SUPPLY CHAIN COORDINATION AND HEALTHCARE DELIVERY: A STUDY OF BAYLOR COLLEGE OF MEDICINE CHILDREN'S FOUNDATION UGANDA

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DECLARATION

I, HAIDAR LULE, declare that this research report is my own original work, and it has never been presented to any institution for the award of any academic qualification.

Signature…….. Date……..

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APPROVAL

This is to certify that this research report has been submitted for examination with our approval as institution supervisors.

Signature; …… Date.....

DR. GERALDKARYEIJA

Supervisor

Signature; …… Date.....

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Supervisor

DEDICATION

This piece of work is dedicated to my beloved parents: The late Dauda Muliika and Mrs. Safiina Muliika. Thank you so much for laying a foundation for me. May God bless you abundantly!

ACKNOWLEDGEMENTS

I appreciate God, the most gracious, the Most Merciful, for giving me wisdom and strength to always be courageous in accomplishing this research report.

I owe award of special thanks to my supervisors; Dr.Gerald Karyeija and Mr. Nelson Kyagera. You have demonstrated professionalism and parenthood to me. Your constructive criticism has been commendable. Please accept my humble appreciation!

I further acknowledge the management and staff of Baylor College of Medicine who took their time to complete the questionnaires therefore providing qualitative data that helped to inform the researcher.

To my wife, brothers, sisters and friends, I recognize their cooperation and the great time shared together in the process of studying and even doing this research.

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ACRONYMS AND ABBREVIATIONS

AIDS - Acquired Immune Deficiency Syndrome

AMRF - African Medical Research Foundation

BIPAI - Baylor International Pediatric Initiative

COE - Clinical Centre Excellence

GHS - Ghana Health Service

GoU - Government of Uganda

GPO - Group purchasing organization

IF - Information Systems

MoH - Ministry of Health

NGOs - Non GovernmentOrganisation

SCM - Supply Chain Management

SC - Supply Chain

WHO - World Health Organisation

ABSTRACT

This study was aimed at exploring the relationship between supply chain coordination and health care delivery at Baylor-Uganda. The objectives of the study were; To examine the relationship between procurement planning and health care delivery, To establish the relationship between distribution and health care delivery, To examine the relationship between inventory control and health care delivery and examining the relationship between communication and health care delivery at Baylor - Uganda. A cross - sectional descriptive survey and correlation designs were used to collect data from the targeted sample of staff at Baylor-Uganda through the use of quantitative approach. A self-administered questionnaire was used to collect data and the collected data was analyzed using a statistical package for social sciences (SPSS) software. A sample size of 327 respondents was selected from the study population of 640 employees basing on Krejcie& Morgan (1970). 189 employees were responsive. The findings revealed significant positive correlations between procurement planning and health care delivery, distribution and health care delivery, inventory control and health care delivery, communication and health care delivery. The study therefore concluded that supply chain coordination influences healthcare delivery at Baylor-Uganda. The study recommends the improvement of supply chain coordination through improved procurement planning, proper distribution, effective inventory control and improved feedback in communication so as to enhance better healthcare delivery at Baylor-Uganda.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Supply chain coordination implies that supply chain agents avoid actions that improve their local profits but hurt total service delivery/profits or actions by various agents in the supply chain that are aimed at increase in total supply chain profits (Chopra & Meindl, 2001). **This study therefore examined** the relationship between supply chain coordination and the provision of healthcare at Baylor College of Medicine and Children's Foundation Uganda. Supply chain coordination was the Independent Variable and Healthcare Delivery the Dependent variable in the study. This chapter covered the background to the study, problem statement, the purpose of the study, the research questions, the scope of the study, and the justification of the study plus the operational terminology of health care supply chain.

1.2 Background to the Study

1.2.1 Historical Background

Supply chain has evolved very rapidly since 1990s showing an exponential growth (Burgess et al., 2006). The rise in research articles/papers on supply chain (SC) as well as the case studies in different areas in various industries motivates to study supply chain issues further. Supply chains are generally complex with numerous activities (logistics, inventory, purchasing and procurement, production planning, intra-and inter-organizational relationships and performance measures) usually spread over multiple functions or organizations and sometimes over lengthy time frames (Burgesset al.,2006). Supply chains tend to increase in complexity and the involvement of numerous suppliers, service providers, and end consumers in a network of relationships causes risks and vulnerability for everyone (Pfohl et al., 2010).

The continuous evolving dynamic structure of the supply chain poses many interesting challenges for effective system coordination. The product used by the end customer passes through a number of entities contributed in the value addition of the product before its consumption. Also, the practices like globalization, outsourcing and reduction in supply base have exacerbated the uncertainty and risk exposure as well as more prone to supply chain disruption. Earlier literature considers risks in relation to supply lead time reliability, price uncertainty, and demand volatility which lead to the need for safety stock, inventory pooling strategy, order split to suppliers, and various contract and hedging strategies (Tang, 2006). But today's supply networks have become very complex and vulnerable to various supply chain risks hence these issues have pulled attention of various academics and practitioners for the last few years (Oke & Gopalakrishnan, 2009). To improve the overall performance of supply chain, the members of supply chain have to behave as a part of a unified system and coordinate with each other. Thus, "coordination" comes into focus.

The element of supply chain coordination within the healthcare system is crucial. After witnessing patients spend hours of delay in cues and experiencing incredible lags in the medication dispensing process and even further impediments to the delivery of treatment modalities, the researcher became interested in studying supply chain management and service delivery in a health care system such as the one at Baylor Uganda. As a healthcare consumer, effects of a breakdown in this chain affect all of us. One might contemplate how an industry based on customer service falls short in the arena of inventory, patient and materials management? According to business researcher Vicki Smith-Daniels (2006) in a field where precision is literally a matter of life and death, it seems strange, that a crucial supportive function like inventory control and purchasing is often a hit-or-miss process. Healthcare, unlike other

industries has not given supply chain coordination the detailed attention that it so rightly deserves and needs to ensure patient safety and reduction of overall healthcare costs (Catlin et al., 2007). Inventory management in the healthcare industry presents several interesting challenges both from a managerial and operational perspective (Heffler et al., 2005). Thus, the stakeholder relationships, product considerations, managerial and regulatory policies seen in healthcare delivery are unique and worth an investigation.

Health care services certainly deserve some of the credit for the impressive gains in health status experienced in the developing world in the last few decades. There have been unprecedented health gains attributable to immunization, family planning, and control of many infectious diseases (World Health Organization, 2010). However, despite these gains much of the health care provided in lower income countries is perceived to be sub-standard in quality, mal-distributed in terms of both types of services and beneficiaries, and to impose high cost burdens on individuals and in some cases communities and nations. The symptoms are widely reported. Government clinics in many countries even when offering free or highly subsidized care, stand empty much of the time while private practitioners may be unqualified, provide inappropriate treatment, or charge high fees even to the poor.

1.2.2 Theoretical Background

This study was based on the Coordination theory (Malone & Crowston, 1994). Coordination is the management of dependencies between activities. The purpose of coordination is to achieve collectively goals that individual actors cannot meet. Coordination capability is affected by two main issues: information sharing and allocating decision rights across channel members (Anand & Mendelson, 1997). There are two approaches to achieve coordination. The first is to centralise decision making to a single entity, which attempts to optimize the network. The second type is

decentralised decision making that utilises coordination mechanisms (Sahin& Robinson, 2002). Pugh et al., (1969) do not separate these approaches, but consider concentration of authority in relation to different contextual factors. The range of decision-making situations extends from detailed repetitive problems that can be solved with pre-established programs to non-programmed situations that concern non-repetitive strategic situations (Cyert et al., 1995; Anand & Mendelson, 1997).

1.2.3 Conceptual Background

Different perspective principals and best practices have been the subject of debate attempting to define good Supply Chain Coordination. Undisputedly, supply chain has become a major source of competitive advantage to companies. It is a very broad concept, which, as evolving, has received a number of different denominations (Chen & Chen, 2006). A narrow view of supply chain coordination departs from logistics, and focuses on the activities to deliver products and services to the market, leaving demand creation as a marketing initiative. According to that view, supply chain can be conceptualized as a group of organizations that build connections, establish material and informational flows in order to deliver goods or services. Supply chain coordination is thus the planning and control of those flows and the related logistics activities, both within each organization and between organizations (Chen & Chen, 2006). Supply chain coordination can be defined as identifying interdependent supply chain activities between supply chain members and devise mechanisms to manage those interdependencies. It is the measure of extent of implementation of such aggregated coordination mechanisms, which helps in improving the performance of supply chain in the best interests of participating members (Arshinder, 2008). Kleindorfer & Saad (2005) asserted that continuous coordination, cooperation, and coordination among supply chain partners are imperative for risk avoidance, reduction, management and

mitigation such that the value and benefits created are maximized and shared fairly. Supply chain coordination is a strategic response to the challenges that arise from the dependencies supply chain members (Xu & Beamon, 2006). Health care logistics is slowly emerging as its own discipline within supply chain and logistics management (Thomas, 2003). No matter what one's definition of "supply chain," the need for a systems-approach or global-view of the entire relief effort is critical to managing the web of interrelated mission segments. In the systems approach, "all functions or activities need to be understood in terms of how they affect, and are affected by, other elements and activities with which they interact" (Stock & Lambert, 2001). The objective is to operate the whole system effectively, not just the individual parts (Coyle et al., 2003).

The World Health Organization (WHO, 2008), defines health systems as "all the organizations, institutions, and resources that are devoted to producing health actions". This definition includes the full range of players engaged in the provision and financing of health services including the public, nonprofit, and for-profit private sectors as well as international and bilateral donors, foundations and voluntary organizations involved in funding or implementing health activities.

Health systems encompass all levels: central, regional, district, community, and household. Health sector projects engage with all levels and elements of the health system and frequently encounter constraints that limit their effectiveness.

The World Health Organization Report (WHO, 2008), identifies the four key functions of the health system as follows: stewardship (often referred to as governance or oversight); financing; human and physical resource and; organization and management of service delivery.

This health system function includes a broad array of health sector components, including the role of the private sector, government contracting of services, decentralization, quality assurance, and sustainability. In this study, we concentrated more on the private health sector. Mills et al.,

(2002) defined private health sector to compromise “all providers who exist outside of the public sector, whether their aim is philanthropic or commercial, and whose aim is to treat illness or prevent disease”. The private sector is a key source of health services, and its coverage is rapidly increasing. Use of government health services is too low to affect indicators such as child mortality without the contributions of private sector health services, including Non-Government Organizations’ services (WHO, 2003).

1.2.4 Contextual Background

The delivery of healthcare services in Uganda is done by both the public and private sectors with Government of Uganda (GoU) being the owner of most facilities. Government of Uganda owns 2242 health centers and 59 hospitals compared to 613 health facilities and 46 hospitals by private organisations and 269 health centRES and 8 hospitals by the private organisations (Ministry of Health, 2009). Because of the limited resource envelope with which the public health sector operates, government with in the public-private partnerships has encouraged several Non-Governmental Organizations (NGOs) with in the country to provide health care services (Jitta, Arube-Wani & Muyiinda, 2008). Hundreds of governmental, non-government (NGOs) and private organizations donate manpower, money, and material resources to aid the health care sector in Uganda. However, as noted by Byman (2000), the supply chain actors involved in providing healthcare services complicate efforts to improve coordination. Organizations with different capabilities and specialties provide various levels of assistance, sometimes creating inefficiencies by duplicating efforts. “The heads of logistics tend to each fight their own battles with little collaboration” (Thomas, 2003) and “the highly decentralized, feudal nature of the response system” (Natsios, 1995) is a severe impediment to coordination. “The greatest single

endemic weakness of NGOs is their reluctance to cede managerial or programmer autonomy towards the goal of greater strategic coherence or managerial efficiency" (Natsios, 1995).

Healthcare NGOs Like Baylor College of Medicine and Children's Foundation Uganda involve many of the same logistics processes encountered in the private sector, but modern logistics practices have only recently been applied to the commercial sector. Baylor College of Medicine Children's Foundation Uganda (Baylor Uganda) is an indigenous not for profit child health and development organization affiliated to the Baylor International Pediatric AIDS Initiative (BIPAI). BIPAI is a global partnership established in 1996 at Baylor College of Medicine in Houston, Texas USA working to expand access to pediatric HIV/AIDS services. Baylor Uganda was established in 2003 at the Pediatric Infectious Diseases Clinic in Ward 15 of the National Referral Hospital Mulago. In 2006, the organization was fully registered as an NGO and currently operates at the Baylor College of Medicine Bristol Myers Squibb Children's Clinical Centre of Excellence (COE). Baylor currently operates in 37 districts in 300 health facilities to provide clinic based pediatric, adolescent and family centered (www.aidsmap.com/org). It is the premise of this study therefore to investigate the supply chain coordination and healthcare providers in Uganda with a special focus on Baylor College of Medicine and Children's Foundation Uganda.

1.3 Problem Statement

Health care delivery is required to be consistent to maximize patient care, ensure product availability, minimize storage space, reduce material handling time and costs for all medical inventory and ensure proper linkages to clinical systems and operations. Despite the fact that it is one of the leading not for profit organizations in Uganda advancing human health through the

integration of patient care, research, education, and community service, Baylor-Uganda still struggles with inefficiencies within its supply chain.

