that both hospitals were not particular about product selection

4.4.2 There is a proper inventory, storage and distribution system in place

Table 4.6 Analysis on inventory storage and distribution system

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Inventory, storage and distribution	50	4.48	0.95

Source: Fieldwork, 2010

Most of the respondents from all the hospitals agreed from the data gathered that they had a proper inventory, storage and distribution system in place. They reiterated this cycle in the commodities management was very important since without the effectiveness of this stage the commodity management cycle cannot work. This is confirmed from the mean and standard deviation values of 4.48 and 0.95 respectively from table 4.9.

4.4.3 We obtain services, supplies, and equipment in conformance with applicable laws and regulations.

This statement wanted to find out whether health commodities were procured in conformance with applicable laws and regulations.

Table 4.7 Analysis on laws and regulations

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Applicable laws and regulations	50	4.48	0.84

Source: Fieldwork, 2010

From the mean score of 4.48, it was confirmed that healthcare providers get sufficient health commodities of assured quality at competitive prices in accordance with national and international laws. They mentioned the Ghanaian procurement law as the main law that governs the procurement of health commodities in Ghana. A standard deviation of 0.84 showed a low variability in opinions.

4.4.4 What procurement method is used by this hospital?

This question wanted to find out the different and major procurement methods used by these hospitals.

Table 4.8 Procurement methods

Procurement Method	Frequency	Percent
Open Tender	18	36.0
Closed or Restricted Tender	1	2.0
Competitive Negotiation	9	18.0
Direct Purchase	5	10.0
A mixture of different methods	17	34.0
Total	50	100.0

Source: Fieldwork, 2010

From table 4.4, 36 percent of respondents chose open tender, 2 percent chose closed or restricted tender, 18 percent chose competitive negotiation, 10 percent chose direct purchase whilst 34 percent said they used a mixture of different methods. There was a lot of variability in the chosen answers because of the different case studies obviously. In the district hospitals in particular they use a mixture of different methods based on the situation at hand and the particular products to procure, it could be sole sourcing, emergency tendering, open tender and what have you. It was a different case at KATH who most of the time uses an open tender system of procurement; however they could sole source based on the need of the hospital at that particular time.

4.4.5 We prevent irrational/incorrect use of supplies by showing users the right way to use supplies.

Again this statement talked about irrational/incorrect use of health commodities and the role these hospitals play in curbing this.

Table 4.9Analysis on irrational/incorrect use

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Incorrect/irrational use	50	4.12	1.25

Source: Fieldwork 2010

Most respondents felt it was the responsibility of these health care providers to ensure the right and safe use of these commodities. This is confirmed with a mean of 4.12 and a standard deviation of 1.25 showing a high variability in opinions concerning the fact that it is the duty of these hospitals to prevent incorrect/irrational use.

4.5 Importance of health commodities Management

Table 4.10 Factors that call for the management of health commodities

Scale: (5= Agree strongly, 4= Agree, 3= Neutral, 2=Disagree, 1= Disagree strongly)

Variables	Total(N)	Mean	Standard deviation
Demand for healthcare services	50	4.40	1.09
Quality of health care services	50	4.44	0.91
Cost of service	50	4.40	0.93
Ensure continuous availability	50	4.30	0.95
Ensure full supply	50	4.38	0.85
Prevent wastage	50	4.14	1.18
Prevent irrational/incorrect use	50	3.98	1.20

Source: Fieldwork, 2010

From table 4.5, the first factor demand for health care services had a mean of 4.40 and a standard deviation of 1.09. This shows that most of the respondents agree that the demand of health care services is a factor considered in managing health commodities. However the standard deviation of 1.09 is high representing a high variability in opinions of respondents. Quality of health care services (mean=4.44, standard deviation=0.9), cost (mean=4.40, standard deviation=0.93), ensure continuous availability (mean= 4.30, standard deviation = 0.95), ensure full supply (mean= 4.38, standard deviation=0.85), showing that respondents agreed that those factors are important in managing health commodities, except the last two factors with means of 4.14 and 3.98 showing that respondents agreed to a small extent with variability in opinions. Standard deviations of 1.18 and 1.20 confirm this fact.

The response of 50 staff has been presented in this section. This question asked respondents to rate given factors that call for the management of health commodities in their hospitals. The responses were measured on a 5 point Likert type rating scale. The arithmetic mean and standard deviations were calculated to show the strength of these factors with regards to managing health commodities in the various hospitals.

4.6 Determinants of Effective Health Commodities Management

This section was provided to solicit views from respondents, the determinants of an effective health commodities management. Form the data gathered views were variable. The most prominent among them were efficient and effective pharmacies in these hospitals, reduction in cost of service and a reduction in mortality rates.

