QUALITY OF CATARACT SERVICES IN ZANZIBAR: A CASE OF MNAZI MMOJA HOSPITAL

QUALITY OF CATARACT SERVICES IN ZANZIBAR: A CASE OF MNAZI MMOJA HOSPITAL

By

Abass Taha Makame

Evaluation Dissertation Submitted to Mzumbe University for Partial Fulfilment of the Requirements for the Degree of Master of Science in Health System Monitoring and Evaluation

2015

Certification

We, undersigned, certify that we have read and hereby recommend for acceptance by Mzumbe University. A dissertation entitled **"Quality of Cataract Services in Zanzibar, A Case of Mnazi Mmoja Hospital"** in partial fulfilment of the requirement for the award of master degree of science in health system monitoring and evaluation (Msc. HME) of Mzumbe University.

.....

Major Supervisor

.....

Internal Supervisor

.....

External examiner

Accepted for the board of School of Public Administration and Management

Signature .....

DEAN/CHAIRPERSON

Declaration and Copyright

I Abass T. Makame do declare that this dissertation is my own original work and that is not been presented and will not be presented to any other University for a similar or any other degree award.

Signature.....

Date.....

Acknowledgement

This document is a product of entire efforts and technical inputs from various individual at different levels. I wish to express my sincere thanks to all who provided their inputs and technical assistant from the initial stage to the end.

Special grateful thanks are addressed to my supervisors Gustav Elias Antony Kunkuta (PhD) and Fatma Juma Omar (Msc) for their valuable inputs and integration of activities which were important in the formulation and completion of this dissertation.

Special thanks should go to the head of Zanzibar Eye Health project, doctor in charge of eye health department in Mnazi Mmoja hospital, Secretary of Zanzibar Medical Research Ethical Committee and all staff involved in data collection in one way or another.

A ward of thanks should go to my family for their social and spiritual support, their contribution is highly acknowledgeable. Sincere gratitude should go to the Director of Preventive Services (Ministry of Health Zanzibar) and Ms. Mwajabu Mohamed for their moral support as well as all classmates who were the key champions in the whole process.

Last but not least, special thanks should go to the grammar reviewer Dr. Hashim who proof read the entire document and secretary who arrange this document. As part of the learning I hope this document will be valuable input in promoting efforts addressed to improve the quality of cataract services in Zanzibar.

Dedication

This evaluation report is dedicated to the family of Taha Makame (family of encouragement) for the tireless social and spiritual support and for being endless source of motivation in my academic pathways. Further, I should thank my lovely wife for being a source of love, joy and inspiration.

Abbreviations

BCC	Behaviour Change Communication
CDC	Centre for Disease Control and Prevention
CSP	Cataract Service Provider
ECCE	Extracapsular Cataract Extraction
GoZ	Government of Zanzibar
IAPB	International Agency for the Prevention of Blindness
ICEH	International Centre for Eye Health
IEC	Information Education and Communication
IOL	Intraocular Lens
IPC	Infection Prevention and Control
MMH	Mnazi Mmoja Hospital
MSH	Management Science for Health
TWG	Technical Working Group
UNICEF	United Nation's International Children Emergency Fund
URT	United Republic of Tanzania
VA	Visual Acquity
WHO	World Health Organization
ZEHP	Zanzibar Eye Health Project

Definition of Key Terms

Blindness is the state of worsening visual ability in which individual's Visual Acquity (VA) is worse to more than 6/60 in the better eye with available correction (Quillen, 1999).

Cataract is defined as visible opacity in pupillary area impairing vision and partly or complete obscuration of red reflex on distant direct ophthalmoscopy (Quillen, 1999)

Refractive error is defined as VA <6/18 improving ≥6/18 with pin hole (Naidoo & Jaggernath, 2012).

Visual Impairment is defined as VA worse than 6/18 but not worse than 6/60 in the better eye with available correction (World Health Organization, 2007a).

Intraocular Lens is a synthetic, artificial lens placed in the eye to replace the focusing power of natural lens that is surgically removed, usually during cataract surgery (Sander & Vukich, 2006)

Phaco emulsification is the modern cataract surgery in which the eye's internal lens is emulsified and aspirated from the eye (Lavin & Ormonde, 2001)

Abstract

Inspite of efforts taken to overcome the cataract related blindness, Zanzibar as one among sub-Saharan countries are far behind the WHO target for good visual outcome following cataract services. Zanzibar claimed to have 41% good visual outcome out of 95% WHO target while the reasons are not much clear, hence a quest to assess the quality of cataract services provided in Zanzibar in terms of: competency of human resource available, availability of medical requirement and level of staff compliance with the standard operation guidelines.

To address the evaluation objectives a case study design was applied to assess the quality of cataract services in Zanzibar involving both qualitative and quantitative techniques. The evaluation had drawn its sample from cataract service providers, cataract patients and the heads of eye department in Mnazi Mmoja Hospital through convenient and purposive sampling procedures.

Findings obtained from questionnaire, interview, observation and documentary review show that the case study hospital has only 39.1% of required skilled personnel. It has modern equipment and machines for quality cataract services. However, keratometer, B-scan and YAG laser were not functioning while antibiotics for post operative and follow up care services were not adequately available to fulfil the requirements of all patients. About 75% cataract patients were not adequately received preliminary care as per guideline. 75.6% of patients received partial assessment for cataract surgical services while by 88.5% were fully assessed for critical events and anticipated variation as per standards.

The evaluation conclude that the cataract services offered in the case study hospital was not as quality as expected since it had the following short comings: shortage of qualified human resources necessary for cataract services, shortage of medicines particularly antibiotics; lack of standard service guidelines, dysfunction of critical equipment and machines, and also inability of cataract service providers to adhere to standard guidelines.

Table of Contents

List of tables

List of figures

List of appendices

CHAPTER ONE: INTRODUCTION

1.1 Chapter overview

This chapter presents description of evaluated programme, background to the evaluation, problem statement, evaluation questions and objectives, significance and scope of the evaluation. The first part presents description of the project which explains an overview of Zanzibar eye health project, the log frame of Zanzibar eye health project and the stakeholder analysis for evaluation. The next part presents background to the evaluation, problem statement, study questions and objectives. Finally the chapter presents significance and scope of the study.

1.2 Description of the programme evaluated

This section provides an overview of Zanzibar eye health project, it highlight the historical background of the Zanzibar eye health project, discusses the project logframe and its implication in this evaluation and clarify the key stakeholders involved and their role in the evaluation. The project overview presented first;

1.2.1 Overview of Zanzibar eye health project

Cataract remains the leading eye disease resulting to majority of people become blind. In Zanzibar there was a limited accessibility of eye health services which resulted to increased number of people who developed blindness. To overcome high prevalence of blindness in Zanzibar, the government introduced the Zanzibar Eye Health Project (ZEHP) in 2007(ZEHP, 2012).

Citing back in 2012, the ZEHP states its main function as coordination of eye health services in the isles as well as provision of required resources to ensure eye health services are provided as per requirement. The goal of ZEHP is to improve livelihoods of the people of Zanzibar by ensuring that they have access to good quality and affordable eye health services. The implementation of the project is expected to reduce the

prevalence of avoidable blindness and visually disability from 0.4 % in 2007 to 0.3% in 2016 in Zanzibar (ZEHP, 2012). The goal is achievable through a strong health system in partnership with the Government, non-state actors and communities by implementing the following strategies (ZEHP, 2012):

i. To promote accessibility of affordable and quality eye health care services in Zanzibar;
ii. To streamline coordination and management system of eye care services in Zanzibar from the community to the national level;
iii. To establish a system for early identification and intervention of childhood blinding conditions; and
iv. To strengthen monitoring and evaluation system for capturing performance, learning and information sharing.

1.2.2 Logframe of Zanzibar Eye Health Project

This section briefly describes the concept of logframe and explains the logframe of Zanzibar eye health project, to provide important orientation about project components under which the evaluation derived its evaluation questions and objectives. The first part presents the concept of logframe and the next part discusses the logframe of Zanzibar eye health project.

i. Concept of logframe

In a context of project management, Log-frame is a logical chain of association presenting what a project proposes to achieve. It is often shown by means of an illustrative diagram indicating the relationship between project resources, process, and the expected consequence (Fischer, 2011). In the project evaluation, a logic model is used to identify project components (goals, objectives, resources or inputs, processes or activities, outputs, outcomes and impacts). A logic model has a remarkable benefit in planning and managing projects: it justify activities and their effects. It provides

direction for structuring evaluation and it classifies necessary dimensions to be measured during evaluation. Therefore it helps the evaluator to focus on the type of evaluation (Fischer, 2011).

ii. The logframe of Zanzibar eye health project

With regard to this evaluation, a logic model of Zanzibar Eye health Project attached as Appendix1 developed in 2011 was used to illustrate the project components and provided the basis for evaluation and evaluation questions. According to ZEHP (2012) the project inputs include skilled human resource, infrastructure, medical supplies, examination and management tools, eye health policy and clinical standard operating guidelines. The project activities include training (short and long term trainings), supervision, and community sensitization, organization of community based on referral system, and conducting periodical review forums.

As outlined in Appendix 1, the expected project outputs are adequate skilled personnel, availability of eye health policy and comprehensive eye care standard clinical operating guidelines, availability of eye care infrastructure, medical supplies, examination and surgical tools as per the requirements. The project outcomes include: increased community access to and utilization of eye health services, early case detection and management, and staff adherence to clinical guidelines for quality service provision. The expected impacts of this project are the reduction of avoidable blindness and improved well being of the people (ZEHP, 2012). This evaluation examined input, process, output and outcome components. Under *input* component the evaluation assessed availability of qualified human resources, medical requirements (equipment/ machines and medical supply) and standard guidelines necessary for quality cataract services. Under *process* component the evaluation examined staff ability to adhere on standard guidelines and patient information mechanism employed to promote the quality of cataract services. The *output* component the study assessed patients' awareness on cataract and cataract services, whereby the *outcome* component described customer satisfaction and

perception toward the quality of cataract service offered in terms of effectiveness, availability and affordability.

1.2.3 Stakeholder analysis for evaluation

This section briefly describes the meaning of stakeholder and stakeholder analysis, the role and importance of stakeholder analysis in project implementation, importance and the implication of stakeholders' involvement in the evaluation.

i. Meaning of stakeholder and stakeholder analysis

Scholars define stakeholder differently. According to Allison and Kaye (2005) stakeholder refers to anyone who has a concern in the success of organisation mission. Freemen (1984) defined stakeholder analysis as a process that involves identification of individual or group concerns and interests. According to Management Science for Health (MSH) (2005) stakeholder analysis involves the identification and understanding of interest, influence, power and role of each stakeholder for a particular topic. In this evaluation, stakeholder analysis refers to stakeholder identification, understanding their roles in project implementation, their interest /perspective in evaluation, their roles and level of importance in evaluation.

ii. Importance of stakeholder analysis in project evaluation

According to Georgenes and Kusek (2009) and Smithers (2011), identification and involvement of stakeholders in evaluation may likely results into accountability and transparency among stakeholders. It may promotes effectiveness in resource utilization and enhance delivery of tangible evaluation results that can be applied to enhance project performance. In evaluation, stakeholder analysis is important aspect to promote setting of evaluation questions, provide technical and material support during evaluation and promote commitment to take actions on the recommendations made after evaluation. Failure to involve stakeholders, the evaluation is likely to be "ignored, criticized, resisted, or even sabotaged" (Centre for Disease Control [CDC), 2013 p.14).

As presented in Table 1, the key stakeholders in this evaluation were: the Technical Working Group in the Ministry of Health, Sightsavers International, ZEHP manager, heads of Mnazi Mmoja Hospital particularly eye health department, eye care service providers, and cataract patients and relatives. The involvement of Technical Working Group, ZEHP manager and Sightsavers promoted selection of evaluation topic; their comments and insights helped to shape the evaluation questions. Moreover, enhanced acceptability and promoted chance for applicability of evaluation findings in hospital context. The involvement of eye department heads, eye care professionals and other workers provided an opportunity to create conducive environment that supported evaluation activities. It promoted staff willingness and readiness to provide information during the evaluation. Involvement of cataract patients and relatives enable the evaluation to obtain information on services availability, affordability and effectiveness to cure cataract related blindness. Data in Table 1 show the roles, interests and the level of importance of each stakeholder in this evaluation. Stakeholders are categorised into high and medium importance based on the possibility of stakeholder to affect the evaluation.

Table 1: Stakeholder analysis: evaluating the quality of cataract services in Zanzibar

Stakeholder	Role in the project	Interest or perspective on evaluation	Role in the Evaluation	Means of Communication	Level of importance.
Technical Working Group (TWG) in Ministry of Health & ZEHP manager	Set standards and protocols, Identify indicators for evaluation according to national plans	To see progress and performance of the project. determine the level of adherence on protocols and set standards	Provide technical advice and assistance	Meetings, written reports Emails	High
Sightsavers	Project funders and technical advisors	Obtain findings that show performance of designated project correspond to set indicators	Facilitation of evaluation activities including resource provision.	Meeting. Report sharing both soft and hard copies	High
Heads of eye department and service providers	Service providers, data collection & social mobilization	Findings which show performance level in terms of strengths, weaknesses and areas that need improvement.	Information providers (source of information)	Direct conversation (interviewing).	High
Cataract clients and relatives	Beneficiary	Provide reliable information according to service received.	Primary source of information	Self administered questionnaires	Medium

Source Evaluator (2014); based on literature review.

High importance: suggests the stakeholders were rated as powerful and influential with very high stake in the evaluation and that could provide access or even block the evaluation. Their involvement was necessary to win their support for evaluation. Failure to involve them would result to poor cooperation and the results would not be accepted or applied to improve the quality of cataract services in Zanzibar.

Medium importance: suggests stakeholders had high interest in the project but with low power and little influence in the project. Their involvement was necessary to obtain quality information to assess the quality of cataract services in Zanzibar. Failure to involve them would result to low participation which may affect the validity of evaluation findings.

1.3 Background to the evaluation

Cataract is a global eye health problem and a leading cause of blindness. It is estimated to cause about 47% of blindness globally (World Health Organization [WHO], 2007a). The incidence of cataract is estimated to be 1,000 people per million populations per a year, and about "20 million people develop severely reduced vision of 3/60 or worse as a result of cataract" (Karin, Cook & Lasingh, 2012, p. 3). The prevalence of cataract is expected to increase up to 40 million by 2020 (WHO, 2007a). This indicates that, the prevalence of cataract is increasing and making a lot of people go blind all around the world. For instance, cataract causes blindness up to 51.5% of the population in Pakistan, 53% in Myanmar, and 63% in Philippines (Tabin & Chen, 2008). Generally, the prevalence of cataract may compromise the global target of preventing the doubling of avoidable blindness by 2020 to global society.

Africa is reported to have the highest burden of cataract especially in the sub-Saharan Africa (Habtamu, Zebiba, & Burton, 2013). It is estimated to have more than 1.2% blind people with cataract accounting for over 36% of the blind population (Steinkuller, 1983). The cataract prevalence in Africa varies from one country to another. A study conducted by Gyasi, Amoaku and Asamany (2007) found that, Ghana had about 105,000 blind people due to cataract with about 21,000 reported new cases each year. In East Africa new cases of cataract were estimated to range from 3,000 to 10,000 per million individuals each year (Lewallen, 2010). Many studies have shown that the disease is the main cause of blindness in the region, accounting for between 41% and 65% blindness (Mbulaiteye, Reeves, Mulwanyi, Whitworth, & Johnson, 2003; Tabin & Chen, 2008; Celestine, George, Paul & Susan, 2010). According to Lewallen (2001), the incidence of cataract is expected to increase since more than 600, 000 people in Africa are affected with cataract each year.

Cataract can be identified through a shading or dullness of the lens of the eye resulting in a continuous progression of a decline in visual ability and eventually ending-up with

blindness (Karin *et al.*, 2012). According to scholars (Abraham & Condon, 2006; Chitkara, 1999; Congdon, 2003; Kuszak, 2007) factors such as age of over 50years and lifestyle including smoking, suffering from diabetes, exposure to ultraviolet rays, and changes that cause deterioration of intraocular lens, such as protein deficiency, ruptured eye membrane, and cell disruption, long term use of corticosteroids, trauma or fluid collection occurring in ketoacidosis, and genetic predisposition increase the risk of developing cataract. According to Lansingh, Carter and Martens (2007) and World Bank (1993), cataracts are curable through a cost effective surgery which may result in good visual restoration.

The World Health Organization (2007a) admits that quality cataract services can prevent avoidable blindness. It proposed a service coverage rate of 2000 cases/million/year, to address the current cataract blindness in sub-Sahara Africa (Foster, 2001; Zebiba & Matthew, 2013). Major strategies are needed to meet this target based on improvement of "human resource, infrastructure and technology" (WHO, 2007a, p. 6). Unfortunately, the target has not been achieved since the majority of nations put less effort to fight against high disease prevalence (IAPB & WHO, 2007). They are characterised by shortage of human resource, service unavailability, disproportional distribution of facilities, poor infrastructure, low support from the government, high service cost and low community awareness (Ram, Sowmya, Maria & Ken, 2010; Gyasi *et al.*, 2007). According to Habtamu *et al.* (2013) cataract services coverage in sub-Sahara African is about 375cases/million/year, which is lower not only in relation to the global target but even to the regional target of 900cases/million/year.

Aside from low service coverage in sub-Saharan Africa, it also claimed that many patients receiving cataract services end-up with poor visual outcomes and service related problems (Ilechie, Boadi-Kusi, Ndudin & Ofori, 2012). For instance Ram *et al.* (2002) argued that many cataract patients who attended eye clinics complained about dry eye, redness and irritation, while Ilechie *at al.* (2012) found that hyphema, oedema, posterior capsular opacification, vitrous loss and macula oedema are the common cataract post

operative problems. These complaints indicated that the quality of services provided was not satisfactory resulting to blindness. According to Rohit and Khanna (2012) in order to improve good cataract service outcomes and avoid service related problems, it is important to understand factors that influence the outcomes. Since the goal of ZEHP established in 2007 is to reduce prevalence of avoidable blindness and visual disability through promotion of affordable and quality eye health services. Therefore, it necessitate the need to assess the quality of cataract services in Zanzibar so as to come up with strong evidence based suggestion to improve service and promote good outcomes.

1.4 Problem statement

The foregoing discussion shows that cataract is a significant public health problem and it is the most important factor responsible for global blindness (Xu, Cui, Yang, Hu, & Ma, 2006). Cataract is curable through a cost effective surgery which may result in good visual restoration (Lansingh, Carter & Martens, 2007; World Bank, 1993). However, poor visual outcomes and service related complications are the common experience among patients received cataract services particularly in low income countries (Tabin & Chen, 2008). Zanzibar as one among the developing countries is claimed to have 59% poor visual outcomes following cataract services (Kikira, 2007) which is far behind the WHO target which suggested the poor visual outcomes following cataract services should be less than 5% (WHO, 2007a). The observed outcomes perceived to hinder national target to reduce avoidable blindness in spite of efforts taken to improve accessibility and affordability of eye health services. The reasons to explain the observed visual outcomes following cataract services still not clear, hence it is therefore necessary to assess the quality of cataract services in Zanzibar by exploring the factors that result to poor visual outcomes.

1.5 Evaluation questions

The evaluation of cataract services in Zanzibar was sought to answer the following questions;

i. Does the hospital have adequate competent human resources for cataract services as per national guidelines?
ii. Does the hospital have adequate medical requirements for quality cataract services as per standard guidelines?
iii. Do the health staff adequately adhere to cataract services guidelines during their clinical practice?
iv. How customers perceive the quality of cataract services offered by ZEHP in Zanzibar in terms of effectiveness, availability and affordability?