The Baylor audit report 2012-2013 under the inventory section showed that 1439kgs of expired drugs were disposed off. It went on and revealed that there was overstocking of supplies at the regional stores which resulted into shortage of storage space hence led to the storage of supplies stored in staff offices and walk ways. Furthermore the district health information system version 2 2012 reported stock outs of supplies at the health centers supported by Baylor Uganda where clients travel long distances for health care services and all in vain. In2012 according to the inventory report, 80 million Ugandan Shillings (UgShs) worth of out dated data tools were procured but never been used thus rendered obsolete stock. However there was not much empirical evidence about the extent to which supply chain coordination contributed to the success or failure of the health care delivery at Baylor-Uganda. We can theoretically deduce that failure of this coordination process leads to ineffective health care delivery consequently leading to a decline in quality of service, and poor client satisfaction. Quantification of key variables and formulation of mathematical relationships to better understand this research question is critical and helpful in drafting solutions.

Efforts to recruit logistics staff, mentorships of ministry staff(MOH) at health facilities, establishment of regional offices and stores have been put in place by management but this has not significantly improved health care delivery and if this is not checked, the organization may lose its clients. This study therefore attempted to fill the knowledge gap by assessing the relationship between supply chain coordination and health care delivery at Baylor Uganda.

1.4 Purpose of the Study

The study sought to examine the relationship between supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

1.5 Research Objectives

1. To examine the relationship between procurement planning and health care delivery at Baylor College of Medicine and Children's Foundation Uganda
2. To establish the relationship between distribution and health care delivery at Baylor College of Medicine and Children's Foundation Uganda
3. To examine the relationship between inventory control and health care delivery at Baylor College of Medicine and Children's Foundation Uganda
4. To examine the relationship between communication and health care delivery at Baylor College of medicine and Children's Foundation Uganda

1.6 Research Questions

1. What is the relationship between procurement planning and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?
2. What is the relationship between distribution and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?
3. What is the relationship between inventory control and health care delivery at Baylor College of Medicine Children's Foundation-Uganda?
4. What is the relationship between communication and health care delivery at Baylor College of medicine and Children's Foundation Uganda?

1.7 Hypotheses of the study

$H_{1:}$ Procurement planning significantly contributes to promoting health care delivery at Baylor College of Medicine and Children's Foundation Uganda

$H_{2:}$ Distribution significantly influences the promotion of health care delivery at Baylor College of Medicine and Children's Foundation Uganda

$H_{3:}$ Inventory control is related to health care delivery at Baylor College of Medicine Children's Foundation-Uganda

$H_{4:}$ Communication is associated with health care delivery at Baylor College of medicine and Children's Foundation Uganda

1.8 Conceptual Framework

The framework below shows the relationship between the variables of supply chain coordination for achieving better health care delivery in Not for profit health Organizations as shown below.

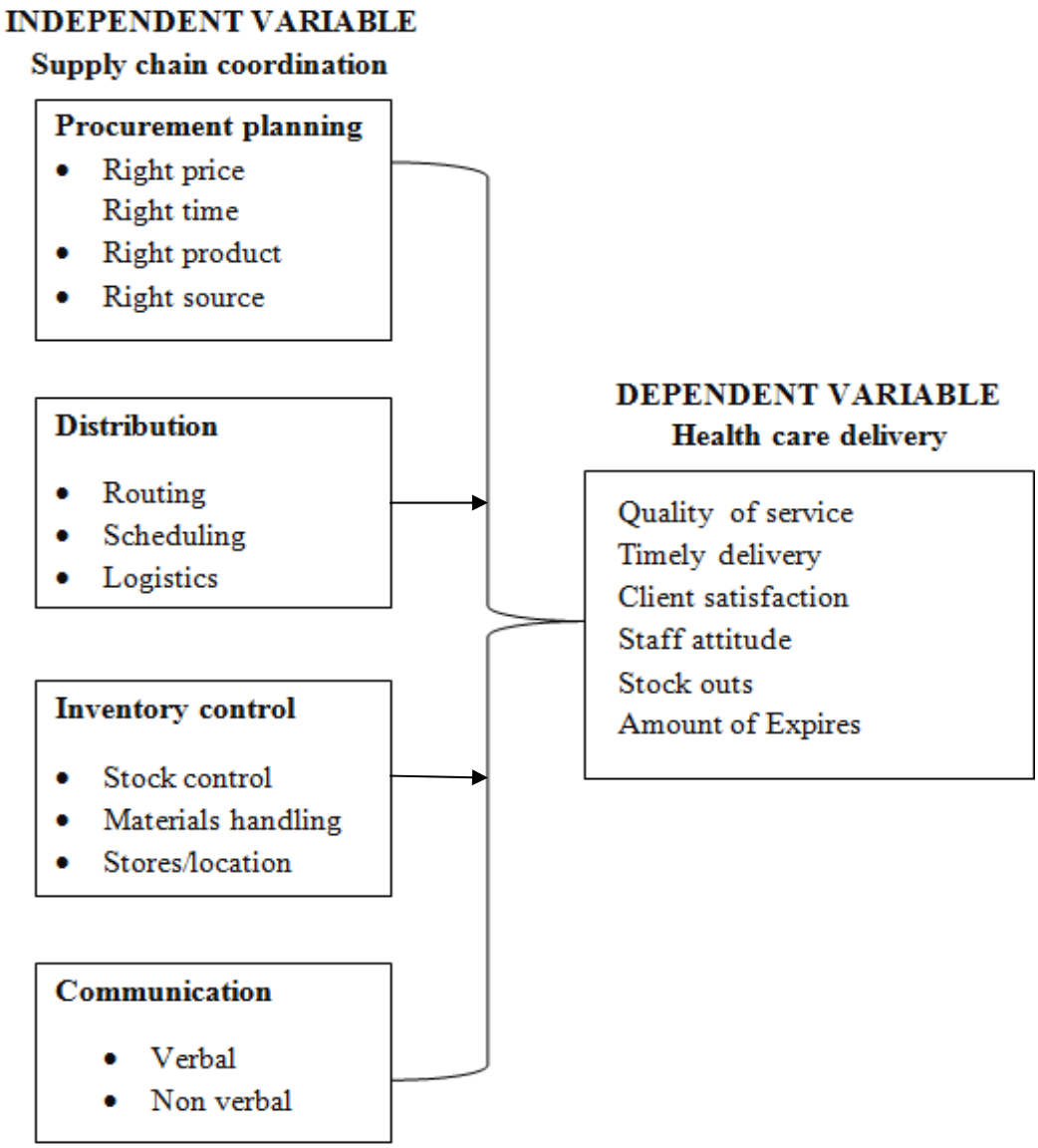

Figure 1: *Conceptual framework*

Source: Adapted and modified by the researcher based on the works ofLuhmann (1996)

Considering all of this, the healthcare supply chain is very different from most business sectors as decisions influencing the supply chain are left to the discretion of thousands of different employees [internal and external clients] serving thousands of different clients whose needs change daily (Schneller&Smeltzer, 2006). In this unique context, by seeking to connect these critical value creating actors, in the figure above, it is explicate how the operational complexity

faced by hospitals can lead to the development of supply chain and information systems (IS) strategies which enable effective supply chain practices and improved outcomes.

1.9 Justification of the Study

This study combined supply chain principles from different disciplines (including private, not for profit, and government sectors) to benefit relief operations. It therefore served to advance the body of knowledge so that future managers should build upon the concept. As Moody (2001) states, “Healthcare logistics is also one of the most unheralded parts of the logistics sector, and little has been written about it”. The resulting document therefore is to be an up-to-date catalog of demands and barriers facing healthcare organizations.

Future research might expand on the observations and categorizations found herein to provide quantitative evidence that commercial Supply Chain Management (SCM) methods can be successfully used in the healthcare setting. With further research and adaptation to unique organizational mandates, the proposed framework could eventually serve as common reference for further discussions on standardizing logistics practices within the realm of humanitarian operations

1.10 Scope of the Study

1.10.1 Geographic scope

This study was conducted in Baylor College of Medicine and Children's Foundation Uganda, which is a not for profit child health and development organization that currently operates in 37 districts in 300 health facilities to provide clinic based pediatrics, adolescent and family centered HIV.

1.10.2 Content scope

The study focused on the complexities faced in the healthcare Supply Chain Coordination in organization and the supply chain strategies that can effectively enhance outcomes for patients and providers in the healthcare.

1.10.3 Time scope

The study looked at the period between 2010 when the organization was fully registered in Uganda as an NGO to date.

1.11 Operational definitions

Supply Chain

The stakeholders and their inter-relationships, the product characteristics, and the policies employed all have some impact on the healthcare supply chain management and inventory control. An explanation of some specific conditions and terminology used in healthcare are discussed in more detail below.

Stakeholders

Here is a brief summary of some unique factors influencing how healthcare stakeholders interact, how they are controlled, and how they manage operations. A detailed analysis is provided in the next section. Doctors are the primary caregivers in the healthcare system; however, it is important to recognize that physicians, in many cases, are contracted service providers. They are not actual employees of hospitals in which they work. Although this enables hospitals to expand their service capacities and offer better customer service, they must also relinquish some measure of control to these doctors. Autonomy, as it relates specifically to customer care, is valued above all else by doctors. Patients trust that physicians are prescribing treatments and medicines that will address their individual medical needs. Attempts to restrict the choices or influence the conditions of medical treatment meet with a great deal of resistance. Another consideration is that, unlike many industries of this size, Clinic administrators and pharmacy managers have to manage very complicated distribution networks and inventory control problems without the proper training or educational backgrounds to do so efficiently. This in no way implies that these individuals lack the intelligence to perform these tasks. Most hospital administrators and pharmacy directors are themselves doctors, which means they are highly skilled and educated in medicine; however, they are not engineers or supply chain professionals that are commonly employed to manage similar systems in other industries. The hospitals order the majority of the supply from a selected group purchasing organization (GPO) that purchases directly from the production companies.

Many of these items are also perishable and must be destroyed if not used. Perishable items have a limited shelf life and in many cases have special transportation and storage requirements. Part of the concern with pharmaceuticals is that outdated or expired items may be overlooked and

dispensed to patients, which could have potentially disastrous effects both in patient care and public relations. The perishable item inventory control problem is a difficult one and has been studied many times using a periodic review approach (see Fries 1975, Nahmias 1975, Nahmias 1982) with less attention being given to continuous review systems; however, there have been a number of works in this area in recent years (see Weiss 1980; Schmidt and Nahmias 1985; Chiu 1995; Liu and Lian 1999; Lian and Liu 2001). Although these studies provide valuable insight into the management of such products, none of these models have been tested in pharmaceutical inventory control. Given the combination of high costs and perish ability of prescription drugs, it seems that more study is warranted as pharmacy managers look for help in setting optimal order policies.

Inventory control variables are called "**par levels**" in healthcare inventory management. The min par level is equivalent to the re-order point: if the inventory level decreases to or below this level, an order is triggered. The max par level is equivalent to the order up level (or base stock).

CHAPTER TWO

Literature Review

2.1 Introduction

This chapter focused on the literature pertaining supply chain coordination and the provision of healthcare. The chapter commenced with a theoretical review, a general overview on supply chain coordination. A review of the literature on the relationship between supply chain coordination and the provision of healthcare was conducted.

2.2 Theoretical Review

2.2.1 Coordination theory

This study was based on the Coordination theory. Coordination is the management of dependencies between activities (Malone &Crowston, 1994). The purpose of coordination is to achieve collectively goals that individual actors cannot meet. Coordination capability is affected by two main issues: information sharing and allocating decision rights across channel members (Anand&Mendelson, 1997). There are two approaches to achieve coordination. The first is to centralise decision making to a single entity, which attempts to optimise the network. The second type is decentralised decision making that utilises coordination mechanisms (Sahin& Robinson, 2002). Pugh et al., (1969) do not separate these approaches, but consider concentration of authority in relation to different contextual factors. The range of decision-making situations extends from detailed repetitive problems that can be solved with pre-established programs to non-programmed situations that concern non-repetitive strategic situations (Cyert et al., 1956).

Dependencies between activities are a prerequisite for coordination; if there are no dependencies, there is no need to coordinate. These dependencies stem from the lack of ability to control all the

conditions necessary to achieve an action or a desired outcome (Petersen, 1999). Activities may be organisations, processes, organisational units, or human beings that act in computational, human, biological, or other systems (Whang, 1995). Coordination may take place within operations, across functions (cross-functional coordination) or between organizations (inter-organizational coordination). The methods used to manage the interdependencies between activities are the coordination mechanisms. Coordination mechanisms provide tools for effectively managing interactions between people, processes, and entities that interact in order to execute common goals. A coordination mechanism consists of 1) the informational structure defining who obtains what information from the environment and how this information is processed and then distributed among different members participating in the mechanism itself; and 2) the decision-making process that helps to select the appropriate action to be performed. Crowston (1997) extended the basis of interdependence to include tasks and resources.

Coordination theory extends and uses ideas from computer science, organisational theory, operations research, and economics. Coordination research in these disciplines has treated sharing resources, managing information flows, transaction costs, scheduling and queuing policies and techniques for making optimal resource-allocation decisions. Organisational researchers, for example Thompson (1967) and Galbraith (1977) target the question of how to achieve efficient and effective coordination among the activities in business processes and functions within companies.

Galbraith (1977) presents the concept of task uncertainty, which is defined as the absence of information or having information that is inadequate for performing the task. In coordination theory, the information processing perspective of organisations is adopted (Galbraith, 1977). This approach treats organisations as communication systems and decision-making systems that

deal with uncertainty. Information processing in organisations includes the gathering of data, the transformation of data into information, and the communication and storage of information (Egelhoff, 1991). When expanding this view to supply chains, the information-processing capabilities can be expressed as capacities to transfer information within an organization, to move it across the boundaries of an organization and to access specific kinds of knowledge and decision-making capabilities to transform the data.