4.7 Challenges Faced in managing Health Commodities

Managing health commodities, no doubt has a lot of challenges as it involves human lives. This section sought to find out the views of respondents on the challenges they face d in managing these health commodities in their hospitals. These challenges were multi-faceted and diverse as each hospital faced different challenges.

4.7.1 Do you face challenges in managing health commodities?

From table 4.5 above, 98 percent of respondents agreed to the fact that there were a lot of challenges impairing the proper management of health commodities, some insurmountable even whilst 2 percent said they did not face any challenges.

Table 4.11 Analysis on responses on challenges faced in managing health commodities

Responses	Frequency	percent
YES	49	98.0
NO	1	2.0

Source: fieldwork, 2010

4.7.2 What specific challenges do you face in managing health commodities?

The ensuing question therefore asked respondents to be specific in the types of challenges they faced. The challenges brought up by these respondents were many and diverse, some of them are inadequate availability of health commodities, poor procurement practices, counterfeit and substandard commodities, irrational/incorrect use, delays in approving medicines and non medicines, undermined distribution, transportation, Unavailability of storage facilities, Unavailability of skilled labour, internal bureaucracy, lack of funding , and logistical problems. It is to be noted that some hospitals faced so many challenges whilst others had fewer challenges. However these challenges were prominent: internal bureaucracy, lack of funding, lack of storage facilities, transportation, poor procurement and lack of logistical support.

4.8 Strategies adopted in managing Health Commodities

This section sought to find out whether these hospitals had a strategy in place to manage health commodities in these hospitals.

4.8.1 We have developed a strategy and action plan that we believe will work for our organization

Table 4.12 Analysis on strategy and action plan

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Developed a strategy and action plan	50	4.18	0.90

Source: fieldwork, 2010

This question was posed to find out whether these hospitals had a specific strategy developed to manage health commodities. From table 4.14, most respondents agreed that their hospitals had developed a strategy in managing health commodities and this is confirmed by a mean score of 4.18 and a standard deviation of 0.90. Quite a number were also skeptical and ignorant about any strategies their hospitals might have in place.

4.8.2 Senior management is strongly committed to these ideas and projects initiative

This question wanted to find out whether senior management was committed to the HCM ideas and initiatives in their various hospitals.

Table 4.13 Analysis of commitment of senior management

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Commitment of senior management	50	4.26	1.10

Source: fieldwork, 2010

From the responses gathered, they all seemed to agree that the commitment of senior management was unbiased and firm (Table 4.15). This is confirmed with the mean score of 4.26 as shown in table 4.15. However the variability in opinion was high due to the fact that some staff members in these hospitals had no idea about the commitment of senior management to any HCM strategy.

4.8.3 Our employees are also committed to these ideas and projects initiative

From table 4.16 below, whilst most respondents agreed that most employees were also committed to the ideas of HCM in their various hospitals, there was quiet a few who earlier said they did not agree that there was a strategy in place to manage health commodities in these hospitals disputing the fact they had any idea about any strategies for managing health commodities in these hospitals.

Table 4.14 Analysis on employee's commitment to HCM Strategy

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Mean	Standard deviation
Employees commitment to HCM Strategy	50	4.26	0.90

Source: fieldwork, 2010

4.8.4 Has the Action plan been implemented?

This question needed to know whether they had implemented the HCM strategy.

Table 4.15 Analysis on Implementation

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	**Total(N)**	**Mean**	**Standard deviation**
Has the action plan been implemented	50	4.12	1.09

Source: fieldwork, 2010

From table 4.17 majority of respondents agreed that the action plan has been implemented. However a standard deviation of 1.09 shows a high variability in opinion of respondents on this question. This is mainly due to respondents who did not know whether there was an HCM strategy in their hospital

Table 4.16 Duration of implementation of HCM strategy

Duration	Frequency	Percent
Six months	8	16.0
Two years	21	42.0
Four Years	12	24.0
Never	9	18.0
Total	50	100.0

Source: Fieldwork, 2010

4.8.5 Implementation of HCM strategy

This question wanted to find out the duration of implantation of HCM strategies in the various hospitals.

4.8.6 Has the implementation been effective so far?

This question wanted to find out whether implementation had been effective and had gone according to plan.

Table 4.17 Analysis on effectiveness of implementation

Responses	Frequency(N)	percent
Disagree strongly	1	2.0
Not applicable	13	26.0
Agree somewhat	14	28.0
Agree strongly	22	44.0
Total	50	100.0

Source: fieldwork,2010

Most of the respondents were skeptical about the effectiveness of the implementation whilst others were positive implementation had gone according to plan and been very effective so far. However the majority of respondents agreed that implementation has been effective so far and this is confirmed by a mean score of 4.12 and a standard deviation of 0.94 as table 4.16 depicts.

4.9 Effective Commodities Management and Health service delivery

This section looked at the relationship between effective health commodities management and health service delivery.

