EVALUATION OF USAID – BORESHA AFYA PROGRAM CONTRIBUTIONS AMONG HEALTHCARE FACILITIES IN LINDI DISTRICT COUNCIL TO IMPROVEMENT OF THE SUPPLY CHAIN MANAGEMENT OF MEDICAL SUPPLIES

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BY

OSWALD MWIHAVA

A Dissertation Submitted to the School of Public Administration and Management in Partial Fulfillment of Requirement for the Award of Master of Science in Health Monitoring and Evaluation (MSc. HM&E) of Mzumbe University

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CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled: ***Evaluation of USAID – Boresha Afya Program Contributions among Healthcare Facilities in Lindi District Council to Improvement of the Supply Chain Management of Medical Supplies,*** in Partial Fulfillment of the Requirements for Award of the Master's Degree of Health Monitoring and Evaluation (Msc.HM & E) of Mzumbe University.

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Major Supervisor

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Internal Examiner

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DECLARATION AND COPYRIGHT

I, **Oswald Mwihava,** declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature _____

Date_____

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DEDICATION

This dissertation is mostly dedicated to my family members especially my parents Mr. and Mrs. Paul Mwihava, my wife Mercy Oswald Mwihava and my child Jayden Mwihava for their patience and support.

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
CCHP	Comprehensive Council Health Planning
CHMTs	Council Health Management Teams
DLMS	District Level Medical Stores
DQA	Data Quality Assessment
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
eLMIS	Electronic Logistics Management Information System
FHI	Family Health International
FP	Family Planning
GOT	Government of Tanzania
GPOs	Grouped Purchasing Organizations
HIV	Human Immunodeficiency Virus
IDNs	Integrated Delivery Networks
IT	Information Technology
LMU	Logistics Management Unit
MCH	Mean Corpuscular Hemoglobin
MDH	Management and Development for Health
MMR	Maternal Mortality Ratio
MOHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MSD	Medical Stores Department
NGO	Non-Governmental Organisation
NLPMS	National Level Medical Stores

RBV	Resource-Based View
RHMTs	Regional Health Management Teams
RLMS	Regional Level Medical Stores
SC	Supply Chain
SCIS	Supply Chain Information System
SCM	Supply Chain Management
SDPs	Service Delivery Points
TB	Tuberculosis
URT	United Republic of Tanzania
US	United States
USAID	United States Agency for International Development
WHO	World Health Organization

ABSTRACT

This study evaluated the contributions of USAID Boresha Afya Progam to the medicine and medical equipment supply chain management system in Lindi District Council. The evaluation specifically focused on objectives: (i) to assess the use of data quality assessment (DQA) to supply chain management; (ii) to determine the efforts of USAID Boresha Afya Program to sharpen the skills on DQA among the health providers in the served facilities; and (iii) to establish the supervision of USAID Boresha Afya Program enhances supply chain management in healthcare facilities.

The evaluation employed case study design with the qualitative approach. The sample size for the study was 33 participants purposively selected. Structured interviews were used to gather data from the participants who were 30 health workers in the selected health facilities and 3 officials of the Program. Because of qualitative nature of data, analysis of the findings employed the framework analysis that involved five stages of familiarization, thematic framework identification, indexing, charting and mapping and interpretation.

The findings of the study revealed that the health facilities received Data Quality Assessment (DQA) for data cleaning and verification. It was found that DQA was effective for producing clean and verified data. The health personnel were well trained to handle and manage data for supply chain management of medicine and medical supply. The findings also showed that the health facilities needed supportive supervision from the Program officials. The Program officials offered the supervision but there was no auditing service of the Program.

The evaluation reached a conclusion that Programs need clean and verified data to facilitate supply chain management without which it is impossible. Moreover, skills and knowledge are very important aspects in making the Program successful. Further, the most successful Program is that which is supportive supervision is in place. It was recommended that the Program management should establish auditing unit so as to avoid malicious behavior of some stakeholders in the Program.

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OPERATIONAL DEFINITIONS

Health care

Merriam Webster Dictionary defines healthcare as efforts made to maintain or restore physical, mental, or emotional well-being especially by trained and licensed professionals – usually hyphenated when used attributively. It is the maintaining and restoration of health by the treatment and prevention of disease especially by trained and licensed professionals (as in medicine, dentistry, clinical psychology, and public health) (Mwencha et al., 2017). In this study, the healthcare is defined as the efforts made by well-trained health providers and health officials to maintain and restore physical, mental and emotional well-being of the patients through exposing to accessibility and availability of the affordable health services.

Health facilities

WHO defines health facilities as hospitals, primary health-care centres, isolation camps, burn patients units, feeding centres and others (Yousefi and Alibabaei, 2015). In this study the healthcare facilities are the places that provide health care including hospitals, clinics, outpatient care centers, and specialized care centers, such as birthing centers and psychiatric care centers.

Supply Chain

Supply chain is defined as the functions within and products that provide services to the customer (Cox *et.al*. 1995). Another source defines supply chain as, the network of entities through which materials flows. Those entities may include suppliers, carriers, manufacturing sites, distribution centers, retailers, and customers (Lummus and Alber, 1997). The supply chain involves all stages of production and delivery of a final product, from the supplier's supplier to customer's customer. In this study, supply chain is defined as the network of medicines and other medical equipment as they move from manufactures until they reach customers (patients).

Supply chain management

Eilram and Cooper (1993) defined supply chain management as an integrating philosophy to manage the total flow of distribution channel from supplier to ultimate customer. Supply chain management (SCM) deals with different categories of flows; namely, flows of goods, flows of information and flows of funds within and among supply chain partners in order to satisfy consumer needs in the most efficient way (Chopra and Meindl, 2007).

CHAPTER ONE

INTODUCTION

1.1 Background Information

World Health Organization (WHO) characterizes access to medicine and medicinal care as a need for the citizens (Marks, 2009). It should be accessible consistently in plenty sums, in suitable measurements and quality and at a moderate cost for people and networks (Yadav et al., 2011). Social insurance inclusion incorporates access to sheltered,, high caliber, and moderate basic medications and vaccines for all (Mwencha et al., 2017). Healthcare facilities all-over the world is considered by scholars such as Yousefi and Alibabaei, (2015) to have complex internal and external roles. They are said to have responsibilities to society, with a priority on quality patient care, yet also function as a business with inputs and outputs operating similarly to large scale factories. Healthcare represents an enormous of society, economically, socially and environmentally. Because of their vitality, healthcare facilities need consistent and sustainable strategies for healthcare supply chain management. Some scholars such as Belliveau, (2018) have stipulated clearly that a well-managed supply chain is considered as an important competitive advantage, but in recent years, by increase in the importance of information, a supply chain information system (SCIS) can be considered as the main competitive advantage. Statistics from WHO shows that medicines and medical supplies involve the second highest expenditure after staff costs in a country's health care system. Furthermore, the statistics of global spending on medicines showed that in 2010, total spending on medicine was 887 billion U.S. dollar. Yet, it is estimated that until 2020 the pharmaceutical market will increase to around 1.4 trillion U.S. dollars (Yousefi and Alibabaei, 2015).

In the developing countries health services quality is facing difficulties. It is assessed that two billion individuals do not access to drugs and four million lives for every year could be spared in Africa and Southeast Asia with suitable treatment and prescription

(Marks, 2009). It is due to the reasons that health administrations conveyance frameworks in developing countries face significant limitations including a triple burden of transmittable ailments, rising eating routine related incessant non-transferable malady and unhealthiness (Iqbal, Geer and Dar, 2017). The inclusion of wellbeing administrations isn't just insufficient yet in addition obliged by lacking financing (Carrin and Waelkens, 2005).

The money spent on buying medicines by governments is very large and 40 to 60 percent of entire public sector health budget of any country goes into buying medicines (Iqbal, et al., 2017). Despite such heavy spending, one-third of world population lacks access to essential medicine, which actually goes up to one half in Asia and Africa. A major reason for this is the adverse situation is the mismanagement of available resources and according to one estimate up to 70 percent of resources are wasted in any country due to poor drug management systems due to poor supply chain management (Iqbal, et al., 2017). In most countries of Africa the supply chain management is not well organized leading to poor health services. This being the case, the governments in Africa with considerable external assistance have launched several interventions to strengthen their health provision sector. Among others, they are strengthening the capacity of existing health facilities by increasing the number of experts, established supply chain systems to supply necessary pharmaceutical drugs and equipment, as well as establishing health insurance schemes to help boost their capacity to accommodate the demands of their population (Averill and Marriot, 2013).

In Tanzania, the situation is not exceptional from the above generality. For decades now high burden of disease poses a grim threat to the country’s health sector (URT, 2010). Despite a significant decline in infant and under five mortality rate, statistics show that overall Maternal Mortality Ratio (MMR) and prevalence of other major diseases like HIV/AIDS, Malaria and Tuberculosis have remained high while life expectancy remained below 55 years on average (URT, 2016). The sector is characterized with insufficient workforce, inadequate supply of necessary medical equipment as well as

management of medical devices (Lekashingo, 2012). In any case, in late decades, Tanzania has encountered the unpredictability of the general wellbeing store network, and the volumes and assortments of human services items, have incredibly expanded. This has brought about a divided framework that has been hard to arrange and has hampered item accessibility. To address these difficulties, in 2014 Tanzania made a noteworthy venture to overhaul its administration frameworks for the general wellbeing production network. The administration built up a national Logistics Management Unit (LMU) to manage all key general wellbeing products by arranging, observing, and supporting all inventory network exercises inside all the coordination frameworks in the nation. The LMU brings together and fits the administration of dissimilar program supply chains, advances more noteworthy effectiveness in inventory network the board, and guarantees better client administration. Tanzania likewise presented a national online electronic coordination, the electronic Logistics Management Information System (eLMIS) to help the accumulating, detailing, and envisioning of information gathered from the paper-based framework (Mwencha et al., 2017). The Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) has in general obligation about the general wellbeing store network that serves more than 66% of Tanzania's 49 million individuals. This production network incorporates the semi self-governing Medical Stores Department (MSD), which has its central command in the capital of Dar es Salaam and works 9 zonal stores. It likewise incorporates MOHCDGEC-worked offices, comprising of 20 provincial antibody stores, 137 locale stores, and 5,500 Service Delivery Points (SDPs)— emergency clinics, wellbeing focuses, and wellbeing posts—where customers get their meds and immunizations. The estimation of meds and different items traveling through the general wellbeing store network every year is around 300 billion Tanzanian shillings (TSh) (Mwencha et al., 2017).