What here is termed "coordination theory" does not fulfill all the needs of a theory. Malone and Crowston (1994), for example, refer to this topic as an 'emerging theory'. The theory is used in, for example, Malone and Crowston (1994) for analyzing and redesigning processes, or Danese et al., (2004) in supply chains. The operations management research, likewise, even though it has widely treated coordination problems, does not consider this field as a fully developed theory.

2.3 Supply Chain Coordination

Supply chains are generally complex with numerous activities (logistics, inventory, purchasing and procurement, production planning, intra-and inter-organizational relationships and performance measures) usually spread over multiple functions or organizations and sometimes over lengthy time horizons (Burgess et al., 2006). Supply chains tend to increase in complexity and the involvement of numerous suppliers, service providers, and end consumers in a network of relationships causes risks and vulnerability for everyone (Pfohl et al., 2010).

The continuous evolving dynamic structure of the supply chain poses many interesting challenges for effective system coordination. Supply chain members cannot compete as independent members. The product used by the end customer passes through a number of entities contributed in the value addition of the product before its consumption. Also, the practices like

globalization, outsourcing and reduction in supply base have exacerbated the uncertainty and risk exposure as well as more prone to supply chain disruption. Earlier literature considers risks in relation to supply lead time reliability, price uncertainty, and demand volatility which lead to the need for safety stock, inventory pooling strategy, order split to suppliers, and various contract and hedging strategies (Tang, 2006). But today's supply networks have become very complex and vulnerable to various supply chain risks hence these issues have pulled attention of various academics and practitioners for the last few years (Oke&Gopalakrishnan, 2009). To improve the overall performance of supply chain, the members of supply chain may behave as a part of a unified system and coordinate with each other. Thus "coordination" comes into focus.

There seems to be a general lack of managerial ability to integrate and coordinate the intricate network of business relationships among supply chain members (Lambert, 2004). Stank et al., (1999) studied inter-firm coordination processes characterized by effective communication, information exchange, partnering, and performance monitoring. Lee (2000) proposes supply chain coordination as a vehicle to redesign decision rights, workflow, and resources between chain members to leverage better performance such as higher profit margins, improved customer service performance, and faster response time.

Kleindorfer&Saad (2005) asserted that continuous coordination, cooperation, and coordination among supply chain partners are imperative for risk avoidance, reduction, management and mitigation such that the value and benefits created are maximized and shared fairly. Supply chain coordination is a strategic response to the challenges that arise from the dependencies supply chain members. Supply chain coordination can be defined as identifying interdependent supply chain activities between supply chain members and devise mechanisms to manage those inter-dependencies. It is the measure of extent of implementation of such aggregated coordination

mechanisms, which helps in improving the performance of supply chain in the best interests of participating members (Arshinder, 2008).

Hoyt and Huq (2000) presented a literature review on the buyer-supplier relationship from the perspective of transaction cost theory, strategy structure theory and resource-based theory of the firm. There is abundant literature on conceptual based supply chain partnership but the testing of these concepts is required by utilization of operations research in supply chain (Maloni& Benton, 1997). Various models have been discussed presenting various form of coordination such as price changes, quantity discounts (Sharafali& Co, 2000), and partial deliveries and establishing their joint policies in context of manufacturing firms, information sharing and decision-making coordination (Sahin& Robinson, 2002). Power (2005) reviewed three principal elements of supply chain integration: information systems, inventory management and supply chain relationships aiming at reducing costs and improving customer service levels. The emerging area of supply chain coordination is outsourcing practices in case of insufficient production capacity of suppliers (Sinha&Sarmah, 2007).

2.4 Procurement planning and Health Care Delivery

Research into procurement and SCM in the health care sector is not new. In particular, there has been significant work on:i) the application of principles derived from supply-chain management and other industrial production processes to the analysis, understanding and improvement of health care delivery processes (e.g., Towill, 2006; Towill& Christopher,2005; Keen, Moore & West, 2006); ii) The analysis of procurement and purchasing activities carried out by (or on behalf of) health care delivery organizations (primarily hospitals) (e.g., Cox, Chicksand& Ireland, 2005;Fillingham, 2007; Ben-Tovim et al., 2007)Literature falling within the first of these

categories is not necessarily concerned with the purchasing, logistics, materials or supplies management activities of health care providers at all.

Rather, it applies insight and ‘best-practice’ techniques from these areas to the management of care processes and patient pathways. Common examples include work that explores the introduction of lean production principles into health care organizations (e.g.,Fillingham, 2007; Ben-Tovim et al., 2007), and presents the flow of patients through phases of a treatment episode as analogous to "product flow" in an industrial context, “… with corresponding value added activities in the pipeline and similar valid concerns regarding quality management and delivery cycle times” (Fillingham, 2007 &Ben-Tovim et al., 2007). Such thinking has been highly significant in the work of organizations such as the Institute for Health Improvement (e.g. 2003, 2005) in the USA, and the NHS Institute for Innovation and Improvement in England (e.g., Fillingham, 2007; Ben-Tovim et al., 2007), bodies which exist to promote continual improvement in health care by cultivating and disseminating improvement concepts, and providing methods, tools and resources to support their implementation.

The second strand of work identified above does focus more directly on the sourcing, specification, procurement and handling of goods and supplies required by health care providers (e.g., medical devices and equipment, pharmaceutical products, ICT, catering and cleaning products etc.). Within this there are many sub-themes, including work on the procurement of specific medical technologies and interventions (e.g., Phillips et al., 2007), adoption of procurement innovations within the health care sector (e.g., Zheng et al., 2006)and the effective (or otherwise) organization and infrastructure of health care procurement agencies (e.g., Cox, Chicksand& Ireland,2005).

Clearly, these two strands of work are valuable in their own right, and are also complementary. For example, the efficiency with which supplies are obtained and distributed within a health care Organization is likely to be critical to the achievement of smooth patient flows. When brought together, therefore, this literature can help to illuminate and integrate several levels of the health care supply-chain. It considers both the flow of patients(acknowledged to be co-producers – whereby patients help to define and sometimes even deliver their own health services as in the case of an individual's weight loss management program - and not simply passive consumers of health services) and products into and through healthcare provider organizations (or networks of such organizations).

Less common within the literature, however, is consideration of the wider health system as an extended supply chain, including the payers, purchasers or commissioners of health care services, as well as patients, providers and suppliers. Exceptions to this appear to be found mainly in work focusing on the US system. Burns and colleagues (2002) for example identify purchasers, as well as providers and producers as key players within the US health care value chain (see Table 1). Having articulated this, however, they go on to focus primarily on the flow of money, products, and information between producers, providers and their intermediaries - rather than the government, employers, insurers and Health Maintenance Organizations active in the downstream portion of the chain.

Pitta and Laric (2004) also identify third-party payers as key participants within the health care value chain and in this case do discuss the ways in which these actors may add to or detract from the overall value derived from that chain. Again referring to the US context, however, the activities of these agents are presented as primarily transactional (collecting premiums, prescribing approved procedures, processing information and reimbursing costs).

Group Purchasing Organizations have become very significant in the health care industry. The GPOs (also called purchasing groups) have mostly become popular in healthcare, education and government organizations(Anonymous, 2000). The healthcare industry is faced with the constant pressure to cut down costs and stiff competition among health care centers which have led to mergers and acquisitions resulting in suppliers of larger size. The most frequent reason given by a healthcare center to be affiliated with a GPO is advantageous contractual conditions. The modern GPOs have changed the conservative method of procurement. The huge pressure of lowering the prices has mostly been beneficial to the end user which in our case is a customer to a healthcare center.

The procurement of health and medical supplies incurs high costs in both hospitals as well as pharmaceutical suppliers. Neither the sellers nor the buyers can be informed of all the demand and supply conditions all of the time. Fifteen years ago, office managers wondered why they should fax orders for medical supplies when they could call a vendor directly. Today, the fax machine is a standard piece of equipment for medical offices (www.meditrader.com).

When outside entities can provide needed products or services more efficiently than internal departments, it can prove very rewarding. In other instances outside providers may demonstrate the ability to provide the desired products or services at a higher level of quality than an organization may be capable of achieving (Lunn, 2000). A long-term benefit of outsourcing is the ability to reduce the number of suppliers in the system, which will eventually lower the procurement costs for the downstream members of the supply chain. As such, the short-term benefits of increased efficiency and higher quality along with the long-term benefit of lower procurement costs make outsourcing a logical approach to overall cost containment in the

healthcare industry and consistent with current practices in inventory management (Veral& Rosen, 2001).

2.5 Distribution and Health Care Delivery

Management of the distribution function should be an integral part of system management. “The activities of each function must be closely tied with the function downstream to avoid delays at handoff points in the logistics network” (Thomas, 2003:6). The operations must be physically and conceptually compatible. For example, one method for making the distribution process more robust would be to establish multiple distribution channels comprised of redundant routes and delivery methods for supplies (Coyle et al., 2003:107-109). Likewise, the distribution system should have built-in mechanisms to allow for tradeoffs between transportation costs and service level. More costly, faster transportation allows lower inventory levels to be kept due to a more responsive system (Coyle et al., 2003:340). If the system is unified in its distribution plan, disruption and delay will be minimized.

Trans-shipment is the movement of goods between facilities at the same level in the supply chain, most often at the retail level (Simchi-Levi et al., 2003:136). This method shares inventory between all partners, but places a burden upon the transportation system due to the need to move goods more than once. Trans-shipment is facilitated by a good information system and makes use of the “risk pooling concept, even if no central warehouse exists, because one can view inventory in different retail outlets as part of a large, single pool” (Simchi-Levi et al., 2003:136).

Direct shipment is another method by which aid may be delivered. In the commercial sector, “the need for an emergency transshipment [direct shipment] may arise due to rush orders from the customer that may not normally be met by the ‘gateway’ stock or due to a short-term measure to

ensure customer service level in the light of capacity constraints" (Hong-Minh and others, 2000:789). The basic form of direct shipment is for the manufacturer or supplier to bypass warehouses and distribution centers to deliver goods directly to the retail level (Simchi-Levi et al., 2003:134), thereby allowing a rapid reaction to increased demand for inventory (Hong-Minh and others, 2000:794-795). Direct shipment is often used when lead times are critical because of perish ability issues and when stock outs are unacceptable. While direct shipment may be infeasible in many humanitarian disaster situations due to degraded or non-existent infrastructure, it should be considered if infrastructure and capacity are adequate (such as in industrialized nations where ports and airfields are left intact after a disaster).

Another strategy which focuses on the physical infrastructure of the affected region is to provide for special operations, outside of the normal realm of HRO expertise, which will facilitate the distribution of aid. In the context of humanitarian relief (not military operations), a special operation (SO) is "an activity to rehabilitate and enhance transport infrastructure, if necessary in extraordinary circumstances, to permit speedy and efficient delivery of food assistance to meet emergency and protracted relief needs" (Stewart, 2003:21). Examples given by Stewart are repairs to roads, bridges, airports, ports, and railways as well as possibly establishing a joint logistics center or communications capability (Stewart, 2003:21).

Another method to cut documentation and eliminate frustration of managing international movements is to contract freight forwarders and third party logistics (3PL) providers specializing in relief and international freight movements (Long & Wood, 1995:225). Knowledgeable freight companies will help smooth out customs procedures, road tolls, and country-specific import restrictions (Stewart, 2003:19). Contracting 3PL services, facilities, and equipment allows the HRO to focus on its core competencies while the 3PL leverages its expertise and buying power

to decrease distribution costs (Simchi-Levi et al., 2003:152). Outsourcing functions which are beyond the capabilities of the HRO has the potential to reduce overall costs while improving service, avoiding investment in facilities and equipment, while improving access to logistics expertise (McKinnon, 1999:215).

Some miscellaneous measures to overcome barriers to aid are: construct distribution centers outside the area of operations to prevent damage from the very disaster you are trying to relieve and build a storage facility anywhere there is a change in transportation mode to prevent damage and loss while waiting on onward transportation (Long & Wood, 1995:222). By centralizing stockpiles, the concept of risk pooling is employed. Another consideration would be to collaborate with the manufacturer to design more compact and securely packaged products to help reduce the transportation burden and guard against adverse environmental conditions (Simchi-Levi et al., 2003:215).

See the Pan American Health Organization logistics and supply management handbooks (PAHO, 2000 and PAHO, 2001) for a thorough summary of field-level acquisition, warehouse management, fleet management, and distribution methods. Two other very detailed sources on distribution, storage, and forecasting are references from Family Planning Logistics Management/John Snow, Incorporated (2000a and 2000b).

2.6 Inventory control and health care delivery

Lysons and Gillingham (2003) in their book, Purchasing and Supply Chain Management (6th Edition), defined Inventory as an American accounting term for the value or quantity of raw materials, components, assemblies, consumables, work-in-progress and finished stock that are kept or stored for use as need arises. Coyle et al., (2003), defines Inventory as raw materials,

work-in-progress, finished goods and supplies required for creation of a company's goods and services. The number of units and/or value of the stock of goods a company hold.

According to In Net We Trust (www.inventory management.com, 6 January 2012), inventory management is primarily about specifying the size and placement of stocked goods. It is required at different locations within a facility or within multiple locations of a supply network to protect the regular and planned course of production against the random disturbance of running out of materials or goods. This health system function includes a broad array of health sector components, including the role of the private sector, government contracting of services, decentralization, quality assurance, and sustainability.

Inventory management systems obtain and move supplies and equipment to places where they are needed in a timely manner and at an optimum cost. Supplies and equipment usually cannot go directly from their source to the end user (Sarmah et al., 2007). They frequently must be held in the warehouse at some points along the way. In view of this warehouse of supplies maintained and inventory of supplies and equipment are held at all levels in the Ghana Health Service (GHS). The inventory management system recognizes that staffs at all levels have a wide range of responsibilities. Access to essential medicines and supplies is fundamental to the good performance of the medicines and supplies is commonly cited as the most important element of quality by healthcare consumers and the absence of medicines and supplies is a key factor in the underuse of government health services.