4.9.1 What are the determinants of effective health service delivery?

Table 4.18 Analysis on determinants of effective health service delivery

Determinant of health service delivery	Frequency	percent
Availability of facility	5	10.0
Accessibility of facility	2	4.0
Staff Attitude	2	4.0
Proper allocation of resources	2	4.0
Efficient and effective management	5	10.0
others	34	68.0
Total	50	100.0

Source: Fieldwork, 2010

This question basically was asked to find the respondents views on the determinants of effective health service delivery. These determinants could run into a million options so respondents were asked to choose from some options. Below is a table showing respondents views on this question. These options were availability of facility, accessibility of facility, staff attitude, proper allocation of resources, and efficient and effective management. From table 4.7, 10 percent said availability of facility was an important determinant of health service delivery, 4 percent chose accessibility of facility, 4 percent chose staff attitude, 4 percent chose proper allocation of resources, 10 percent chose effective and efficient management whilst 68 percent said there were other important determinants of health service delivery. Some these were cost of service and mortality rates of these various hospitals.

4.9.2 Effective health commodities management affects health service delivery

This statement was made to find out from respondents whether effective HCM affected health service delivery.

Table 4.19 Analysis on the relationship between effective HCM and Health service delivery

Scale: (5= Agree strongly, 4= Agree somewhat, 3= don't know, 2=Disagree somewhat, 1= Disagree strongly)

Variable	Total(N)	Hospital	Mean	Standard deviation
HCM affects health service delivery	50	KATH	4.17	1.42
	50	Districts	4.62	0.83

Source: fieldwork, 2010

With a mean of 4.17 and 4.26 for both KATH and the district hospitals respectively, this which shows that majority of respondents agree to the fact that effective health commodities management affect health service delivery. A standard deviation of 1.43 for KATH represents a higher deviation from the mean showing that a larger number of respondents also expressed variable views to the fact that effective health commodities management affects health service delivery. However a standard deviation of 0.83 for the district hospitals shows less variability in opinions of the fact that effective health commodities management affects health service delivery.

FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study sought to examine health commodities management practices in these selected health facilities and how they help to improve service delivery in these health facilities .The responses from respondents through questionnaire administration and interviews conducted with core staff and supporting staff of two district hospitals and KATH provided the input for this study .These observations were made after carrying out the research.

From the analysis, it was observed that the level of knowledge of health commodities management was satisfactory in the procurement and stores departments; it was not at all satisfactory in other departments. Other staff in other departments in these hospitals showed a lack of basic knowledge of health commodities management.

It was also found out that the all the hospitals under study manage health commodities quite the same way. The basic commodity management cycle i.e. product selection. Procurement, distribution and use, which provide a basis for managing health commodities, were practiced in the same ways in these case studies. Whilst KATH was managing commodities on a larger scale, the district hospitals were managing theirs on a lower scale due to the sizes of the facilities.

It was also observed that staff of these hospitals all attributed the importance of managing health commodities to these basic factors; Demand for health care services, Quality of health care services, Cost, Ensure continuous availability, Ensure full supply, Prevent wastage and Prevent irrational use.

It was also observed that benefits of effective health commodities management in health service delivery were enormous. It resulted in an improved service delivery especially cost reduction and lower the mortality rate as health commodities are made available to every Ghanaian at an affordable price, best quality and also made accessible no matter where the person lived.

However there were great challenges facing these health facilities in managing health commodities. Some of the prominent challenges were inadequate availability of and access to health commodities, poor procurement, undermined distribution, irrational use, counterfeit and substandard commodities, delays in approving health commodities, transportation, lack of storage facilities, and lack of skilled labour, internal bureaucracy and lack of funding.

It was observed that in all these hospitals strategies were existed to manage health commodities. Senior management and every employee in these hospitals were committed to making these strategies work. Implementation started between six months and four years and so far so good in all these hospitals.

It was also observed that effective management of health commodities in these hospitals was perceived to contribute to quality health service delivery.

5.2 Conclusions

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 more 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 more healthy manpower for the development of this country.

Irrespective of the level of strategies adopted in the various hospitals under study, there is still more room for improvement. The importance of this industry grows stronger every day and the way forward for an improved service delivery is by making sure that health commodities are managed effectively.

It is therefore worth stating that the use managing health commodities in hospitals in Ghana has a positive effect on health service delivery. The sensitization of this entire important concept is very important and should be taken up by the appropriate bodies that have the welfare of the people at heart.

5.3 Recommendations

Based on the findings of this study, KATH and these district hospitals should get experts in the field of health commodities management to do refresher courses for their procurement and stores departments as well as make it a point to make the knowledge on this concept known to every staff member of other departments for an improved health service delivery.