1.6 Evaluation objectives

The general objective of this evaluation was to assess the quality of cataract services provided in Zanzibar, specifically;

i. To determine availability of qualified human resource for quality cataract services in Zanzibar;

ii. To assess the availability of essential medical requirements for quality cataract services;

iii. To examine the level of staff compliance to the standard operation guidelines in their daily clinical practice; and

iv. To examine customer perception on the effectiveness, availability and affordability of quality cataract service offered by ZEHP in Mnazi Mmoja Hospital in Zanzibar.

1.7 Significance of evaluation

This evaluation was significant for the following reasons;

i. Explore strengths and weakness of eye health services in terms of human and material resources necessary for quality cataract service provision;
ii. Contribute on stakeholders understanding on how the cataract services operate in the case study hospital;
iii. Collect data that justify whether the cataract services offered by ZEHP in the case study hospital is of quality to meet the project goal;
iv. Provide evidence that support decision making for service improvement and inform eye health policy;
v. Obtain data to fill the evaluation gap by exploring factors that lead to poor visual outcomes instead of estimating the prevalence of poor or good outcomes following cataract services; and
vi. The evaluation was significant as it is a part of the requirement for the award of Master degree of Science in Health Monitoring and Evaluation of Mzumbe University.

1.8 Scope of the evaluation

This evaluation assessed the quality of cataract services in Zanzibar. Specifically, the evaluation assessed the availability of human and material resources for quality cataract services, degree of provider's ability to adhere with standard guidelines and customer perception on the effectiveness, availability and affordability of cataract services offered by ZEHP in Mnazi Mmoja hospital. This report is organised into six chapters: the first chapter presents background information to the evaluation and problem setting, the second chapter presents the literature review, third chapter presents methodology for evaluation, fourth presents evaluation findings, fifth presents discussion of findings and sixth presents conclusion, policy implication, programmatic implication, limitation of the evaluation and areas for further evaluation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Literature involves a comprehensive review of other research in topic of interest (Boote & Beile, 2005; Machi & McEvoy, 2009). It provides the reader with a brief and consistent summary to understand a particular topic. It provides important debate on the topic understudy while demonstrating relationship and discrepancy in existing knowledge (Coughlan, 2013). According to Creswell (2007) literatures are reviewed to inform questions to be asked and it helps to document the importance of study problem. This evaluation reviewed selected literature on quality health care, cataract and cataract services. The chapter is organized into three sections: theoretical literature review, empirical literature review and the conceptual framework. The theoretical part is presented first;

2.2 Theoretical literature review

This section reviews theoretical literatures on public health concepts. Specifically, the section examines the concept of quality health care, dimensions and principles of quality in health care, the requirements for quality cataract services and health care quality frameworks with their implication in the evaluation.

2.2.1 The concept of quality in health care

Quality refers to procedure or services that offered to individual based on set quality criteria such as affordable, safe, and efficient to reduce and prevent complications to the majority of users (WHO, 1988 cited in Khalifa, 2010, P.4). The United Republic of Tanzania (URT) (2000) defines quality in health care as the tendency to perform or provide health care service at the best level with the resources available. According to Donabedian (1980) quality in health care describes application of health service knowledge and skills in delivering the most desired positive results without compromising the wellbeing of the users, providers and population at large. Writing

back in 1965, Donabedian argued that quality in health care services can be examined through structural, process, and outcome perspectives. The *structural quality* refers to all requirements for service to be provided effectively. It covers the availability of skilled man power, medical equipment and medical supplies. The *process quality* refers to technical knowhow applied by service providers during service delivery. For the service to of quality, it should be safe and reduce the risk of unintended effects to both provider and customer (WHO, 1998). The *outcome quality* refers benefit both long and short term of certain health care intervention to individual, groups and society as a whole (Georgenes & Kusek, 2009).

2.2.2 Dimensions of quality in health care

The WHO (1998) identified six quality dimensions in health care service namely: accessibility, effectiveness, acceptable (patient centred), efficiency, safety and equity.

i. Accessibility

Accessibility in health care refers to the extent of which health care customers can obtain or use the services according to their need without geographical, social or financial boundaries (WHO, 1998). McGraw (2002) refers health care access as the personal ability to receive health care services, which is a functional of available and able to pay. According to Evandou *et al.* (1997) in order for health care service to be accessible the system have to secure a specified range of services, at a specified level of quality, within a maximum level of personal inconvenience and cost, whilst in possession to offer specified service information. It was the aim of WHO (1978) to achieve this quality dimension (accessibility) by the year 2000 through promotion of affordable, physically available and culturally acceptable health care services as one among the goal of the Primary Health Care (WHO, 1978). Unfortunately the aim was not achieved since many developing countries are far behind (Foster, 2001; IAPB & WHO, 2007). Many studies such as Johnson, Sen and Faal (2000), He, *et al.* (2007) and Gyasi (2007) revealed that accessibility of health care services in developing countries is

still challenging since many areas particularly rural areas, services are not available or not affordable to majority of population. This can be inferred that health care services in developing countries did not meet the quality criteria as suggested by WHO (1978).

ii. Acceptability

Acceptability (patient centred care) refers to service delivery under consideration of individual preference, aspiration and socio cultural background of the user (WHO, 2006). Studies such as Lewallen (2001) and Brian and Taylor (2001) revealed that patients accept and use health care services when cultural and individual dignity is considered. For instance, Lewallen (2001) observed several factors that promote cataract patients to accept cataract services provided in health facilities. The author referred to environmental and social factors such as separation of patients seating area for both sex, wards for women, private washing and sanitary facilities, availability of female counsellors, attitude and trustfulness of service providers as a major factors that promote health care acceptability in the general population. According to Brian and Taylor (2001) society may not accept and or use cataract services because they do not understand or believe that cataract can be cured. The misconception results to late health care seeking and sometimes ends up with cataract maturity which can result in total blindness.

iii. Safety

Safety refers to delivering health care which minimize the risk and harm to service users (WHO, 2006). According to URT (2000) safety in health care refers to health care activity that is both safe and efficacious where the providers are supposed to consider the safety of themselves, clients and community. It is about health care services and procedures that do not put the users at risk through proper diagnosis and treatment. Studies to assess the safety of cataract services such as Ram *et al.* (2002) revealed that services offered in many health facilities especially in sub-Saharan Africa did not meet this quality criterion. For instance Ram *et al.* (2002) observed that many patients experience certain cataract service related problems that indicates the services offered

were not as safe hence it put users in the risk of developing service related problems and some end-up with total blindness. The perceived notion can results to low utilization which inturn can result to high prevalence of blindness.

iv. Equity

Equity in health care describes the delivery of health services which does not vary in quality because of personal characteristics such as sex, race, cultural background, geographical location, or socioeconomic status (WHO, 2006). Studies show that provision of cataract services is not offered according to users with regards to economic status, age, geographic location and ethnicity. For instance Kelaher, Ferdinand and Taylor (2002) observed that populations with a high economic status are more likely to benefit than those with lower status while Lewallen and Courtright (2006) observed that male are more likely to benefit from cataract services compared to women.

The review of quality dimensions provided valuable inputs in the development of conceptual framework and evaluation questions. For instance, *accessibility dimension* necessitate the availability and affordability of the desired health services while *safety dimensi*on clarify the effectiveness of services to cure or reduce the intensity of health problem without compromising the wellbeing of service user or provider. Therefore, these dimensions were substantial in the development of analytical framework to assess the quality of cataract services offered by ZEHP in Mnazi Mmoja hospital. By employing *access dimension* the evaluation examined the availability and affordability of cataract services in the case study hospital, while *safety dimension* examined the effectiveness of cataract services offered in the case study hospital to cure cataract related blindness. In the conceptual framework of this evaluation (See section 2.5), these dimensions were grouped as outcome dimension since they correspond with the outcome component in the ZEHP logic model explained in section 1.1.2.

2.2.3 Principles of quality in health care

Principles of quality health care improvement explained differently depend upon the context under discussion. Some authors describe the quality of health care under six quality health care improvement principles such as URT (2000) whereas Deming (1950) describes the quality of health care under four principles (the Plan Do Check Act principle).

i. The quality health care improvement principles by URT

The URT identifies six principles of quality improvement in health care, namely: (1) Customer oriented (meet the need of customers), (2) Focus on system (system centric), (3) Use data to improve services, (4) Improve service through team work, (5) Improve service through better communication and (6) Ongoing quality improvement.

According to URT (2000) the *customer oriented* principle emphasises on efforts that are taken to ensure service offered meet the need of users, both felt and unfelt needs. *Focus on system (system centric)* principle describes health services that are offered through system analysis which focuses on inputs, process, outputs, outcome and impacts (inputs which is also known as structural refers to what is needed for project to be implemented, it mainly explain project requirements both human and material resources. Process refers to activities performed during project implementation; output is the immediate results following implementation of project activities. Outcome explains the midterm effects of project activities, mainly it explain what beneficiaries achieve as a result of the service provided to them, and impact illustrate the long term effects of project activities (Georgenes & Kusek, 2009). *Using data to improve health services* principle emphasise on measurement of health care performance through effective data collection and analysis to identify problems that need to be addressed to improve the services. *Improve quality through team work*, it emphasises efforts taken to share responsibilities among health care providers to improve quality of services delivery. *Improve services through better communication*, necessitates the need for effective communication to ensure quality service delivery and promote user satisfaction, it further elaborates

communication patterns that include health workers with patients, health system with health workers and health system with community. *The ongoing quality improvement*; emphasise on follow-up activities through supportive supervision.

ii. The Plan Do Check and Act (PDCA) quality improvement principles by Deming

Deming (1950) explains quality services through 4 principles namely Plan, Do, check, and Act. According to Deming *Plan* principle involves selection specific intervention, explaining the reason for implementing the intervention, set goals for the selected intervention and prepare action plan. The *Do principle* includes activities that emphasises on data gathering, fact analysis, and development of solution. The *Check principles* emphasises on testing the proposed solution, ensuring goals are met and implementing the proposed solution. The *Act principle* elaborates on monitoring proposed solution and continuous service improvement.

2.2.4 Requirements for quality cataract services

Blanchet and Lindfield (2010) identify the necessary requirements for quality cataract services which include the presence of trained doctors and nurses, necessary equipment such as operating microscope, consumables, and physical facilities capable of providing cataract services. Furthermore, the authors refer to the need for clients' awareness towards services, voluntariness in receiving services, staff ability and willingness to undertake service as per set standards as necessary requirements. Figure 1 illustrates interaction of those requirements for quality cataract services provision. The description provided by Blanchet and Lindfield concur with quality cataract service components highlighted in Chapter one section 1.3 (qualified workforce, medicine, infrastructure, leadership and governance) described by WHO (1998; 2005; 2009) and sightsavers (2010) in the background sections.

Figure 1: Requirements for quality cataract services

Source; (Blanchet & Lindfield, 2010 p. 2)

Aspects in Figure 1 suggest that in-order for health care organizations or projects to offer quality cataract services there should be an effective interaction of facilities, human, finance and good governance. These factors need to be well organized from unit level to national level. The eye care unit level (section in hospital) should involve adequately qualified staff, presence of physical facilities such as building and medical equipment, individuals who need and utilize services, and medical supplies. Hospital level unlike hospital level needs to have competent and effective administration, adequate financial resources to ensure adequate supply of necessary requirement for quality service delivery. For hospitals to be effective, the governing body or the government should set laws, policies and regulations, to ensure effective training programmes as well as adequate budget to finance the hospital and services (Blanchet & Lindfield, 2010).

The description given by Blanchet and Lindfield (2010) on requirements for quality cataract services provide various factors affecting the quality of cataract services, such factor include structural factors (physical facilities, equipments and medical supplies, qualified human resources), management and financial resources *inter alia* are relevant to this evaluation since they provides variables captured by the conceptual framework of this evaluation (See section 2.4). Given that, this evaluation intended to assess the

quality of cataract services provided by ZEHP in Zanzibar particularly at Mnazi Mmoja hospital, it focused on the eye health department in Mnazi Mmoja hospital. Through which the idea provided by Blanchet and Lindfield (2010) as described above was applied to assess the availability of technical staff, equipment, medical supplies as well as standard service guidelines. Pertaining to administration, the evaluation assessed staff adherence to standard guidelines and ability to offer adequate information to patients. To make evaluation manageable not all relevant variables were investigated, therefore some issues including organization's policies, finance and laws were out of the scope of this evaluation.

2.2.5 Health care quality frameworks

In addition to the health care quality principles, different frameworks have been developed to assess quality of service delivered within health care industry. This section briefly reviews the WHO quality care framework, the Bamako initiatives, health system dynamics framework and the Donabedian models.

i. WHO (2007) quality care framework

This framework evaluates the quality of health care under three quality goals. Which are mentioned as: (1) Optimum health for all, (2) Responsiveness and (3) Fairness in health care financing. According to this framework *optimum health for all* refers to health care services that lead to improved well being of the consumer, reducing the morbidity and mortality. *Responsiveness* refers to health care services that do not result to poor and undesired health outcomes, it takes consideration of personal dignity, confidentiality and customer oriented services, it focuses further on increasing availability and utilization of health care services. The *fairness in financing* refers to security of service consumers in financing health care, it emphasizes on cost sharing that will not deprive customers.

ii. Bamako Initiative (1978)

The Bamako Initiative model was developed by United Nations International Children's Emergency Fund (UNICEF) and WHO in 1987 in Bamako, Mali. The aim of the

Bamako initiative was to protect the poorest and ensure that costs do not hamper the access to essential primary health-care services for poor and marginalized communities. The model evaluates health care quality through four quality care components which are: effectiveness, efficiency, sustainability and equity.

According to WHO (2007b) *effectiveness* refers to services offered to overcome the most essential health problems through preventive and curative health care services. *Efficiency* addresses the rational use of health care resources. *Sustainability* reflects efforts taken ensure participatory financing of health care services, in which the community or service consumers are fully involved in management and funding of health care services. *Equity* refers to service that are delivered to all who need without discrimination of geographical, economical or social background; it should allow exemption and cost subsidization.

iii. Health system dynamics framework (2012)

The health system dynamics framework developed by Olmen, Criel, Van Damme, Marchal, Van Belle, Van Domel, Hoeree, Pirard, and Kegels (2012) is another quality care evaluation framework comprised of ten health system components, namely: (1) Values & principles, (2) Goals & outcomes, (3)The environment, (4) Leadership & governance, (5) Service delivery, (6) human resources, (7) financing, (8) infrastructure & supplies, (9) knowledge & information, and (10) the population. The focus of this framework is to build relationship among the components of the health care system. It underlines how good health care outcomes and goals are attained in a difficult interaction between components.

iv. Donabedian quality care model

Donabedian model (1980) views health care quality in three important features, namely: structure, process and outcome. According to this model, *structural component* describes all the factors that affect the context of health care delivery; they include physical facility, equipment, human resource as well as organizational characteristics such as payment system and staff training. The *process component* refers to all the actions that

makeup healthcare; it includes all actions employed in diagnosis, treatment, preventive care and patient education. It can further be classified into technical process, how care is delivered, and interpersonal process in delivering the services. The *outcome component* explains the benefit of health care to patients and the population at large (short term, intermediate and long term effects); it includes changes in health status, behaviour, and knowledge as well as customer satisfaction.

The above health care quality frameworks provide useful variables to assess and describe the quality of health care services. Generally, the Donabedian model evaluates the quality of health services under system assessment of which it asses the structural, process and outcome levels, it corresponds with system centric principle discussed by URT (2000) (See Section (2.2.3). Though, the Donabedian categorises the output, outcome and impact components discussed by URT under one component i.e. *"outcome"* without specifying the level of outcome. Further, the Donabedian quality model doesn't explain the quality dimensions identified by WHO (1998) (See Section 2.2.2) instead it describes one principle and categories quality in health care into structural, process and outcome quality. The application of Donabedian quality model in this evaluation was helpful to determine the system quality by describing the *structural, process* and *outcome components* of a project. The model has ability to explain service requirements (structural), activities involved (process) and the results of the process (outcome).

The Bamako initiative evaluates the quality of health care services under economical perspective. Particularly, it analyse the quality of health care under effectiveness, efficiency, sustainability and equity. The WHO quality care framework evaluates the quality of health services in social perspectives, its main focus based on improvement of universal access to quality health care. Both (Bamako initiative and WHO quality frameworks) evaluates the quality of health care system by assessing the quality dimensions described by WHO (1998) and put less concerns about the principles of quality health care improvement. If they were applied to evaluate the quality of cataract

services, it would be a need to adopt other model that is capable to assess structure, process and outcome quality simultaneously.

The Health system dynamics framework assesses the quality of health care services under management perspective. Its main focus is to assess how well the management is capable in coordinating organizational values, objectives, resources and environment to deliver a quality health care. The model evaluates the quality of health care services by determining the interaction of health system components if preceding the outcome. It is a complex model and if it was to be applied would take time to assess the interaction and determining the outcome.

The review of the above sources and frameworks including: the principles of quality health care by URT (2000), and Deming (1950), the requirements for quality cataract services by Blanchet and Lindfield (2010), Bamako initiatives framework (1987), Health system dynamics framework (2012) and the Donabedian quality model (1980) provided useful inputs that supported the development of conceptual framework for this evaluation. For instance reference to *structural requirement* such as competent man power and material resources, *process component* which involves action employed to deliver services and the *outcome component* which implies the benefit of service delivered to customers. The Donabedian model is particularly sentimental in this evaluation because it provides a powerful analytical framework that enables this evaluation to assess the quality of cataract services offered by ZEHP in Zanzibar by examining three important parameters captured by the conceptual framework of this evaluation: *structure* of health care system in provision of cataract services, *process* employed in delivering cataract services in Zanzibar and *outcome* of cataract services to cure cataract related blindness.

2.3 Empirical literature review

According to Boote and Beile (2005) the empirical review demarcates what have been done and what have not in relation to cataract services. It identifies strengths and

weaknesses of the reviewed studies and provides summary that helps to shape the focus and scope of the evaluation (Creswell, 2007). The current empirical literature, reviewed studies on quality of cataract services and challenges in improving cataract service outcome.

2.3.1 Studies on quality of cataract services

Literature shows that there are various viewpoints which can be used to assess the quality of cataract services: coverage, cataract service outcome, causes of poor visual outcome and barriers in delivery of quality services. Gurudasan, Shukla, Burkule, Shekokar and Raut (2014) assessed the quality services in cataract control programme in Wardha district in India. The study had the following objectives; to study the coverage of cataract surgery, to study visual outcome of surgery, and to study the change in quality of life or level of patient's satisfaction after cataract surgery. The study was conducted under quantitative approach with major focus on determining the quality of life and visual function following cataract services. Findings of the reviewed study show service coverage was 59%, whereby 64.9% of patients had better visual outcome and 82.9% were satisfied with service offered.

The study is consistent with views that it assessed the quality of cataract services in terms of service coverage and visual outcome. Its consistent does not clearly address the quality of cataract services since it does not actually explain factors that influence the service outcome. The study provides an important contribution in this evaluation since some variable used such as *visual outcome* and *patient satisfaction* following cataract services also were explored in the current evaluation. These variables were considered in the evaluation of quality of cataract service in Zanzibar due to the reason that the context differ much. The reviewed study was conducted in India while the current evaluation was conducted in Zanzibar. India has high technology and high proportion of skilled man power compared to Zanzibar, but also the reviewed study was conducted through the qualitative approach whereby this evaluation was conducted through mixed method.

This evaluation intended to see any deference on service visual outcome and patient satisfaction in spite of high technology and man power available in India.