An important role that inventory plays in the supply chain is to increase the amount of demand that can be satisfied by having product readily available when the customer needs it. Quality care cannot be provided on time unless required material is available in adequate quality. Inventory

management plays a crucial role in providing efficient healthcare in relation to three vital aspects of medical supplies used in the health facilities; availability, safety, and affordability (Xu&Beamon, 2006).

The time factor is probably not as crucial in any other field as it is in healthcare delivery, where delay by a few seconds can cost a life. Therefore, inventory managers have the huge responsibility of making thousands of diverse health commodities available on time. The challenge is even greater as the number of expected patients is unpredictable, suppliers are unreliable and costs are rising (WHO, 2012).

The safety of patient is the top priority in healthcare, and inventory managers play a crucial role in protecting their intent. The biggest responsibility of an inventory manager is to ensure that the commodities purchased for clinical use are of good quality. Despite cost being an important criterion in assessing commodities, safety and clinical efficacy concerns are prioritized. Inventory managers also need to ensure that stocked commodities are well within the expiry period (Arshinder, 2008).

There is tremendous pressure on inventory managers to initiate serious cost cutting measures. While the cost of medical supplies has been spiraling up, greater numbers of patient are demanding high quality and reasonably priced healthcare services. Since cost of supplies form significant portion of healthcare expense, inventory managers should continuously strive to get better deals (Arshinder, 2008). Economical prices help ensure affordable healthcare for vast majority. The healthcare facility in turn reaps the benefit of better revenue realization stemming from increase number of patients. The medical supplies industry is flooded with innovative products and services. Inventory managers should continuously scout for competitive alternative product/technique that can give better outcome. While cost is an important criterion, quality of

the product needs to be the primary concern to ensure that patient care is not compromised (Oke&Gopalakrishnan, 2009).

2.7 Communication and health care delivery

In a partnership, the supply chain team has shared, group goals; such goals have been shown to improve group performance by increasing individual effort, planning, and co-operation among group members (Weldon&Weingart, 1993).In situations like the ones manufacturers now face, where co-operation willdecrease delays, this effect can be useful in its own right. However, one of the main benefits of starting supply chain partnerships is not just to facilitate the exchange of information or to make the team cohesive enough that they are willing to help each other, but to promote the sort of collaboration which leads to technological innovation. The goal of automotive manufacturers is to sell products, and that means offering better value for money than one's competitors. It doesn't work to simply offer the same products for the same prices, if one's competition is continuously improving. Technological innovation allows OEMs both to develop cheaper manufacturing processes for their current products and to design new and more valuable products. Since OEMs cannot be expected to understand all of the technical issues which affect the design of supplied parts, they must work closely with their suppliers if they are to maximize value for money (HAI, 2006).

According to African Medical research Foundation (2009), communication is closely related to technological innovation. Individual companies innovate most if they have "flatter, less hierarchical structures" and encourage "direct and frequent communication between all levels and sectors ofthe business". Burns and Stalker (1966) suggested that the faster the rate of change in the external environment, the more problems and opportunities will arise which cannot easily be addressed from within the existing management structure. Since it is never certain from which

pair or group of functions within an organization the next breakthrough will arise, innovation requires flexible cross-functional communication and consultative communication between people of different ranks, not just order-passing. In meetings, issues of authority are crucial to whether or not this communication will occur. Carletta et al., (2010), ina study of single-company cross-functional problem-solving teams from small to medium-sized manufacturing firms, showed that those which place authority in the group as a whole show much more flexible communication patterns than those which retain an individual group manager who is responsible for making final decisions, mostly because the group manager tends to monopolize the floor, speaking more than anyone else, participating in more pair wise conversations, and initiating more of the interaction than anyone else.(Rhian& Claudio (2003) argue that awareness of inconsistencies and variability in the delivery of health services across the UK has heightened in recent years, leading to general acknowledgement that a move away from “health care by post code” is a strategic priority for the National Health Service (NHS). NHS Direct, a call centre service for patients is unique in the NHS in that it represents an entirely new service concept, with a rare opportunity to design a single nation-wide service from scratch, and to manage and co-ordinate a delivery system consistently throughout the country.

2.8 Summary of Literature Review

Supply chain coordination play vital roles in health care delivery. All procurement stakeholders ought to be supported so as to bring in mechanisms that assist in promoting service delivery in NGOs. The importance of the role of supply chain coordination in promoting service delivery in NGOs is well noted by concerned institutions and known scholars. Most literature reviewed agrees that supply chain coordination have great effect on health care delivery. Their view to a great extent was in harmony with the position of most scholars that supply chain coordination

affect health care delivery. The theories highlighted, indirectly and directly stressed the importance of supply chain coordination in promoting service delivery in NGOs.

However no empirical evidence is there to avail the exact extent to which supply chain coordination promote health care delivery thus causing a need by the researcher to conduct the study and come up with exact findings.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

In this section the research methodology that was adopted is described in terms of the research design, study population, determination of the sample size, sampling techniques and procedure, data collection methods, data collection instruments, validity and reliability, procedure of data collection, data analysis, measurements of variables.

3.2 Research design

The study adopted a cross - sectional descriptive survey and correlation designs were used. This is because they enabled the researcher to investigate a relationship between the study variables and thus able to generalize the findings to other similar phenomena which was in line with (Amin, 2005; Sekaran, 2003).

The research study design followed both qualitative and quantitative methods; Brewerton (2001) asserts that the notion of combining qualitative and quantitative data in a study offers the promise of getting closer to the whole of a case in a way that a single method study could not achieve. The two methodologies were employed based on the data type was collected, which included both quantitative data and qualitative data. Although each methodology has its potential strength and weaknesses, a combination of methods approach emphasizes their potential strengths that ensure validity and reliability of outputs (Jones, 1997; Golafshani 2003).

3.3 Study Population

The study population comprised of 640 employees(Baylor College's Staff analysis basing on salary grades for the period March, 2014). With reference to the scope of this study, the population consisted of healthcare providers at Baylor College of Medicine (Doctors, Nurses, Pharmacists/Pharmacy Technicians, Biomedical Scientists/Laboratory Technicians, and Medical Assistants); inventory managers (Store Managers, Supply Officers, and Storekeepers); healthcare coordinators and healthcare receivers (clients or patients that visit the health facilities). The researcher adopted the stratified sampling method to choose the respondents. The respondents were divided into three (3) strata in order to ensure that each is appropriately represented in the survey sample. Stratum 1, comprised of the inventory managers, Stratum 2, comprised of the healthcare providers and Stratum 3 comprised of the healthcare receivers. Probability sampling was used in the selection of the health facilities, to eliminate as far as possible, biases in the choice of the sample.

3.4 Sample Size and Selection

A sample is a sub set of a particular population (Mugenda&Mugenda, 1999). By studying the sample the researcher was able to draw conclusions that represented the population (Sekeran, 2005). The sample size was 327 employees basing on Krejicie and Morgan (1970).

Table 1: Sample size of each category of Respondents

Category	Population	Sample size	Techniques
Healthcare providers	75	63	Simple random sampling
Supply chain coordinators	65	56	Simple random sampling
Healthcare receivers	500	217	Simple random sampling
Total	**640**	**327**	

Source: (Baylor College's Staff analysis basing on salary grades for the period March, 2014).

3.5 Sampling techniques and procedures

Sampling is a process of selecting a sufficient number of elements from the population, so a study of the sample and understanding of its properties or characteristics made it possible for the researcher to generalize such properties or characteristics of the population elements (Sekeran, 2005). The population was divided into three classifications; health providers, supply chain coordinators and health receivers. The researcher thought that this was a meaningful way for obtaining the type of information needed for the research.

3.6 Data collection methods

Data collection methods were categorized into secondary and primary methods. Primary data is data collected for the first time and this happens to be original in character for instance panels of respondents organized by the researcher. Primary data was collected from respondents using administered questionnaires; anonymity condition was adhered to create trust to respondents in order to get salient findings. The questionnaire was designed according to the objectives and

variables employed in the study. The respondents filled the questionnaire at their convenience and responses to the questions were anchored on a five (5) point Likert of 1-Strongly Disagree, 2-Disagree, 3-Neither Agree or Disagree, 4-Agree and 5-Strongly Agree. Secondary data is the one that has already been collected by someone else and which has passed through statistical process (Kothori, 1985). These included; Baylor College of Medicine's records, publications, World Wide Web's information and archives (Sekeran, 2005). The use of more than one method helped to improve the validity of the results and also avoid inconsistent.

3.6.1 Questionnaires

The researcher used personally administered questions whereby he administered300 questionnaires personally to respondents. In some cases the questions were mailed to the respondents and the surveys were either phone interviews where some of the board members were not easily accessed physically and web based where by the researcher sent the respondents the web address of where they found the questions and this was done online and later the data transferred in an information database was later used.

3.6.2 Interviews

According to Kompo and Tromp (2006), interviews are questions asked orally. The researcher used interview guide since they are flexible on measuring certain characteristics which can not possible to be measured by developing scales (Kothori, 1999). These instruments were applied to a few heads of department, procurement officers, supervisors and employees because it allowed in depth probing and such officers would easily give them time to be interviewed than filling length questionnaires. The researcher interviewed 27respondents ranging from directors, pharmacy managers, supervisors, procurement officers and nurses.

3.6.3 Documentary Review

Researchers study documents more than people. The study of documents takes the form of literature review or a more in-depth study of documents (Sarantakos, 2005). The document review for this study was based on the conceptual framework and research questions. The researcher used both the external and internal secondary data. This included; various reports, newspapers and periodical publications relating to the research study. These looked at the already existing data that has been published regarding to the problem of the study.

3.7 Validity and reliability tests

3.7.1 Validity

The validity of the research instruments was established through the knowledge and useful information of basically the directors, board members, staff and maybe customers of theorganization. Content validity index was used whereby the researcher gave the questionnaires his or her peers at work then also gave it to experts in the area of supply chain management field who read through them and score them accordingly, the questionnaires were then returned to who calculated their percentages, if the index is above 0.7 it was okay. The higher the index, the better as it showed that the instrument was valid, that the information or data was used for comparison (Amin, 2005)

The formula being; CVI=Number of Items rated relevant* 100

Total number of Items

The researcher also used internal validity analysis whereby it tested to see whether one condition leads to another or it might be the cause of another condition. The researcher also used Phenomenology analysis whereby the respondents talk about their own experiences.

3.7.2 Reliability

Reliability, according to Miles and Huberman (1994), has to do with the extent to which the items in an instrument generate consistent responses over several trials with different audiences in the same setting or circumstances". The reliability of the instruments and data was established following a pre-test procedure of the instruments before their use with actual research respondents. Reliability of the instruments was carried out to establish whether the instruments are stable in measuring the particular concepts they are supposed to measure. Additionally, Cronbach's coefficient Alpha was also used to determine the stability and consistency of the research instruments before data collection.

Figure 2: Research Reliability and Validity

Variable	***Anchor***	***Cronbach Alpha Coefficient***	***Content Validity Index***
Procurement planning	5 Point	.623	.750
Distribution	5 Point	.728	.765
Inventory control	5 Point	.705	.800
communication	5 Point	.841	.902
Health care delivery	5 Point	.900	.947

Source: primary data

The table above displays the reliability indices/coefficients for all constructs used in the study. All alpha reliabilities for all scales were above 0.7, therefore meeting acceptable standards for research (Nunnally, 1978).

3.8 Procedure of Data Collection

The researcher secured an introductory letter from Uganda Management Institute, and sought for permission from the Baylor Collegeto carry out a research study at that NGO. The researcher appointed two (2) Research Assistants to administer the data collection instruments. They were first trained, inducted and then assigned to each of the categories of the targeted respondents.

3.9 Data Analysis

The researcher carried out both qualitative and quantitative data analyses. It is important to note that while quantitative data provide hard facts, the qualitative data provided the accompanying narratives which touch on relationship, incentives structures and the supervisory functions.

3.9.1 Qualitative Data Analysis

For Qualitative data analysis involved grounded analysis where by information was gathered from interviews of health care providers, receivers and systematically analyzed to get information that was declared in the findings. Discourse analysis that involves use of newspaper articles, body language and hand signals during for example interviews was also used to analyze data.

3.9.2 Quantitative Data Analysis

For quantitative data, bar charts and tables were used to analyze data. A step by step manual using computer software packages like SPSS was also used to analyze data so was content analysis which is basically from what people have said. The noticing, collecting and the thinking model wasalso used when analyzing qualitative data. Cross tabulations, descriptive analysis and factor analysis was also used to analyze quantitative data.

3.10 Measurement of variables

Both supply chain coordination and health care deliveryweremeasured using a five point-Likert scale of (strongly agree, agree, not sure, disagree and strongly disagree) from the items developed by Gilbert et al., (1997) and Arthur Stewart (1996) respectively.