USAID Boresha Afya Program has been implemented Tanzania’s health sector since 2016 with various District Councils including Lindi District Council. The program has been implemented for three years now. The aim has been to improve the supply chain

management system especially in health commodity security. The program has provided innovative and sustainable supply chain solutions in procurement, storage, data management and capacity building to health care workers. The program has successfully strengthened systems for health commodity security for HIV and AIDS, malaria, reproductive, maternal and child health, tuberculosis and leprosy and essential medicines. The study by Ramadhani (2015) conducted one year before the commencement of the program showed the situation before the establishment of the program. The findings of the study showed that Lindi Municipality had 18 health facilities all with poor and unreliable transportation of medical supplies and medicines. The other study by Sikika (2009) that based on the human resource in supply chain management revealed that in Lindi Municipality, human resource in health facilities was one of the key problems facing the supply chain management of the medicines and medical supplies. It is now three years have passed since the establishment of the program. This study has intent of evaluating the contribution of the program to the improvement of the supply chain system management of medical supplies in Lindi District Council.

1.2 Problem statement

Availability of medicines and medical equipment is among the major indicators for quality health services delivery. Shortages and stock outs of medical equipment have continued to pose a grim threat in Tanzania's health services delivery (Kwesigabo *et al.,* 2012).

The Ministry of Health, Community Development, Gender, Elderly and Children and other stakeholders have historically been making efforts in struggling to ensure improvement of healthcare services among the citizens in Tanzania. However, these efforts have been experiencing difficulties due to a number of factors such as infrastructural, knowledge based factors, geographical factors, socio-economic factors etc. Some studies such as Mbembati *et al.* 2008; Ishengoma *et al.,* 2009; Ishengoma *et al.,* 2011 Kajuna, 2014; Kivelege, 2015; and Kumburu, 2015 have reported medicine

and medical equipment supply problems in some health facilities in Tanzania including the facilities in Lindi Region.

The Boresha Afya Program has been implemented in different parts in Tanzania including Lindi region, where it was implemented since 2016, to side the government in efforts in improving the healthcare services especially supply chain management systems in the country. Contributions of this program are not well documented. This current study is committed to document and reveal the contribution of the USAID Boresha Afya Program to the improvement of supply chain management system of medical supplies in Lindi District Council.

CHAPTER TWO

EVALUATION QUESTIONS AND OBJECTIVES

2.1 Evaluation questions

i. How has Data Quality Assessment contributed to the Supply Chain Management of medicines and medical supplies in Lindi District Council?
ii. How has USAID Boresha Afya improved skills of the health providers in Lindi Distict Council?
iii. How supervision of USAID Boresha Afya Progam enhanced supply chain management in healthcare facilities in Lindi District Council?

2.2 Objectives

This section addresses the evaluation objectives. The objectives are divided into main objective and specific objectives.

2.2.1 Main objective

The main objective of this study is to evaluate the contributions of USAID Boresha Afya Program to the medicine and medical equipment supply chain management system in Lindi District Council.

2.2.2 Specific objectives

(i) To assess the use of data quality assessment (DQA) to supply chain management in Lindi District Council
(ii) To determine the efforts of USAID Boresha Afya Program to sharpen the skills on DQA among the health providers in Lindi District Council
(iii)To establish the supervision of USAID Boresha Afya Program enhances supply chain management in healthcare facilities in Lindi District Council.

2.3 Significance of the evaluation

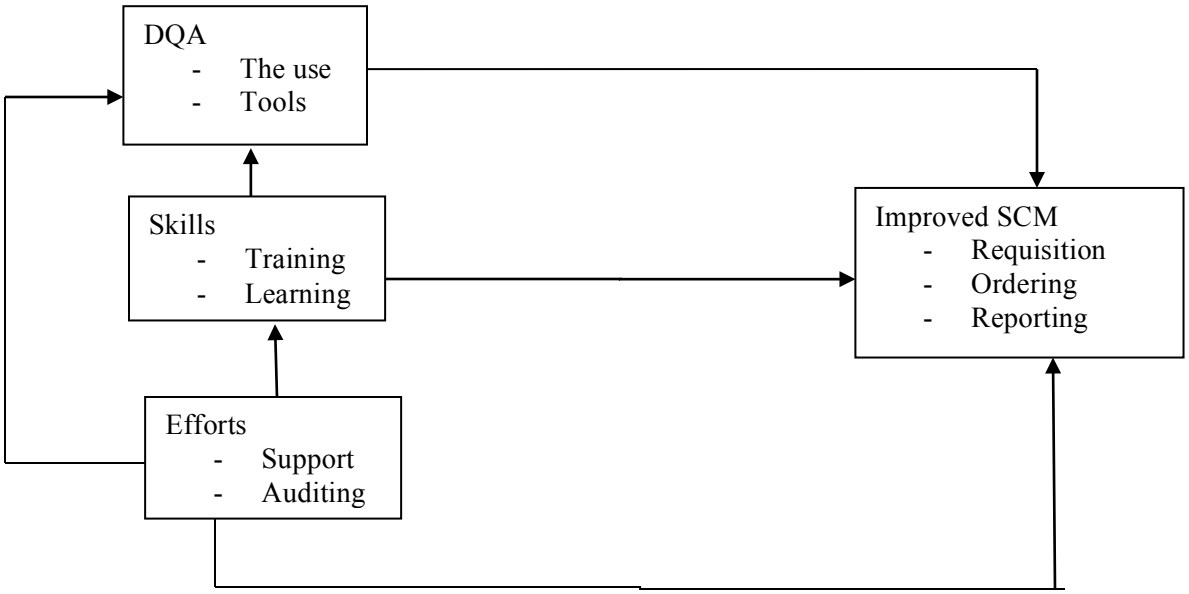
This study will be beneficial in several ways in the sense that it will highlight the evaluation of contributions of USAID Boresha Afya Program to the medicine and

medical equipment supply chain management system in Lindi District Council. Among others this study will specifically address and establish the evidences on the quality of the supply chain infrastructure, supply chain management practices and perceived healthcare services in the healthcare facilities. Therefore findings from this study will help the Ministry of Health Community Development, Gender, elderly and children through its directorate of Human Resource Management and other stakeholders to understand the real situation of supply chain management in the health facilities in order to invest many efforts to improve the supply chain management in health services. Moreover, the findings will also help to inform policy makers and planners to consider the supply chain management of medicines and medical equipment so that to cover and address the weaknesses.

2.4 Conceptual framework

The conceptual framework for this study indicates by using the association of factors to improve Supply Chain Management (SCM) of medicine and medical supplies in the implementation of the Boresha Afya program. The association of factors are viewed in conceptual framework (Fig.1).

Figure 1: Conceptual Framework



Source: Researcher's own construct (2019)

Data Quality Assessment (DQA)

The DQA was adopted and used in the program to enable the implementers to effectively have flowing and effective operations. The program was expected to make the health facilities to receive DQAs regularly and on time. With the DQAs the health facilities were expected to produce quality and clean data that would enable the program

to enhance good supply chain management from the store to the facilities. The program implementation was expected to distribute the DQA tools so as to simplify their use in the facilities.

Building of skills

It was expected that the Boresha Afya Program bring s good collaboration between different stakeholders in health sector in the facilities where it was implemented. In this respect, the program was expected to equip the health workers with required skills related to health service delivery but more emphasingly on the use of DQA in their facilities. Here the program was supposed to make sure that the health providers are trained and skills on the implementation of the projects under the program. The health officials were expected to be trained in various ways depending on the environment of the facilities served.

Supportive efforts

It was expected that Boresha Afya Program extend its efforts to provide its enabling support to ensure that the program and projects under it are effectively implemented in the served facilities. Here the program was expected to provide its supervision support to make sure procedures are undertaken as planned. In this regard, the program was supposed to supervise the facilities to have routines and work plans for the implementation of the DQA project. It was also expected that the program conducts regular auditing so that to make sure everything is on planned track.

Improved SCM

The end/purpose of the program was to attain the improved supply chain management. The improved SCM was expected to be reflected in terms of ability of the facilities to use the DQA by requisition, ordering and reporting medical equipment and medicine.

CHAPTER THREE

DESCRIPTION OF THE PROGRAM TO BE EVALUATED

3.1 Program theory

Providing integrated primary health care is the standard of care in the developed world. The GOT is interested in integrating primary health care delivery in receptive settings to optimize coverage and equity of health care services without compromising quality of care. Vertical systems of delivery can be fragmented and inefficient for the provider (with service duplication) and the patient (who must visit multiple sites and providers). From a management perspective, health managers may find it difficult to coordinate multiple externally funded partners, and implement multiple training, supervision, drug supply, and monitoring and reporting systems.

The overarching goal of USAID Boresha Afya is to improve the health of all Tanzanians and increase access to high-quality, comprehensive, and integrated health services. The project will support preventive and curative services for HIV/AIDS, family planning, and TB. The program is implemented in three zones of Tanzania, namely Lake/Western Zone, North/Central Zone, and Southern Zone. USAID Boresha Afya aims to support the Government of Tanzania (GOT) to increase access to high quality, comprehensive and integrated health services, especially for women and youth, with a focus on achieving improved maternal, neonatal, child and reproductive health and nutrition outcomes.

The lead implementing partners for USAID Boresha Afya are as follows: Jhpiego in the Lake/ Western Zone; EGPAF in North/Central Zone; and Deloitte in Southern Zone. It is also envisioned that the CIRCLE Project itself will execute the Knowledge Management function of the Developmental Evaluation, serving to continuously share findings, best practices, lessons learned and changes in integration implementation across the three IPs/zones, and with a broad range of other stakeholders including the GOT and USAID.

3.2 USAID Boresha Afya in Southern Zone

3.2.1 Purpose and goals of the program

USAID Boresha Afya – Southern Zone is a five-year (1 October 2016 – 30 September 2021) program undertaken in Tanzania and supported by the American people through the United States Agency for International Development (USAID). Deloitte Consulting Limited implements the program in 43 councils of Iringa, Njombe, Morogoro, Lindi, Mtwara and Ruvuma regions with its technical partners Family Health International (FHI360), EngenderHealth and Management and Development for Health (MDH).