Paradoxically, in this regard the evaluation also reviewed the study of Ilechie, Boadi-Kusi, Ndudin and Ofori (2012). The reviewed study was designed to evaluate post operative visual outcome after cataract surgeries performed at 2 tertiary referral hospitals in Ghana. Specifically, the study addressed the visual outcome after cataract surgery and types of surgical complication occurred after surgery. The study involved retrospective design where data were collected through documentary review. The study used WHO criteria to measure the visual outcome in which the result indicated that 22.2% of cataract operation reviewed had good visual outcome, 28.7% had poor outcome while 50% had borderline outcome in relation to WHO criteria. Regarding to the types of surgical complications, the study classified two types of complication: early and late complications. The research indicated that 10.1% of reviewed surgical records had developed early complications mainly oedema and hyphema while 2.8% had late complications include posterior capsular opacification, vitrous loss and macula oedema.
The findings of the reviewed research demonstrated the need to assess the quality of cataract services since majority of patients undergo cataract surgical procedure had poor outcome and they developed early complications which indicating the quality of service received was not as good as expected, however the study didn't explain the reasons of poor outcome and service related complications. Therefore the current evaluation intended to assess the quality of cataract services to give out the reasons of poor service outcome by determining availability of competent manpower, appropriate medical requirement to deliver cataract services as well as procedure employed if it leads to good service outcome. Instead of retrospective design employed in the reviewed study, the current evaluation employed the case study design to allow through observation, whereby triangulation method was applied to provide strong evidence based conclusion.

2.3.2 Studies on challenges in improving quality of cataract service

In this regard, the review involves the study conducted by Lindfield, Vishwanath, Ngounou and Khannas' (2012), study focused on determining prevalence and causes of poor outcome following cataract services in low and middle income countries. The result of the reviewed study show the prevalence varies between countries and ranges from 0.7% to 44%. The author further mentioned Cameroon and Nigeria had highest prevalence of poor visual outcome (44% and 32.2% respectively) while India and China had the lowest prevalence of poor outcome (0.7% and 4% respectively). Patterning to causes of poor outcome, the study identified several factors which include preoperative ocular morbidity, long term postoperative complications, surgical complication and uncorrected refractive errors. This observation suggested that poor cataract service outcome was associated with pre and post service follow-up as explained by Ram *et al.* (2002) who observed that follow-up care can reduce service related complications by more than 85%.

Another study reviewed in this regards was the *"Challenges in the management of paediatric cataract in a developing country"* by Ezegwui, Aghaji, Uche and Onswasigwe (2011) conducted in University of Nigeria Teaching Hospital, Enugu – Nigeria. The study had two objectives: (1) to review the management of cataract in children in a tertiary hospital in a developing country, and (2) to highlight the challenges therein. The study conducted under retrospective design employing documentary review method for data collection. The result indicated that Pre-operative VA could not be assessed in 42.3% of patients, 53.9% had VA <3/60 and 3.8% had VA 6/60. Biometry was done in 19.2%. All eyes had standard extracapsular cataract extraction without primary posterior capsulectomy, 46.2% had posterior chamber intraocular lens (PC-IOL) implant while 50.0% had not. Pos operative VA of 6/18 or better (12 weeks after operation) were 33.3%. Among challenges recognised were delay due to lack of awareness among parents, financial constraints for services, lost follow-up after surgery and inadequate facilities. The study concludes that inadequate facilities and inadequate

follow up after surgery are some of the challenges in managing paediatric cataract in the developing countries.

Since the current evaluation intended to explain the quality of cataract services, the reviewed studies offered valued information that supported the development of conceptual framework and methods for data collection. The reviewed studies addressed service related factors in its association of too poor visual outcome and factors facing cataract services while the current evaluation designed to explain the quality of cataract services in terms of structural and process quality. Further, the data for the reviewed studies collected by using the documentary review hence the current evaluation employed both documentary review and direct observation, since it was noted that secondary data is a week data collection method and may reduce the reliability of study findings (Kothari, 2014).

2.4 Evaluation gap

Inspite of poor visual outcomes following cataract service in Zanzibar, the reasons to explain the observed poor visual outcomes following cataract services in Zanzibar are not much clear. Many studies have not adequately described the reasons for poor service outcome. Such studies include the study of Jefferis, Bowman, Hassan, Hall & Lewallen (2008) which assessed the cataract service use. The study of Social and family dynamics behind uptake of cataract services conducted by Genau (2001). Others investigated the determinants of cataract services by subsidised camp (Bekibebe & Murthy, 2012), all these studies doesn't addressed the quality of cataract services instead they assess socio-cultural factors beside cataract service use. Recently, Rohit and Khanna (2012) assessed the risk factors for poor cataract surgical outcome. In his study Rohit discussed causes of visual outcome following cataract services in terms of patients' reasons such as posterior capsule opacification which can be improved effectively by treatment and service related reason such as human errors and equipment malfunction. This observation does not adequately provide understanding about the quality of cataract services. The study does not explain the quality of services providers, availability and utilization of material

resources necessary for quality services which is very important to reduce human errors. Therefore, this evaluation intended to explore the reasons of poor visual outcome by assessing the quality of cataract services in Zanzibar, with major focus on competency of human resources, equipment and medical supplies, patient education as well as provider compliance to standard guidelines.

2.5 The conceptual framework

2.5.1 Description of conceptual framework evaluating the quality of cataract services in Zanzibar

A conceptual framework is a written text that clarifies the core idea the evaluator wants to assess. It identifies the central issue, underlying factors and establishes interaction among parameters investigated in terms of dependent and independent variables (Miles & Huberman, 1994). In this evaluation, the Donabedian model discussed in Chapter Two was used to establish key analytical variables and some of the indicators applied to evaluate the quality of cataract services offered by Zanzibar Eye Health Project (ZEHP) at Mnazi Mmoja hospital in Zanzibar. The selected analytical framework involves two independent variables (structural and process) and a dependent variable (outcome). The next part clarifies the variables and the associated indicators.

i. Structural factor

A structural factor refers to the capacity factor that affects the context and quality of service delivery in a health care. Three indicators were used to assess this variable: (1) whether the case study hospital has adequate qualified human resource for cataract services as per the requirements of the hospital and the Ministry of Health, (2) whether the case study hospital has adequate equipment necessary for quality cataract services, and (3) whether the case study hospital has adequate medical supply for quality cataract services. These indicators are clarified below.

(a) Qualified human resource refers to cataract service providers with adequate knowledge and skills necessary to provide quality cataract services. During the evaluation this indicator was used to determine *whether the case study hospital had adequate qualified manpower necessary for cataract services*. It assessed the availability of such carders as: Cataract Surgeon, Optician, Assistant Medical Officer specialised in ophthalmic services, Ophthalmologist, Ophthalmic Nurse Specialist, and Biomedical Technicians as per the manpower requirements set by the Ministry of Health Zanzibar and the Blanchet & Lindfield (2010) for the quality cataract services.

(b) Equipment refers to the availability of functioning medical instruments including appliances necessary for diagnosis and management of cataract at the case study hospital. This indictor was used to assess *whether the hospital had adequate medical equipment for quality cataract services.* The equipment examined included: Slit lamp, A-scan, B-scan, keratometer, retinoscope, Goldman tenometer, YAG laser, power backup and surge protection, Phacoemulsification machine, coaxial operating microscope and autoclave. The presence of such equipment is recommended by the Ministry of Health Zanzibar and was also identified by Blanchet & Lindfield (2010) as essential for quality cataract services (See Section 2.2.4).

(b) Medical supplies refer to the presence of adequate essential medical resources necessary for diagnosis, management and prevention of cataract related complications. This indicator was used to assess *whether the case study hospital had adequate medical supplies for quality cataract services.* Specifically, it involved the assessment for the availability of the following supplies (considered available if they fulfilled at least 85% of cataract patients' needs [See Sightsaver, 2010]): irrigation solution (Ringer lactate/ normal saline), vescolastine, intraocular lens, 10% povidon, dilation drop (cyclopentolate, hylephrine) and steroid antibiotic.

ii. The process factor

Process factor refers to a series of actions taken in the delivery of cataract services (Georgens & Kusek, 2009). The indicators used to assess this variable included: (1) Determining whether the case study hospital had standard service guidelines to support cataract service provision, (2) Establishing whether cataract patients at Mnazi Mmoja hospital were offered cataract services in accordance to the service guideline(s), and (3) Finding out whether cataract service providers at Mnazi Mmoja hospital provided adequate information to cataract services patients.

(a) Presence of standard cataract service guidelines: This entailed establishing the availability of national and internationally acceptable protocols for quality cataract services (Grimshaw & Russell, 1993). This indicator was used to determine *whether the case study hospital had necessary guidelines to support the provision of quality cataract services*. The indicator examined the presence of such guidelines as: cataract clinical protocol, credential guideline to judge type of cataract services to be offered to patients, protocol to assess intraocular lens power, protocol to assess visual outcome, guidelines for infection prevention and control (IPC guideline) and guideline to assess blood glucose and blood pressure (Sightsavers, 2010).

(b) Staff compliance to service guidelines refers to the ability of service providers to adhere to the agreed standard service guidelines during service provision (Grimshaw & Russell, 1993). This indicator was used to determine *whether the service providers in the case study hospital offered cataract services as per the standard cataract service guidelines.* It involved examining actions taken by providers in all stages involved in the management of cataract services including preliminary cataract services, preliminary service for cataract surgery, cataract operation and post-operative services, and ascertaining whether the actions complied with the standard guidelines.

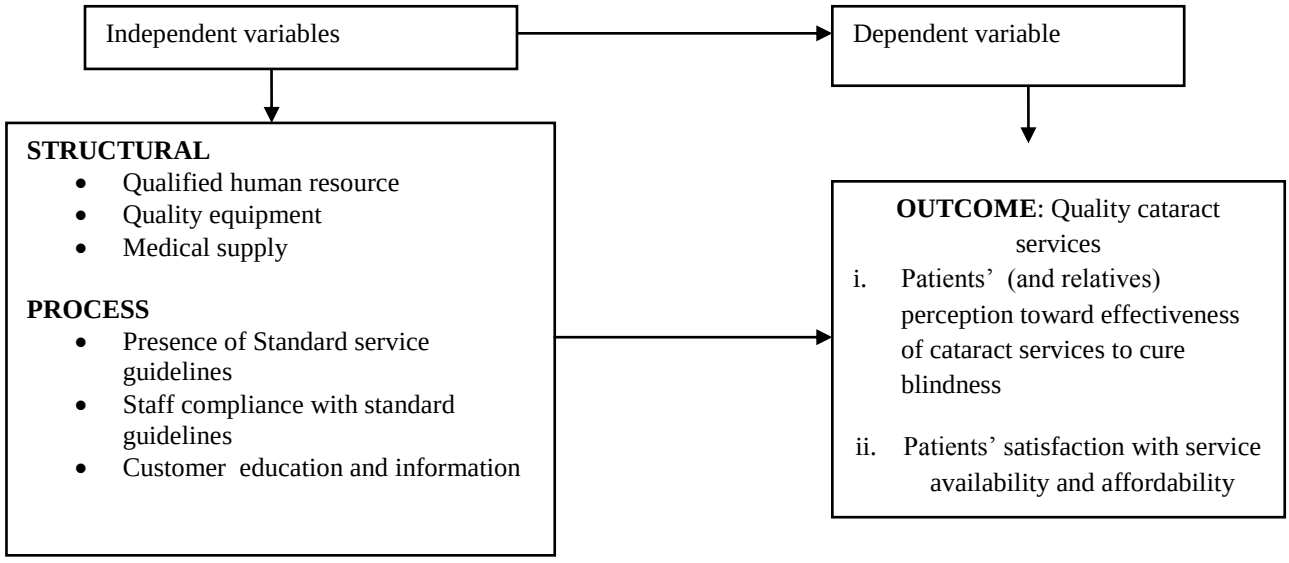
(c) Customer information on cataract services refers to education and instructions given to cataract patients or relatives by service providers to promote patients' awareness towards cataract and its associated services. This indicator was assessed by

determining *whether eye care providers offered adequate and usable information that promoted understanding of cataract and cataract services among cataract patients.* The indicator examined the ways used to inform patients about cataract and cataract services.

iii. Outcome factor

As stated above, the dependent variable for this evaluation was the outcome factor. This factor was composed of two indicators: (1) patients' perceptions on whether cataract services offered by ZEHP in Mnazi Mmoja Hospital was effective in terms of curing cataract related blindness, (2) whether cataract patients were satisfied with cataract services offered by ZEHP in Mnazi Mmoja Hospital in terms of availability, affordability. Figure 2 presents a summary of the conceptual framework of the evaluation narrated above.

Figure 2: The conceptual framework: Assessing the quality of cataract services



Source: Evaluator (2014) based on literature review

The interaction of structural and process factors in the provision of cataract services may result to an effective cataract service that cures blindness, and which is available and affordable to majority of patients. According to Yin (2003) it is necessary to provide a clear understanding of how key study parameters and associated factors in the

conceptual framework were measured and interpreted. Therefore, Table 2 illustrates the operationalisation of evaluation variables stipulated in the conceptual framework supporting the evaluation questions.

Table 2: Operationalisation of conceptual framework

Variable	Indicators	Assessment (how indicator was measured)	Evaluation question
Structural factor	Determine whether the case study hospital had adequate quality medical instrument/machines for quality cataract services	i. Determine availability and functioning of instruments in relation to the hospital requirement	Does the case study hospital have adequate medical requirements for quality cataract services?
	Determine whether the case study hospital had adequate medical supplies to support the quality of cataract services	i. Determine the available amount of medical supplies and whether they can fulfil the demand of 85% of patients. ii. Assess if there were no stock out	
	Determine whether the case study hospital had adequate qualified human resource for quality cataract services	i. Determine availability of professionals for cataract services in relation to the national requirements ii. Identify the type of training offered by ZEHP to cataract service providers in the case study hospital iii. Determine the proportion of cataract services providers who have worked for more than 5years	Does the case study hospital have adequate skilled human resource for quality cataract services?
Process factor	Determine whether the case study hospital has cataract service guideline to support quality services	i. Identify the types of standard cataract service guidelines available	Do cataract service providers in case study hospital adequately adhere to cataract service guidelines?
	Determine whether cataract services were offered as per the standard service guidelines	i. Assess the proportion of cataract service offered according to the guidelines during preliminary care, preliminary assessment for surgical services, provision of cataract operation and post operative services.	
	Determine whether the case study hospital offered adequate information and education of cataract services to patients and relatives.	i. Identify the common individual offers cataract information to patients ii. Identify proportion of cataract patients received adequate information concerning to cataract and cataract services. iii. Identify the type of IEC/ BCC materials given to cataract patients concerning to cataract services.	
Outcome factor	Determine whether cataract patients were satisfied with the quality of cataract services offered by ZEHP in Mnazi Mmoja hospital	i. Proportion of patients' opinions on the effectiveness of cataract treatment offered by ZEHP in case study hospital to cure blindness.	How does a customer perceive the quality of cataract services offered by ZEHP in Mnazi Mmoja Hospital?
		i. Proportion of patients' opinions on availability and affordability of cataract services in case study hospital.	

Source: Evaluator (2014) based on literature.

CHAPTER THREE: EVALUATION METHODS

3.1 Introduction

This chapter present the methodology employed in this evaluation. It covers the evaluation approach, design, study area, population and sampling, variables and their measurements, sample size and techniques, types and sources of data, inclusion and exclusion criteria, validity issues, data management and analysis, and ethical considerations. The chapter starts to present evaluation approach.

3.2 Evaluation approach

Georgenes and Zalkusek (2009) identify five approaches that can be used to evaluate health programmes. These are formative, process, outcome, economic and impact evaluation. Each of these approaches has its own features which distinguish one from the other.

Formative evaluation refers to evaluation approach that is applied to assess project design, materials and strategies before implementation (Georgenes & Kusek, 2009). Process evaluation refers to evaluation approach that is performed to determine administrative and organization aspects to demonstrate how well the project is working and actions that need to be performed to improve project implementation. It can be used to determine strengths and weakness in terms of resources, competence and capability of project to fulfil the project goal and mission (McDonald, Starr, Schooley, Yee, Klimowski &Turner, 2001). Outcome evaluation is an evaluation approach that is used to describe the immediate effects of the project to beneficiaries; it also used to assess the actual relationship between project intervention and the desired outcome (Patton, 2001). Economic evaluation implies the evaluation method is that applied to evaluate the value of money spent per specific project intervention. Impact evaluation is a systematic evaluation method to determine the long-term effects of project to individual and community at large (Gorgens & Zalkusek, 2010).

For the purposes of this evaluation, a process evaluation approach was applied since the evaluation intended to explain how well the ZEHP was working in terms of its strengths and weakness on resources, competence and capability to fulfil the intend project goal. Also it intended to identify actions that need to be taken to improve project implementation. According to Patton (2001), the approach is useful to determine whether or not resources needed were allocated as expected and finally it can recognize strengths, weaknesses, and areas that need improvement.

3.3 Evaluation design

The goal of evaluation design is to describe methods employed to answer the evaluation questions and it is an outline of study activities (Brink & Wood, 1998). Evaluation design is the overall set of actions that spell out strategies to be applied so as to develop perfect, objective and interpretative information. De Vaus (2001) identified four study designs which are experimental, cross sectional, longitudinal and case study designs. Experimental design is the evaluation design which use random assignment to compare the effect of an intervention on one or more groups with effect on another group or groups that did not receive the intervention (Babbie, 2010). Cross sectional study is non interventional study design in which the investigators compare characteristics of interest from various group at a single point of a time, it referred as a snapshot study (De Vaus, 2001). Longitudinal study like cross sectional study is non interventional design of which the investigator perform various observations of the same population over a long period, it may last for a years. Case study design is one among evaluation designs which provide opportunity to evaluate a bounded system (a case*)* or several bounded systems (cases) over time, through detailed data collection involving multiple sources of information (e.g., observations, interviews, achieved materials and reports), and reports a case description and case-based themes (Creswell, 2007). Any type of evaluation designs can be conducted under qualitative, quantitative or both (mixed design). A qualitative design is usually applied to generate detailed information from the respondents' perspective toward the topic understudy; while quantitative design is

applied to capture information about the study by using mathematical equations and modelling (Burns & Grove, 1997).

For the purpose of this evaluation, a case study design was applied to evaluate the quality of cataract services in Zanzibar. According to Hamel, Dufour and Fortin (1993) case study designs are the most basic type of evaluation and extensively used to evaluate programme and project implementation. It is a useful design for describing interaction of different project elements and explains how that interaction between process, environment and inputs has produced the observed outcome (Yin, 2012). Therefore, the study adopted a bounded case study design to evaluate the quality of cataract services at Mnazi Mmoja hospital in Zanzibar. The reasons to adhere a bounded (single) case study design includes the following as suggested by Yin (2009): Mnazi Mmoja hospital symbolizes the significant case in examining the quality of cataract services in Zanzibar, it symbolizes a distinctive characteristics in providing cataract services, and the hospital is a typical case in which it is the only referral hospital in Zanzibar.

Under case study design, the evaluation was conducted through mixed method approach (engaging both qualitative and quantitative techniques) to explain the quality of cataract services in Zanzibar. A quantitative technique was applied to capture information patterning to availability of medical equipment, medical supplies, availability of standard service guidelines, staff compliance to standard service guidelines in daily basis, customer satisfaction and perception toward cataract services offered in Zanzibar. A qualitative technique was used to generate information about availability of competent human resources interm of their knowledge, skills and experience in providing cataract services. The evaluation started with quantitative approach followed with qualitative approach. The findings from the qualitative approach were used to support the findings from the quantitative approach.

3.4 Evaluation period

The evaluation was conducted from February to May 2015. However, it started with evaluation readiness assessment followed with proposal write-up. A detailed schedule of activities involved in this evaluation is attached as Appendix 2.