3.11 Ethical Consideration

In the conduct of this study, the questionnaire and interview (survey) method were adopted. This method enabled the collection of a large amount of data on the variables that are considered important to the research. Furthermore, questionnaire survey afforded the respondents the privilege of anonymous settings. The respondents interviewed were selected from the health care providers and regional medical centers that Baylor College of Medicine partners with. Simple random sampling method was used to select the facilities and the respondents.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

This chapter comprises the presentation of the results and their interpretation. The presentations in this chapter show the results as tested according to the objectives of the study. This chapter begins with a description of the sample characteristics using frequency tabulations. This is followed by inferential statistics that show the relationships between the variables under study. This study intended to investigate the relationship between supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. The study was guided by the following objectives;

i) To analyze how procurement planning affects the health care delivery at Baylor College of Medicine and Children's Foundation Uganda
ii) To analyze how distribution affects the health care delivery at Baylor College of Medicine and Children's Foundation Uganda
iii) To analyze how inventory control affects the health care delivery at Baylor College of Medicine and Children's Foundation Uganda
iv) To analyze how communication affect the health care delivery at Baylor College of medicine and Children's Foundation Uganda

4.2 Respondent Demographic Characteristics

Frequency tabulations in the first section show sample characteristics that pertain to individual characteristics which included; Gender, Age of respondents, Marital status, Position in the health organization, highest level of education, and Period of working with the health organization. In addition the sample characteristics were presented basing on the responses from the respondents.

4.2.1 Respondent category by Gender

The gender of respondents was classified into two; male and female respondents.

Table 2: The distribution for the respondents' category by gender

		Count	*Valid Percent*	*Cumulative Percent*
Gender	Male	73	38.6	38.6
	Female	116	61.4	100.0
	Total	189	100.0	

Source: Primary data

As shown in Table 2, females took a greater percentage in the survey as represented by 61.4% whereas 38.6% represented males respondents, implying that, females to a greater extent participated in the study. The females were more responsive than the males in the survey. This implies that Baylor College of Medicine and Children's Foundation Uganda is a female dominated institution.

4.2.2 Respondent category by Age of respondents

The respondent's age who contributed in the filling of the questionnaires was classified into six sections; 10-19, 20-29, 30-39, 40-49, 50-59 and 60 and above as shown in the figure below;

Table 3: The distribution for the respondents' category by Age

		Count	*Valid Percent*	*Cumulative Percent*
Age bracket	10-19 yrs	8	4.2	4.2

	20 - 29 yrs	68	36.0	40.2
	30 - 39 yrs	70	37.0	77.2
	40 - 49 yrs	34	18.0	95.2
	50 - 59 yrs	6	3.2	98.4
	Over 60 yrs	3	1.6	100.0
	Total	189	100.0	

Source: Primary data

From the results in table 3 above, majority of the respondents belonged to 30-39 years of age group, accounting to 37.0%, while 36.0% represents interviewees who were in the age bracket of 20-29 years, 18.0% of the respondents represents respondents in the age bracket of 40-49 years. The respondents who were in the age blanket of 50-59 constituted 3.2%. Only 1.6% of the respondents belonged to the age group above 60 years. This implies that majority of the respondents were mature enough to provide the necessary and accurate information needed for the study.

4.2.3 Respondent category by marital status

In the table below, the marital status was classified into five different statuses;never married, Married, Divorced, Separated, and Widowed.

Table 4: The distribution for the respondents' category by marital status

Individual Characteristics		***Count***	***Valid Percent***	***Cumulative Percent***
Marital Status	Never Married	38	20.1	20.1
	Married	127	67.2	87.2
	Divorced	5	2.7	90.0
	Separated	15	7.9	97.9
	Widowed	4	2.1	100.0
	Total	189	100.0	

Source: Primary data

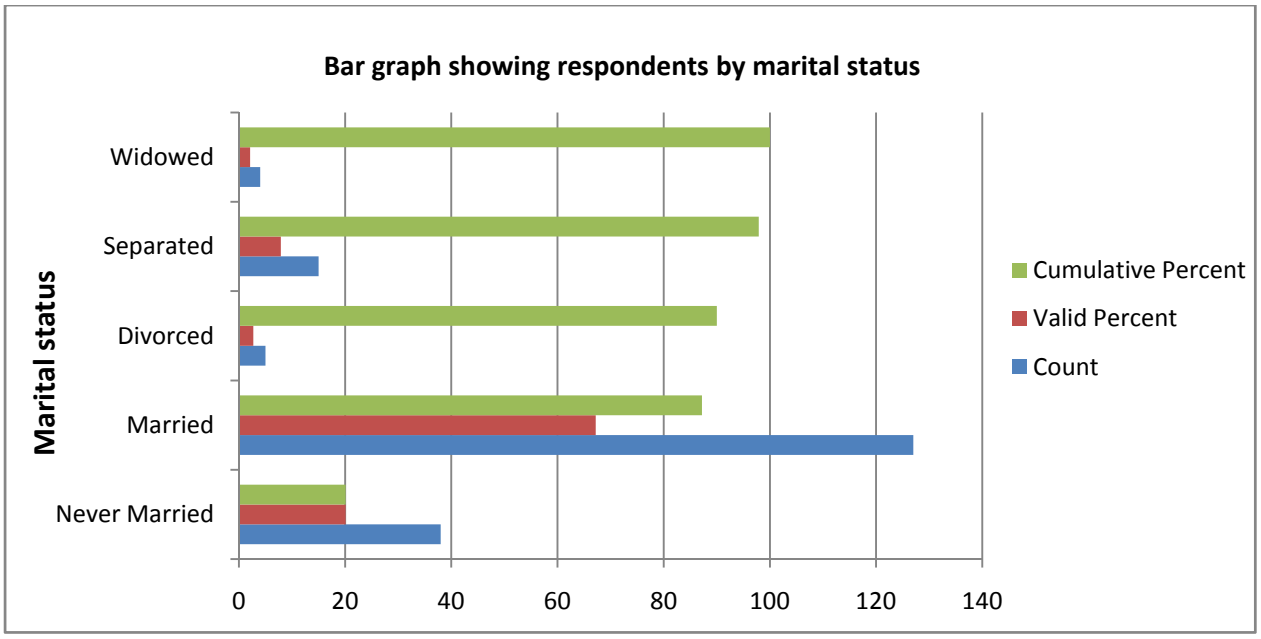

Figure 3: Bar graph showing respondents by marital status

According to the results in table 4 above, Majority of the respondents were found to be married as shown by 67.2%. This was followed by 20.1% of the respondents who have never been married. This was followed by 7.9% of the respondents who indicated that they had separated. Only 2.7% of the respondents had divorced. The least category was widowed with 2.1%. This means that majority of the employees at Baylor - Uganda were responsible married respondents to execute the institution's tasks responsibly.

4.2.4 Respondent category by level of education

Interviewees who participated in the study their education was recorded in the following levels and these education levels impacted so much on the quality of data that was collected as illustrated in figure below;

Table 5: The distribution for the respondents' category by level of education

		Count	*Valid Percent*	*Cumulative Percent*
Highest Level of Education	Certificate	15	7.9	7.9
	Diploma	36	19.0	27.0
	Degree	100	52.9	79.9
	Post Graduate	38	20.1	100.0
	Total	189	100.0	

Source: Primary data

From table 5 above,the biggest percentage of respondents had completed undergraduate studies as it was revealed by 52.9% of the respondents, then 19.0% represented respondents who had attained Diplomas in different fields whereas 20.1% of the interviewees were Post graduate holders and the least respondents were 7.9% Certificateholdersas indicated in the figure above. This implies that the majority of the staff employed at Baylor College had attained undergraduate level of education. This again indicates that majority of the employees were knowledgeable enough to provide the necessary information for the study.

4.2.3 Respondent category by role in the health commodity managemen

In the table below, the role in the health commodity managementwas classified into four classifications; procurement, inventory management, users and supervisors. This is because the views offered from these groups of respondents about supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Ugandaimpacted the research findings.

Table 6: The distribution for the respondents' category by role in the health commodity management

		Count	*Valid Percent*	*Cumulative Percent*
Role	Procurement	12	6.3	6.3
	Inventory management	23	12.2	18.5
	User	128	67.7	86.2
	Supervisor	26	13.8	100.0
	Total	189	100.0	

Source: Primary data

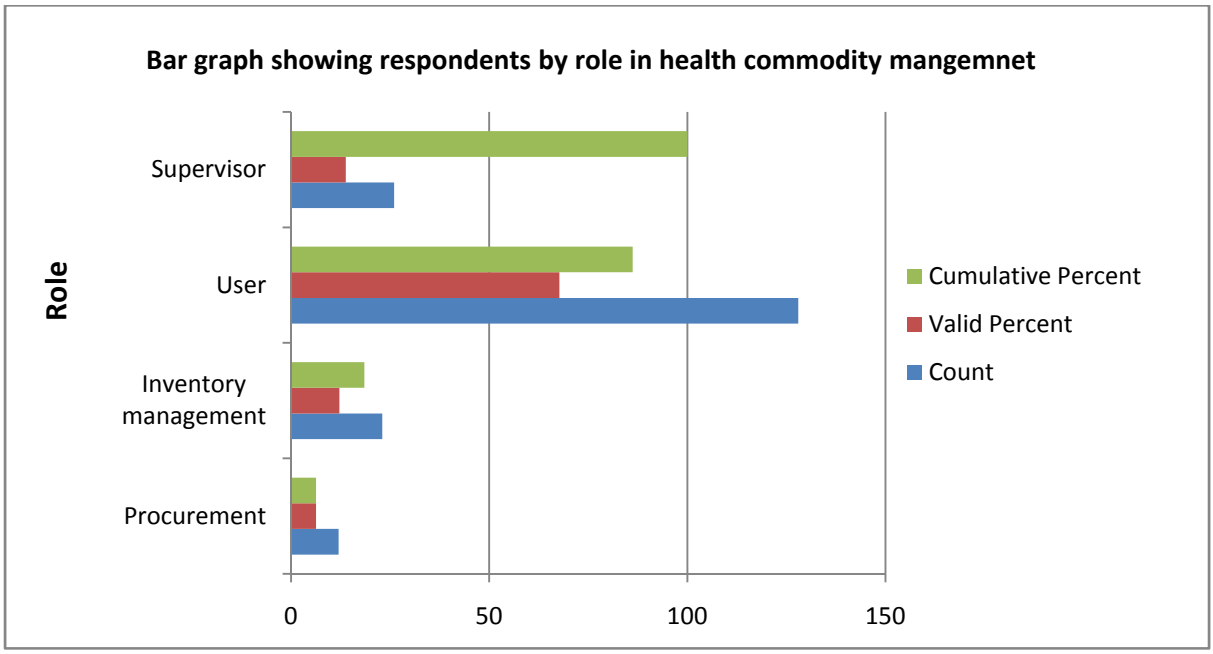

Figure 4: Bar graph showing respondents by role in health commodity management

According to the results in table6above, Majority of the respondents were found to beusersin the health commodity management as shown by 67.2%. This was followed by supervisors who accounted for 13.8%. This was followed by 12.2% of the respondents who indicated that they

were in inventory management. Only 6.3% of the respondents were in procurement as the least role in the health commodity management. This means that majority are users at Baylor College.

4.2.5 Respondent category of the period of working with Baylor-Uganda

The respondents in the figure below were classified according to the period they had worked with Baylor College of Medicine and Children's Foundation Uganda. The period ranged from less than 1 year, 1-3, 4-6 and above 6 years.

Table 7: The distribution category of the period of working with Baylor-Uganda

		Count	*Valid Percent*	*Cumulative Percent*
Period Spent In The Project	Less than 1 yr	30	15.9	15.9
	1 - 3yrs	74	39.2	55.0
	4 - 6yrs	61	32.3	87.3
	Over 6yrs	24	12.7	100.0
	Total	189	100.0	

Source: Primary data

From the table 7 above, it was found out that the biggest percentage of the respondents had worked with Baylor for the period 1-3 years as represented by 39.2%. This was followed by 32.3% of the officers who had worked with Baylor for the period between 4-6 years, 15.9% represents employees who had worked for with the period for less than a year and the least percentage (12.7) represents employees who had worked with Baylor for 6 years and above. This shows that most employees at Baylor work there for many years as indicated in the table above.

4.3 Empirical Findings

The results in the table below were presented for the purpose of analyzing service delivery at Baylor College of Medicine and Children's Foundation Uganda. The results were attained using a questionnaire which was anchored on a five point Likert scale (1-Strongly Disagree, 2-

Disagree, 3-Neither Agree or Disagree, 4- Agree, 5- Strongly Agree). Means that are close to 1 or 2 reflect Disagreement; while those close 4 or 5 reflect agreement. Means close to 3 reflect uncertainty with the statement.

Table 8: Showing the Analysis of Service Delivery.

SERVICE DELIVERY	SD	D	NAD	A	SA	SD	Mean
You were given a folder for your medical records	**0% 0**	**8% 15**	**13% 25**	**54% 102**	**25% 47**	**.844**	**3.95**
Your history was taken by the health provider	**% (0)**	**% (3)**	**% (5)**	**% (65)**	**% (27)**	**.664**	**4.15**
The healthcare provider is always available on time	**% (0)**	**% (6)**	**% (6)**	**% (52)**	**% (36)**	**.794**	**4.19**
The healthcare provider gives enough time to you	**% (0)**	**% (5)**	**% (9)**	**% (60)**	**% (26)**	**.737**	**4.07**
You always find a comfortable place to sit on	**% (2)**	**% (7)**	**% (8)**	**% (60)**	**% (22)**	**.897**	**3.93**
The facility is always clean	**% (0)**	**% (5)**	**% (16)**	**% (62)**	**% (17)**	**.718**	**3.91**

The healthcare provider explains everything about your treatment	**% (1)**	**% (2)**	**% (9)**	**% (51)**	**% (37)**	**.794**	**4.19**
Medication is always provided on time	**% (4)**	**% (14)**	**% (45)**	**% (35)**	**% (2)**	**.984**	**4.24**
You always receive all the medicines prescribed to you at the facility	**% (0)**	**% (6)**	**% (12)**	**% (55)**	**% (27)**	**.794**	**4.04**
You are always given an explanation why all your medicines were not provided at the facility	**% (0)**	**% (4)**	**% (11)**	**% (50)**	**% (35)**	**.759**	**4.18**
You would refer this facility to your friends and relatives	**% (1)**	**% (5)**	**% (20)**	**% (57)**	**% (17)**	**.772**	**3.89**
You are always satisfied with the services provided	**% (0)**	**% (5)**	**% (16)**	**% (40)**	**% (39)**	**.856**	**4.13**

Source: Primary data

The findings in Table 8 above indicate that majority of the respondents believe that they were given a folder for their medical records (mean=3.95). None of the respondents strongly disagreed with the statement that they were given a folder.8% of the respondents disagreed with the statement. 13% of the respondents neither agreed nor disagreed with the statement that they were

given a folder. 54% of the respondents agreed with the statement while 25% strongly disagreed with the statement that they were given a folder for their medical records.