The core vision of USAID Boresha Afya – Southern Zone is to create a dynamic, integrated platform for delivery of health services that emphasizes intensified coordination and collaboration between the Government of Tanzania, health facilities and communities, towards achieving HIV epidemic control while integrating Family Planning, Tuberculosis (TB), Maternal and Child Health, Malaria care and Nutrition through innovative integration approaches at all levels and opportunities. It covers groups that face barriers to effectively access integrated services, such as pregnant women, infants exposed to HIV and youth and young women. In addition to integrated services that provide continuous linkages within and among the health facilities, communities and across diseases,

The goal of USAID Boresha Afya – Southern Zone is to improve the health status of all Tanzanians through attaining the following results;

- **Result 1:** Improved enabling environment for health service provision
- **Result 2**: Improved availability of quality, integrated health services at facility level
- **Result 3:** Increased access to health services at community level

3.2.2 Elements of the project/program

The program has the following elements

(a) Tailored approach to each geographic area

Under the USAID Boresha Afya Southern zone, integration activities are designed to fit the realities of the health system in each district. Working with USAID, GOT and other local stakeholders, the project maximizes resources and impact by using available data to target priority geographic, sub-populations, communities and households. Our detailed analysis and past experience in delivering health services in scale-up districts allows us to tailor an effective response that will rapidly achieve and sustain HIV/AIDS epidemic control, while improving the integration of HIV/TB/Malaria and MCH/FP services. While the program is not directly support HIV-led community outreach efforts in the sustained districts, we continue to strengthen the integration of HIV, TB, malaria, FP, MCH at the facility level, improve the supply chain and laboratory services, provide training and mentoring, conduct supportive supervision, update SOPs and guidelines, and support continuous quality improvement. The package of support for HIV clinical services at facilities is the same in all supported sustained districts. Additionally, in a limited number of sustained districts, that have low FP uptake such as Kilombero DC and Ulanga DC, USAID Boresha Afya will deliver targeted FP integrated outreach services.

(b) Optimizing the continuum of care

The program focuses on optimizing the continuum of care so that the linkages, referrals, and systems connecting HIV, TB, malaria, FP and MCH services within and between health facilities and communities are seamless. Strengthening the continuum of care will increase the number of individuals who can access a wider range of services that meets their multi-faceted needs.

(c) Client centred care

The program prioritizes on focusing on client-centered care in health facilities and communities that is responsive to the preferences, needs and values of patients. The USAID Boresha Afya places patients at the center of the service delivery approach, engage patients as partners and seek to design interventions that address their health service needs, improving their ability to access care and treatment. In line with the

National Patient Charter (2013), this approach will also focus on ensuring that patients are treated with respect and receive appropriate access to care, emotional support, physical comfort, information and communication, and involvement of family and the community.

(d) Gender and youth

Implementing a strategy for gender and youth ensures that specific gender transformative and youth empowerment interventions support the health goals of the project and target vulnerable adolescents, enabling them to benefit from integrated services. Gender and youth interventions cover all regions, with intensive focus in areas with a high concentration of HIV and vulnerability to pregnancy. The program targets unmarried youth, particularly young girls, who are migrating to urban centers in all the regions and are at a higher risk for HIV, cross-generational relationships and early pregnancy.

(e) Enhancing coordination

The program enhances coordination with other programs, Implementing Partners, CSOs and government organizations to improve the enabling environment, health services and outcomes to patients and communities. Accordingly, the USAID Boresha Afya Southern zone actively engages a variety of different stakeholders in order to synergistically achieve program results, generate and incorporate lessons learned, avoid duplication of efforts, and foster strong, sustainable systems while improving cost efficiency.

3.3 Description of the integration approach

USAID Boresha Afya Southern Zone expands and build upon existing partnerships, systems, and service delivery platforms, and promote sustainable interventions. The impact is enhanced by focusing resources on geographic areas with the greatest disease burden and streamlining interventions through integration model. The project applies four models of integration to optimize coverage and equity of health care services without compromising quality of care.

(i) **Service integration** is supported up to the level of primary care involving:

- Family Planning provision in the Reproductive and Child Health (RCH) /Immunization Clinic, HIV Care and Treatment, Antenatal Ward, Labor Ward, Postnatal Care, Outpatient Clinics (OPD), and Post Abortion Care (PAC).
- Malaria Diagnosis and Treatment at HIV Clinic and RCH
- TB control in HIV care and treatment, OPD, IPD and RCH clinics
- HIV services within TB, Inpatient Department, OPD, RCH and Specialized Clinics.
- GBV/VAC services at service delivery points i.e. HIV, TB, IPD, OPD Reproductive and Child Health clinics.

(ii) Management Integration:

The program supports the management integration by working jointly with Regional Health Management Teams (RHMTs) and Council Health Management Teams (CHMTs) in yearly program planning and resources allocation and facilitation of inclusion of program activities in the Comprehensive Council Health Planning (CCHP). Additionally, the project in collaboration with R/CHMTs coordinates program implementation that includes training, coaching & mentorship, integrated supportive supervision and regional/districts quarterly program performance reviews.

(iii) Organizational Integration

The USAID Boresha Afya works with other partners in the region/districts to complement each other and ensuring provision of holistic services within facilities and communities that result in patients receiving a variety of health services and interventions that are required for optimal health outcomes. This is through mapping of existing partners and services they provide, sharing of partners' scope of implementation plan, support regional partners' coordination and joint planning and monitoring meetings and regular communication. The areas that the program complements are referral and linkage between community and

facility, legal and psychosocial support for GBV/VAC survivors and Nutritional referrals and linking clients for support to improve their agricultural production through modern agriculture methods. The project will collaborate with other partners in agribusiness and economic empowerment to integrate FP/Gender/HIV/TB screening and services in their programs example the Integrated Iringa Activity Hub (IIAH) that provides a platform to test how direct engagement in integration across sectors in Iringa can generate stronger, more holistic and sustainable results for Tanzanians.

Furthermore, the USAID Boresha Afya Southern Zone seeks to strengthen organizational integration by collaborating with other USAID Boresha Afya award 1 (JHPIEGO) and 2 (EGPAF) to conduct quarterly joint meetings (JPPM), Chief of Parties(COPs) quarterly meetings and annual program meetings to discuss key achievements, challenges and lessons learnt.

(iv) Integration Within and Across Levels of Care:

Support to the integration of health services across all levels will be implementing integrated health promotion and demand creation through provision of integrated IEC materials, community engagement and mobilization by community health workers (CHWs) on FP, gender, HIV/TB, malaria and MCH services. The USAID Boresha Afya Southern zone will sub grant some selected CSOs, private health facilities to provide integrated services.

3.4 Data Quality Assessment (DQA)

Data Quality Assessments (DQA) is based on USG Regulations and USAID policy (ADS 203.) The materials and methods used by other USAID Missions and were recently updated and improved based on the consideration of experience from DQA exercises with USAID Missions in the developing countries.

A comprehensive package of everything needed to conduct a USAID DQAs exercise, including a presentation of USAID's five data quality standards, and how the application of each of those standards can affect the quality of data collected for performance

indicators used for management decision-making and learning. There is a prepared report that contains guidance on the step-by-step process of conducting a DQA and the forms that support the assessment.

DQA checklist

This Checklist is recommended by USAID for use in conducting an assessment of indicators selected for the assessment. MSI made some modifications to help clarify certain aspects of the form and to support a final judgment of the quality of the data for that indicator. It walks DQA Team members through an assessment based on the five quality standards, and provides space for documenting actions required to strengthen the quality of the data.

DQA process

This section of the report provides clear guidance on recommended methods and process to complete the DQA. It is divided by three phases of the process: preparation, collecting information, and completing the DQA and the DQA report. Each phase provides specific steps that can be followed and includes the forms that must be filled out during each stage of the DQA.

Data verification worksheet

This worksheet was designed to provide an efficient process for verifying data from a subset of indicators. Some of the data for this worksheet will be obtained during the meeting with the prime IP, and the remainder of the data is obtained during the meeting with IP partners. It allows one to isolate inconsistencies in data reported by the IP partner to the prime, and from the prime to USAID.

CHAPTER FOUR

LITERATURE REVIEW

4.1 Introduction

This chapter presents the analysis of the reviewed literature. The chapter is divided into mainly two parts. The first part is the theoretical literature review which is dressed with theories related to the research variables. The second part is of empirical literature review. This part is made up of the previous studies that are similar to the current study. In addition, the chapter includes also the conceptual framework showing the relationship between variables.

4.2 Supply chain Management in general

Production network management had turned into a significant wonder by social insurance associations so as to accomplish the associations define objectives. Supply Chain Management) oversees different classes of streams; to be explicit, movements of product, floods of information and surges of advantages inside and among stock system associates to fulfill buyer needs in the best way (Chopra and Meindl 2007). The production network composing has focused fundamentally on using material streams to best match free market movement. In any case, it is noteworthy for a forceful firm to administer and control information streams inside the store network (Liu and Kumer 2003, Omar et al. 2010). Store network management is controlling the data, materials, administrations and cash through any action in a manner that advances the nature of an organization's operations; it additionally has to do with presenting new strategies and altering or improving old ones, sticking to the way that proficiency is doing things right, and profitability is doing the correct things (Ashcroft 2006). The outcome/effects from claiming supply chain management looking into medicinal benefits quality, need will would for personal satisfaction from a manageress perspective, restorative organization calibre could a chance to be assessed from an expertly therapeutic viewpoint, alternately from the beneficiary of such administrations, the patient, or from An administrative

purpose from claiming view, which may be the point of convergence of this examination. The nature about medicinal benefits administrations rendered starting with manageress perspective about perspective basically necessities to would using approachable holdings and the limit will draw for new ones will disguise the obliged necessities about amazing administration, which provides for the right organization at the lucky the long haul at a sensible liability. Supply chain management (SCM) manages the organization methods from claiming streams for merchandise, information Also possessions Around stock organize accomplices something like that Similarly as on satisfying client necessities in a proficient way (Chopra Furthermore Meindl, 2007).

Giving way of social protection organization In a sensible out Furthermore supporting stakes ought will never be of the weakness of a nature execution, which obliges proficiency In both the orchestrating Furthermore executing stages, distinctive and master competency Ultimately an inside sorted out the method for speculation will deal with outside get-togethers (Ayers. 2010). Every last one of more precisely, those mission to that's only the tip of the iceberg possessions obliges the changes about promoting with the wellbeing division by and large. This distinct association need is self-evident in the dark What's more bewildering manageress cooperation. The wellbeing framework, all in all, is vague What's more confounded, requiring enormous effort to that headway for legitimate calibre. This exhibits the staggering hugeness from claiming stock organize the table Also its vocation in guaranteeing the way about medicinal administrations. Omar et al (2010) similarly communicated that SCM incorporates the organization from claiming item, data, Furthermore budgetary stream starting with the wellspring of procurements of the amassing What's more get together of the thing Perfect of the passing on of the keep going thing on purchasers.