3.5 Study area

This evaluation was conducted in Department of Ophthalmology, Mnazi Mmoja Hospital (MMH) in Zanzibar. Zanzibar is located 78 kilometres off the Indian Ocean shores of Tanzania mainland. Zanzibar contains two major islands Unguja and Pemba, and several other small islands like Tumbatu and Kojani. Zanzibar has a total population of 1,303,569 inhabitants (United Republic of Tanzania [URT], 2013). Over 95% of these people live within 5 kilometres walking distance to a health facility (Government of Zanzibar [GoZ], 2010). MMH is the only referral hospital in Zanzibar. It has the capacity of 546 beds spread over three campuses. It has 18 clinical departments, which are Internal medicine, paediatrics, obstetrics and gynaecology, general surgery, orthopaedics, ophthalmology, otolaryngology, dentistry, neurosurgery, radiology and laboratory (GoZ, 2011). The area was selected due to the reasons that about 66% of cataract patients receive cataract services offered by ZEHP in this hospital (ZEHP, 2012). The area was also easy to reach for data collection.

3.6 Populations and sampling

This section explains study population, study sample, and study unit.

3.6.1 Study population

Study population refers to a subset of the target population to which the investigators can apply their conclusions (Burns & Grove, 1997). The study population in any study is used to draw study sample (Gay, 1987). For the purpose of this evaluation, the study population involved eye care service providers, cataract patients and the heads of eye

health department in Mnazi Mmoja Hospital. The evaluation selected population from Mnazi Mmoja Hospital as a case to perform a thorough analysis since it is the only hospital in Unguja Island which runs cataract services offered by ZEHP.

3.6.2 Study sample

Study sample refers to a smaller number or group of study population which represents the whole population (Ary, Jacobs & Razaveih, 1972). For the purpose of this evaluation, two types of samples were applied to effectively address the evaluation questions, namely questionnaire and interview samples.

Interview sample involved selected heads of eye health department, ZEHP manager and cataract service providers while questionnaire was administered to sampled cataract patients and their relatives. These aspects are clarified further in section 3.9 through 3.12.

3.7 Unit of analysis

According to Creswell (2007), study unit explains *who* in terms of individuals and *what* in terms of group the study will involve. For the purpose of this evaluation the smallest unit for the study were groups of respondents including group of interview respondents (heads of eye health department, cataract service provider and ZEHP manager) and group of questionnaire respondents (cataract patients) from whom data were collected using various methods: interview, questionnaire and observation to answer evaluation questions.

3.8 Variables and their measurement

This evaluation involved three variables: structural, process and outcome factors.

A. The structural factor in relation to the first and second evaluation questions composed of three indicators:

(i) Whether the case study hospital had adequate quality medical instrument/machines for quality cataract services;
(ii) Whether the case study hospital had adequate medical supplies to support the quality of cataract services;
(iii) Whether the case study hospital had adequate qualified human resources for quality cataract services.

B. Process factor in relation to third evaluation question had three indicators:
(i) Whether the case study hospital has cataract service guideline to support quality services;
(ii) Whether cataract services were offered as per standard service guidelines;
(iii) Whether the case study hospital offered adequate information and education of cataract services to patients and relatives.

C. Outcome factor in relation to fourth evaluation question had one indicator:
(i) Whether cataract patients satisfied with the quality of cataract services offered by ZEHP in Mnazi Mmoja hospital.

The description of each indicator with its measurement was discussed in section 2.5 and summarised in Table 2 (the operetionalisation of conceptual framework).

3.9 Sample size and sampling techniques

3.9.1 Sample size

Sample size refers to the total number of respondents drawn from the source population (Gay, 1987). Determination of sample size depends upon the type of the study: Quantitative or qualitative study. The total number of study respondents for qualitative study is guided by saturation principle (Creswell, 2007) while the quantitative studies depend upon statistical estimation using statistical formulae (Gay, 1987).

For the purpose of this evaluation, the sample size was drawn through both questionnaire and interview samples. The questionnaire sample was applied to obtain

total number of questionnaire respondents under which a Gay's rough guide criteria were applied as suggested in Table 3. Since the cataract patients cared at the time of this evaluation were only 80 patients that is less than 100, thus using the suggestion all 80 (100%) were involved in questionnaire sample.

Table 3: Rough guide for sample calculation

Size of population	Sampling Percent
0-100	100%
101-1,000	10%
1,001-5,000	5%
5,001-10,000	3%
10,000+	1%

Source: Gay (1987)

3.10 Sampling procedures

There are two major sampling techniques applied in social science research: probability and non probability sampling. According to Ary, Jacobs and Razaveih (1972) in probability sampling all members of the population have an equal chance of being included in the sample as opposed to non probability sampling. The variant of probability sampling include simple random, systematic, stratified, and cluster sampling (Gay, 1987). Non probability sampling can be theoretical, purposive, snowball, typical case sampling, critical case sampling and convenient sampling (Miles & Huberman, 1994). This evaluation employed two types of sampling: a rough guide sampling which has been described above (section 3.9), the next part describes non probability sampling methods that applied in this evaluation.

i. Purposive sampling technique

Purposive sampling is a non probability sampling method in which study respondents are selected based on their ability to offer desired information for the study (Yin, 2012). In this evaluation, purposive sampling was used to select an interview sample that involved 10 respondents: 8 cataract service practitioners, head of eye health department

and ZEHP manager. These categories were selected into interview sample based on their ability to provide detailed information to answer evaluation questions (Yin, 2012).

ii. Convenient sampling technique

It is a non probability sampling technique whereby study respondents are selected based on their availability and accessibility during the study. According to Miles and Huberman (1994) convenient sampling is useful in observing a specific quality of certain event or phenomena which happen in a given situation. In this evaluation, this type of sampling technique was applied to obtain questionnaire respondents. It was used to obtain cataract patients or relatives to provide information concerning to service effectiveness to cure blindness, availability and affordability. During evaluation investigator administer questionnaire to every cataract patient who were eligible for this evaluation based on set inclusion and exclusion criteria (See Section 3.11).

3.11 Types and sources of data

This evaluation involved different but complementary types and sources of data: primary sources and secondary sources. According to Kothari (2004) Primary data are those newly generated data by investigators while secondary data refer to achieved data which has been generated by someone else and perhaps have passed statistical processes. The description of each type of data is given below starting with sources of Primary data.

3.11.1 Primary sources

The sources for primary data in this evaluation involved interview, questionnaire and observation. These methods are described as follow;

(a) Interview

Interview is a data collection method which allows the direct conversation between researcher and study respondents. Interview can either be structured, semi-structured or indepth interview (Weiss, 1994). During evaluation, 8 cataract practitioners (5nurses and 3 medical practitioners) 1 department head and ZEHP manager were involved: cataract

service providers were involved to offer information on their competence, received training and work experience in providing cataract services. Department head and ZEHP manger were involved to offer information necessary to supplement information obtained from cataract service providers and documentary review. The interview was started with 5 cataract service providers, then adding up until the saturation point was enriched. Interview data were recorded using audio device recorder. The exercise was guided by interview guide attached in appendix 6.

(b) Questionnaire

Questionnaire refers to logical series of questions to be asked to evaluation respondents in order to obtain precise information necessary to answer evaluation questions (Gault, 1907). The questionnaire for cataract patients and relatives involved in this evaluation was developed by adopting the data collection tool from the Centre of Health and Socio-science Research (2000), which was used to evaluate the cataract services in pilot clinics. This tool attached as Appendix 5 was adopted to facilitate collection of quantitative data concerning to information given by service providers if promote patient understanding about cataract and its associated services, perception of cataract patients on the effectiveness of cataract services to cure blindness, satisfaction to service availability and affordability of quality cataract services offered by ZEHP in Mnazi Mmoja hospital. The self administered questionnaire was structured in a way that respondents were supposed to select pre-coded responses correspond to their experience. Filled questionnaires were collected and checked for proper, correct and valid responses.

(c) Observation

Observation is the data collection method which involves documenting the behaviours of people, objects, and event without probing or talks. It can be participatory, non participatory or middle ground position (Creswell, 2007). Any type of observation methods can be structured, semi-structured or unstructured (Kothari, 2004). Structured observation refers to observation method that guided by an observation tool (checklist). This method can provide quantitative data. Semi-structured observation methods is an

observation method which guided by semi-structured observation tool that specifies the focus of the observation and suggested parameters. This technique can lead to both qualitative and quantitative data. The unstructured observation method is a data collection method that involves non selective and no thorough description of parameters to be observed. This type of observation provides qualitative data (Yin, 2012).

For the purpose of this evaluation a participant observation method was applied alongside a structured observation checklist to capture information concerning the provider compliance on standard guidelines (See Appendix 3). During data collection two assistants (experienced nurses) observed every cataract patients received cataract services while providers perform their duties. One assistant stayed at outpatient while the next one stayed at inpatients section. Unit heads were informed about the exercise to keep them aware and to avoid inconveniences. An observation checklist attached as Appendix 3 was used to record the findings.

3.11.2 Secondary sources

The documentary review techniques was the only source of secondary data for this evaluation, its description is given below;

(a) Documentary review

Bailey (1994) defines documentary review as a data collection technique involving categorization, scrutinize, provide meaning and recognize the weaknesses of achieved material, usually written reports like or any other achieved information. Documents can be in electronic or paper based materials, which include summary of meetings, seminars, periodical report, bulletins and newspaper. In this evaluation documentary review techniques was employed to assess availability of following documents: (1) standard cataract service guidelines, (2) available competent human resources for cataract services compared to established requirement, (3) medical equipment and supplies necessary for quality cataract services. During the evaluation the following documents were reviewed: (i) inventory for medical equipment and store lodger books of eye

health department to identify availability of medical instruments and supplies, (ii) the Minimum staffing requirements (2014) to establish manpower requirement, (iii) Human resources data base for 2015, and department duty roster for May, 2015 were reviewed to identify available health care carders necessary for cataract services, (iv) available standard guidelines for cataract and eye health services.

During evaluation a protocol was developed by adopting the cataract service guideline from the Royal Collage of Ophthalmologist. This tool attached as Appendix 4 enable assessment of available resources for cataract services including medical equipment/machines (slit lamp, A and B- scan, Keratometer, retinoscope, Tenometer, YAG-laser, phacoemulsification machine, autoclave and power backup), medical supplies (steroid antibiotics, irrigation solution, intraocular lens and dilation eye drop).

3.12 Inclusion and exclusion criteria for selecting study respondents

It is not wise to include every one as study respondent; respondents need to be systematically selected based on established criteria namely: inclusion and exclusion criteria.

3.12.1 Inclusion criteria

Inclusion criteria refer to the specific characteristics possessed by individuals to be selected as study participant (Rees, 1997). In this evaluation, all cataract patients or their relatives who had attended clinic at least two or more times and all patients who had previously sought to undergo cataract surgical services were included in the study. The study also included all service providers who offered cataract services in Mnazi Mmoja hospital. These individuals were included because of their assumed experience on cataract services in a case study hospital.

3.12.2 Exclusion criteria

Exclusion criteria are defined as specific features of individuals considered to undesirable for the study participants. This evaluation excluded all other patients with eye problems beyond cataract problem such as Glaucoma and Diabetes retinopathy. Service providers who did not provide cataract services were also excluded in the evaluation. These individuals were excluded since they were unlikely to provide appropriate information on cataract and cataract services.

3.13 Validity and reliability issues

3.13.1 Validity of evaluation

Validity refers to the extent of which a study variable is measuring what it is intended to measure. It estimates how correctly the data obtained in a study represents a given variable for the study (Mugenda & Mugenda, 2004). To ensure validity of this evaluation the following approaches suggested by Creswell (2007) and Patton (2001) were used;

i. Extended engagement with participant and continual observation in the field promoted sense of worthiness and identified the missed information;
ii. Triangulation techniques; – the evaluator employed multiple but complementary methods (method triangulation in which qualitative and quantitative approaches were used) , sources triangulation (involved application of different data collection techniques i.e. questionnaire, interview, observation and documentary review), investigators triangulation (involved 4 data collectors), and theories triangulation to provide corroborative evidence (the study reviewed literature both theoretical and empirical so as to come up with strong conclusion);
iii. Peer review technique: the data collection tools were sent to 3 people who had experience in cataract services so as to review tool contents if capable to capture adequate information to answer evaluation questions; and

iv. Provide rich and thick description to allow readers to make decision regarding to transferability; during analysis and discussion of evaluation findings; the reviewed theories and empirical literatures were used to provide detailed information that promoted clear understanding of the context under study.

3.13.2 Reliability of evaluation

Reliability is a common terms used to explain the extent to which a data collection tools and methods used in a particular study can yields consistent results in repeated trials. It estimates the level of which data collection tools will provide the same results or data in repeated trials (Mugenda & Mugenda, 2004). To ensure reliability the following approaches suggested by Kothari (2004) and Creswell (2007) were used:

i. Adhere to research process trail;
ii. Adhere to theoretical process to guide data collection, analysis and interpretation;
iii. Employ interview guide during interview sessions to obtain qualitative data;
iv. Appropriate samples were involved as suggested in 3.9 of this chapter; and
v. Pre- test study was conducted to test the applicability of questionnaires if it provides information to answer the main evaluation questions.

3.14 Data management and analysis

3.14.1 Data entry

Data obtained were entered into software programmes ready for analysis. Quantitative data derived from questionnaire respondents, observation checklist were entered in Stata software while qualitative data were entered in Atlas.ti software to assist analysis process. A verbatim process was performed to transfer interview audio data before being entered into the software. The interview transcripts were translated from Kiswahili to English language where a local translator was consulted to verify the information before started the actual analysis.

3.14.2 Data cleaning

Data cleaning refers to the process of identifying and eliminating fault and irregularity from a set of data in order to improve the quality of data, it involves detection of quality problem such as misspellings, data entry problems, missing information, inconsistency or other illogical data, typing, spelling or calculation errors before the analysis takes place (Polit & Beck, 2004). During evaluation, data cleaning for qualitative data involved reading the interview transcripts again and again to immense the meaning, key concept and ideas emerged from the data (Creswell, 2007). While the quantitative data cleaning involved detection of missed information, inconsistency and entry problems as per Kothari (2004).

3.14.3 Data analysis

Data analysis refers to systematic arrangement and grouping data to provide knowledge and promote understanding on the topic under assessment to target audience (Polit & Hungler, 1999). In this evaluation data were analysed through two approaches quantitative and qualitative approaches. Descriptions for each approach are as follow;

i. Quantitative data analysis

Quantitative analysis refers to analysis methods that used to analyse quantitative findings by using statistical methods. It is used to provide meaning from the data and their implication to general population (Gay, 1987). Quantitative analysis can be descriptive analysis (descriptive statistics) or inferential analysis (Kothari, 2004). In this evaluation a descriptive quantitative data analysis technique was applied to analyse quantitative data obtained from questionnaires and observation guidelines by using stata software programme. The results were presented into figure and frequency tables describing staff ability to offer cataract services as per guidelines, perception of cataract patient toward service effectiveness, availability and affordability.

ii. Qualitative data analysis

Citing back to Miles and Huberman (1994) qualitative data analysis is an iterative process that involves three main activities namely: (1) Data reduction, (2) Data display, and (3) Conclusion drawing/verification. As cited in Miles and Huberman data reduction refers to choosing, focusing, removing unnecessary information, summarizing and converting the qualitative data that appeared in the interview transcript. It entails the establishment of abstract, code, examining the emerged ideas, creating groups of ideas and notifying messages that emerge from the data. It starts from field work until the end of final report. Data display refers to process of categorizing, reducing and accumulating the information to allow drawing conclusion and actions. Conclusion drawing involves the process to decide what messages emerged in the transcript are important, this process involves identifying regularities, cluster of message, clarification, establishing relationship between messages, causal flaw and proposition. Qualitative analysis can employ any of the available approaches: narrative, grounded theory, ethnography, phenomenology and or case studies (Creswell, 2007).

For the purpose of this evaluation a case study data analysis approach was used to analyse qualitative data obtained from interviews and documentary reviews. According to Creswell (2007) and Yin (2012) a case study analysis approach is able to provide a detailed description of a particular phenomena (case) understudy, in which it involved direct interpretation, establishment of patterns and making naturalistic generalization. The result of this analysis approach was used to explain competency of human resources, training received and work experience in cataract services. It also used to analyse documentary review data concerning to availability of necessary guidelines for cataract services.

The analysis started with quantitative techniques followed with qualitative techniques. The qualitative findings were used to support the quantitative findings so as to provide to concrete conclusion.

3.15 Ethical issues

Ethics refers to moral principles that are concerned with the extent to which evaluation activities adhere to professional, legal and sociological obligations (Polit & Beck, 2004). It is a mandatory for researcher to consider ethical issues governing the public health research. Therefore the following ethical principles were considered throughout the study;

i. Permission to conduct the study

It refers to acquisition of legal approval to conduct a research. According to Belmont report (1978) it is mandatory to obtain approval before conducting any study that involves human beings as subjects from appropriate legal authorities. Therefore the permission and approval to conduct this evaluation was obtained from the Zanzibar Medical Research Ethical Committee under the Ministry of Health Zanzibar. The approval form is attached as appendix 9.

ii. individual autonomy

The principle involves consideration of human dignity; it illustrates free participation of the respondents after being fully informed about the study objectives, purposes, methodology, benefits and risk (Belmont Report, 1978). Therefore during the study a written consent form was circulated to those who were involved as study participants showing study objectives, methods, benefits and risk. They were asked for their willingness to participate while deserving the right to withdraw at any time during the evaluation without any restriction.

iii. Confidentiality

Confidentiality refers systematic process to protect evaluation respondents not being identified in relation to the information provided, and or not disclosed for any means (Polit & Beck, 2004). To ensure confidentiality in this evaluation the following measures were considered: (1) Participants were not supposed to mention their names; they were identified by specific number given during the evaluation. (2) Information

provided was treated as secret and were not divulged to any one beyond the purpose of this evaluation. (3) With regard to Mzumbe bylaws, Mzumbe University reserves the right to keep the final report and any individual or organization with interest to access the findings is supposed to ask for permission from the University. It is only Mzumbe University which deserves the right for publication of the study report.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 Introduction

This section presents data obtained during field work. They are presented according to evaluation objectives. The chapter organized into two sections. The first section presents demographic characteristics of study respondents while the second part presents evaluation findings corresponding the evaluation objectives and questions established in the introductory chapter.