Challenges undermining effective commodities management in hospitals in general in Ghana should be addressed. It was observed during the analysis that lack of funds and internal beauraucracy were some basic challenges

undermining effective management of commodities in these hospitals. I would like to recommend that funds are made available by the responsible bodies on time and also internal beauraucracy is checked to ensure the effective management of commodities in these hospitals.

The process for obtaining products from the next higher level of the distribution chain should

be streamlined. An analysis of the transport system should be made so that the available resources can be utilized at their optimum level, thus improving scheduling and deliveries

Physical inventory should be undertaken on a regular basis and the results entered onto the

stock tally cards. A review of the max and min levels should take place and all those involved in the management of health commodities should be trained in inventory control methodology .Standard operating procedures should be established for all the facilities at all levels within the MOH and a procedures manual produced .

REFERENCES

1. AMREF, (2009). Commodity Management for HIV/AIDS [online]. Available from: *www.colfinder.net/materials/HIV_Course/HIV_Unit_13_SG.doc* [Accessed 30th March 2010].
2. Banda, M.,(2006). Impounded drugs worth millions. [online]. Available from: http://www.nationmalawi.com. [Accessed 30thJanuary 2010].
3. Buchan, J: What differences does ("good") HRM make?*Human Resources for Health* 2004, 2:6
4. Center for Pharmaceutical Management, (2003). *Access to Essential Medicines: Ghana.* Prepared for the Strategies for Enhancing Access to Medicines Program. Arlington, VA: ManagementSciences for Health..
5. Cohen,J.C. et al.(2006). Tackling Corruption in the Pharmaceuticalsystems worldwide with courage and conviction. Journal of Clinical pharmacology & therapeutics, Volume 81(number 3) 445-449
6. Enrique, L.M.(1992). Improving the supply, quality control and access to essential drugs in Guatemala. Essential DrugsMonitor, (Editorial No 25&26) 1-36
7. Ferrinho P, Omar MC, de Jesus Fernandes M, Blaise P, Bughahlo AM, van Lerberghe W: Pilfering for survival: how health workers use access to drugs as a coping strategy.*Human Resources for Health* 2004 , 2,1:4.
8. Foster, S. (1991). Supply and use of essential drugs in Sub-Saharan Africa: Issues and possible solutions. PubMed Abstract 32(11) 1201-18
9. Geest, S.V.(1978).Self-care and the informal sale of drugs in South Cameroon. PubMed Abstract 25(3) 293-305
10. Lufesi,N.N. Marit, A. and Aursnes,I. (2007). Deficient supplies of drugs for life threatening diseases in an African community. *BMC Health Services Research* 2007, 7:86, doi:10.1186/1472-6963-7-86. [online]Available from:http://www.biomedcentral.com/1472-6963/7/86[Accessed 15nd February, 2010].
11. Management Sciences for health, (2009). Managing Drug supply [online]. Available from: http://www.msh.org/resource-center/managing [Accessed 20th January 2010].
12. MOH,(1996). Essential Drugs List and National Formulary of Ghana with Therapeutic Guidelines. Accra, (Ghana). Yamens Press Limited
13. Quick, J.D., Rankin, J.R., Laing, R.O., O'Connor, R.W., Hogerzeil, H.V., Dukes, M.N.G., Garnett, A.(1997). eds. Drug management for health facilities In *Managing Drug Supply*. Connecticut: Kumarian Press.
14. Rao, R., Mellon P, D Sarley (2006) Procurement Strategies for Health Commodities An Examination of Options and Mechanisms within the Commodity Security Context IN T.U.S.A.F.I. Development (Ed.),DELIVER, John Snow, Inc.
15. Snow, J. (2003). Guidelines for the Storage of Essential Medicines and Other Health Commodities. [online]. Available from: http://apps.who.int/medicinedocs
16. [Accessed 2nd February, 2010].
17. Vian, T. and Bates, J. (2003). Commodity Security and Product Availability Issues for Essential Drugs, Vaccines,andContraceptives. [Online].Availablefrom: http://www.biomedcentral.com[Accessed 24nd May, 2010].
18. Waeckerle, J.F.et al. (1994). Disaster Medicine: Challenges for today. Pubmmed Abstract (23) 715-718
19. Walkowiak, H. and Gabra, G. (2002).Commodity Management in VCT Programs: A Planning Guide.Arlington, VA: Management Sciences for Health.
20. WHO,(1997).Managing Drug Supply: The Selection, Procurement, Distribution and Use of Pharmaceuticals. West Hartford: Kumarian press Inc
21. WHO, (1998).Globalization and Access to Drugs- Health Economics and Drugs Series
22. [online]. Available from: http://apps.who.int/medicinedocs/en/d/Jwhozip35e/ [Accessed 20th January 2010].
23. Zakaria Alhassan, (2010). Fresh Outbreak of CSM… 17 killed. The Daily Graphic, 23rd February. pp 1, 3, 24-25.