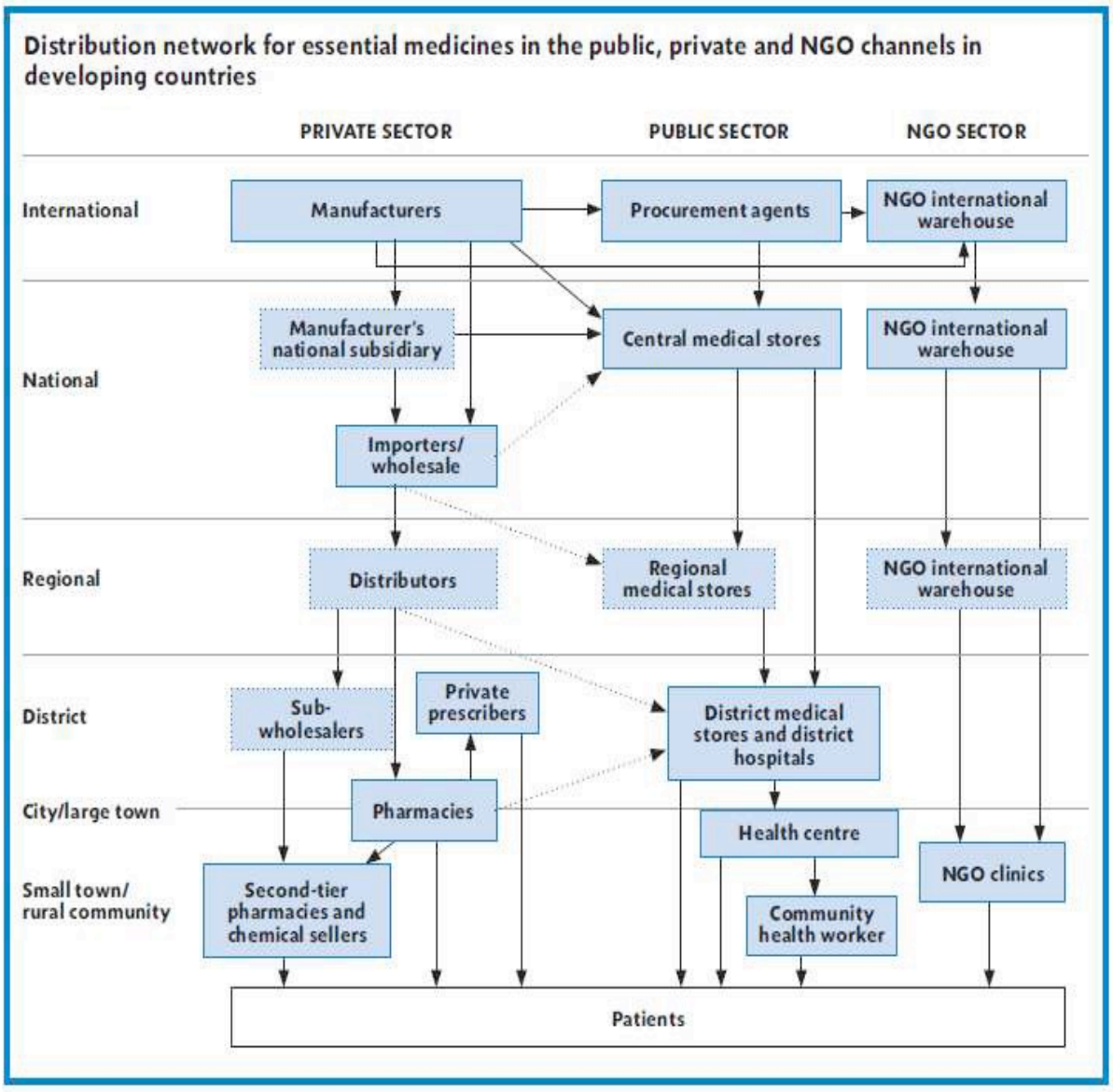
Those medicinal benefits generation system will be settled on out from claiming three foremost players at separate stages, with a chance to be specific, makers, buyers, What's more mankind's benefits suppliers. Makers fuse pharmaceutical organizations, medicinal cautious things organizations, contraption makers, Furthermore makers about capital

fittings Also information frameworks. Purchasers fuse assembled getting cooperation (GPOs), pharmaceutical wholesalers, therapeutic watchful merchants, self-sufficient contracted merchants, Furthermore thing delegates from makers. Suppliers fuse restorative clinics, frameworks from claiming crisis clinics, facilitated movement frameworks (IDNs), and compatibility site business settings (Toba et al, 2008).

4.3 Distribution network and transportation requirements of medical supplies

The primary distribution network is to maintain a steady supply of pharmaceuticals and supplies to facilities where they are needed while ensuring that resources are used in the most effective way. The distribution network for essential medicines is complex, with several active parties within the private, public and Non-Governmental Organization (NGO) sector and parallel distribution streams. The Figure 2.1 shows the distribution network of the essential medicine and pharmaceutical supplies. The figure shows the flow of the medicine and pharmaceutical supplies from the manufacturers up to the patients. The figure also shows the partnership between the government and the private sector in supply chain management of healthcare supplies.

Fig. 4.1: Distribution network for essential medicine,



Source: Yadav et al. (2011)

The figure 2.1 demonstrates that most of open legislative circulation frameworks utilize National Level Medical Stores (NLMS), Regional Level Medical Stores (RLMS) and District Level Medical Stores (DLMS) for acquisition and dispersion, which normally work as discrete capacities ordinarily with poor, sporadic correspondence and data

sharing. This circumstance upsets an organized, lucid and proficient national acquirement and conveyance plan. A powerful administration of requesting, receipt, stockpiling, appropriation and resupply at each degree of the dissemination system is important.

In many public health systems, senior officials do not consider pharmaceutical distribution a high priority; it is too often placed in the hands of poorly trained and inexperienced staff members who are given responsibility but little authority. Under such circumstances, management tends to react to problems and crises rather than take a long-term, strategic view.

4.4 Theoretical literature review

This section addresses the theoretical literature review. It has to do with the literature based on the relevant theories. There are a number of theories discussed in this study which are considered to be important and act as guide for this study. These theories try to illustrate how different organizational and behavioral theories affect the organization and the management of supply chain especially in the health industry. These theories include resource-based view (Barney, 1991), network theory (Sydow, 2005) and principal-agent theory (Alparslan, 2006). Principally, this evaluation was guided by the network theory to reflect the flow of medicine and medical equipment from the manufacturer, store, regional level, district level and up to the individual facility.

4.4.1 Resource Based View (RBV)

The resource-based view is based on the findings of Jay B. Barney (Barney, 1991). He tried to explain why the performance of companies operating in the same industry differs systematically over time. According to this theory companies achieve lasting success due to the presence and the use of organization-specific and unique resources. The theory assumes that companies are heterogeneous in their resources, that the resources cannot be transferred from company to company without cost, and that their characteristics determine, in part, company outcomes. In supply chain management the

theory is applicable since health facilities need strategically relevant resources to be competitive. It is obvious that drugs have to be stored at the right/ optimum temperature or protected from sunlight if it impairs efficacy during their distribution and supply (Ekkernkamp, et. al., 2015). It is also obvious that medical equipment for medical supply chain management requires regular maintenance. A resource that has received little attention so far is staff. This is remarkable, considering that patient satisfaction is one of the top priorities in hospital and personal care services plays an important role in healing patients.

4.4.2 Network theory

The Network theory argues that the performance of a company depends not only on how efficiently it cooperates with its direct partners, but also on how well these partners cooperate with their partners (Sydow, 2005). In a supply chain (SC), company strategies should consist of attempting to influence others where possible and especially to benefit from their resources, initiatives and creativity. By combining resources between two or more organizations, each single firm can achieve more advantages than acting independently (Hakansson and Ford, 2002).

The term network is getting more and more important in the context of health facilities management. On the one hand, process thinking and growing interface management is essential and hospitals try to increase cooperation and integration with other SC partners (Kriegel, 2012). On the other hand, mastering growing complexity, which arises due to the resource-based view as well as from the market-based view at the interface with the environment, is a challenge hospitals have to face.

In terms of the complexity of resources the variety of professionals, services and products (e.g. drugs), the individuality of each patient and the use of modern medical devices can be named. According to the supplier and customer side a significant number of different suppliers (e.g. pharmaceutical companies, general practitioners, medical

technology companies, laundry, dishes, furniture) and customers (e.g. nursing homes, rehabilitation clinics, specialist physicians) need to be considered.

Health facilities have a variety of options and solutions to reduce, dominate and avoid complexity in a network and to take advantage of networks for long-term success and competitive advantage. Examples are building up strategic relationships with suppliers and customers, tailored target systems and decision-making structures, sharing of modern information and communication technologies as well as standardized and bundled business and performance processes. Which tasks and activities a facility should carry out together with its network partners, which within the organization and which should be outsourced or purchased by the market, mainly depends on the level of transaction costs.

This theory was adopted by the evaluation to reflect in the real sense the supply chain management of the medicine and medical equipment through different stakeholders. The theory enabled the evaluation to relate the flow of the medicine and medical equipment from the manufacturer all the way to the individual facilities.

4.4.3 Principal-Agent theory

The principal-agent theory deals with the collaborative relationship between two parties, the principal (e.g. employer) and agent (e.g. employee). Based on the separation of ownership and control of economic activities between the agent and the principal, various agency problems may arise, such as asymmetric information, conflicting objectives, differences in risk aversion, outcome uncertainty, behaviour based on self-interest, and bounded rationality. The contract between the principal and the agent governs the relationship between the two parties (Alparslan, 2006).

As an essential part of the healthcare sector hospitals are characterized by a large number of principal-agent relationships with other stakeholders (patients, physicians, nursing homes, health policy, health insurance, etc.). Regarding the SCM aim to improve the competitiveness of a hospital through an optimum customer focus, we will

especially discuss the relationships between physicians and patients in more detail. The relationship between the hospital (in form of the physician, representing the actual care provider) and the patient is characterized by mutual information asymmetry (Brockhaus, 2013): Compared with the patient who is in the role of a principal, the physician as an agent has a significant advantage due to the medical knowledge that is required to treat the patient. At the same time, this knowledge advantage is the main reason for the interaction between physician and patient. As in every principal-agent relationship the physician is also confronted with information asymmetries due to the characteristics and behaviour of the patient. It may happen that the patient withholds relevant information about medical history or fails to comply with formalities (e.g. the patient knowingly impacts the success of treatment by breaking off a prescribed diet) (Schwartz, 1997).