4.2 Demographic characteristics of respondents

The demographic characteristics of respondents present important characteristics that demonstrate the appropriateness of selected respondents to provide information rational for answering evaluation questions. The aspects considered were age, sex, level of education, occupation, duration of illness, professional back ground and work duration of cataract service providers. The section starts to present age distribution of cataract patients.

i. Age distribution of cataract patients

The purpose to assess age of cataract patients involved in this evaluation was to determine ability of respondents to provide rational information concerning to the quality of cataract services offered by ZEHP in the case study hospital. Findings obtained from questionnaire respondents show the age of cataract patients involved in this evaluation ranged from 22 to 80 years, where the mean age was 58.9 years while median was 65years, the mode age of respondents was 70 years and the standard deviation was 14.8 years. These results imply that cataract affect any age group but the most affected were people aged 70years since the highest frequency of respondent age (mode) was 70 years. The results further imply that all respondents were adult since no one was below 18years. This suggests these respondents were capable of providing

adequate information concerning to assessment of the quality and effectiveness of cataract services offered by ZEHP in case study hospital.

ii. Distribution of cataract patients by sex

The purpose of collecting sex data was to determine if there was any difference in seeking cataract services between male and female patients. Data obtained from questionnaire respondents (See Table 4) show 43 (54.4%) of cataract patients were male and 36 (45.6%) were female. This finding shows the number of male patients seeking cataract services was higher than that of female patients. The finding is consistency with observation made by Nirmalan, Padmavathi and Thulasiraj (2014) whose found male patients had higher rates of seeking cataract services compared to female.

iii. Distribution of cataract patients by educational level

The aim of collecting information about educational levels among cataract patient was based on assumption that, the level of education of individual may affect his/her health care seeking behaviour and also his/her assessment on the quality of health care. In this evaluation the levels of education were subdivided into four categories: (1) no formal education represented population group which didn't had school education; (2) primary education which represented people who had up to standard seven school education; (3) secondary education represented the people who had up to form six school education; and (4) college or university represented population who had professional training or university education. Data obtained from questionnaire respondents (See Table 4) show 54 (68.4%) had no formal education, 6 (7.6%) had primary education, 7 (8.9%) secondary education and 12 (15.2%) had College or University education. These findings suggest high prevalence of cataract among illiterate population. One can also infer from the findings that 31.6% of respondents had some form of formal education and therefore capable for both articulating and assessing their experiences with regards to quality of cataract services offered by ZEHP in Mnazi Mmoja Hospital.

iv. Distribution of cataract patients by occupation

Data obtained from questionnaire respondents (See Table 4) shows 11(13.9%) were house wives, 8 (10.1%) civil servants, 26 (32.9%) self employed, 20 (25.3%) retired and 14 (17.7%) were unemployed. The results suggest that self employed and retired people were among the most affected group by cataract and therefore likely to have interest in sharing their experience in the evaluation with regards to effectiveness, availability and affordability of quality cataract services at this case study hospital.

v. Distribution of cataract patients by duration of illness

The purpose of this indicator was to determine how long the respondents had been ill with cataract. This is because the duration of illness can suggest the patients' experience on available services. In this evaluation the duration was grouped into less than six months, less than one year and one year or more. Data in Table 4 obtained from questionnaire responses show 35 (44.3%) of respondents had stayed with cataract for less than one year while 44 (55.7%) had cataract for one year or more outnumbered those who had stayed with illness for less than one year by 11.4%. This finding implies that the study drew its findings and conclusion from people who had substantial experience with disease and supposedly with cataract services in Zanzibar.

Table 4: Characteristics of cataract patients in Mnazi Mmoja Hospital by 2015 (n=79)

Categories of respondents	Variables	Frequency	Rel. frequency
Cataract patient	**Sex of respondent**		
	Male	43	54.4%
	Female	36	45.6%
	Occupation of respondent		
	House wife	11	13.9%
	Self employee	26	32.9%
	Civil servant	8	10.1%)
	Unemployed	14	17.7
	Retired	20	25.3%
	Education of respondent		
	No formal education	54	68.4%
	Primary education	6	7.6%
	Secondary education	7	8.9%
	College /university	12	15.2%
	Duration of illness		
	Less than one year	35	44.3%
	One year or more	44	55.7%

Source; Questionnaire data (2015)

vi. Professional background of cataract service providers

The purpose of obtaining data on professional background among service providers was to gain insight on available skills at the case study hospital necessary for cataract services. Data obtained during interview with cataract service providers (See Table 5) shows 3 (37.5%) were nurse midwives, 2 (25%) were ophthalmic nurse specialists, 2 (25%) were cataract surgeons and 1 (12.5%) was ophthalmic assistant medical officer. This implies the respondents were trained to provide both eye care and cataract services. Further, one can infer that nurses were common professional available in for cataract services.

vii. Duration of service providers to offer cataract services

The purpose to collect data concerning to duration of provider in cataract services was to highlight providers' experience in cataract and eye health services as well. Data obtained from interview respondents (See Table 5) show 6 (75%) of respondents were worked in cataract services for more than five years while 2 (25%) worked for less than five years. This implies that the evaluation involved large group of experienced service providers who were able to provide adequate information concerning to the quality of cataract services.

Table 5: Characteristics of cataract service providers in Mnazi Mmoja Hospital by 2015 (n =8)

Characteristics	Frequency	Rel. Frequency
Carders of respondents		
Cataract surgeon	2	25%
Ophthalmic assistant medical officer	1	12.5%
Ophthalmic nurse	2	25%
Duration of providing eye care services		
Less than five years	2	25%
More than five years	6	75%

Source: Interview data (2015).

4.3 Evaluation results

This section presents evaluation data collected during field work. It attempts to address four evaluation objectives established in the introductory chapter. The first part of this section presents competency of human resource available for cataract services, secondly it presents availability of medical requirements for quality cataract services, thirdly presents staff compliance with service guidelines and finally the section presents findings concerning to customer satisfaction with cataract services offered by ZEHP in Mnazi Mmoja Hospital Zanzibar. The competency of human resource available for cataract presented first.

4.3.1 Qualified human resources available for cataract services

As stated by Blanchet and Lindfield (2010) in section 2.2.4 that availability of providers with necessary skills for cataract services is one among the cursors for quality cataract treatment and care. It is therefore, the first objective for this evaluation was designed *to determine qualified human resource available for cataract services in Mnazi Mmoja Hospital*. The associated evaluation question was *Does the hospital has adequate skilled human resource for quality cataract services as per national guidelines?* This question was addressed by determining *whether the hospital has adequate skilled man power for quality cataract services*. As stated in the conceptual framework this indicator was assessed by determining: (1) professional available in case study hospital for cataract services, (2) training offered to service provider to promote quality cataract service provision, and (3) work experience in cataract services among cataract service providers. The first part of this section presents professional available for cataract services in Mnazi Mmoja hospital whereby the training received and provider experience in cataract services presented thereafter.

i. Professional available for cataract services in Mnazi Mmoja hospital

Data obtained from the documentary review in Mnazi Mmoja hospital, show that the hospital had the following cadres for cataract services (See Table 6): two active cataract surgeons which is equal to 33.3% of requirement, one Ophthalmic assistant medical officer which is equal to 50% of requirement, three Opticians (100% of requirement), one Ophthalmologist (50% of requirement), 2 Ophthalmic nurse specialist which is equal to 50% of hospital requirement and one Biomedical engineer. According to national human resource requirement for cataract services (2014) the finding implies that the case study hospital has only 39.1% of requirement where high gap exist in ophthalmic nurse specialist, ophthalmologist and ophthalmic assistant medical officer.

Table 6: Professional cadres available for cataract services in Mnazi Mmoja Hospital by May, 2015

Cadre	Required	Available		Gap	
		Number	Percent	Number	percent
Cataract surgeon	3	2	66.7	1	33.3
Optician	3	3	100.0	0	0.0
Ophthalmologist	2	1(foreign)	50.0	1	50.0
Ophthalmic nurse specialist	12	2	16.7	10	83.3
Ophthalmic assistant medical officer	2	1	50.0	1	50.0
Biomedical engineer	1	0	0.0	1	100.0
Total	**23**	**8**	**39.1**	**14**	**60.9**

Source; Ministry of health human resource database (2015) and department duty roster (May, 2015)

ii. Received cataract service related trainings

The second dimension used to assess *competency of human resource* availability for cataract service in case study hospital was *training offered* to cataract service providers. As indicated in the project logic model (See Annex 1) training plays an important role for capacity building and to promote quality services provision as advised by Blanchet and Lindfield (2010) in section 2.2.4. Data obtained during interview with ZEHP head revealed that, the ZEHP offered several training to service providers which include both short term and long term. The providers are supported for upgrading courses to promote their capacity in providing quality services. Indeed, data show that 6 (75%) service providers interviewed were among those who were supported (two ophthalmic nurse specialists, one optician and two cataract surgeon) by ZEHP from 2006 to 2014.

Moreover, the interview data show that providers received several training includes seminars, workshops, on the job trainings and study tours that promoted their knowledge and skills in providing cataract services. For instance one provider mentioned that she was sent to China to learn how nurses take care of cataract patients especially those who undergoing surgical procedure; *"I had a study trip to China for three months to learn*

how they serve patients with cataract disease including those who underwent a cataract operation" (CSP1 14/4/2015. 11:31am).

Another respondent explained that, she had received on the job training on how to operate machines necessary for diagnosis and management of cataract and eye diseases at large;

> *"I received some training on proper usage of machines and some equipment, currently; I can use three different machines; machine for measuring eye pressure, machine for measuring intraocular lens power, and the machine for measuring visual field function" (CSP 3, 20/4/2015. 11:09am).*

Another interview respondent mentioned that; *"We often receive on the job training especially when we have a new consultant" (CSP7, 29/4/2015. 9:35am).*

These findings imply that service providers in the case study hospital receive several training to support their capacity to deliver quality cataract services which is the complementary mechanism to ensure availability of adequate competent personnel to offer quality services. The observation is consistent with WHO (2007a) advice to promote provider knowledge on service delivery as stated in background section. Literature also shows that task shifting strategy can be used to support availability of service provider under which non ophthalmic specialists can be trained to provide cataract and eye care services (Lewallen & Courtright, 2010).

iii. Work Experience in cataract services

The third dimension used to assess availability of *competent human resources* for quality cataract services in the case study hospital was *work experience.* During evaluation respondents were asked to state how long they are providing cataract services in this hospital. Data obtained from interview with cataract service providers shows that majority of cataract service providers had adequate experience in providing cataract and eye care services, their duration ranges between one year to twenty years whereby majority (75%) had more than five years providing cataract and eye care service in the case study hospital (See Table 6).

The finding indicates that staff available had adequate exposure on cataract and eye diseases, therefore they were familiar with common occurred disease conditions and can make appropriate actions. The long stay in providing the same services promotes sense of confidence and provides opportunity to learn from mistakes hence promotes the quality of care delivery.

4.3.2 Essential medical requirements for quality cataract services

As earlier stated in section 1.2 and 2.2.4 that availability of essential medical requirement promotes the quality of health care services, therefore the second evaluation objective was designed *to assess availability of essential medical requirements for quality cataract services in Mnazi Mmoja hospital.* Its associated evaluation question was *does the hospital has adequate medical requirements for quality cataract services?* This variable was addressed through two indicators established in the conceptual framework: (1) whether the case study hospital had adequate medical equipment/machines, and (2) whether the case study hospital had adequate medical supply necessary for quality cataract service. The availability of necessary medical equipment/machines is presented first.

i. Quality medical equipment/machine for cataract services

It was the intention of this evaluation to determine *availability of essential medical instrument/machines necessary for quality cataract services in Zanzibar*. Since it is believed that the quality of health care services is influenced by appropriate technology employed to deliver the health care services (WHO, 2007a). During the evaluation, the investigator intended to see the essential medical instruments for quality cataract services as stipulated in section 2.5. Data obtained from the review of ledger and inventory books of eye health department for 2015 (See Table 7) show that the case study hospital has all desired medical instrument, however the reported amount didn't correspond with the desired amount as per national requirements. Indeed, data obtained from interview with the head of eye health department followed with direct observation

show that some of those available instruments such as keratometer, B-scan and YAG-laser were not functioning.

Table 7: Medical equipment/machine available for cataract services in Mnazi Mmoja hospital by May, 2015

Name of equipment/machine	Amount Required	Amount Available	Amount Function
A-scan	2	2	2
B-scan	2	1	0
Keratometer	2	1	0
Retinoscope	4	2	1
Goldman tenometer	not required	4	0
Coaxial operating microscope	2	1	1
Autoclave	2	2	2
Computerized tenometer	3	2	1
Refractometer	2	2	1
Fundus camera	2	1	1
Phaco emulsification machine	3	2	2
Electronic visual field test machine	2	1	1
YAG- laser	2	1	0
Slit lamp	12	8	8

Source: Eye Health department inventory and ledger book (2015)

The findings imply that the case study hospital utilize appropriate technology to provide cataract services, however dysfunction of some equipments may contradict the quality of service offered. This observation corresponds with observation made by Brian and Taylor (2001) that lack of necessary instrument is the predominant challenge in providing cataract services in developing countries.

ii. Medical supply

The second indicator used to assess the availability of medical requirement for quality cataract services was availability of *medical supply*. This indicator intended to examine availability of the following medical commodities necessary for prevention and management of any complication related to cataract services: irrigation solution (Ringer lactate/ normal saline), Vescolastine, intraocular lens, 10% povidon, dilation drop (cyclopentolate, hylephrine) and steroid antibiotic. During evaluation, commodity considered as available if the observed amount was adequate to fulfil the need of 85% of

expected patient in need also if there was no stock out for three months consecutively. Data obtained from lodger book (See Table 8) show that the case study hospital had all required commodities except the *steroid antibiotic* which was less than the requirement. Indeed, data obtained during interview with service providers concur with observed amount in which they claimed to receive adequate amount of all commodities *except steroid antibiotics* which commonly used in intra-operative and postoperative cataract service. Further, providers claimed to offer an initial medicine to patient sought for surgical procedure whereby patients were supposed to buy the remaining doses in their own.

> "*We normally offer the initial dose to our patients attended the surgical procedure, thereafter they are supposed to find the remaining doses for the whole period of treatment" (CSP4. 27/4/2015. 9:54am; CSP7. 29/4/2015. 9:35am)*

This implies that hospital had adequate amount of medical commodities required to support cataract services, however shortage of certain medicine may contradict the quality of cataract services offered and may end up with high number of patient who develop service related complication of end-up with poor service outcome.

Table 8: Essential medical supply for quality cataract services available in Mnazi Mmoja hospital by May 2015

Commodity	Amount required per month	Amount ordered in a month (April, 2015)	Amount received in 3months (March –May 2015)
Irrigation solution (Ringer lactate/ Normal saline)	3 box (12 bottle of 500mls each)	3 box (12 bottle of 500mls each)	3 box (12 bottle of 500mls each)
Vescolastine	65 tubes (2mls/tube)	70 tubes (2mls/tube)	207 (2mls/tube)
Intraocular lens	70pcs	1box (100pc/box)	2 box
10% povidon	1.5Liters	1.5 Litres	5 Litres
Dilation drops (cyclopentolate, Hylephrine)	10 vials (10mls/vial)	10 vials (10mls/vial)	27 (10mls/vial)
Steroid antibiotic (e.g. Occ Maxitrol)	65tubes (10g/tube)	70 tubes (10g/tube)	25 tubes (10g/tube)

Source: Ledger book for eye health department (May, 2015)

4.3.3 Staff compliance to standard guidelines

The third evaluation objective was designed to *examine the extent of staff compliance with standard operation guidelines in their daily clinical practice*. Its associated evaluation question was *Does the hospital staff adequately adheres to cataract service guidelines during their clinical practice*. This evaluation question was addressed under three factors established in the conceptual frame work: (1) determine whether the case study hospital has necessary cataract service guideline to support quality service delivery, (2) determine whether service providers in case study hospital were able to offer cataract services as per standards, and (3) determine whether service providers were able to offer adequate information to cataract patients. Data to determine available guidelines and staff compliance were gathered through direct observation while data concerning the ability of providers to offer adequate information were obtained through both observation and questionnaires. Findings on available guidelines are presented first followed by staff compliance while patient information is presented thereafter.

i. Cataract service guidelines availability

As stated in the ZEHP logical model (See Appendix 1) that guidelines are essential working aids to ensure quality service delivery, therefore this evaluation intended to investigate availability of necessary guidelines include; (1) preliminary cataract service guideline, (2) preliminary assessment for cataract surgical services protocol, (3) intra operative cataract service guideline (safe cataract surgery), (4) post operative service guideline and (5) IPC guideline.

During documentary review followed with direct observation, the evaluation was able to observe the *Patient care standard clinical protocol* (Appendix 7), *hand washing guidelines* (Appendix 8), *and intra-operative guidelines.* However, the evaluation failed to retrieve credential guideline, IPC and postoperative guidelines which suggests they were not available. Indeed, data obtained from interview with eye health department head indicated that these documents were not available, but they were on preparation to produce the *formal credential process to judge type of services for cataract patients*, and *Postoperative cataract service guidelines* in collaboration with ZEHP as quoted in the following says.

> *"...Yes, currently we don't have these documents but we have been advised following RAB assessment conducted last year, so under collaboration with eye health project manager we are finalizing the credential guideline which will be used by service providers to judge type of services be performed simultaneously with the preparation of post operative protocols..."(CSP8, 29/4/2015. 12:20pm).*

These findings imply that the case study hospital had inadequate protocols to guide service provision, but there are indications that efforts are taken to ensure guidelines are available so as to promote systematic services delivery.

ii. Staff compliance to standard service guidelines

Ability of service providers to adhere with agreed service standard ensures systematic service delivery and highly affects its quality (Grimshaw & Russell, 1993). The intention of this evaluation was therefore to examine the degree of *adherence to service guidelines* among cataract service providers in Mnazi Mmoja Hospital. The indicator

was assessed through the following dimensions established in the conceptual framework (See section 2.5): (1) preliminary cataract services, (2) preliminary assessment for surgical services, (3) cataract operation and (4) post operative services. The data obtained through participatory observation are presented below starting with results for preliminary cataract services.

a. Preliminary cataract service

In relation to pre operative guideline the preliminary cataract service was designed to guide the service provider to inform patient or relatives about disease condition, type of planned service, risk and benefit of services to be offered (WHO, 2009a). Thus, providers were supposed to follow all instructions stipulated in the guideline so as to ensure that patients receive systematic information concerning to their disease, management and consequence. Literatures show that adequate information given to patient can prevent service related complications. Data in Table 9 obtained during participatory observation using structured checklist (See Appendix 3) show that 61 (78.2%) of cataract patients were not well informed about their problems, planned service and associated consequences. The finding implies that majority of cataract patients were not familiar with what would happen as a result of planned services and didn't know what were supposed to do or not to do. Failure to provide adequate information to patients or relatives may affect patient adherence to service requirements and may interfere service outcome.

b. Preliminary assessment for surgical services

Concerning to preliminary assessment in relation to pre- operative and standard clinical protocols, providers were expected to offer and document the following: (1) visual acquity of both affected and unaffected eyes, (2) document refraction of both eyes, (3) assess and document cataract morphology, (4) evaluate the aetiology of cataract, (5) determine and document medical and eye conditions predictive to visual outcome, (6) determine IOL mode and power, (7) document the predicted refraction after service, (8)

offer and document basic investigations include blood pressure, blood sugar and (9) perform and record slit lamp examination.

Data obtained during evaluation using observation checklist (See Appendix 3) show that 59 (75.6%) of cataract patient were partially offered preliminary assessment (See Table 9), mainly providers were able to offer and document visual acquity, refraction, determine the aetiology of cataract and cataract morphology. In most cases IOL power and mode were not determined since the machine (keratometer) was not functioning (See Table 7). The finding implies that dysfunction of certain equipment or machine interfered staff ability to offer services according to standard guidelines hence compromised the quality of service. Patterning to basic investigation, the study observed that all 78 (100%) of patients were offered blood test for sugar and examined for blood pressure, and undergo slit lamp examination. The tendency to offer basic investigation indicates that the providers adequately detect risk factors before listing the patient for surgical intervention, therefore it ensure safer services to patients.

c. cataract surgery (operation)

During cataract surgery (operation) in relation to intra-operative and IPC guideline, providers were expected to ensure patient safety by assessing the anticipated variation and critical events. According to standard guidelines stipulated by WHO (2009), Sightsavers (2010) assessment of anticipated variation and critical events to confirm patient security involves assessment and documentation of the following: (1) any special requirement that need special investigation, any (2) variation from the planned standard procedure, (3) ensure availability of alternatives lens and (4) test every instrument before starting to offer service to any patient. Data in Table 9 obtained during participatory observation using structured checklist (See Appendix 3) show 69 (88.5%) cases were fully assessed for anticipated variation and critical event, whereby 9 (11.5%) were partially assessed. This implies that patients' safety was highly secured even though sometimes providers overlooked which may be due to patient overloading.

d. Post operative cataract services

The last dimension used to assess staff compliance with service guidelines was Post operative cataract services in relation to post operative guideline. In post operative services (before discharging the patient) providers were expected to perform the followings: (1) the arrangement of follow-up care, (2) detect any post operative complication, (3) record VA of the operated eye, (4) record the outcome in terms of patient discharge, listed to receive service in the remaining eye or existence of pathology and (5) tell the patient when to return for follow-up. Data obtained during participatory observation (See Table 9) show that all patients observed were offered a follow up care. Further, data show 62 (79.5%) of patients were discharged a day after the service, 14 (17.9%) were listed to receive service for another eye while 2 (2.6%) patients remained with certain pathology and were not discharged. These findings imply that majority of cataract patients had good progress following the cataract surgical services hence they were discharged. This observation is likely due to the success of Phacoemulsification procedure applied in the case study hospital to manage the cataract instead of formerly ECCE procedure. According to Lavin and Ormonde (2001) Phaco emulsification has fewer complications and requires no hospitalization as opposed to ECCE.