In line with the research findings above, one Pharmacy manager said "We sometimes operate in an adhoc way, the procedures of procurement are notfollowed thus affecting service delivery at different health facilities. He went on to opine that routine planning meetings with district officers to review stock levels would enhance health care delivery at Baylor".

The research findings in Table 8 above showed that none of the respondents strongly agreed with the statement that your history was taken by the health provider. 3% of the respondents disagreed with the statement. 13% of the respondents neither agreed nor disagreed with the statement while 54% of the respondents agreed with the statement and 25% of the respondents strongly disagreed with the statement that their history was taken by the health provider.

> *Related to that one of the doctors said that; "There is need track the records of clients and the committed ones should be rewarded. Initiating a reward system for best performers should be a priority at Baylor to improve health care delivery".*

The findings of the research indicate that the healthcare provider is always available on time (Mean=4.19). The research findings further show that none of the respondents strongly disagree, 6% of the respondents disagreed, 6% of the interviewees neither agreed nor disagreed with the statement while 52% of the responses indicated those that they agreed while 36% of the respondents strongly agreed that the healthcare provider is always available on time. In this regard service delivery is greatly affected by the availability of resources at all times with 55% of respondents agreeing that they do receive all medicines prescribed at the facility.

4.4 Procurement planning and health care delivery

The study intended to analyze how procurement planning affects the health care delivery at Baylor - Uganda. The dimensions under procurement planning included; right price, right time, right product and right source.The researcher measured how procurement planning affects the health care delivery at Baylor College of Medicine and Children's Foundation Ugandaaccording to 4 sub-dimensions that includes;right price, right time, right product and right source.

4.4.1 Right price and health care delivery.

The table below analyses the influenceof right price on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 9: Right price and health care delivery.

RIGHT PRICE	SD	D	NAD	A	SA	Std	Mean
The quantity of supplies purchased arewithinthe right budget	**% (1)**	**% (7)**	**% (19)**	**% (43)**	**% (29)**	**.936**	**3.93**
The selection of supplies done in your facility is done based on their respective budgets	**% (2)**	**% (6)**	**% (27)**	**% (41)**	**% (24)**	**.961**	**3.80**

Source: Primary data

From the research findings in Table 9, respondents indicated that the quantity of supplies purchased iswithinthe rightbudget (mean=3.93). 1% of the respondents strongly disagreed, 7% of the respondents disagreed, 19% of the responses showed the respondents neither agree nor disagree, 43% of the respondents agreed and 29% of the respondents strongly agreed that the quantity of supplies purchased is within right budget.

Related to the above one of one of the procurement officer argued "Procurement planning is not adequate because a few departments presents their procurement plans and even regional offices do not have procurement plans at all because most of these departments do not have budgets at their disposal".

Another senior officer in the procurement department was quoted "There is need to stink to procurement plans and even mentor officers to always follow the laid down inventory and logistics procedures in place to adequately improve health delivery at Baylor.

4.4.2 Right time and health care delivery.

The table below establishes the influence ofright time on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 10: Right time and health care delivery.

RIGHT TIME	SD	D	NAD	A	SA	Std	Mean
You do receive supplies at the right time	**% (2)**	**% (12)**	**% (6)**	**% (62)**	**% (17)**	**.945**	**3.81**
Supplies are required at all times	**% (6)**	**% (6)**	**% (16)**	**% (47)**	**% (25)**	**1.070**	**3.79**
You maintain separate records for all supplies periodically	**% (0)**	**% (10)**	**% (28)**	**% (37)**	**% (23)**	**.880**	**4.19**

Source: Primary data

The research findings in Table 10 above showed that they do receive supplies at the right time (mean=3.81). The findings further indicate that 2% of the respondents strongly disagreed, 12%

of the respondents disagreed, 6% of the responses showed the respondents who neither agreed nor disagree, 62% of the respondents agreed and 17% of the respondents strongly agreed that they do receive supplies at the right time.

The study showed that Supplies are required at all times (mean=3.81). Research findings further established that 6% of the respondents strongly disagreed, 6% of the respondents disagreed, 16% of the responses showed the respondents who neither agreed nor disagree, 47% of the respondents agreed and 25% of the respondents strongly agreed that Supplies are required at all times.

> *Related to the above one of the procurement coordinators complained "The requirements of procurement planning are not fulfilled because most of the departments are not cooperative and they delay in submission of the procurement plans. This creates emergency procurements because of late submissions and ambiguous specifications.*

4.4.3 Right product and health care delivery.

The table below analyses the impact of right product on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 11: Right product and health care delivery.

RIGHT PRODUCT	**SD**	**D**	**NAD**	**A**	**SA**	**Std**	**Mean**
The selection of health commodities done in your facility is done based on requiredsupplies	% (3)	% (6)	% (9)	% (61)	% (21)	**.813**	**3.96**
You determine the quantity of supplies needed based on requests from users	% (1)	% (4)	% (24)	% (55)	% (16)	**.789**	**3.82**

Source: Primary data

From the findings in Table 11, the selection of health commodities done in your facility is done based on required supplies (mean=3.96). 3% of the interviewees strongly disagreed, 6% of the respondents disagreed, 9% of the responses showed the participants whoneither agreed nor disagreed, 61% of the research findings indicated respondents that agreed and 21% of the interviewees strongly agreed that the selection of health commodities done in your facility is done based on required supplies.

The research findings above indicated that you determine the quantity of supplies needed basing on requests from users (mean=3.82). The study findings further reveal that; 1% of the respondents strongly disagreed, 4% of the respondents disagreed, 24% of the responses showed the respondents that neither agree nor disagree, 55% of the respondents agreed and 16% of the respondents strongly agreed that you determine the quantity of supplies needed basing on requests from users.

4.4.4 Right source and health care delivery.

The table below illustrates the influences ofright source on health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

Table 12: Right source and health care delivery at Baylor-Uganda

RIGHT SOURCE	SD	D	NAD	A	SA	Std	Mean
You establish right and reliable sources for supplies	% (2)	% (28)	% (16)	% (30)	% (24)	**1.171**	**3.47**
The sources for the supplies are recommended by MoH	% (5)	% (11)	% (14)	% (54)	% (16)	**1.028**	**3.67**

Source: Primary data

The research findings indicate that you establish right and reliable sources for supplies (mean=3.47). 2% of the research findings indicated those respondents who strongly disagreed, 28% of the respondents disagreed with the statement, 16% of the respondents neither agreed nor disagreed, 30% of the respondents agreedwhile 24% of the research findings showed respondents that strongly agreed that you establish right and reliable sources for supplies.

In an in depth interview with one of the nurses, she said; "Evaluation committees are vital components of the health delivery package-therefore streamlined chain will contribute greatly to getting right sources of supplies to Baylor".

From the findings above its evident that procurement planning greatly influences health care delivery.It is clear that evaluation of bids and establishing the sources of supplies is critical in enhancing health care delivery.

4.5 Distribution and health care delivery at Baylor-Uganda

Distribution was conceptualized to include; Routing, scheduling and logistics. The table below shows the analysis of Distribution and how it influences health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

4.5.1 Routing and health care delivery at Baylor-Uganda

The table below analyses the impact of Routing on health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

Table 13: Routing and health care delivery at Baylor-Uganda

ROUTING	SD	D	NAD	A	SA	Std	Mean
There is a distribution plan in place	**% (0)**	**% (2)**	**% (19)**	**% (56)**	**% (22)**	**.715**	**3.99**
The routes taken to deliver the suppliers are cost effective	**% (0)**	**% (5)**	**% (7)**	**% (56)**	**% (31)**	**.748**	**4.15**

Source: Primary data

The table above shows that there is a distribution plan in place (Mean=3.99). None of the respondents strongly disagreed that there is a distribution plan in place. 2% of the respondents disagreed 19% of the respondents neither agreed nor disagreed with the statement, 56% of the respondents agreed while 22% of the responses showed results of the respondents that strongly agreed with the statement that there is a distribution plan in place.

> *In line with the above, a logistics officer was quoted "Distribution has highly improved because supplies are now taken directly to health facilities thus delivering on time. This makes supplies to always be there when they are needed."*

The table above shows that the routes taken to deliver the suppliers are cost effective (mean=4.15). From the research findings, none of the respondents strongly disagreed, 5% of the respondents disagreed, and 7% of the respondents neither agreed nor disagreed with the

statement, 56% of the respondents agreed while 31% of the respondents strongly agreed that the routes taken to deliver the suppliers are cost effectiveat Baylor - Uganda.

Related to the above, one of the nurse was quoted, "There is lack of a proper distribution plan, inadequate funding from donors, high demand for health supplies from supported health facilities affects the distribution of supplies at Baylor".

4.5.2 Scheduling and health care delivery at Baylor-Uganda

The table below illustrates the impact of Scheduling on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 14: Scheduling and health care delivery at Baylor-Uganda

SCHEDULING	SD	D	NAD	A	SA	Std	Mean
There is a scheduling plan in place for health supplies and services at Baylor	**% (0)**	**% (8)**	**% (28)**	**% (47)**	**% (17)**	**.840**	**3.72**
Supplies are sometimes moved from one scheduled centre to another in my locality	**% (0)**	**% (8)**	**% (14)**	**% (47)**	**% (30)**	**.885**	**4.05**

Source: Primary data

From the fieldwork as shown in the table above, the results showed that there is a scheduling plan in place for health supplies and services at Baylor (Mean=3.72). From the research findings, none of the respondents strongly disagreed, 8% of the respondents disagreed, 28% of the respondents neither agreed nor disagreed, 47% of the respondents agreed while 17% of the respondents strongly agreed that there is a scheduling plan in place for health supplies and

servicesat Baylor - Uganda. This means proper routing and scheduling in distribution is key in enhancing health care delivery.

4.5.3 Logistics and health care delivery at Baylor-Uganda

The table below brings out the influence of Logistics on health care delivery at Baylor-Uganda

Table 15: Logistics and health care delivery at Baylor-Uganda

LOGISTICS	SD	D	NAD	A	SA	Std	Mean
Baylor delivers to the facilities the supplies ordered	**% (2)**	**% (6)**	**% (11)**	**% (54)**	**% (27)**	**.913**	**3.98**
The facility comes for the supplies ordered themselves	**% (5)**	**% (8)**	**% (18)**	**% (37)**	**% (32)**	**1.111**	**3.84**

Source: Primary data

The research findings in the table above reveal that you deliver to the facilities the supplies ordered (Mean=3.98). The results from table further show that 2% of the respondents strongly disagreed, 6% of the respondents disagreed, 11% of the respondents neither agreed nor disagreed with the statement, and 54% of the responses agreed and 27% of the responses showed those respondents who strongly agreed that Baylor delivers to the facilities the supplies orderedat Baylor - Uganda.

Research results in table above indicated that the facility comes for the supplies ordered themselves (Mean=3.84). 5% of the respondents opined that they strongly disagree with the statement, 8% of the respondents disagree, 18% of the respondents neither agreed nor disagreed with the statement, 37% of the respondents agreed and 32% of the respondents strongly agreed

that the facility comes for the supplies ordered themselves at Baylor - Uganda. This means as long as logistics is streamlined, health care delivery will also be enhanced.

4.6 Inventory control and health care delivery at Baylor-Uganda

Inventory controlwas conceptualized to include these dimensions; stock control, material handling and stores location and their influence on health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

4.6.1 Stock control and health care delivery at Baylor - Uganda

The table below shows the impact of stock control on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 16: Stock control and health care delivery at Baylor-Uganda

Stock control	SD	D	NAD	A	SA	SD	Mean
There are documents for stock takings of supplies	% (4)	% (2)	% (26)	% (42)	% (26)	.958	3.85
There is stock outs of essential supplies at the facility	% (0)	% (2)	% (25)	% (55)	% (18)	.714	3.88

Source: Primary data

The results in the table above indicated that there are documents for stock takings of supplies (3.85). The research findings further show that 4% of the respondents strongly disagreed, 2% of the respondents disagreed, 26% of the respondents neither agreed nor disagreed with the statement, 42% of the responses agreed and 26% of the responses showed those respondents who strongly agreed that there are documents for stock takings of suppliesat Baylor College of Medicine and Children's Foundation Uganda.

4.6.2 Material handling and health care delivery

The table below shows the impact of material handling on health care delivery at Baylor College of Medicine and Children's Foundation Uganda

Table 17: Material handling and health care delivery at Baylor-Uganda

Material handling	**SD**	**D**	**NAD**	**A**	**SA**	**SD**	**Mean**
There is proper packaging of supplies at your facility	% (0)	% (5)	% (12)	% (71)	% (12)	**.648**	**3.91**
Inspection of commodities is done at your facility	% (0)	% (5)	% (14)	% (62)	% (19)	**.722**	**3.95**

Source: Primary data

Table 17 above indicates that there is proper packaging of supplies at your facility (mean=3.91). The research findings go on to show that none of the respondents strongly disagreed, 5% of the respondents disagreed, 12% of the responses showed the respondents that neither agree nor disagree, 71% of the respondents agreed and 12% of the respondents strongly agreed that is proper packaging of supplies at your facility.