However, information asymmetries occur not only during the contractual relationship, i.e. during hospitalization. Even before contracts are concluded, there might be some information which is unknown to both parties (hidden characteristics). As an example the lack of experience of the treating physician can be named. Since the assessment of the performance of the physician only takes place ex post, it may lead to adverse selection on the part of the patient, for example to select an unwanted contractual partner. However, it is important to note that the decision about the choice of a hospital or physician is in most cases not made by the patient himself, but by the referring physician. While the referring physician usually knows the reputation of a hospital or the specialization of the physician, the features and capabilities of the physician are mostly unknown. Thus, the referring physician assumes the role of the patients' agent, whose job it is to make the best decision in terms of the patients' medical care (Schwartz, 1997). The problem of hidden action and hidden intention in the physician-patient relationship is that the patient is neither able to fully monitor, nor to judge the performance of the physician. He therefore does not know whether recovery is due to the treatment of the physician, or perhaps to changing life circumstances. Furthermore, the patient is not able to determine whether another doctor would have yielded a better outcome or not.

4.3 Empirical Literature Review

This section addresses the empirical literature review. It reviews the previous studies that are similar to this current study. It evaluates the empirical evidences and provides the critical discussion.

Mwencha et al. (2017) conducted a study to address difficulties in general wellbeing production network execution, Tanzania put resources into a national coordination's the executives unit (LMU) and a national electronic coordination's the executives data framework (eLMIS). This assessment inspected the effect of those 2 key administration updates roughly 1 year after they were presented. The examination utilized a non-exploratory pre-present investigation configuration on contrast the past framework and the updated administration framework. The examination gathered pattern information from August to November 2013. The investigation directed cycle 1 of post-usage information gathering during April and May 2015, around 1 year after execution of the updates. The investigation assessed key pointers of information use and announcing; inventory network the board practices, for example, stockpiling and supervision; production network execution including stock-out and expiry rates; and store network cost and reserve funds. The examination broke down the information utilizing a scope of strategies including measurable testing of pattern and cycle 1 results, and cost, cost-adequacy, and quantifiable profit investigation. The updates were related with upgrades in information use, openness, perceivability, and straightforwardness; arranging, control, and observing; support for measurement; stock-out rates; stock-out term; product expiry; and figure mistake. The updated framework was all the more expensive, however it was additionally increasingly effective, especially when changing for the presentation enhancements. The redesigns likewise created significant reserve funds that settled a few, yet not all, of the speculation costs. The examination inferred that moves up to Tanzania's store network the executives frameworks made numerous and complex pathways to affect. One year after execution, the LMU and eLMIS realized execution enhancements through better information use and through upgrades in a few, yet not all,

the executives rehearses. Besides, the redesigns while not economical added to more noteworthy framework proficiency and humble investment funds.

Al-Saada et al. (2013) embraced an examination to explore and check the effect of inventory network the executives' estimations (relationship with suppliers, similitude, judgments and rules, movement and after-bargains organization) on the idea of prosperity organizations' estimations (responsiveness, trust, and security) in private crisis facilities in Jordan from the perspective of obtaining authorities. The assessment in like manner intended to clarify the differences between stores organize the administrators and nature of prosperity organizations in light of some measurement factors, for instance, (sexual direction, age, preparing level, and significant lots of association in the field of supply). The assessment used a quantitative structure using a hypothesis testing approach to manage perceive the effect of store organize the administrators estimations on nature of prosperity organizations. 315 reviews were appropriated to male and female agents working in the divisions of supply and acquisition disconnected on (36) private crisis center in Jordan. The assessment results showed that there was a colossal effect of store arranges the officials' estimations (the relationship with suppliers, judgments and measures, and transport, after-bargains organization) on the idea of prosperity organizations. On the other hand, the results similarly demonstrated that there were no differences between inventories network the board and the idea of prosperity organizations in view of sexual direction, ability, age, or experience.

Matopoulos and Michailidou (2013) discussed the qualities of social insurance supply chains, and puts specific accentuation on the execution of VMI/CMI in this part explicit setting. By the methods for contextual investigation look into, the paper gives exact information on the advantages of the above community rehearses for both the emergency clinic and sellers. The paper adds to the surge of research on VMI/CMI in the human services area, where restricted research endeavors have been directed up until now. As opposed to different reviews, this contextual investigation demonstrates that

particular and quantifiable cost decreases exist, notwithstanding different enhancements, for example, better command over the inventories, and furthermore in decrease of authoritative work. Results acquired might be additionally significant to different medical clinics and sellers and as they can shape a reason for correlations.

Fredenall et al. (2009) examined an internal supply chain for perioperative careful administrations and endeavored to investigate explanations behind operational disappointments and efficiency misfortune. They presumed that there are various components including an absence of procedure institutionalization, no powerful instruments for managing bottlenecks or quality issues and, at last, that the utilization of schedules improved social coordination however that even agreement between divisions did not adequately improve work processes.

Sinha and Kohnke (2009) displayed a full scale point of view of the healthcare supply chain which demonstrates the advancement of medicinal services is connected to the conveyance of consideration through the association of enterprises that length new administration and item advancement to conveyance associations. This chain incorporates such development industries as medical gadgets, pharmaceutical, biotechnology firms which are associated both straightforwardly and through the human services money industry to the social insurance conveyance area.

Dobrzykowski et al. (2010) depicted how the social protection transport store system is decentralized, all things considered, feeble in ordinary cash related and legitimate coordination frameworks among stock system people. It recommends that assistant relationship as an arranging instrument prepared for affecting a center's integrative information, resource strategy, and affiliation culture provoking compromise of the creation organize during thought movement.

Bozarth et al., (2009) demonstrated four models of the store sort out which is utilized in (209) getting ready plants more than seven European nations, the assessment utilized four stand-out models of the stock framework made by the scientists themselves. The

outcomes demonstrated that the more basic the multifaceted thought of the stock framework model in the plant considered on the other hand execution, while creation lines that have utilized a reasonable store framework model exhibited more prominent achievement in the component of execution.

Hinrichs et al. (2014) directed an examination to portray ways to deal with obtainment and SCM in chose regions (counting, yet not constrained to, fabricating and car areas, guard, data and correspondence innovation, and pharmaceutical businesses) and (2) recognize best practices that may advise acquisition and SCM in the NHS. Searches were led crosswise over medline, Cumulative Index to Nursing and Allied Health Literature, PsycINFO, Academic Search Complete, Social Sciences Abstracts, Military and Government Collection, EconLit and Business Source Complete from January 2006 to November 2013, and Google Scholar, Web of Science and Business Source Complete for articles on explicit divisions. The investigation led a REA of the distributed and dark writing in a scope of non-social insurance and human services parts from 2006 onwards. The audit was supplemented by meetings with a little arrangement of obtaining partners working inside and with the NHS to help place the discoveries of the proof survey in the present NHS setting, and an audit of select encounters of acquisition and SCM in New Zealand and France (picked due to the presumable use of their encounters in the NHS). The discoveries of the examination distinguished a sum of 72 thinks about for audit. Discoveries featured that there is mindfulness in insightful research and industry that SCM and acquisition are territories for making efficiencies and cost investment funds. The study found that aggregate ways to deal with buying, improving associations with providers, building abilities and aptitudes for obtaining choices and the utilization of innovation for information and materials the board may prompt progressively proficient acquirement and possibly spare expenses. Existing exact proof was rare and, where accessible, would in general be powerless in plan and execution.

Spiliotopoulou et al. (2013) contemplated the tradeoff between danger of medication obstruction and operational costs when utilizing numerous medications for a particular

malady. Utilizing a model for infection transmission and opposition spread, the investigation demonstrated that treatment with various medications, on a populace level, results in better obstruction related wellbeing results, yet more strangely, the negligible advantage diminishes as the quantity of medications utilized increments. The examination contrasted this advantage and the comparing change in acquirement and wellbeing stock holding costs that outcome from higher medication assortment in the store network. Utilizing an enormous scale reenactment dependent on jungle fever transmission elements, the examination demonstrated that malady predominance appeared to be a less significant factor when choosing the ideal width of medication collection, contrasted with the length of one scene of the sickness and the cost of the drug(s) utilized. The examination investigation demonstrated that under a wide assortment of situations for sickness commonness and medication cost, it is ideal to all the while convey different medications in the populace. In the event that the medication cost is high, huge volume acquiring limits are accessible, and illness commonness is high, it might be ideal to utilize just one medication.

Singh et al. (2017) researched on the managing critical supply chain issues in India social insurance. The examination was exploratory one proposing another methodology that used pre-assembled issues libraries in human services store network. Production network related issues are gathered and concluded from the writing to assemble issues libraries. This is trailed by use of collective choice making for their prioritization and characterizing arrangement prerequisites from specialists' points of view. Another methodology of shared basic leadership is proposed by using writing for creating pre-assembled issues libraries as a contribution to shared basic leadership. Snappy recognizable proof and goals imply that an association is ceaselessly learning and moving towards brilliance. It very well may be utilized as an agenda for examination inside and crosswise over associations. Utilization of open source applications, for example, Google Sheets and WhatsApp was used for geologically scattered specialists.

Gupta and Ramesh (2017) conducted a study to break down the boundaries of social insurance production network in India. The examination endeavoured to feature the advantages of embracing a factor communication way to deal with emergency clinic convention. The interpretative framework demonstrating (ISM) approach is used for the cooperation of factors influencing the social insurance store network. ISM philosophy has been effectively used to watch the limits between the diverse classes of different frameworks and envision the various echelons of the interfacing factors of Healthcare store network tasks. This grasps and coordinates human reasoning. This is a favourable position over hard quantitative methodologies where master learning is pushed to give a number to their supposition more often than not as loads to factors, for example, organized condition demonstrating or objective programming utilizing chronicled information.

Kumar and Kumar (2014) directed an overview identified with the inventory network of folic corrosive tabs from state medication stores to patients through ladies' clinic, Community Health Center (CHC), essential wellbeing focuses, and sub focuses in District Haridwar, Uttarakhand, India. Displaying and reenactment of whole production network has been performed utilizing framework elements system. Causal Loop Diagram (CLD) has been built which shows the inventory network process at different stages all through the whole framework. The variables, for example, recurrence of patients, and request recurrence has been considered while building the causal circle outline. The CLD has been converted into Stock-Flow Diagram (SFD) for the whole inventory network on Stella stage and reenactment has been kept running for a time of one year (Jan to Dec). It has been seen that there is a gigantic deficiency (stock out) of folic corrosive tabs at ladies' emergency clinic, CHC, PHCs, and sub focuses due to huge conveyance time. The present research may help the administration arrangement creators to take essential choices for improving the supportability of the provincial healthcare supply chain by reducing stock out of the medicine.