Table 9: Staff adherence to cataract service guidelines in Mnazi Mmoja Hospital by 2015 (n = 78)

Indicator	Frequency	Relative frequency
Preliminary cataract service		
Partially offered	61	78.2
Fully offered	17	21.8
Preliminary assessment surgical service		
Partially offered	59	75.6
Fully offered	19	24.4
Vital examination		
Blood pressure	78	100
Blood sugar	78	100
Assessment of anticipated variation and critical events		
Not assessed	0	0.0
Partially assessed	9	11.5
Fully assessed	69	88.5
Follow up care		
Order and document follow up care	78	100
Patient outcome		
Exist pathology and not discharged	2	2.6
Listed to receive service services for the next eye	14	17.9
Discharged to hospital	62	79.5

Source; Participatory observation data (2015)

iii Patient information

The third indicator used to assess *process factor* in relation to third evaluation question was patient information. This indicator was assessed by determining the following dimension as stated in section 2.4: (1) common health care workers who offer patients information about the cataract, (2) ability of service providers to offer information to cataract patients and relatives, and (3) identify IEC/BCC material used in case study hospital to promote patient understanding. Data concerning to common health workers providing cataract information to patients were presented first.

a. Common health care workers providing cataract information

During evaluation, questionnaire respondents (cataract patients) were asked to mention the first person who informed the patients as he/she had the cataract. Data obtained (See Table 10) show that there are different individuals that informed the patients as he/she had a cataract. Meanwhile health care workers at local health facilities (Primary Health Care Units) had the highest frequency 42 (53.2%), followed by medical practitioner in eye care clinics 20 (25.3%) while nurses in eye clinic had the lowest frequency 6 (7.6%). These findings indicate that more than half of the total cataract patients in Zanzibar are diagnosed by the practitioner in primary health care units and they are the commonest individual that offers cataract information to patients.

b. Ability of service provider to offer adequate cataract information to patients

The second dimension used to assess patient information in case study hospital was intended to determine the degree of which *cataract service providers were able to offer adequate information* to their patients. During the evaluation questionnaire respondents were asked to state if they received adequate information concerning to their eye health problem also to state if they had an opportunity to ask any question to their service providers. Data obtained from questionnaire respondents (See Table 10) show 60 (75.9%) of respondents were not given enough information concerning to their problem and service to be offered. 67 (84.8 %) of questionnaire respondents had no opportunity to ask any question to their service providers. The finding indicates that cataract patients were not adequately informed about their ill condition. This observation substantiates the data obtained during participatory observation as stated in section 4.5.2.

c. Information, education and communication materials (IEC)

The last dimension used to assess patient information concerning to cataract and its associated services was designed to identify types of *information materials (IEC/BCS materials)* offered at Mnazi Mmoja hospital to inforce patients, relatives and community understanding. During the evaluation questionnaire respondents were asked to state if they had given any leaf let (IEC/BCC) material concerning the cataract and eye ill

condition in the case study hospital. Data obtained (See Table 10) show that all questionnaire respondents 79 (100%) were not supplied with any leaflet advocating the cataract or eye diseases or their services. Indeed, data obtained during interview with cataract service providers revealed that the hospital didn't provide such material. This observation indicates that there was inadequate health promotion mechanisms employed by ZEHP to promote understandings among patients. This tendency may hinder the service effectiveness also might be the source of service related problems including service related complications and poor outcome.

Table 10: Sources of Patient information concerning cataract and cataract services in Mnazi Mmoja Hospital by 2015 (n= 79)

Indicators	Frequency	Relative frequency
The first person to inform the patient as having cataract		
Neighbour / family members	11	13.9
Health workers at primary health care unit	42	53.2
Medical practitioner at eye clinic	20	25.3
Nurse specialist at eye clinic	6	7.6
Patients received enough information about cataract disease and services		
Yes	19	24.1
No	60	75.9
Opportunity to ask any question to service provider in relation to cataract		
Yes	12	15.2
No	67	84.8
IEC/ BBC materials provided		
Yes	0	0.0
No	79	100

Source; Questionnaire data (2015)

4.3.4 Patients' perception on cataract services offered by ZEHP in Mnazi Mmoja hospital

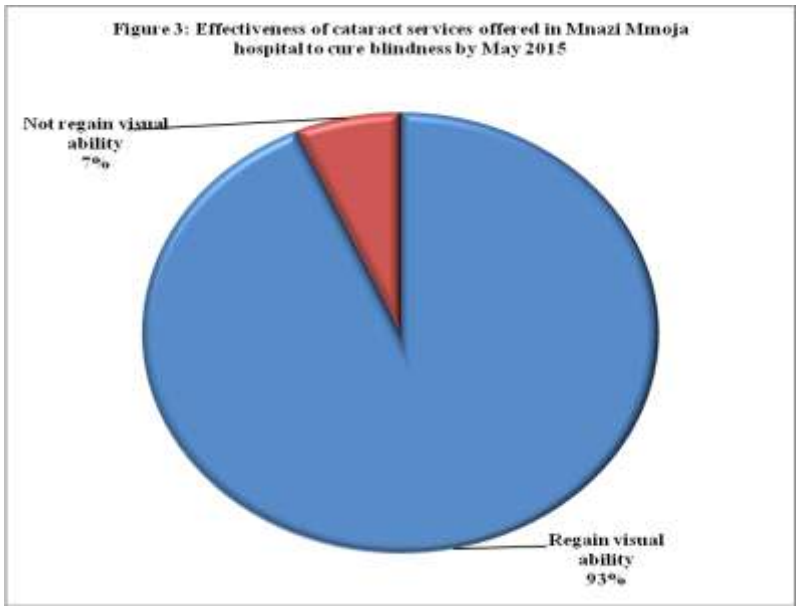
The last evaluation objective was designed *to assess the perception of cataract patients toward cataract services offered by ZEHP in Mnazi Mmoja hospital*. Its associated study question was "*How patients perceive the quality of cataract services offered in Mnazi Mmoja hospital"*. Two indicators were established in the conceptual framework to address this variable: (1) determine whether patients satisfied with the effectiveness of cataract services offered by ZEHP in the case study hospital to cure blindness, and (2) determine whether patient satisfied with the availability and affordability of quality cataract services in the case study hospital. Data obtained from questionnaire respondents are presented below starting with perception of cataract patient toward service effectiveness.

i. Perception of cataract patients on the effectiveness of cataract services

As indicated in section 2.5 this indicator was designed to determine patients' opinions about the *effectiveness of cataract services* offered at case study hospital to cure blindness. During evaluation questionnaire respondents were asked to state their view point on the effectiveness of service offered to cure their visual problems. Data obtained (See Figure 3) show 74 (93.4%) of questionnaire respondents admitted that they had regain their visual ability. Complementarily, data obtained in post operative care (See Table 9) also indicated that about 97.4% had regained their visual ability in which 79.5% were discharged while 17.9% were listed for to receive operation for the other eye.

Indeed, during interview with cataract service providers, it was indicated that majority of post operative patients were preceded well before their discharge but they experienced certain service related problems during follow up care which perhaps caused by inability of patient to follow provider instructions. These findings illustrate that service offered in this hospital is effective to cure the cataract related blindness but failure promote understanding to patients and their relatives contradict the quality of service offered.

Figure 3: effectiveness of cataract services offered by ZEHP in Mnazi Mmoja Hospital by May, 2015 (n= 79)



Source: Questionnaire data (2015)

ii. Patient satisfaction toward cataract services

The last indicator for this evaluation was designed to examine degree of *patient satisfaction with services* offered in the case study hospital. As stated in the conceptual framework this indicator was assessed by determining patient opinions on the availability and affordability of cataract services offered by ZEHP in Mnazi Mmoja hospital. Data obtained are presented below starting with satisfaction with service availability.

a. Satisfaction toward availability of cataract services

Data in Table 11 obtained from questionnaire respondents show 56 (70.9%) of respondents were satisfied with availability cataract services while 23 (29.1%) were not satisfied since they were supposed to travel from rural areas to urban where the hospital is situated. This illustrates that cataract service in Zanzibar is accessible in terms of its availability; however the tendency to centralise at referral hospital (Mnazi Mmoja) may

diminish utilization as explained in literatures that majority of cataract patients are coming from rural sites.

b. Satisfaction toward affordability of cataract services

Affordability is one among dimensions of quality care (See section 2.2.2). This evaluation intended to examine patient opinions about service *affordability* in relation to its ability to cure visual problems. Data obtained from questionnaire respondents (See Table 11) show that 12 (15.2%) of patient were not satisfied since the service was very expensive, 41 (51.9) satisfied but service was costing while 26 (32.9%) were very satisfied since the service was good and less expensive. This implies that many patients were satisfied with services offered but viewed cataract service as costing. This perception is likely to reduce service utilization and may hinder national goal to reduce prevalence of avoidable blindness stated in the description ZEHP (See section1.1.1).

Table 11: Patient perception and satisfaction on cataract services offered by ZEHP in Mnazi Mmoja Hospital by 2015 (n= 79)

Dimensions	Frequency	Relative frequency
Patients Satisfaction toward service availability		
Satisfied	56	70.9
Not satisfied	23	29.1
Patients Satisfaction toward service affordability		
Not satisfied since it is very expensive	12	15.2
Satisfied but it cost allot	41	51.9
Very satisfied with cheep services	26	32.9

Source: Questionnaire data (2015)

CHAPTER FIVE: DISCUSSION OF EVALUATION FINDINGS

5.1 Introduction

This chapter discuss evaluation findings based on evaluation objectives established in Chapter One and analyses made in Chapter Four, and lastly the chapter highlights the dissemination of evaluation findings at deferent levels. The discussion of evaluation findings presented first.

5.2 Discussion of evaluation findings

5.2.1 An Overview

The Zanzibar Eye Health Project (ZEHP) was introduced in 2007 to strengthen national efforts of reduction and prevention of avoidable blindness in Zanzibar. The implementation of this project resulted to increased coverage of eye care services include cataract services. However the backlog of poor outcomes following cataract services was not being well addressed mainly was associated with quality of services delivered. According to Blanchet and Lindfield (2010) quality of cataract services is the result of effective interaction between both service related and customer related factors. Study conducted by Lindfield, Vishwanath, Ngounou and Khanna (2012) identified factors such as preoperative ocular morbidity, long term postoperative complications, surgical complications and uncorrected refractive errors as the main reasons justifying the poor cataract service outcomes. The current evaluation aimed to explain reasons for poor cataract services outcome by *determining the quality of cataract services provided in Mnazi Mmoja hospital* through the following specific objectives: (1) determine availability of qualified human resource for quality cataract services in Mnazi Mmoja Hospital; (2) assess availability of essential medical requirements for quality cataract services; (3) to examine the level of staff compliance to standard operation guidelines on their daily clinical practice; and (4) to examine patient perception on cataract services

offered by ZEHP in Mnazi Mmoja hospital. Findings for each specific objective are discussed below starting with the competent human resource availability.

5.2.2 Qualified human resource available for cataract services in Mnazi Mmoja Hospital

The intension of the first evaluation objective was to determine availability of competent man power for quality cataract services in terms of their knowledge, skills and experience in providing cataract services. Findings show that the hospital had only 39.1% of the required carders for quality cataract services however under collaboration with ZEHP project the hospital provides both long term, short term and on the job training so as to support human resource required for quality cataract and eye care services (See Section 4.3.1). On other hand, a variant has been observed that majority of existing staff providing eye care services in the case study hospital had either diploma or higher diploma which is contrary to the national minimum staff requirements for referral hospital. The national staff requirement for referral hospital emphasises education level be above the diploma level (Zanzibar Ministry of Health, 2014). This finding implies that the hospital had shortage of human capacity and also lower qualification among services providers. At mean time studies for instance Mosadeghrad (2014) argued that high quality providers produce high quality outcomes, it is therefore not worth for Mnazi Mmoja hospital to over emphasis low qualified staff instead efforts need to be addressed on employing high quality providers. The observed human resource shortage is mainly due to the reason that high qualified staff have a tendency to work abroad and major cities for better remuneration (He, *et al.,* 2007; Johnson, Sen & Faal, 2000), which in turn may affect the quality of service offered. Thus, the tendency of ZEHP to offer short term and on the job training to non eye care practitioners to offer eye care services can be interfered as a appropriate measure to overcome human resource shortage as observed by Lewallen and Courtright (2010) that task shifting reduces human resource crises in developing countries in which non physicians are trained to provide health care service.

5.2.3 Availability essential medical requirements for quality cataract services

The second evaluation objective was designed to assess the availability of essential medical requirements for quality cataract services. Under this variable the evaluation intended to assess availability and function of medical instrument/ machines necessary for quality cataract services and also to determine availability of essential medical supplies used to support cataract services. Patterning to availability and function of medical instrument, findings (Table 7) imply the case study hospital had many required instrument for quality cataract services though their amount was not corresponded the requirement. On other hand, others machine such as keratometer, B-scan and YAG-laser were not functioning. Availability of necessary instrument ensures service availability but dysfunction of certain machine disvalue the quality services and even may out way the expected outcomes. For instance absence of *keratometer* (special machine used to measure intraocular lens power) may affect service outcomes since this instrument is critical to detect service errors and is used to fit the contact intraocular lens which inserted after removal of the cataract (Qureshi &Lughari, 2010). Dysfunction of *B-scan* (ultrasound like machine for detecting ocular and orbital conditions) may contradict diagnosis of various ocular and orbital diseases. According to Qureshi and Lughari (2010) B-scan is applied as ultrasound to accurately show the intraocular structure and provide valuable information on the status of internal eye structure. Dysfunction of *YAG laser* may affect the quality of service outcomes since its main function is to remove posterior capsular opacification which develop in majority of post operative cataract patients. According to Cordero (2004) failure to remove the posterior capsule may result in lens opacification that hinder light to reach the retina and proceed into blindness and according to Lindfield, Vishwanath, Ngounou and Khanna (2012) lens opacification is among the common cause of post operative blindness.

Regard the availability of essential medical supply, findings in Table 8 illustrated that the hospital had necessary medical supply to support cataract services. Their availability ensures the continuous service provision as one among the dimension of service quality.

Further, findings clarify that case study hospital received inadequate steroid antibiotics (See Table 8) which on other hand may contradict the patient prognosis. According Meredith (1993) steroid antibiotics play an important role in preventing intra operative and post operative infections. Its absence increases other financial burden to patients since the service is received under cost sharing approach in which patients are obligated to pay but also they are supposed to buy medicine for pos operative medication. The cost implication may hinder effective use of cataract services but also can lead to service related complications. This observation concurs with observation made by Gyasi *et al.* (2007) who observed that cost of services is significant barrier for cataract services in sub-Sahara Africa.

5.2.4 Staff compliance to standard operation guidelines

The third variable observed in this evaluation was the *process factor* which aimed to determine ability of service providers to offer cataract services as per agreed standards. The variable assessed though three indicators as stated in the conceptual framework: identification of available guidelines, degree of staff adhere in preliminary services, assessment for cataract surgery, during cataract operation and follow up care.

5.2.4.1 Availability of guidelines

Patterning to available guidelines the findings in section 4.5.1 illustrated that the hospital had only 3types of expected guidelines which is contrary to international standards which emphasises the availability all guidelines as stipulated in section 2.5. Presence of *Patient care standard clinical protocol* clarifies service flow from the time patient registered at the first time in the hospital up to when he/she discharged (ZEHP, 2013). It shows necessary services that a patient is supposed to be offered as part of disease management. *The hand washing guidelines* demonstrates necessary steps that a service provider has to follow so as to reduce the possibility of cross infection from patient to patient or form patient to service providers and vice versa (WHO, 2009b). Presence of these guidelines promotes patient flows and prevents service related complications.

Literature such as Grimshaw and Russell (1993) observed the overt use of service guidelines improved process and service outcome, thus its absence may contradict the systematic service delivery. On other hand, the absence or improper use of service related guidelines can be the results of professional arrogance or unrelated to hospital context as observed by Woodward (2000) that service guideline is likely to be condemned when perceived as irrelevant, produced by individual who is unfamiliar with the context, or delivered without feedback or reminders that enforce compliance.

5.2.4.2 Degree of staff compliance

This indicator was established to determine the degree of provider compliance with service guidelines on their clinical practice. Finding in section Table 9 indicates that providers were able to follow all instruction stipulated in the preliminary assessment for cataract surgery, intra operative and post operative guidelines, but partially adhered to preliminary assessment. Failure to adhere to *preliminary cataract services* led to inadequate patient information on the nature of service, benefit and service related consequences. Indicating failure to inform patients and relatives which likely to diminish patient adherence to service requirements and may interfere the service outcome (Mosadeghrad, 2014). The tendency of service providers to ignore services guidelines is contrary to Green and Gannouh (2012) who set strategy that emphasis utilization of service guidelines in clinical practices. The ability of providers to perform preliminary assessment for the cataract services and cataract operation as per standards implies that providers were consciously determined risk factors before sorting the patient for surgery and predicting critical events that tend to occur during operation (WHO, 2009a). This information can be inferred that cataract services offered in the case study hospital met the *safety* quality criterion and could lead to good outcomes as claimed by Grimshaw and Russell (1993) that effective use of guideline process and promote good service outcomes.

5.2.5 Patient perception on cataract services offered by ZEHP in Mnazi Mmoja hospital

During evaluation this indicator was examined through patient perception of the effectiveness of services and patient satisfaction of the availability and affordability of quality cataract services offered by ZEHP in Mnazi Mmoja hospital. Findings in Figure 3 imply that majority of cataract patient perceived cataract services as effective to cure their blindness since they regained their visual ability. This observation was contrary to observation made by Kikira (2007) that good service outcome account 41% following cataract operation. The variant can be explained by the *Phaco emulsification procedure* which currently applied for the management of cataracts. According to Lavin and Ormonde (2001) the Phaco procedure is less time consuming, has little complications, provides rapid healing and it has high proportions of good outcomes compared to ECCE procedure.

Service accessibility in terms of availability and affordability are the important dimension of service quality. Findings in Table 11 illustrated that majority of patients are satisfied with the quality of cataract services offered in case study hospital. One can infer that the customer satisfaction in the current evaluation reached up to 83% which was higher when compared to satisfaction of 50% observed by Kikira (2007) and ZEHP (2013). The variations could be the result of successfulness of current procedure which results in good outcomes. On other hand majority of cataract patients perceived the services offered in Mnazi Mmoja Hospital as expensive. Patients claimed that they were supposed to pay for cataract services and thereafter they were obligated to buy medicine for post and follow up care. The same observation made by Gyasi (2007) who observed that cost of services was significant barrier for cataract services in Sub Sahara Africa.

5.3 Dissemination of evaluation findings

The preliminary findings were disseminated to Zanzibar Eye Health Project; it was open discussion that allowed participants to provide their contribution to improve the report before being submitted to Mzumbe University. The final report submitted to Mzumbe University for final marking and publication.

CHAPTER SIX: SUMMARY, CONCLUSION AND IMPLICATIONS

6.1 Introduction

This chapter summarise the evaluation findings, draws conclusion based on findings presented and discussed in Chapter Four and Five. Finally, the chapter presents policy implication, Programmatic implications and use of findings for strategic planning, limitations of evaluation and highlight areas that need further evaluation.