This was confirmed by one of the stores officers during an interview where he had to say that "Packaging of supplies is key since majority of them are very sensitive and moved from one location to another especially during the distribution process."

4.6.3 Stores/location and health care delivery

The table below illustrates the influence of stores/location on health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

Table 18: Stores/location and health care delivery at Baylor-Uganda

Stock/control	SD	D	NAD	A	SA	SD	Mean
The Stores/locationofthe suppliers' facility is accessible	**% (3)**	**% (7)**	**% (24)**	**% (55)**	**% (11)**	**.899**	**3.62**
The facility's location of the suppliers of health medicines favors all the stakeholders	**% (3)**	**% (1)**	**% (10)**	**% (48)**	**% (36)**	**.910**	**4.13**

Source: Primary data

The findings from the field indicate that the Stores/locationofthe suppliers' facility is accessible (mean=3.62). The research findings go on to show that 3% of the respondents strongly disagreed, 7% of the respondents disagreed, 24% of the responses showed the respondents that neither agree nor disagree, 55% of the respondents agreed and 11% of the respondents strongly agreed.

Related to above the pharmacy coordinator said "we nowdecentralized stores where we created stores at Regional offices so that we bring our services closer to our clients".

Fromthe findings above it clearly shows that easy accessibility of stores and their close location to health facilities improves more on health care delivery since supplies are easily accessed.

4.4.4 Communication and health care delivery at Baylor-Uganda

Communication was conceptualized to include two dimensions; verbal and non-verbal communication

Table 19: How verbal communication influences health care delivery at Baylor-Uganda

VERBAL COMMUNICATION	SD	D	NAD	A	SA	Std	Mean
Information is distributed through use of phones	**% (4)**	**% (2)**	**% (26)**	**% (42)**	**% (26)**	**.958**	**3.85**
Information is distributed verbally	**% (0)**	**% (2)**	**% (25)**	**% (55)**	**% (18)**	**.714**	**3.88**
There is effective face to face information flow between suppliers, providers, distributors and receivers at Baylor	**% (0)**	**% (5)**	**% (12)**	**% (71)**	**% (12)**	**.648**	**3.91**

Source: Primary data

The responses from the respondents indicated thatinformation is distributed through use of phones (Mean=3.85). The research findings further indicate that 4% of the respondents strongly disagreed that information is distributed via phones, 2% of the respondents disagreed, 26% of the respondents neither agreed nor disagreed with the statement, 42% of the respondents agreed while 26% of the respondents strongly agreed that information is distributed via phones at Baylor - Uganda.

The table above indicated that information is distributed verbally at Baylor College of Medicine and Children's Foundation Uganda (Mean=3.88). The research findings further showed that none of the respondents strongly disagreed with the statement that information is distributed verbally at Baylor College, 2% of the respondents disagreed, 25% of the respondents neither agreed nor

disagreed with the statement, 55% of the respondents agreed and 18% of the respondents strongly agreedthat information is distributed verbally at Baylor College of Medicine and Children's Foundation Uganda. It is therefore clear that verbal communication influences health care delivery at Baylor - Uganda.

In relation to above findings the public relations officer put it out that:

"We use more than one form of communication we put up a public speaker at our main office and we put many of our staff on caller user group where they are not charged when calling among themselves."

4.4.5 Non-Verbal Communication and Health Care Delivery at Baylor-Uganda

The table below shows how non-verbal communication influences health care delivery at Baylor College of Medicine and Children's Foundation Uganda.

Table 20: Non-Verbal Communication and Health Care Delivery at Baylor-Uganda

NON-VERBAL COMMUNICATION	SD	D	NAD	A	SA	SD	Mean
Information is distributed using notice boards	% (0)	% (5)	% (14)	% (62)	% (19)	.722	3.95
Information is distributed via online	% (3)	% (7)	% (24)	% (55)	% (11)	.899	3.62
Information is distributed through written formal letters	% (1)	% (8)	% (13)	% (53)	% (25)	.903	3.92
Information is distributed by use of memos	% (0)	% (1)	% (24)	% (55)	% (20)	.696	3.94

Source: Primary data

According to the research results in the table above, information is distributed using notice boards (Mean=3.95). The research findings further indicate that none of the respondents strongly disagreed with the statement that information is distributed using notice boards, 5% of the respondents disagreed, 14% of the respondents neither agreed nor disagreed with the statement, 62% of the respondents agreed while 19% of the respondents strongly agreed that information is distributed using notice boardsat Baylor College of Medicine and Children's Foundation Uganda.

From the research findings in the table above, respondents conquered with the statement that information is distributed via online (Mean=3.62). From the field work as shown in the table above, 3% of the respondents strongly disagreed with the statement that information is distributed online, 7% of the respondents disagreed with the statement. 24% of the respondents neither agreed nor disagreed with the statement. 55% of the respondents agreed and 11% of respondents strongly agreed that information is distributed online at Baylor College of Medicine and Children's Foundation Uganda.The quantitative information presented above was supported by the findings from documentation review from information technology department which revealed that the average information shared online was in range of 3.6 to 3.9.This clearly analyses theinfluence of non - verbal communication on health care delivery at Baylor - Uganda.

4.7 The relation between the study variables

Pearson (r) correlations helped the researcher understand the relationships between the study variables. These results were presented from the data that had been earlier on collected and analyzed using the SPSS software with a view to address the research questions and study objectives.

4.7.1 Correlation of procurement planning and health care delivery

With the use of SPSS, the researcher used Pearson (r) correlation coefficient to establish if there was a correlation betweenprocurement planning and health care delivery atBaylor College. The study had hypothesized as follows:

H_o *Procurement planning does not significantly influences the promotion of health care delivery*

H_A *Procurement planning significantly influences the promotion of health care delivery*

The results of the SPSS operation were as in the table below.

Table 21: Correlation between procurement planning and health care delivery

		procurement planning	health care delivery
procurement planning	Pearson Correlation	1.000	
	Sig.		
health care delivery	Pearson Correlation	.626**	1.000
	Sig.	.000	.

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

Source; primary data

Results in the table above indicated a significant positive correlation betweenprocurement planning and health care delivery(r=.626**, p-value<0.01). Therefore the null hypothesis was rejected and the alternative hypothesis was accepted. This was an implication that once procurement planning is improved the health care delivery will be enhanced at Baylor College of Medicine and Children's Foundation Uganda.

4.7.2 Correlation of distribution and health care delivery

With the use of SPSS, the researcher used Pearson (r) correlation coefficient to establish if there was a correlation betweendistribution and health care delivery at Baylor-Uganda. The study had hypothesized as follows:

H_o *Distribution does not significantly contribute to promoting health care delivery at Baylor-Uganda*

H_A *Distributionsignificantly contributes to promoting health care delivery at Baylor-Uganda*

Table 22: Correlation of distribution and health care delivery

		Distribution	Health care delivery
Distribution	Pearson Correlation	1.000	
	Sig.	.	
Health care delivery	Pearson Correlation	.433**	1.000
	Sig.	.000	.

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

Source; primary data

From the results in Table 22 there was a significant positive correlation betweendistribution and the health care delivery at Baylor College of Medicine and Children's Foundation Uganda

(r=.433**, p-value<0.01).This shows that better distribution will positively influence the health care delivery at Baylor - Uganda.

4.7.3 Correlation of inventory control and health care delivery at Baylor -Uganda

With the use of SPSS, the researcher used Pearson (r) correlation coefficient to establish if there was a correlation between inventory control and health care delivery at Baylor -Uganda. The study had hypothesized as follows:

H_o Inventory control *does not significantly contribute to promoting* health care delivery at Baylor -Uganda

H_A Inventory control *significantly contributes to promoting* health care delivery at Baylor - Uganda

The results of the SPSS operation were as in the table below.

Table 23: Correlation of inventory control and health care delivery

		Inventory control	Health care delivery
Inventory control	Pearson Correlation	1.000	
	Sig.	.	
Health care delivery	Pearson Correlation	.589**	1.000
	Sig.	.000	.

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

Source: Primary data

Results in Table 23 above indicated a significant positive correlation between inventory control and the health care delivery at Baylor College of Medicine and Children's Foundation Uganda

(r=.589**, p-value<0.01).This is an indication that the more you improve the inventory control the better the health care delivery will be at Baylor College of Medicine and Children's Foundation Uganda.

4.7.4 To analyze how communication affects the health care delivery at Baylor –Uganda

With the use of SPSS, the researcher used Pearson (r) correlation coefficient to establish if there was a correlation between communication and health care delivery at Baylor –Uganda. The study had hypothesized as follows:

H_o Communication*does not significantly influences the promotion of health care delivery*

H_A Communication*significantly influences the promotion of health care delivery*

The results of the SPSS operation were as in the table below.

Table 24: Correlation betweencommunicationand health care delivery

		Communication	health care delivery
Communication	Pearson Correlation	1.000	
	Sig.		
health care delivery	Pearson Correlation	.339**	1.000
	Sig.	.000	.

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

Source; primary data

Results in table 24 above indicated a significant positive correlation betweencommunication and the health care delivery at Baylor College of medicine and Children's Foundation Uganda

(r=.339, p- <0.01). This shows that the better communication improves the health care delivery at Baylor College of medicine and Children's Foundation Uganda.

4.8 Regression Model

The regression model was employed to assess the potential effect of the independent variables on the dependent variable. The independent variables included; Procurement planning, Distribution, Inventory control and Communication while the dependent variable wasHealth care delivery.

4.8.1 Regression analysis of Health care delivery

Table 25: The table below shows Regression analysis of Health care delivery

Model	*Un standardized Coefficients*		*Standardized Coefficients*	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.204	.568		3.882	.000
Procurement planning	.734	.197	.362	3.729	.000
Distribution	.239	.100	.187	2.377	.019
Inventory control	.590	.190	.292	3.096	.003
Communication	.392	.185	.295	2.114	.039
Dependent Variable: Health care delivery					
R	.692				
R Square	.479				
Adjusted R Square	.464				
Std. Error of the Estimate	.688				
F Statistic	31.307				
Sig.	.000				

Source; Primary data

The results above showed that Procurement planning, Distribution, Inventory control and Communication explain 46.4% (Adjusted R^2=.464) of the variance in Health care delivery.This means that the four variables in the study influencesHealth care delivery by 46.4%. Again this is an implication that other factors outside the study explain Health care delivery by 53.6%. Of all the four independent variables,Procurement planning has the greatest influence on the Health care delivery (Beta = .362, sig. <.01).

CHAPTER FIVE

DISCUSSIONS OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This research was set out to examine the relationship between supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. In this chapter, the findings presented in chapter four are interpreted, discussed, conclusions plus recommendations are made. The first part of this chapter deals with interpretations and discussion, the second part deals with conclusions and the last part deals with recommendations and areas for further research.

5.2 Summary of major findings

The first objective was to examine the relationship between procurement planning and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. The findings indicate a significant positive relationship between procurement planning and health care delivery.

The second objective was to establish the relationship between distribution and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. The results indicate that there is a significant positive correlation between distribution and health care delivery.

The third objective was to access the relationship between inventory control and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. The research results show a significant positive correlation between inventory control and health care delivery.

The fourth objective was to examine the relationship between communication and health care delivery at Baylor College of medicine and Children's Foundation Uganda. The results establish

that there is a significant positive correlation between communication and health care delivery.

5.3 Discussion of the research results

This section interprets and discusses the findings in relation to the four research objectives

5.3.1 Procurement planning and health care delivery

The findings of the study indicate that there is a significant positive correlation betweenprocurement planning and health care delivery. In agreement with the findings,Thuy (2009) argues that efficiency improvement in the provision of health care has been affected by procurement processes in Vietnam. The demand for health care is large and increasing over time due to a growing and an ageing population. However, procuring human resources and facilities for health care provision is inadequate. This has led to deficiencies and inefficiencies in the health system, especially within hospitals.

The research findings are related to the works of Alt (1997) who pointed out that the increase in health care cost and inefficiencies are due to inadequate and tedious procurement and purchasing procedures. He established that inefficiencies in the health care supply chain significantly affected health care delivery in hospitals. Davenport (1994) argues that the procurement process consumes the available resources in the purchasing department to produce a product or service relevant to satisfy the patients' needs.Frida (2014) argues that planning of purchases is no less important in institutions and government than it is in industrial organization. In fact, it may be more critical, because the public's health safety and welfare can be immediately and adversely affected by even a short term disrupt of supply.

Related to the research findings, Dobler and Burt (1996) argued that procurement involves numerous activities consisting of many material and information flows. It is not as simple as to

just convey a need from an internal customer to a supply and then deliver the item to the internal customer but involves a lot of planning.The above was in line with study findings from the questionnaires and interviews with the employees which shows that procurement planning influences health care delivery with the mean range of 3.6 to 4, this means that if planning is to be improved at Baylor planning units should focus much on involvement of all stakeholders and timelinessso that unit plans are consolidated together to have a master procurement plan by procurement department.

5.3.2 Distribution and health care delivery

The findings of the research results show that there is a significant positive correlation relationship between distribution and health care delivery. These research results are in line with the studies conducted by Butler (1995) who argued that with the escalating cost of providing health care, politicians and hospital operators are searching continuously for innovative ways of distributing medicines and health facilities without sacrificing quality of services. He went on to argue that with increasing cost of distributing health care services, there is need to cop up with this rising distribution costs to meet the expected patient quality.