Chakraborty et al. (2014) conceptualized supply chain collaboration (SCC) and its parts with regards to the human services administration area (emergency clinic inventory

network). The hypothetical base of this paper lies in the social view and the administration prevailing rationale hypothesis. Utilizing a Service Dominant Logic (SDL) focal point, the investigation goes for setting up SCC as a predecessor to Value Co-Creation (VCC); where VCC goes about as a middle person in the connection between SCC with firm execution. The examination likewise goes for presenting the theoretical build of relationship multifaceted nature level and endeavors at researching its effect on the system connections. The investigation by setting up parallels between the social view and the SD rationale see reasonably merges to demonstrate that joint effort is the last endorsed result. The examination coherently advances a lot of recommendations that offers a tempting extent of further observational examination through testable theories.

Albarune et al. (2015) conducted a study that was based on secondary data leading to the author to develop a theoretical structure after a careful investigation of various research papers. Because of shortage thinks about on service industry Supply Chain Management (SCM), this examination made an honorable methodology for the present medicinal services supervisors of emergency clinics to audit and inform their operational and vital targets. The examination featured Supply Chain Management (SCM) idea for the emergency clinic speaking to an administration industry. Moreover, this investigation uncovered the constrained utilization of SCM in the clinic. Thus, the author depicted suggestions and proposed a model on esteemed store network the board which could be material in incorporated medical clinic the executives. Despite the fact that this examination featured in escalated investigation in any case, it opened further wildernesses for the forthcoming scientists just as professionals so as to create SCM model for the medical clinic.

CHAPTER FIVE

EVALUATION METHODS

5.1 Evaluation Area

The evaluation was conducted in the Lindi District Council in Lindi Region. The selection of Lindi District Council stemmed from the reason that it was one of the districts in the Southern zone where USAID Boresha Afya program had been implemented for three years. Boresha Afya Program was implemented in Lindi District Council in order to set and create dynamic, integrated platform for delivery of health services that emphasizes intensified coordination and collaboration between the government, health facilities and communities towards achieving some set goals.

5.2 Evaluation period

The evaluation was conducted in Lindi District Council from April to May 2019. The evaluation took one month. The researcher went and visited the health providers and health officers in some health facilities in Lindi District Council. The visited participants were interviewed through structured interview guide.

5.3 Evaluation approach

This evaluation employed formative approach. The formative approach is appropriate to this evaluation because it provided the ongoing feedback of the Program. It was expected that the evaluation findings was used by the Program implementers to improve the supply chain management. In this regard, the program implementers identified their strengths and weaknesses and they were able to work on the areas with weaknesses in order to bring about improvement.

5.4 Evaluation design

The case study research design was used in this evaluation. The design involved collecting empirical data, generally from only one or a small number of cases of health facilities in Lindi District Council. It provided rich details about those cases of a predominantly qualitative nature (Saunder, *et al.*, 2003). Also the case study design

enables the whole association to be examined inside and out and with incredible consideration on a specific issue. Likewise as this methodology as indicated by Milanzi (2009) permits giving knowledge into a specific issue or circumstance, it is a point by point examination of people, gatherings or an entire association. Again utilizing this plan the scientist had the option to accomplish more learning on the issue being contemplated as it gave space for serious meetings which empowered the issue to be surely known.

5.5 Focus of the evaluation and dimensions

The main focus of this evaluation is the contribution of USAID Afya Bora program to bring the health care services to the accessibility, timely availability and affordable to the patients in the healthcare facilities. In this regard, the evaluation was focused on the present infrastructure for medicine and medical equipment distribution, supply chain practices and the quality of the healthcare services as perceived by the healthcare providers.

5.6 Evaluation factors

This evaluation employed three indicators namely input indicators, process indicators and outcome indicators. In the input indicators the evaluation was focused on the use of DQA, building of skills and efforts to supervise and audit the program activities based on the DQA. The process indicators were evaluated in terms of the practices of the program by evaluating the use and effectiveness of DQA in implementing supply chain management. In the outcome indicators the evaluation was focused on the improved supply chain management of medicine and medical equipment in the facilities served.

5.6.1 Dependent factor

The dependent variable for this evaluation was the improved supply chain management which was measured in terms of ability of requisition, ordering and reporting the implemented QDA.

5.6.2 Independent factors

The independent factors for this evaluation were based on the use of Data Quality Assessment (DQA). These factors were basically DQA in terms of its use and its tools; skills of the health providers in terms of training and learning; and supportive efforts by the program implementers in terms of support and audit.

5.7 Population and sampling

Turner (2011) argues that the population of a study refers to set of objects, which are the focus of the research and about which the researcher wants to determine some characteristics.

5.7.1 Target population

The target population for the study was made up of the all healthcare service providers (Doctors, Nurses, Medical attendants) in the facilities and officials of USAID program in Tanzania.

5.7.2 Source population

The source population for this evaluation was program implementers including the healthcare service providers such as Doctors, Nurses, medical attendants, Program Coordinator, Monitoring and Evaluation Officer of the program of the USAID Boresha Afya Program in Lindi District Council.

5.7.3 Sample size

In determining sample size, several factors need to be put under consideration. The most important factor is how the representative the sample is expected to be and the methods expected to be used in analyzing the data.

Because of the qualitative nature of the study, the sample size of the study was dtermined by the saturation point. The paricipants were interviewed to the satisfactory point. After the saturation point it was when the sample size was known to be 33

participants. The interviews were conducted with 30 health officials of the selected health facilities and 3 officials of the Program in Lindi District. The number of the particpants was reached when new information began to be reduntant. At the point when the analyst started to hear similar remarks over and over, it was the sign that information immersion was come to. The time had come to quit gathering data and the analyst began the examination of the information gathered.

The sample size was justified on the ground that "*too large sample implies the waste of resources, and too small sample size diminishes the utility of the results*" (Bartlett et al., 2001). It was also justified on the basis of the arguments by Bailey (1994) that *regardless of the population size, a sample of 30 respondents is the bare minimum for studies in which statistical data analysis is to be done, and that if the population is small, the sample may even be 100% of the population* (Bailey, 1994). For this study, the sample size of 33 participants was big enough; for it was higher than the minimum sample size recommended. Moreover, some scholars such as Kothari (2005) and Kimia (2008) argued that, regardless of the population size, the minimum sample size is 30 cases.

5.7.4 Sampling procedures/techniques

The evaluation applied non probability sampling to the people who were resourceful to provision of vital information to address the research questions. Specifically, the evaluation employed purposive and convenience sampling techniques.

5.8 Methods of Data Collection

This section presents methods to be used in data collection. Both primary and secondary data were collected in this study. The primary data were collected directly from the field by the researcher. The secondary data were collected from other both published and unpublished materials. Documentary reviews were used to obtain the secondary data.

5.8.1 Structured interviews

To collect the relevant data to the study, structured interviews were used. The interview guide was used to obtain the information form the program implementer officials. The interviews tool helped to disclose respondents' views/opinions regarding the matter. In this study, interview was used to collect information on contributions of USAID Boresha Afya Program in Lindi District Council. The interviews were semi–structured and the interviews will be lasting between 15 and 20 minutes. The interviews were guided by expansive open-finished inquiries and by brief inquiries that request members' more profound perspectives about the commitments of the program. In addition, tests were created to investigate the key issues in subtleties as they rise in each meeting setting. Every one of the meetings were sound recorded and later they were interpreted verbatim before their investigation.

5.8.2 Documentary review

Secondary data were collected from the published and unpublished documents. The evaluator gathered the previous documents related to the current evaluation. Documentary review entailed reviewing various documentary materials in order to address the research problem. Specific documents that were reviewed included monitoring and evaluation reports, books, journals and periodicals from the facilities and Mzumbe University libraries, published and unpublished papers and websites.

5.9 Data management and analysis

5.9.1 Data coding

The collected data from interviews were tape-recorded. The recording tools were kept in the safe area and be protected well. The recorded data were coded well. The open coding was used to catch the sources' significance to create classes of information. These classes and codes deliberately framed the reason for the rising story that was uncovered by the analyst.

5.9.2 Data cleaning

In data cleaning pivotal coding was utilized to scan for connections inside and between the principal request codes and build a second request classifications. This will require an analyst to relate intently the information and existing writing and the exploration questions. The data that don't identify with the assessment question will be removed.

5.9.3 Data analysis

The evaluation collected and anlysed qualitative data. The analysis was based on framework analysis that was flexible to allow the evaluator to collect data and analyse and collect some data and analyse them later. In this analysis, the evaluator gathered data, sifted, charted and sorted them in accordance with the key issues and themes. Framework analysis in this evaluation went through five stages of familiarization, identification of thematic framework, indexing, charting and mapping and interpretation.

5.10 Ethical consideration

The analyst tried to keep up moral and logical nature of research, securing the rights and welfare of individuals and foundations that were the wellsprings of data. The scientist evaded deception, hurting, encroachment of members' rights and securing their protection. This was done through an educated assent just as requesting that the members fill in and marking the assent structure before the investigation is done whereby members were educated regarding the nature and reason for the examination as proposed by Creswell (2003).

5.11 Evaluation dissemination plan

The evaluation has the dissemination plan that to make the users of the information in practice. The use of the findings of this evaluation is mainly the officers of USAID Afya Bora program and the facilities in which the program is implemented. There will be published materials that will show the findings with their discussion and recommendations. The published materials will be disseminated to the stakeholders of

the program. The evaluation will also use partners at individual and organization levels so that they can communicate the findings.

CHAPTER SIX

PRESENTATION AND DISCUSSION OF FINDINGS

6.1 Introduction

This chapter presents the data gathered from contributions of USAID Boresha Afya Program to the medicine and medical equipment supply chain management system in Lindi District Council. The chapter is divided mainly into three sections. The first section addresses the contribution of data quality assessment (DQA) to supply chain management in Lindi District Council. The second section of the chapter shades light on the efforts of USAID Boresha Afya Progam to sharpen the knowledge and skills of the health providers in Lindi District Council. The last section of the chapter addresses the supervision of USAID Boresha Afya Progam enhances supply chain management in healthcare facilities in Lindi District Council. Because of the qualitative nature of the findings, the frequent quotations from the participants are used in order to keep the study live.

6.2 The use of DQA to supply chain management

The evaluation was interested to know the contribution of the use of data quality assessment (DQA) to chain supply management in the served health facilities in Lindi District. The evaluator conducted interviews with the medical officer in-charge in the served health facilities in the study area. To effectively assess the data quality assessment and its contribution to the supply chain management, there were a number of issues that were targeted.