6.2 Summary of evaluation

The evaluation focused on assessing the quality of cataract services in Zanzibar. Specifically the study determined: (1) available competent human resource for cataract services in Mnazi Mmoja Hospital; (2) assessed availability of essential medical requirements for quality cataract services; (3) examined staff ability to adhere with standard operation guidelines in their daily clinical practice; and (4) assessed patient perception on cataract services offered by ZEHP in Mnazi Mmoja hospital. The evaluation was conducted under a case study design employing both qualitative and quantitative approaches. Data were collected through documentary review, observation, interview and questionnaires. Obtained data were analysed through both qualitative and quantitative approaches. The quantitative analysis approach was applied to analyse quantitative data obtained from structured observation, documentary review and questionnaires. A Stata statistical software programme was used to analyse quantitative data. Qualitative data were analysed under case study methods where by an Atlas.ti software programme was used to generate codes and common themes rose from a massive of qualitative data and presented using direct quotations. From the analysis and discussion made in chapter four and five the following are the general findings of the evaluation;

With regard to availability of competent human resource for quality cataract services, the evaluation revealed that the total numbers of qualified staff available for cataract services in the case study hospital are below the national requirement.

With respect to the availability of essential medical requirements necessary for cataract services, in relation to the second evaluation objective;, findings revealed that the case study hospital has modern functioning medical equipment and machines capable for quality cataract and eye care services. However, there were some machines that did not function, which in turn disvalue the quality of service offered. Patterning to availability of essential medical supplies the evaluation revealed that the hospital had adequate supply for all medical commodities except the *steroid antibiotics* in which the received amount didn't correspond the requirement.

Patterning to staff ability to adhere with standard service guidelines, with respect to third evaluation objective, the evaluation revealed the case study hospital had the following guideline: *The hand washing guideline, Patient care standard clinical protocol and intra-operative guideline*. Other guidelines such *as credential protocol to judge the type of service and guideline for preliminary assessment* were not available. Moreover, the evaluation revealed that providers were able to provide cataract services according to preliminary assessment for cataract surgery, safe cataract surgery and post operative cataract service guidelines, but were not able to offer preliminary cataract services as per the guideline. On other hand, the evaluation observed that providers were not able to provide adequate information about cataracts and associated services to patients and or their relatives.

For the fourth objectives the evaluation intended to assess customer perception of the quality of cataract services offered in the case study hospital in terms of effectiveness, availability and affordability. Findings revealed that patients were satisfied with the quality of service offered in the case study hospital since it was effective to cure blindness and was accessible in terms of affordability and availability.

6.3 Conclusion

Based on the analysis and data presented, this evaluation concludes that the cataract service offered by ZEHP in not as quality as expected since it faces the following shortcomings:

i. Inadequate skilled human resources necessary for quality cataract services as per national standard;

ii. Shortage of medical supply especially steroid antibiotics to manage and prevent service related complications;

iii. Dysfunction of critical equipment and machines (keratometer, B- scan and YAG-laser);

iv. Some essential guidelines such as credential protocol to judge the type of service, IPC and preliminary cataract assessment guidelines were not available; and

v. Inability of cataract service providers to offer adequate information about the cataract and its services to cataract patients that would influence understanding and promotes compliance.

Though it was not the interest in this evaluation to assess physical infrastructure for the cataract and eye care services but the case study hospital faced a huge challenge to limited space for the eye care services.

6.4 Policy implications

It is about 8 years since ZEHP was introduced, but its implementation had encountered several drawbacks which challenge the achievement of project goal. Therefore a special policy to guide provision of eye health services need to be designed and implemented so as to strengthen national efforts of reduction of avoidable blindness. Based on the study findings the designed eye health policy should consider the followings;

(i) Evidence based policy strategies that will effectively address the requirement of human and non human resources at all health care provision levels as stipulated in the minimum staff requirements for heath sector.

(ii) Cascade cataract services to health centres and district hospitals so as reduce work lord in referral hospital and reduce unnecessary cost to rural population.

(iii) Since majority of cataract patients were adult aged above 60 years, therefore the eye health policy should provide waiver mechanisms so as to enhance service accessibility and utilization.

6.5 Programmatic implications and use of findings for strategic planning

The evaluation findings illuminated project strengths and weakness in the provision of cataract and eye health services. Further, finding suggests certain interventions that need to be implemented so as to enforce the achievement of project objectives. Based on evaluation findings, the interventions should involve the following strategies;

(i) Increase availability of skilled human resources by provision of both long and short-term trainings.

(ii) Prepare staff retention mechanisms to avoid a brain drain among skilled workers, through improved working environment, remuneration and high wages.

(iii) Prepare and implement preventive and maintenance plan so as to ensure effective function of all equipment and machines necessary for cataract and eye care services at all levels.

(iv) Design and enforce the utilization of standard service guidelines at all health care levels so as to ensure uniformity in the provision of standard quality cataracts and eye care services.

(v) Patient awareness is a key to patient compliance; therefore, BCC/IEC materials should be designed and circulated to the community and to eye patients attend at

health facilities. The design for these materials should consider cultural and social status of Zanzibar societies.

(vi) Emphasis should be on comprehensive eye care services so as to minimize service related costs and unnecessary inconveniences.

6.6 Possible limitations of evaluation

The effectiveness of this evaluation was affected by bureaucracy among door keepers, short period for data collection, and financial constraint. A permission to conduct the study was asked from appropriate authorities so as avoided disturbance from door keepers; only 3 assistants were involved in the study so as to minimise financial challenge. Few cases as per sample size were observed so as to enhance effectively utilize the allocated time. The evaluation was not able to perform second follow-up care which normally conducted 4 to 12weeks after cataract surgical intervention; therefore the evaluation only determined the earlier visual outcome but the late visual outcome was not detected, however it was beyond the scope of this evaluation.

6.7 Areas for further evaluation

It is clear that the evaluation raised certain questions that require further investigations. A new evaluation needed to be conducted based on the followings;

(i) Determine the prevalence of the late cataract service related complications includes the late visual outcome.

(ii) Quality of life following cataract services; quality of life is among important indicator used to measure the outcome of successful cataract services.

(iii) Perception and attitude of cataract service providers on standard service guidelines; since findings shows that providers were inadequately adhere to service guidelines, it is therefore necessary to determine their perception and attitude which may hinder or promote adherence to standards.

References

Abraham, A.G. & Condon, N. G. (2006). The new epidemiology of cataract. *Journal of clinical ophthalmology*; 19(4): 415-25.

Allison, M. & Kaye, J. (2005). *Strategic Planning for Nonprofit Organizations*. A Practical Guide and Workbook (2nded). John Wiley & Sons, Inc., Hoboken, New Jersey.

Ary, D., Jacobs, L. C. & Razaveih, A. (1972). *Introduction to research in Education*. New York: Holt, Rinehart and Winston.

Babbie, E. (2010). *The practice of social research (12th ed).* Wedsworth, Canada. Chapman University.

Bailey, K. (1994). *Methods of social research* (4th ed). New York. The free Press.

Bekibebe, C. & Murthy, G. V. (2012). Cataract service uptake by outreach camp patients at Ibadan Nigeria. *Determinants of cataract service use by subsidised camp patients at Ibadan*. Lambert Academic Publishing.

Blanchet, K. & Lindfield, R. (2010). *Health Systems and eye care: A way forward. International centre for eye health.* London, School of Hygiene & Tropical Medicine.

Boote, D. N. & Beile, P. (2005). Scholars before Researchers: *On the Centrality of the Dissertation Literature Review in Research Preparation.* Educational research; 34(6): 3-15.

Brinks, P.J. & Wood, M.J. (1998). *Advanced design in nursing research (*2nded*)* Thousand Oaks, Sage.

Burns, N. & Groove, S. (1997). The *practice, conduct, critique and utilization. (3rded)* Philadelphia, W.B Sounder Company.

Celestin, H., George, K., Paul, C. & Susan, L. (2010). Rapid Assessment of Avoidable Blindness and Cataract Surgical Services in Kilimanjaro Region, Tanzania. 17(2) 90-94.

Centre for Disease Control and Prevention (2013). *Introduction to program evaluation for public health programme*. Evaluating appropriate antibiotic use programmes. Atlanta, GA. Centre for Disease Control and Prevention.

Centre for health and social research (2000). Evaluation of a pilot one-stop cataract clinics. Ophthalmology department. Fife acute hospitals NHS Trust.

Chitkara, D. (1999). Cataract formation mechanism. *Journal of ophthalmology*. 4.8.3-4.8.4.

Congdon, N.G. (2003). Age related cataract; *epidemiology of eye diseases* (2nd ed). Baltimore, Maryland. Johns Hopkins University, school of medicine.

Cordero, I. (2004). *Guide to ophthalmic equipment for non ophthalmic people*. Version 9.04.04. ORBIS saving sight worldwide.

Coughlan, M., Cronin, P., & Ryan, F. (2013). *Doing a Literature Review in Nursing, Health and Social Care*: Sage.

Courtright, P., Ndegwa, L., Msosa, J. & Banzi, J. (2007). Use of our existing eye care human resources: assessment of the productivity of cataract surgeons trained in eastern Africa. *Journal of ophthalmology*. 125(5):684–687.

Creswell, J.W. (2007*). Qualitative enquiry and research design. Choose among five approaches(2nd ed).* University of Nebraska, Lincoh. Sage publication.

Daniel, J. (2012). '*Preparing to Make Sampling Choices' in: Sampling essentials*: Practical Guidelines for Making Sampling Choices. Thousand Oaks, CA: SAGE.

De Vaus, D. A. (2001). *Research design in social research*. London; sage publication.

Donabedian, A. (1965). Evaluating the quality of medical care. *Journal of science* 200(4344): 856-864.

Donabedian, A. (1980). Explorations in quality assessment and monitoring. *The definition of quality and approaches to its assessment.* Vol. 1. Ann Arbor, Mich.: Health Administration Press.

Ezegwui, I. R., Aghaji, A.E., Uche, N.J. & Onswasigwe, E. N. (2010). Challenges in the management of paediatric cataract in a developing country. *International journal of ophthalmology*; 4(1):66-68

Fischer, A. S. (2011). Program evaluation, an overview. Nova. South-eastern university, School of education.

Foster, A. (2001). Cataract and "Vision 2020—the right to sight" initiative. *British Journal of ophthalmology*. 85(6):635–637.

Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Boston MA: Pitman publishing inc.

Gault, R. H. (1907). A history of the questionnaire method of research in psychology: Research in psychology 14(3): 366-383.

Gay, L. R. (1987). *Educational research: competence for analysis and application (*3rd ed). Columbus, Merrill Publishing Company.

Gorgens, M. & Kusek, J. Z. (2009). *Making monitoring and evaluation system works, a capacity development tool kit*. Washington, Dc. World Bank.

Government of Zanzibar (2011). Mnazi Mmoja Hospital ten year strategic plan 2012/2022. Zanzibar, Government press.

Green, T. & Gannouh, G. (2012). Strategy to improve the use of medicine- standard treatment guideline.

Grimshaw, J. M. & Russell, I.T. (1993). *Effects of clinical guideline on medical practice*: a systematic review of rigorous evaluation. Lancet 342: 1317-1322.

Gurudasan, B., Shukla, A. K., Burkule, S., Shekokar, P. & Raut, M. (2014). Quality of services in cataract control programme in Wardha District. *Scholar journal of medical science 2(4c): 1371-1375. Retrieved from* http://www.saspublisher.com.

Gyasi, M. E., Amoaku, W. M. & Asamany, D. K. (2007). Barriers to cataract surgical uptake in the upper east region of Ghana. *Ghana medical Journal*. 41(4): 167-170.

Habtamu, E., Zebiba, E. & Burton, M. J. (2013). Cataract surgery in southern Ethiopia: distribution, rates and determinants of service provision. *Journal of health service research* 13(480):1472-6963.

Hamel, J, Dufour, S, & Fortin, D. (1993). Case study methods. Newbury Park, Sage.

He, M., Chan, V., Baruwa, E., Gilbert, D., Frick, K. D. & Congdon, N. (2007). Willingness to pay for cataract surgery in rural southern China. *Journal of ophthalmology*;114:411–416.

IAPB and World Health Organization (2007). Vision 2020: *The Right to Sight Global Initiative for the Elimination of Avoidable Blindness Action Plan, 2006–2011*. Geneva. World Health Organization.

Ilechie, A. A., Boadi-Kusi, B. S., Ndudiri, O. V. & Ofori, E. A. (2012). Evaluation of Post-Operative Visual Outcomes of Cataract Surgery in Ghana. *International Journal of Health Research;* 5(1): 35-42.

International Centre for Eye Health (2006). Rapid assessment of avoidable blindness in Zanzibar, Tanzania. London. School of hygiene and tropical medicine.

Jefferis, J.M., Bowman, R. J., Hassan, H.G., Hall, A.B. & Lewallen, S. (2008). Use of cataract services in eastern Africa--a study from Tanzania. *Journal of ophthalmic epidemiology.*: 62-65..

Johnson, J.G., Sen, V.G. & Faal, H. (2000). Barriers to the uptake of cataract surgery. Trop Doctor; 7: 218–220.

Karin, L., Colin, C. &Van, C. L. (2012). Cataract Surgery in Africa.

Kelaher, M., Ferdinand, A. &Taylor, H. (2002). Access to eye health services among indigenous Australians: an area level analysis. *BMC ophthalmology*; 12: 51

Khalifa, A. (2010). Healthcare Quality Assurance**.** A power point presentation on health care quality improvement.

Kikira, S. (2007). Raab survey of Pemba and Unguja islands, Zanzibar. *Journal of community eye health*; 20(64): 71-72.

Kothari, C.R. (2004). *Research methodology: methods and techniques* (2^{nd} ed). New Delhi, India. New age international publisher.

Kuszak, J. (2007). Pathology of age- related human cataract. *Duane's clinical ophthalmology*. Tasman. Williams & Wilkins Publisher.

Lansingh, V.C., M.J. Carter, M. & Martens (2007). Global cost-effectiveness of cataract surgery. *Jounal of ophthalmology;* 114: 1670-1678.

Lavin, M. & Ormonde, S. (2001). Phaco emulsification. *Jounal of community eye health*; 4(2): 45-88. Rila Publications.

Lewallen, S. (2001). Blindness in Africa: present situation and future needs. *British Journal of Ophthalmol*; 89(10): 897-903.

Lewallen, S., Etya'ale, D., Kello, A. B. & Courtright, P. (2012). Non-physician cataract surgeons in Sub-Saharan Africa: situation analysis. *Journal of Tropical Medicine and International Health*. doi: 10.1111/j.1365-3156.2012.03084.x.

Lewallen, S., Williams, T. D., Dray, A., Stock, B. C, Mathenge, W., Oye, J, ... Muller, A. (2010). Estimating incidence of vision-reducing cataract in Africa: a new model with implications for program targets. *journal of ophthalmology* 128(12):1584–1589.

Lindfield, R., Vishwanath, K., Ngounou, F. & Khanna, R.C. (2012). The challenges in improving outcome of cataract surgery in low and middle income countries. *Indian Journal of ophthalmology*; 60: 464-469.

Machi, L. A. & McEvoy, B. T. (2009). *The Literature Review: A 6 Step Process to success.* Thousand Oaks. Corwing Sage.

Management Science for Health (2005). *Managers who lead a handbook for improving health service*. Cambridge Massachusetts, Management science of health.

Mbulaiteye, S. M., Reeves, B.C., Mulwanyi, F., Whitworth, J.A. & Johnson, G. (2003). Incidence of visual loss in rural southwest Uganda. *British Journal of Ophthalmology*; 87(7): 829-833.

McDonald, G., Starr, G., Schooley, M., Yee, S. L., Klimowski, K. &Turner, K. (2001). *Introduction to program evaluation for Comprehensive tobacco control programs.* Atlanta (GA). Centre for Disease Control and prevention.

Meredith, T.A. (1993). Antimicrobial phamokinetics in endophthalmitis treatment: studies of cetrazadine. Transaction of American ophthalmological society 9: 653-699.

Miles, M. B. &Huberman, A. M. (1994). *Qualitative data analysis* (2nd Ed) Thousand Oaks, CA: Sage.

Ministry of Health Zanzibar (2014). *Minimum staffing requirements.* (Un-published document) Human resource for health division.

Mosadeghard, A. M. (2014). Factors influencing health care service quality. *International journal of health policy and management;* 3(2): 77-89.

Mugenda, O.M. & Mugenda, A.G. (2003). *Research Methods-Quantitative and Qualitative*. Nairobi, Kenya. Acts Press.

Naidoo, K. S., Jaggernath, J. (2012).Uncorrected refractive errors. *Indian Journal of Ophthalmol*; 60:432-437.

Olmen, J., Criel, B., Van Damme, W., Marchal, B., Van belle, S., Van Domel, M.,... Kegels, G. (2012). *Studies in health services organization and policy* (2nd ed). Nationalestrate. Belgium.

Patton, M.Q. (2001), *Qualitative research and evaluation methods (3rd ed)*. London. International educational and professional publisher.

Polit, D. F., & Beck, C. T. (2004). *Nursing research: Appraising evidence for nursing practice (7th ed)*. Philadelphia. Lippincott Williams & Wilkins.

Polit, D. F. & Hungler, B. P. (1999). *Nursing research: principles and methods* (6th Ed). Philadelphia: Lippincott.

Qiuxia, Y., Ailian, H., Yuanbo, L., Jian, Z., Mingguang, H., Denis, S.C., Lam, J. G...Nathan, C. (1999). Common causes of vision loss in elderly patients. *Journal of Medical research;* 50: 99 -108.

Qureshi, M.A. & Laghari, K. (2010), Role of B-scan ultrasonography in pre-operative cataract patients. *International journal of Health;* 4(1) 31-37

Rees, C. (1997). *An introduction to research for Midwives (6th ed).* Hale, England. Books for Midwives Press.

Revolutionary Government of Zanzibar (2010). Assessment of the availability of health services in terms of accessibility and quality of health care. Zanzibar, government press.

Rohit C. K., Srinivasa, R. P., Shiva, S. E., Bala, K. G., Sandra, D. C., Padmaja, K. R., ... Oliver, D. S. (2011). Population Based Outcomes of Cataract Surgery in Three Tribal Areas of Andhra Pradesh: *Risk Factors for Poor Outcomes, India*.

Royal college of ophthalmologist (2010). *Cataract surgery guidelines*. Scientific Department. London. United Kingdom

Sander, D. Vukich, J. A (2006). Comparison of implantable collamer lens and lesser-assisted in situ keratomileusis for low myopia. *Journals of ophthalmology;* 110(2): 2335-2341.

Sightsavers, (2010). Policy on services for cataract. London, Royal common wealth society.

Smithers, N. (2011). *The Importance of Stakeholder Ownership for Capacity Development Results.* Washington DC. World Bank Institute Capacity Development and Results.

Steinkuller, P.G. (1983). Cataract: the leading cause of blindness and vision loss in Africa. *Journal of Socio-science medical research;* 17(22): 1693-1702.

Tabin, G., Chen, M. & Espandar, L. (2008). Cataract surgery for developing world. *Curr Opin Ophthalmol;* 19: 55-59

The National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research (1979). *The Belmont report ethical principles and guidelines for the protection of human subjects of research*. Washington DC. US government printing office.

United Republic of Tanzania (2000). *Quality assurance training guidelines for health workers*. Dar-es-Laam Tanzania, Ministry of Health.

United Republic of Tanzania (2013). *Population Distribution by Age and Sex. 2012 Population and Housing Census, Vol. II.* Dar es Laam Tanzania, Ministry of Finance and Economic affairs.

Weiss, R. S (1994). Learning from strangers: The art and methods of qualitative interview studies. New York, Free Press.