The research findings are related to the need to design an optimum application specific for an organization to assist in its diverse operations (The British Standards Institution 2002). The same institution opines that distribution facilities influences delivery of health logistics in different health facilities. Proper routing and scheduling of supplies are significant in improving distribution at Baylor with a mean range of 3.7 to 3.9 its clear that management should refocus on these two aspects in distribution in order cost save more.

5.3.3 Inventory control and health care delivery

The research findings indicate a significant positive correlation relationship betweeninventory control and health care delivery. These research results are supported by the works of Arum & Chan who established that in order to achieve the goal of providing health care efficiently and cost effectively, one of the requites of attaining this is reliable inventory initiatives by the procurement officers.

Inventory management is the planning of optimum quantities of materials at all stages in the material cycle, and the design and establishment of systems of control to attain this objective (ASME). The actual steps to maintain proper stock levels in all types of materials kept in health facilities influences health care delivery. Stock taking, cycle counts, maintain re-order levels, using first expiry first out system are the steps facilities should use to monitor and control inventory these practices monitor inventory turnover. This is related to the research findings in chapter four. Just in time approach and vendor management inventory are significant in inventory control irrespective of their posing challenges of poor transport network and uncertainties. These modes of inventory control not only reduce on the amount of expires but also on the cost of holding stock.

5.3.4 Communication and health care delivery

The findings of the research results show that there is a significant positive correlation relationship betweencommunication and health care delivery. These research results are in line with the research carried by Dongwoon and Heejin (2003) who established that information and communication technologies are greatly influencing economic, social, cultural life and health care services. These technologies have also been introduced in heath sectors and affecting health care systems. The public health centres in the Republic of Korea introduced district health information

systems (DHIS) in the early 1990s. Currently district health information systems are still being implemented in health centers. Information and communication generated through the systems is used by local authorities to plan and manage health services in their areas, and further by the central government to make a health plan at the national level. The main purpose of DHIS is to improve the quality of services provided by health centres (Park et al., 1999).

Related to the study findings, NHS Direct is a call centre service which enables patients and careers to speak to qualified and experienced nurses for advice on self-help and guidance as to what type of professional health care they should obtain. The aim is to improve health service delivery to patients by ensuring that they access appropriate services at the right time, and at the same time reduce the number of unnecessary visits to general practitioner (GP) surgeries and Accident and Emergency departments (A&E) (Chief Medical Officer, 1997; NHS Direct, 2001).

Inline with the research results, Baylor-Uganda uses toll free line, health education talks, suggestion box, client meetings, one on one sessions with clinic staff, client satisfaction surveys some of the communication modes which has improved its communication performance but how ever emphasis should be put on feedback otherwise all the modes applied will be costly for nothing.

5.4 Conclusions

Conclusively supply chain coordination influences health care delivery at Baylor College of Medicine and Children's Foundation Uganda. Procurement planning, distribution, inventory control and communication highly influence health care delivery at Baylor College of medicine and Children's Foundation Uganda.

5.5 Recommendations

The procurement department should on a continuous basis monitorand improve its procurement procedures. The procurement plans should always be clearly followed by the procurement officers at Baylor.Supportiveprocurement policies should be a priority that enhances better service delivery at Baylor**.** Basing on the research findings, there is a need to increase the level of priority attached to procurement procedures across Baylor's facilities. Need to timely address procurement concerns for timely supply distribution. So team work and communication is key here.

The logistics unit should procure vehicles specifically for the distribution of supplies instead of using any vehicle going to the field to execute other activities to distribute supplies this not only affect the distribution plan and schedule of supplies but also affect the execution of other Baylor activitiesconsequently compromising the quality of service delivery.

There should be emphasis on feedback from all stake holders as far as communication is concerned. This will help the planning unit to do better forecasts and at the same time management will lay better strategies for the organization to improve its performance.

Training of all stakeholders in the supply chain is key since majority of them are in the medical field and have little or no knowledge of how to coordinate the supply chain.

5.6 Contribution of the study

The study will add to the existing pool of knowledge or literature in the area of supply chain coordination and health care delivery. More still, results from the study will be very help full to Baylor college of medicine children's foundation Uganda towards improving supply chain coordination and health care delivery in the organization. The study will also act as an aid to policy formulation in the organization as it points out the challenges to supply chain coordination and health care delivery in Baylor College of medicine. To other developing partners and NGOs within Uganda, this report will be useful as it points out challenges to supply chain coordination management and further suggests recommendations.

5.7 Areas for further research

This study concentrated on studying the relationship between supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Uganda. Future research should attempt to widen the scope of the study to cover more health institutions.

The study focused on supply chain coordination and health care delivery neglecting other factors that affect health care delivery at Baylor. Future studies should be conducted to explain and explore other factors like donor policy, government policy, staff attitude other than supply chain coordination that influence health care delivery at Baylor College of Medicine and Children's Foundation Uganda. Areas like supply chain management and service delivery in not for profit organizations should be researched on.

5.8 Limitations to the study

The study was limited to only two variables (supply chain coordination and health care delivery) that were under the study. This limited the researcher to only those two variables under the study.

The study was limited to only Baylor College of Medicine and Children's Foundation Uganda. This limited the researcher to only that health institution where the research was conducted under neglecting other health institutions.

The respondents took long to answer the research questions due to their tight schedule. This delayed the research from attaining the research results in the set time frame.

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APPENDICES

Appendix I: Questionnaire

UGANDA MANAGEMENT INSTITUTE
ACADEMIC RESEARCH QUESTIONNAIRE

Dear Respondent, CONFIDENTIAL

This study is about **"Supply chain coordination in health care Delivery"**. You have been identified as a key informant. Please spare a few minutes of your busy schedule to fill this questionnaire. The responses will be aggregated and used purely for academic research. Your honest and sincere responses shall be treated with utmost confidentiality.

SECTION A: BACKGROUND INFORMATION (All responses strictly confidential)

1. Gender

Male	**Female**
1	**2**

2. What is your age group?

10-19years	**20-29 years**	**30-39years**	**40-49yrs**	**50-59yrs**	**Over 60yrs**
1	**2**	**3**	**4**	**5**	**6**

3. What is your Marital Status?

Single	**Married**	**Divorced**	**Separated**	**Widowed**
1	**2**	**3**	**4**	**5**

4. What is your highest level of education?

Certificate	Diploma	Degree	Post Graduate
1	2	3	4

5. How would you describe your role in the health commodity management?

Procurement	Inventory Management	User	Supervisor
1	2	3	4

6. How many years have you been working in this capacity?

< 1 year	1 – 3 years	4 – 6years	> 6years
1	2	3	4

SECTION B: HEALTH CARE DELIVERY

Please read through and Agree or Disagree on the following practices and behaviors describing service delivery. Please tick the most suitable answers out of the alternatives provided for each question.

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	2	3	4	5

HEALTH CARE DELIVERY	**1**	**2**	**3**	**4**	**5**
You were given a folder for your medical records	**1**	**2**	**3**	**4**	**5**
Your history was taken by the health provider	**1**	**2**	**3**	**4**	**5**

The healthcare provider is always available on time	**1**	**2**	**3**	**4**	**5**
The healthcare provider gives enough time to you	**1**	**2**	**3**	**4**	**5**
You always find a comfortable place to sit on at the health facility	**1**	**2**	**3**	**4**	**5**
The facility is always clean	**1**	**2**	**3**	**4**	**5**
The healthcare provider explains everything about your treatment	**1**	**2**	**3**	**4**	**5**
Medication is always provided on time	**1**	**2**	**3**	**4**	**5**
You always receive all the medicines prescribed to you at the facility	**1**	**2**	**3**	**4**	**5**
You are always given an explanation why all your medicines were not provided at the facility	**1**	**2**	**3**	**4**	**5**
You would refer this facility to your friends and relatives	**1**	**2**	**3**	**4**	**5**
You are always satisfied with the services provided	**1**	**2**	**3**	**4**	**5**

SECTION C: SUPPLY CHAIN COORDINATION

Please tick the most suitable answers out of the alternatives provided for each question

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	2	3	4	5

	PROCUREMENT PLANNING					
	RIGHT PRICE					

1	**The quantity of supplies purchased are with in the right budget**	**1**	**2**	**3**	**4**	**5**
2	**The selection of supplies done in your facility is done based on their respective budgets**	**1**	**2**	**3**	**4**	**5**
	RIGHT TIME					
3	**You do receive supplies at the right time**	**1**	**2**	**3**	**4**	**5**
4	**Supplies are required at all times**	**1**	**2**	**3**	**4**	**5**
5	**You maintain separate records for all supplies periodically**	**1**	**2**	**3**	**4**	**5**
	RIGHT PRODUCT					
6	**The selection of health commodities done in your facility is done based on essential products**	**1**	**2**	**3**	**4**	**5**
7	**You determine the quantity of health products needed based on requests from users**	**1**	**2**	**3**	**4**	**5**
	RIGHT SOURCE					
8	**You establish right and reliable sources for supplies**	**1**	**2**	**3**	**4**	**5**
9	**The sources for the supplies are recommended by MoH**	**1**	**2**	**3**	**4**	**5**
	DISTRIBUTION					
	ROUTING					
10	**There is a distribution plan in place**	**1**	**2**	**3**	**4**	**5**
11	**The routes taken to deliver the suppliers are cost effective**	**1**	**2**	**3**	**4**	**5**
	SCHEDULING					
12	**There is a scheduling plan in place for health supplies and servicesat Baylor**	**1**	**2**	**3**	**4**	**5**
13	**Supplies are sometimes moved from one scheduled centre to another in my locality**	**1**	**2**	**3**	**4**	**5**

	LOGISTICS					
14	**Baylor delivers to the facilities the supplies ordered**	**1**	**2**	**3**	**4**	**5**
15	**The facility comes for the commodities ordered themselves**	**1**	**2**	**3**	**4**	**5**
	INVENTORY CONTROL					
	STOCK CONTROL					
16	**There are documents received along with the commodities**	**1**	**2**	**3**	**4**	**5**
17	**There is 100% inspection of supplies done at your facility**	**1**	**2**	**3**	**4**	**5**
	MATERIAL HANDLING					
18	**There is proper packaging of supplies at your facility**	**1**	**2**	**3**	**4**	**5**
19	**Inspection of commodities is done at your facility**	**1**	**2**	**3**	**4**	**5**
	STOCK/CONTROL					
20	**The Stores/locationof the suppliers' facility is accessible**	**1**	**2**	**3**	**4**	**5**
21	**The facility's location of the suppliers of health medicines favours all the stakeholders**	**1**	**2**	**3**	**4**	**5**
	COMMUNICATION					
	VERBAL COMMUNICATION					
22	**Information is distributed through use of phones**	**1**	**2**	**3**	**4**	**5**
23	**Information is distributed verbally**	**1**	**2**	**3**	**4**	**5**
24	**There is effective face to face information flow between suppliers, providers, distributors and receivers at Baylor**	**1**	**2**	**3**	**4**	**5**
	NON-VERBAL COMMUNICATION					
25	**Information is distributed using notice boards**	**1**	**2**	**3**	**4**	**5**
26	**Information is distributed via online**	**1**	**2**	**3**	**4**	**5**

27	**Information is distributed through written formal letters**	**1**	**2**	**3**	**4**	**5**

Appendix II: INTERVIEW GUIDE

UGANDA MANAGEMENT INSTITUTE
ACADEMIC RESEARCH QUESTIONNAIRE

CONFIDENTIAL

Dear Respondent,

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5. How would you describe your role in the health commodity management?

Procurement	Inventory Management	User	Supervisor
1	2	3	4

6. How many years have you been working in this capacity?

< 1 year	1 – 3 years	4 – 6years	> 6years
1	2	3	4

INTERVIEW GUIDE

B) Top Management and Supervisors only

1. What is your current position held in the execution of Baylor College of medicine and Children's Foundation Uganda's tasks and duties? .....

2. What are your responsibilities in regard to supply chain coordination at Baylor College of Medicine and Children's Foundation Uganda?

3. What are your opinions onprocurement planning and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

4. What are your views on distribution of medicines and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

5. How do you see the inventory control of medicines and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

6. What other communication strategies should be put in place to improve health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

7. What supply chain coordination programs do you have to enhance health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

8. Do you think these supply chain coordination programs are relevant in enhancing health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

Yes ☐ No ☐

1. If Yes, give the reasons why you think these programs are relevant

_____

_____

9. What measures should be put in place to improve supply chain coordination and health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

_____

_____

C) To be filled by employees only

1. What is your current position held in the execution of Baylor College of medicine and Children's Foundation Uganda's tasks and duties?

.....

2. What are your responsibilities in regard to supply chain coordination at Baylor College of Medicine and Children's Foundation Uganda?

_____

_____

3. What causes the inadequate supply chain coordination at Baylor College of Medicine and Children's Foundation Uganda?

_____

_____

4. What supply chain coordination programs should be introduced at Baylor College of Medicine and Children's Foundation Uganda to improve health care delivery?

_____

_____

5. Do you think supply chain coordination at Baylor is favourable?

Yes ☐ No ☐

6. If Yes/No, give the reasons why you think yes/no at Baylor

_____

_____

7. What measures should be put in place to ensure that supply chain coordination at Baylor College of Medicine and Children's Foundation Uganda is improved?

_____

_____

8. Are you happy with health care delivery at Baylor College of Medicine and Children's Foundation Uganda?

Yes ☐ No ☐

9. If Yes/No, give the reasons why you think yes/no at Baylor

_____

_____

10. In your opinion what do you think should be done to improve health care delivery at Baylor College of Medicine and Children's Foundation Uganda?