6.2.1 Receiving DQA

The interest was to know if the health facilities where Boresha Afya Program was implemented were receiving the DQA on medicine and medical equipment regularly and on time since the beginning of the project in 2016. During the interviews with the officials in the facilities, it was found that some facilities received DQA and some

facilities did not receive. It was further found that the facilities that received DQA some received regularly and on time while some received it regularly but not on time. One of the participants said:

> *I cannot say we do not receive the DQA. We do receive them but not regularly. Only twice they have come to our facility since 2016. DQA is designed to assess the quality of data and underlying systems related to indicators that are reported to the Programs or donors to measure success in the Program area during the specific reporting periods. The data sources for the indicators is facility based and the source documents are the district based disease register along with the facility register and patient treatment card.*

The other participant added:

> *We receive the DQA regularly but always they don't leave reports to our facility and here we have only two reports. The reports we have, are those of data quality assessment during the SIMS period.*

The other participant added:

> *Yes, we do receive DQAs. With these tools we have to collect data from our facilities mainly but also when we go for outreach services we collect data from the households, home based care activities and some other data are collected from the ward health officers, Also they have MTUHA books for the data keeping.*

The findings have shown that the facilities where the Boresha Afya Program was implemented the DQAs were received by the majority of the facilities despite the fact that they were not received in all facilities. The implication of the findings is that DQA was an important tool for the implementation of the Program in the study area. With the DQA, the implementers of the Program would have formal data with quality and they could prioritize the indicators based on the varied diseases. This would enable the best flow of medicine and other medical services in the facilities where the Program was implemented. The use of DQA also enabled the Program implementers to have the harmonized initiatives to provide the common approach for assessing and improving the overall data quality. This means that a single tool enabled the Program to ensure the

standards that are harmonized and allows for the joint implementation between the partners and with the national program.

6.2.2 Tools used in Data Quality Assessment

The study was interested to know the tools, devices that were used by the Program in data quality assessment. The study conducted interviews with the Program implementers in the selected health facilities in Lindi District. The major aim was to determine the seriousness and effectiveness of the assessment process as it can influence the supply chain management of medical supplies in the health facilities.

During the interviews with the participants, it was revealed to the study that there were various tools (devices) in data quality assessment. One of the participants had this to say:

> *We do use many tools in DQA. These tools include books of data keeping such as Reporting and Requesting (RR) data forms, MTUHA, ledger, Bin Cards, issue voucher, sales invoice etc.*

The other participant added:

> *The devices or tools are of two kinds. At the district level, the electronic devices such as flash disc, computers, CDs, etc. are used. At the facility level, the paper based tools such as books for record keeping including MTUHA, ledger, bin cards etc. are used.*

The other participant said:

> *The books used for DQA are the papers containing data from the computer system. Sometimes the external flash disc for CTC with data and the books containing data from the individual facilities are used.*

The findings showed that there were well established tools to ensure the collection and assessment of data in terms of their quality is observed. The very interesting thing is that both papers and electronic tools were used in keeping data and records. This implies that both skilled and unskilled with technology can be involved in data keeping waiting to be verified by the DQA. The study by Chidi (2017) found that in Kibaha, Tanzania, the computer use was the best tool in managing data in a simple and accuracy and it

supported in reporting. The same findings by Henriksson et al. (2017) from Uganda suggested that electronic health information system can improve the quality of data and hence enable the smooth flow of medical supplies from the sources to the targeted facilities. The findings were however, contrary to those of Ledikwe et al. (2015) in Botswana that found that information technology (IT) was insufficient and challenging at all levels (district level and facility level).

6.2.3 Effectiveness of QDA by achievements

The study was interested to know how the DQA had been effective in enabling the Boresha Afya Program to count achievement. The participants were asked to tell the effectiveness of the DQA by telling the achievements they had witnessed/experienced. During the interviews with the participants, a number of achievements were mentioned to show how DQA was effective. One of the participants said:

> *DQA is effective in enabling to produce the quality data. It also enables to order in time and to report in time. Now we do not experience frequent stock out of the medicine. In this case, no waste product is found in our facility this time.*

This other participant said:

> *The data were improved from the poor data to clean data. All levels from the facility level to the district level, order is done in time. Basically, DQA has helped to know the top ten diseases in Lindi DC.*

The other participant added:

> *DQA has improved our data because our familiarity has increased and we can produce clean data. On this basis, I think when DQA is conducted it becomes effective to make our facility to have good data quality by comparing electronic data base (eLMIS and DHIS 2) with our data in the facility.*

The other participant added:

> *Of course, when DQA is conducted it is effective since they will look at the quality of our data by improving the DHIS 2 data and paper work*

data. Moreover, DQA increases more efficiency in our facility as we can produce clean data and consistence since the paper data are comparable to the electronic data.

The findings have shown that DQA was effective to improve the data quality and to be time conscience. With the DQA, the Program had successfully to enable the Program implementers to handle the data safely. The implication here is that with DQA the project focused on applying the data quality standards and examined the systems to produce the quality data over time. The USAID (2010) opined that the use of DQA is aimed at assessing quality based on five aspects of validity, reliability, precision, integrity and timeliness. In this regard, DQA in Lindi district had been of the very importance since with it, the question of data cleanliness could be observed. With clean data the Program implementers are able to make decisions on the medical related issues in the facilities where the Program was focused. According to WHO, 60% and above of data cleanliness is required as the criteria for the decision making in the Programs. The use of DQA enables the Program implementers to avoid data cooking and forgery as when the data are entered into a system; they are compared to those in the database. The government of Tanzania also has advocated the use of DQA in the health related project so that the stakeholders can have clean and realistic data that can enable in decision making.

6.3 Efforts to sharpen the skills on DQA among health providers

The study wanted to examine the efforts of USAID Boresha Afya Program to sharpen the knowledge and skills on DQA among the health providers in Lindi District Council. The study used the interview guide to examine the strategies used by the USAID to build knowledge and skill among the health workers in the selected health facilities.

6.3.1 Ensuring knowledge and skills among health personnel

The study was interested to know how the skills and knowledge on DQA among the health workers in the served facilities were ensured. The data were collected from the both Program implementers and the health workers in the visited served health facilities.

The Program officials and the health workers in the facilities served by the Program were asked to tell how Program ensured the health personnel in the served facilities were knowledgeable and skilled to enable them participate fully in the Program. The findings showed that the health personnel were trained on basic and important issues that are related to DQA and supply chain management of the medicine and medical supplies. During interviews with the Program officials and health officials, it was revealed that the health personnel were given knowledge and skills in many areas.

One of the of the program officials said:

> *We do train the health workers how to produce clean data and their importance. We also train them to make sure that the medicine stock does not run out of medicine – here they are trained to report and order in time of the medical supplies. They have to know the right time to order and report. As the health officers they have to know/and to be skilled on the waste product management so as not to pile up at the facility.*

The other Program official added:

> *We ensure that the health officers are knowledgeable and skilled in things like ethics. They have to know that all things in the Program need upright professional ethics. In this sense, they have to work on them accordingly.*

The other Program official had this to say in addition:

> *We ensure that the health personnel have skills and knowledge training them to work properly especially in requesting and reporting data from the district level. They have to request and order on time the medicine and other medical supply.*

When the interviews with the health workers in the served facilities were conducted, it was revealed that the most of them had been trained and invested with the special skills to participate in the Program. One of the health officials said:

> *There are training Programs that are prepared for the health officials since 2016, it is a must for the health workers as the direct and active participants to be oriented on the objectives and expectations of the Program. Most of the areas which are covered in the training Programs*

> *are such on how to manage the commodities within the facility. The health workers are trained on how to practice press order and report the right quantity within the required time. In this training also we trained in observing time, expiries of medical supplies, determining stock on hand, physical inventory etc.*

The other health official added:

> *There are training Programs in which were oriented on handling and management of data. The data are supposed to be clean. We are introduced on the effect of cooking data and forgery in general. There are technical aspects that are included in data cleaning. These technical knowledge that were trained include Data Quality Assessment. The books, eLMIS, DHS II etc. are the tools used. .*

The findings show that the health workers were important subjects in the implementation of the Program. They were made knowledgeable and skilled in many aspects related to the Program implementation. This is to say that the health personnel in the served facility were given importance and they were able to work with the HMIS II focal person. The implication here is that the Program had provided relevant training to the health workers to build their ability. The findings also imply that the Program had invested in human resource to have HMIS active and useful to the served people. The findings are in contrary to those of Chidi (2017) that found the insufficient training on data management at all levels (from the facility level to the district level). In this current study, the health workers were provided with knowledge and skills on how to manage the stock of medicine by reporting and pressing order within the required time. Moreover, the findings contradict those by Mandelli (2005) that were collected in Uganda and revealed that most of the health workers had the insufficient knowledge and skills because they were not trained on data management.

6.3.2 Types of training to the health personnel

The study longed to know the types of training that were given to the health personnel in order to match with the system of the Program for the best supply chain management of medicine and other medical supplies. During the interviews with the Program

implementers, it was revealed that mostly the on-the-job training was used to introduce basic issues to the health workers in the served facilities.

When the facility in-charges were asked if they had mentors in their health facilities, their responses showed that in some facilities there were mentors while other facilities did not have them. When were asked about the content of the training given to the health workers, a number of issues were raised. One of the participants mentioned some issues to be included in the training. He said:

> *In our training, there are basic issues that the health workers have to be well dressed. Things like eLMIS, DHIS II, CTC database, waste disposal management on medicine and medical supplies etc. are important to be known by the health workers.*

The other participant said:

> *The health workers are trained on various things such as emergency preparedness and may others. We do usually have mentors who visit us in our working places and discuss challenges with us especially on medicine. Also we discuss on the issues like pressing order in time.*

When the health officers were asked to tell about the training they were receiving, the revealed that most of the important issues were given to them by the mentors that were sent to them from the district level. It was further reported that with the mentors, the health workers were able to learn much about medical supply chain management. One of the health officer said:

> *We have mentor from the district who mentors our facility on medicine ordering. He also gives directions on medicine management and supply chain management in general. The mentors are important for the help us order in time and remind us on how to manage commodities not to run stock out.*

The findings are in line with the recommendations of WHO that recommended the site visits by the clinical mentors to be very importantly right after the initial training of the health personnel. The site visits (mentors visiting the facility) are said be crucial for the

mentors do reinforce the skills learned in the initial training and thus, start to build relationship with the members of the clinical team. The visits can take at least one full day and they consist the activities like one-on-one case management observation, review of the records (data) books, pressing order, documentation (i.e. reporting on the medicine and medical stock etc.). The findings moreover, are comparable to those of Manzi et al. (2017) that was conducted in Sub-Saharan Countries including Tanzania and found that incorporating mentorship and coaching activities in HSS strategies was associated with improvements in quality of care and health systems, and mentorship and coaching are said to represent important component of supply chain management of the medicine and medical supplies, leading to effective coverage and in long run achieving the universal health care.