Woodward, C.A. (2000): *Strategies for assessing health workers to modify and improve skills*. Developing quality health care- a process of change. Geneva, Switzerland. World Health Organization.

World Bank (1993). Investing in Health. World Development Report 1993 and world development indicators. Geneva, Switzerland. World bank.

World haealth organization (1978). Declaration of Alma- Ata. International Conference on Primary Health Care. Alma-Ata, USSR.

World Health Organization (2009a). *Wold Health Organization Guidelines for Safe Surgery 2009*. Safe Surgery Saves Lives. Geneva, switzeeland.

World Health Organization (2009b). *WHO guidelines on hand hygiene in health care: first global patient safety challenge clean care is safer care*. Geneva, Switzerland. World Health Organization

World Health Organization (2005). World Alliance for Patient Safety. Forward Programme 2005. 2004, Geneva, Switzerland.

World Health Organization (2007a). Vision 2020 the right to sight. Global initiative for the elimination of avoidable blindness action plan 2006-2011. Geneva, Switzerland. World Health organization.

World Health Organization (2007b). Everybody's business: *strengthening health systems to improve health outcomes: WHO's framework for action.* Geneva, Switzerland. World Health Organization.

World Health Organization (2008). Service delivery Toolkit on monitoring health systems strengthening. Geneva, Switzerland, World Health Organization.

Xu, L., Cui T., Yang H., Hu, A. & Ma K. (2006). Prevalence of visual impairment among adults in China: the Beijing Eye Study. *America Journal of Ophthalmology;* 141: 591–593.

Yin, R. K. (2009). *Case study research design and methods (4th ed).* London, United Kingdom, Sage publication

Yin, R. K. (2012). *Qualitative research from start to finish*. New York, Guilford press.

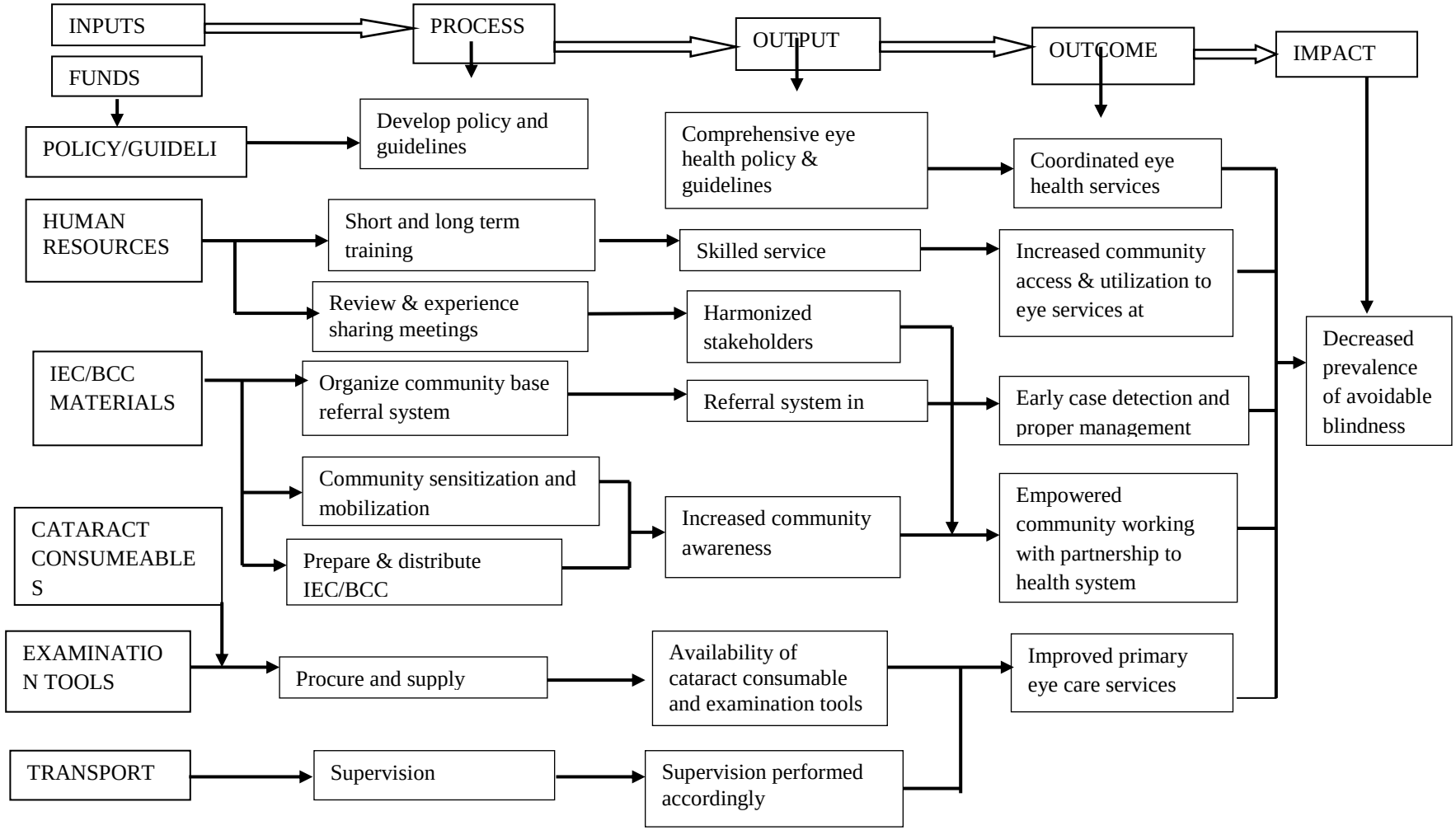
Zanzibar Eye Health Project (2012). Project proposal document for eye care services. Zanzibar, Eye care programme.

Zanzibar Eye Health Project (2013). Rapid Assessment of Avoidable Blindness. (Un-published assessment report). Zanzibar, Ministry of health.

Appendices

Appendix 1: Logic model of Zanzibar Primary Eye Health Project

GOAL: Improve livelihoods for the people of Zanzibar by ensuring that population access quality eye care services by developing a strong health system in partnership with government , non state actors and community at large



Source; Zanzibar Primary Eye Health Project, (2007)

Evaluation work plan

Appendix 2: Work Plan

MAIN ACTIVITIES	**TIME LINE**																					
	Dec 2013	Jan 2014	Feb 2014	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2015	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Evaluability assessment																						
Proposal write-up and consultation																						
Proposal submission to Mzumbe University																						
Assistant training and tool testing																						
Actual data collection and analysis																						
Report writing																						
Dissemination of Preliminary report to ZEHP																						
Dissemination of Report for marking																						
Responds to examiner's comments																						
Presentation to Mzumbe panel																						

Appendix 3: Observation checklist to assess staff compliance on standard guidelines for cataract services tool

	PRELIMINARY CARE	
	Does cataract service provider adequately inform the patient or relative about t services? Check for the followings; (Not informed = 0;Partially informed = 1; Fully informed =2)	
	Information about the purpose of planned service	
	Information of what will happen during service provision	
	Information on the likely hood of better vision after services	
	Information about benefit and risk of the planned service (cataract service-specific)	
	Information about possible complication about the planned services	
	Do service provider offer and record the following preliminary assessment? Check every patient for; (Not offered = 0; Partially offered = 1; Fully offered)	
	date of assessment	
	Visual acquity for affected eye	
	Visual acquity of the next eye	
	Refraction - of infected eye	
	Refraction – of follow eye	
	Cataract morphology	
	Evaluate the aetiology of cataract	
	Medical conditions predictive to cataract outcome.	
	Eye conditions predictive of a poor visual outcome	
	IOL mode	
	IOL power	
	Predicted refraction after services	
	Do service provider offer and documented blood pressure and blood glucose assessment. (No = 0; Yes = 1)	
	For patient sort for operation, the eye to be operated is clearly marked. (No = 0; Yes = 1)	
	Patient undergoes a detailed slit lamp examination of both eyes as per protocol. Put yes if results are available and clearly documented (No = 0; Yes = 1)	
	DURING CATARCT SERVICE	
	Assessment of anticipated variation and critical event; check for the followings; (0= not assessed; 1= partially assessed; 2= fully assessed)	
	Any special requirement or special investigation?	
	Any variation to the standard procedure planned or likely?	
	Is alternative lens implant available, if needed?	
	Are there any specific patient concern	
	Does surgeon confirm patient ASA grade?	
	Is there any special monitoring equipment?	
	Has the sterility of instruments been confirmed?	
	Before any member of surgical team leave operating room	
	Practitioner verbally confirmed the name of patient and side of procedure been recovered	
	Has it confirmed that the instrument, swabs and sharp count are complete?	
	Have any requirement problem that need to be addressed been identified?	
	Any variation to standard recovery protocol planned for the patient?	
	FOLLOW-UP CARE	
	Check the followings; (No = 0; Yes = 1)	

	Date of follow-up	
	V/A of operated eye	
	Any post operative complication (No = 1; Yes = 0)	
	Record and tell the patient date of follow up (No = 1; Yes = 0)	
	Mark the outcome among the following (3days after services)	
	Discharged (No = 1; Yes = 0)	
	Listed for other eye (No = 0; Yes = 1)	
	Exist pathology (No = 1; Yes = 0)	

Appendix 4: A check list to review resources available for quality cataract service provision

Name of health facility..... Department name.....

Head of department interviewed; Nurse in-charge =1, Doctor in-charge =2; Department pharmacist =3,

Others =999

	Section A; MEDICAL EQUIPMENT FOR CATARCT SERVICES	**Available**	**Not available**
Q2	Do eye care unit have adequate equipment for quality cataract services? Check for the following; (it is available if it is function)		
2.1	Slit lamp		
2.2	A-scan		
2.3	Keratometer		
2.4	Retinoscope		
2.5	Goldman tenometer		
2.6	YAG laser		
2.7	Power backup and surge protection		
2.8	Coaxial operating microscope		
2.9	Autoclave		
	Section B; MEDICAL SUPPLIES FOR CATARACT SERVICES		
Q3	Do eye care unit have adequate supply for the following medical supplies to full fill 85% of patients? Check for the followings (it is available if there was no stock out for three months consecutively.		
3.1	Dilation eye drop (cyclopentolate, hylephrine)		
3.7	Ophthalmic Irrigating Solution (Ringer lactate, Normal saline).		
3.10	Steroid antibiotics (Occ. Maxitrol),		
3.13	Intraocular lens		
3.14	10%povidon		
	SECTION C; STANDARD GUIDELINE AND PROTOCOL FOR CATARACT SERVICES	Yes	No
Q4	The facility has a well documented patient care standard clinical protocol which is in line with best practice. (put yes If it is displayed and observed clearly)		
Q5	There is a formal credentialing process to judge type of service for cataract patient (put yes if retrieved).		
Q6	There is a well documented protocol for assessing the correct IOL power for each patient (put yes if retrieved).		
Q7	There is a formal process for assessing the visual outcome status of all cataract patients and monitored accordingly (put yes if retrieved).		
Q8	There is clearly documented infection control policy which covers all areas of infection control. Put yes if washing and sterilization protocols observed.		
Q9	There is clearly documented protocol for measuring blood pressure and		

	blood glucose level.		
Q10	Pre operative guideline		
Q11	Post operative guideline		

Appendix 5: Questionnaire for cataract patients to test awareness, perception and satisfaction on the quality of cataract services

Dear respondent, I'm (MY NAME) a Msc. Health Monitoring and Evaluation student from Mzumbe University, recently I conduct an evaluation on the quality cataract services in Zanzibar. This questionnaire will take approximately 15 – 20 minutes, your responses will be treated as confidential and will only be used for the purpose of this study, if there is anything that you feel uncomfortable about answering this questionnaire you are allowed to stop at any point and at any time if you wish, you are not supposed to mention you name in this questionnaire.

A. DEMOGRAPHIC INFORMATION

Fill the box provided with the number corresponding to respondent's answers

1. Sex of respondent ;
   0= Female
   1= Male
   ☐
2. Age of respondent in years from birth ……..
3. Education background;
   0= No formal education
   1 = Primary education
   2= Secondary education
   3= College or University
   ☐
4. Marital status of respondent
   0= Single
   1= Married
   2= Divorced
   3= Widow/widower
   ☐
5. Place of residence
   0= Urban
   1= Peri-urban
   ☐

6. Occupation

   0= House wife

   1= Civil servant

   2= Private employee

   3 = Self employee

   4= Retired

   5 = Non

B. PATIENT AWARENESS

7. How long since you diagnosed as having a cataract?

   0= less than six months

   1= six months to one year

   2= one year or more

8. How did you know that you had cataract?

   0 =Via traditional healer

   1= Via my neighbour/ the guardian

   2= Via Doctor at local health facility

   3= Via specialist nurse at eye clinic

   4= Via Doctor at eye clinic

   5 = Via other (specify)

8. Did you receive any information concerning to your condition since you diagnosed?

   0= No

   1= Yes

   If yes, what information was given ……

   ……

   …….....

9. At eye clinic, did you receive any leaflet about cataract services?

0=No

1= Yes

If No, go to question number 15

10. How was the information on the leaflet?

0= Not detailed

1 = Just right

2= Too detailed

3= Not applicable

11. Was the information in the leaflets…….....

0= Difficult to understand

1= Easy to understand

2= Can't remember

12. Was the information in leaf let helpful?

0=No

1= Yes

13. Did you have opportunity to ask your doctor or service provider any questions about cataract services?

0=No

1= Yes

14. Did you obtain any information about cataract services from friends or relatives who had previously received this kind of servic

0=No

1= Yes

If Yes, in what ways did their experience influence you to seek for cataract services in this hospital?..... …….....

15. Do you think you have received enough information about cataract services?

    0=No

    1= Yes ☐

    Please comment from your response ……
    ……
    ……..

16. Are satisfied with services you received so far in terms of its availability and affordability?

    0= Dissatisfied

    1= Satisfied

    2 = Very satisfied ☐

    3= Very dissatisfied

    Why this? …….....
    .....

17. What is your opinion about services that you have received?

    ……..……..……
    …….
    …….....

18. What is your advice to hospital for cataract service improvement?

    ……
    ……
    …….....

Thanks for your time.

Appendix 6: Interview guide to assess competence of cataract service providers

1. Professional background

2. Highest educational level

3. Duration of working as cataract service provider

4. Type of trainings concerning to cataract service

i. Long term trainings

ii. Short term trainings

iii. Seminars and workshops

iv. Study tours

5. Challenges in providing cataract services

i. Availability of equipment

ii. Use of equipment

iii. Availability of adequate medical supplies

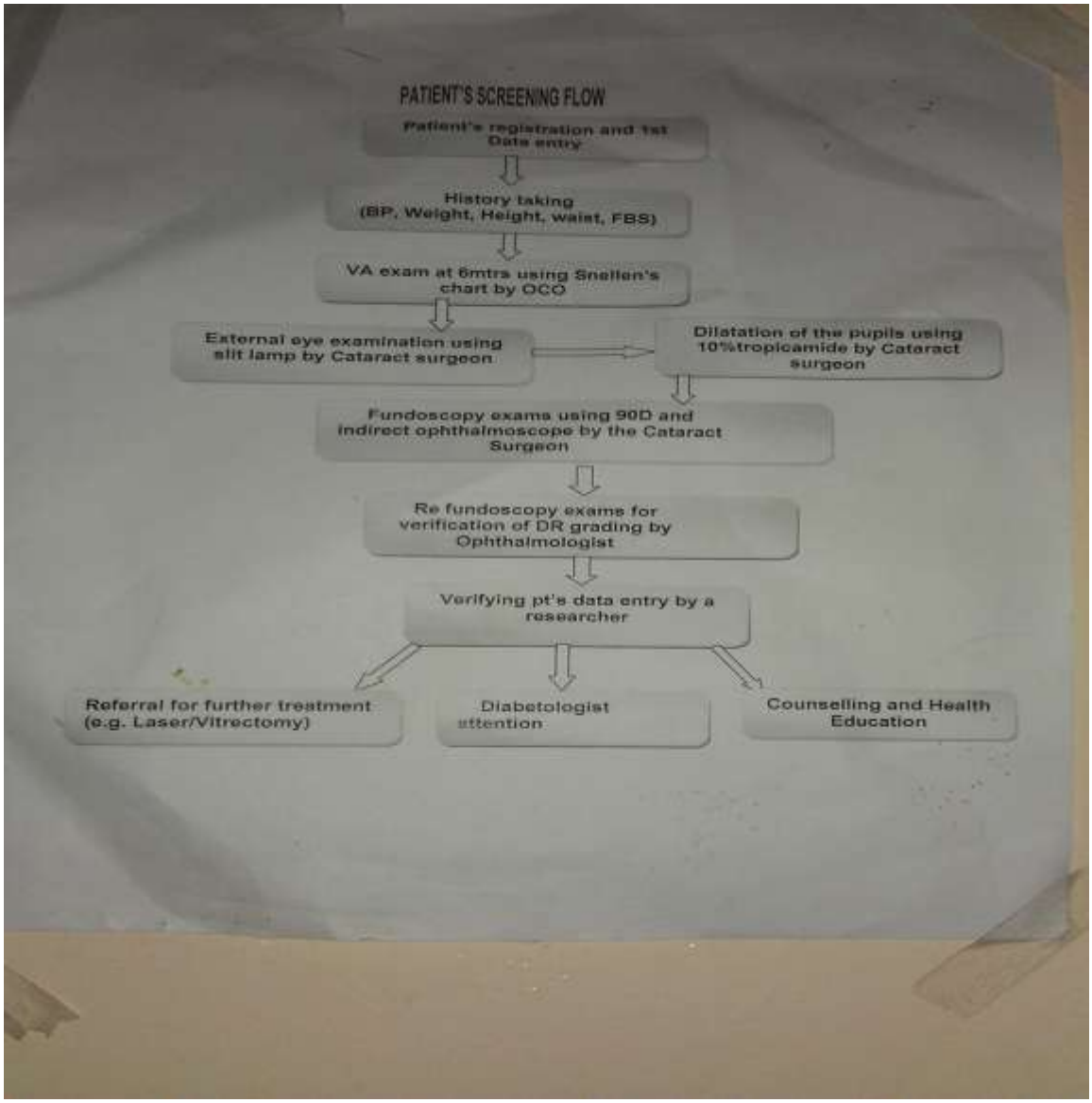
iv. Service related complications

v. Applicability of technical skills

6. Personnel view concerning to the quality of cataract services provided in Mnazi Mmoja Hospital

7. Opinions to management to improve the quality of cataract services at Mnazi Mmoja Hospital

Appendix 7: Standard clinical protocol



Appendix 8: Hand washing protocol

Appendix 9: Ethical clearance

ETHICAL CLEARANCE LETTER

PROTOCOL NUMBER: ST /0001/APRIL/015 DATE: 14 APRIL, 2015

ABASS TAHA MAKAME
Researcher Student

PROTOCOL TITLE: **"Quality of cataract services in Zanzibar a case of Mnazi Mmoja Hospital."**

RE: ETHICAL CLEARANCE FOR CONDUCTING MEDICAL RESEARCH IN ZANZIBAR

This is to certify that the research's protocol entitled **"Quality of cataract services in Zanzibar a case of Mnazi Mmoja Hospital."** was received and reviewed by the Zanzibar Medical Research and Ethics Committee on April, 2015.

We would like to inform you that the decision of the committee to this protocol was **"Approved"**. The permission to undertake data collection is for one year beginning from the date of this letter.

The principal investigators have to provide progress report after six months and final report to the Ministry of Health and the Zanzibar Medical Research and Ethics committee ZAMREC.

Seek permission to publish from ZAMREC.

Any change made to the protocol need to be submitted to the committee for approval prior to its implementation

Thanks in advance,

DR. MSAFIRI MARIANI
SECRETARY
ZAMREC
ZANZIBAR