6.4 The supervision of Boresha Afya Program to enhance DQA in SCM

The interest of the study was to assess the supervision of the USAID Boresha Afya Program in enhancing DQA to supply chain management. The evaluation used the interviews with the health officers and the Program implementers to address the objective on the supervision of the USAD Boresha Afya Program.

6.4.1 Supportive supervision

The participants were asked to tell whether the health facilities received the regular and supportive supervision on the medicines and medical supplies since the beginning of the Program in 2016. Varied responses were given. Some health officials revealed that they had received the supportive supervisions while other did not. During the interviews with the health officials one of the participants had this to say:

> *We receive regularly supportive supervision from the Program officials but the report is never brought to us. The supportive supervision is mainly on receiving, storage and inventory management, requisition and order processing.*

This shows that the Program sent the supportive supervision on the medicine to the facilities but the report that had to show the feedback was not sent back. It was expected

that regular supervision and support would be regularly given so that to control the delicate systems like eLMIS. One of the participants said:

> *We expected a day to day support from the partners (USAID) on things like eLMIS which is an application that is computerized existing paper-based logistics management information system (LMIS) and collects, manages and uses logistics data.*

The other participant added:

> *We receive support but not regularly. If these people gave regular, time to time supportive supervision, it would become simple for us to work in a reduced times, increased information sharing and increased integrity of data by creating centralized, common data management system to support the ordering and reporting. But that is not the case here in our facility.*

It was discovered from the findings that the health facilities and their officials received supportive supervision on the medicines and other medical supplies but most of them were not satisfied with the support. It was further, discovered that the focus of the support was mainly on the IT issues like eLMIS where the health officials would receive and view commodities notification, view storage and medicine handling, send the report and requisition reports.

Moreover, the supportive supervision was on storage and inventory management. In this category, the facilities were supervised to update stock records, viewing stock status alerts and notifications, conducting physical inventory and viewing medicine and medical supply recalls.

It was found also that the supportive supervision was manifested in requisition process whereby they were supervised to create requisitions, submit requisitions, print requisitions, authorize requisitions, approve requisitions, view requisitions, view requisition costs, view health facility budgets, view warehouse stock information.

The supportive supervision in ordering processing covered the activities including converting requisitions to order, data export/importing between eLMIS and WMS, updating facility reports and requisition information, viewing requisition summaries and shipment information.

6.4.2 Regular auditing

The participants were asked to tell if their facilities received regular medicines and medical supplies auditing since the beginning of the project and how it was undertaken. The findings showed that majority of the served facilities did not receive any auditing services. During the interviews with the health officials, one of the participants said:

> *There are not audits conducted in our facility. Since the Program started in 2016, no audit service has been undertaken. Even in the documents on the Program, nowhere audit is indicated to be conducted.*

The implication of the findings is that Program implementation did not observe the question of auditing that can help the Program implementers to reduce risks and costs. This implies that auditors especially the internal auditors, District mentor of supply chain and District Pharmacist are important to change the behavioral aspects of the participants in the health Programs in supply chain management. When the Program implementers are not audited, they can change their behavior and act differently by acting unethically. This may lead to the poor chain management of medicine and medical supplies and the result can be the denial of the rights to the patients in the served facilities. This was revealed to the facility because even the audit reports were not found.

Moreover, the results imply that when things are alright the management of the Program do not see the importance of auditing. The researcher learned that the management needs to establish auditing units in order to establish the good records. The results reflect the theory of inspired confidence by Limperg (1932). The results reflect the theory for they highlight the accountability of both internal auditors and Program officials in providing their support to the management of the Program. Working in team among these parties is very important especially if every party plays its part very effectively and efficiently.

The results suggest that the internal auditors, district mentor and district Pharmacist are watchdogs of efficiencies, effectiveness and compliance of the Program implementation. Both may be found in the same corporation but each playing a different role. When they work together the records can be kept smart and clean and be fruitful to the Program implementation. When the internal audit takes place in the right manner, in full support of the health officials, the internal control system is stable to play its role of being preventive, detective and directive (encouraging the right paths to be maintained).

Audits are strongly encouraged in order to prevent undesirable acts to occur; to detect the vices that have taken place and provide the directive and corrective measures in order to keep the internal control system safe for the smooth supply chain management.

CHAPTER SEVEN

SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This chapter presents the summary of the major findings. The chapter also presents the conclusion reached after the presentation and discussion of the findings. Finally, the chapter gives the recommendations.

7.2 Summary

The main objective of this study was to evaluate the contributions of USAID Boresha Afya Progam to the medicine and medical equipment supply chain management system in Lindi District Council. The evaluation specifically focused on: (i) to examine the use of data quality assessment (DQA) to supply chain management in Lindi District Council; (ii) to determine the efforts of USAID Boresha Afya Program to sharpen the skills on DQA among the health providers in Lindi District Council; and (iii) to establish the supervision of USAID Boresha Afya Program enhances supply chain management in healthcare facilities in Lindi District Council.

The findings showed that the served health facilities by the Program were receiving DQA although not regularly. With DQA the Program implementers were able to verify and have the clean data. The verified and clean data were of very important for the successful Program in supply chain management of medicine and medical supplies.

The findings of the evaluation showed that there were various tools used in DQA activities. These tools were paper based and electronic based. The paper based tools included books for record keeping including MTUHA, ledger, bin cards etc. while the electronic based tools included flash discs, CDs, computers etc. It was found out that these tools were important in keeping data to be cleaned and verified by the DQA.

It was found by the evaluation the DQA was effective by looking at the achievements recorded. It was revealed to the evaluation that DQA enabled to Program to produce the clean and verified data best for the supply chain management of the medicine and medical supplies. In this regard, with DQA, the facilities produced clean data that proved efficiency and consistency in supply chain management of the medicine and medical supplies.

It was found that the Program had made notable efforts to make sure that the health personnel who were the key stakeholders in the project have required knowledge and skills for the best implementation of the DQA projects. Among the efforts included on-the-job training by attaching the mentors to the health facilities to give important directions on how to go about the Program implementation. The findings showed that there were various types of skills given to the health personnel. These skills included things like eLMIS, DHS II, CTC database, waste disposal and waste management on medicine. It was also revealed to the evaluation that knowledge of the health personnel were based on ethics/morality, ordering and reporting.

The findings showed that the health facilities were receiving supportive supervision from the Program officials. However, the received supportive was not given regularly to satisfy the facilities. It was found that the major supportive supervision was on storage and inventory management. In this category, the facilities were supervised to update stock records, viewing stock status alerts and notifications and viewing medicine and medical supply recalls.

7.3 Conclusion

Based on the findings presented and discussed, there are a number of conclusions that can be drawn.

(i) It can be concluded that Boresha Afya Program needed clean and verified data in order to make the supply chain management of medicine and medical supplies to be possible and effective. With DQA the Program could be able

to identify the cooked data that basically would distract the flow of medicine and medical supplies form the Medical Store Department to the medical facilities.

(ii) It is indeed reasonable to conclude that involvement of modern technology in supply chain management is very important and inevitable. The adoption of DQA by the Afya Bora Program allowed both use of paperwork and online operations. The use of online operations are fast, reliable, efficient and dependable.

(iii) It is very important to have supportive body in terms of advisory, audit and other service for the successful program. Boresha Afya Program played an important role in providing supervisory and supportive part in the implementation of the DQA project for the supply chain management of medicine and medical supplies.

(iv) Knowledge and skills among the Program stakeholders especially the medical officials were very crucial for the success of the Program to implement the DQA project. With the skilled and knowledgeable health personnel the Program practices of requisition, ordering and reporting would keep consistency, efficiency and effectiveness in supply chain management of medicine and medical supplies.

(v) The successful Program in supply chain management needed much the on-going supervision from the Program management. The Program management was the responsible subjects in monitoring and evaluation of the project by making sure that the Program is implemented in the set goals and objectives.

7.4 Recommendations

It was found that there were no any audits undertaken in the Program implementation. It is therefore, recommended that the Program should have auditors especially the internal auditors, District mentors, District Pharmacists , District lab technician in order to have internal control and save costs of the Programs. Auditing will help the Program

management to avoid vices that have to do with money laundering and other financial vices. With auditing the medicine and other medical supplies will be managed to flow smoothly accordingly to the individual facilities.

It was found by the findings that the health personnel need notable knowledge and skills in implementing the Program. It is therefore, recommended that the Program should establish different ways to train the health workers so that to increase competency

7.8 Areas for further Research

This study dealt with only a small portion of the population of some health facilities served by Boresha Afya Program in Lindi Region. This makes its findings not to qualify in nationwide generalization. Therefore, other studies should be done encompassing large population from different regions where the Program is implemented in order to make it valid for national-wide generalization.

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APPENDICES

APPENDIX I: INTERVIEW GUIDE TO THE PROGRAM IMPLEMENTERS

SCM Infrastructure

(a) Strategic sourcing

1. How many suppliers of medicine and medical equipment do you have in this Program?
2. Can you please mention these suppliers?
3. Do you think your suppliers are reliable? How and why?
4. What is their capability to supply? How much can be supplied in a month?
5. How do you comment on the affordability of the supplier?
6. Can you tell how accessible are the medicines and medical supplies in the health facilities you are dealing with?

(b) Transportation

1. What kind of vehicles are used for medicine and medical equipment transportation (lorries/vans etc)
2. Can you please explain how are these vehicle equipped (their ability to carry and keep medical supplies for a certain period of time)
3. For how long do they take from the general store to the facilities (two days/one week/one month)?
4. Can you please tell the capacities of the vehicles to carry the medical equipment? (how much can they carry in a time)

(c) Distribution abilities

1. How many warehouses do you have here in Lindi?
2. What is the capacity of each warehouse?
3. Can you please comment on the ability distributors (wholesalers/retailers) in terms of capacity (in terms of quantity – how much they can handle in a time)
4. What is the ability of the distributors in terms of quality (their ability to maintain the quality of the medical supplies)?

SCM Practices

1. Who are the main implementers of this Program?
2. How many leaders are managing the Program in Lindi (please mention their positions and their tasks)?
3. What are the qualifications of the Program implementers?
4. What efforts does the Program make to build skills? (trainings of staff)
5. Is there any technology you use in implementation of the Program? How appropriate and simple is it?

APPENDIX II: INTERVIEW GUIDE TO THE HEALTH WORKERS

Perceived quality of the health services of the Program

1. Do you think Boresha Afya Program has solved the problem of medicine scarcity in your facility? Why/how?
2. Do you think the medicine and medical equipment are now available all the time? How?
3. How can you comment on the accessibility of the medicine and medical supplies in your facility?
4. Tell something on the affordability of the medicine based on their price and time to reach the patients. Are the common people able to buy the medicine? Why?
5. What is the average distance the patients have to go to get the medicine?