

Kamuzu College of Nursing

Assessment of Quality of Care Offered to HIV Exposed Children Under 24 Months and their Mothers During Follow Up Visit at Mzimba North Health Centre- Malawi.

Master of Science (Child Health Nursing) Thesis

By

CHIKONDI SHARON CHIMBATATA

Bachelor of Science (Nursing) - Kamuzu College of Nursing

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Declaration

I, Chikondi Sharon Chimbatata hereby declare that this thesis is my original work and that I have not submitted it or any part of it for any degree at any other University within or outside Malawi. Work of other people used in this thesis has been acknowledged appropriately.

Chikondi Sharon Chimbatata

_____

Name

_____

Signature

_____

Date

Certificate of Approval

The undersigned certify that this thesis represents the student's own work and effort and has been submitted with our approval.

Signature:_____Date:_____

Angella Chimwaza, PhD (Associate Professor)

Main Supervisor

Signature: _____Date:_____

Alfred Maluwa, PhD (Former Research Director)

Co-supervisor

Dedication

I dedicate this work to my husband, Nathaniel and Children, Chiyambi, Chitsanzo and Chiyamiko. This is truly a product of your great perseverance, support and encouragement.

Acknowledgement

I acknowledge God's abundant grace blessings including a healthy life during the study period. I am also indebted to the following people and organization for their contributions in various ways:

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- My late parents and all relatives for raising me and giving me hope in every venture.
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Abstract

Literature in the Sub Saharan Africa indicates that, delivery of quality care during follow up period for HIV exposed children is poor leading to high rates of loss to follow up. According to national statistics of 2015 in Malawi, only 16% of HIV exposed children were retained in care at 24 months. Little is known in Malawi regarding the delivery of quality care to HIV exposed children during follow up period.

A descriptive quantitative cross sectional study which was guided by Donabedian (SPO) framework was conducted to investigate the quality of care offered to HIV exposed children during follow up period. A sample size of 250 mother - baby pairs attending follow up visit at Mzimba North Health Centre was recruited. Data were collected using a structured questionnaire which was developed based on study objectives. The objectives were to; assess the availability of physical infrastructure, human and material resources for the delivery of quality care (Structure); to assess if children were provided with care according to national guidelines (Process) and to determine mothers' satisfaction with the care they were provided during follow up visit (Outcome).

Results on Structure found infrastructural deficiencies which included inadequate equipment, clients' waiting area and counsultation rooms and there were also no counselling rooms while on Process, there was a higher uptake on Nevirapine (97.2%) and cotrimoxazole administration (100%), infant Deoxyribonucleic Acid test (89.2%) and exclusive breast feeding (95.6%) however, counselling and growth monitoring were inadequate. Under Outcome, all mothers were satisfied with the care provided. Overall, there were critical service delivery gaps on Structure and Process. It is critical that more efforts are invested on the improvement of these gaps.

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Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARVs	Antiretroviral
CDC	Centres for Disease Control and prevention
COMREC	College of Medicine research and Ethical Committee
CPT	Cotrimoxazole Preventive Therapy
DNA	Deoxyribonucleic Acid
EID	Early Infant Diagnosis
HIV	Human Immunodeficiency Virus
MDGs	Millennium Development Goals
MOH	Ministry of Health
MTCT	Mother to Child Transmission
NSO	National Statistical Office
NVP	Nevirapine
PCR	Polymerase chain reaction
PMTCT	Prevention of mother to child transmission
SSA	Sub Saharan Africa
UNAIDS	The Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization

Operational Definitions

Infant: Any child less than 12 months of age

Exposed child: A child born to an HIV-infected mother but without a confirmed HIV infection or a child exposed to infected blood products without confirmed HIV infection. In the event

Paediatric HIV infection: Infection among children aged younger than 15 years.

Quality: The standard of something as measured against other things of a similar kind or the degree of excellence of something.

Quality health care: The degree to which health services for individuals increase the likelihood of the desired health outcomes.

CHAPTER 1

Introduction and Background

Introduction

Childhood Human Immunodeficiency Virus (HIV) infection and Acquired Immune Deficiency Syndrome (AIDS) remain a global challenge. In 2013, 240,000 children under the age of 15 years were infected with HIV worldwide (The Joint United Nations Programme on HIV/AIDS (UNAIDS), 2014). In 2015, there was a significant decrease in the number of paediatric HIV infection given that 150,000 children were registered to have been diagnosed with HIV (UNAIDS, 2016) bringing the total number of children approximated to be living with HIV to 1.8 million worldwide (WHO, 2016). The decrease in the number of paediatric HIV infection was mainly due to the scale up of Prevention of Mother–To-Child-Transmission (PMTCT) of HIV services (Kohler et al., 2014; UNAIDS, 2013).

Sub Saharan Africa (SSA) bears the highest burden of paediatric HIV in the world with over 90% of the estimated 3.2million children living with HIV infection in the world (Nosek et al., 2016). It has further been estimated that in this region, almost 200,000 new paediatric HIV infections occur annually during pregnancy, delivery or postpartum through breastfeeding (UNAIDS, 2014). This figure is slightly lower compared to the one in 2009 in which 400,000 children under the age of 15 became infected with HIV in the region (Ciaranello et al., 2012). This sharp decline in the number of new paediatric HIV infections is due to the rapid advances in the delivery of PMTCT services (Geelhoed, Lafort, Chissale, Candrinho & Degomme, 2013; UNAIDS, 2013).

Malawi has also been heavily affected by the epidemic. It is estimated that, 80% of the new infections are acquired through heterosexual relationships, 10% through vertical transmission from mother to child and 2% through unsafe blood transfusion in Malawi (National Statistical Office, 2011). In 2012, an estimated 170,000 children were living with HIV (UNAIDS, 2013), a figure which contributed approximately 5.2% of all children infected with HIV in SSA (Centres for Disease Control and prevention (CDC), 2013). Despite this, Malawi has shown immense progress in reducing child HIV infection rates with a 67% decrease in children acquiring HIV, the largest country decline across Sub-Saharan Africa (UNAIDS, 2014). This reduction in new paediatric HIV infection rate is mainly due to the scale up of PMTCT services such as option B plus and Early Infant Diagnosis (EID) program (Ministry of Health, 2014; World Health Organization, 2014).

The sharp reduction in perinatal HIV infection rate both globally and nationally represents remarkable success stories in paediatric HIV programs (UNAIDS 2013; WHO, 2014). In addition, advances in PMTCT program particularly option B plus in which HIV positive women are given lifelong Antiretroviral Therapy (ART) has improved the optimal health and survival of many women which has contributed to the decline in the number of infants infected with HIV, but the number of uninfected infants exposed to HIV through their HIV infected mothers is still increasing. Strengthening quality follow up services is therefore of increasing importance in order to address their multifaceted health needs (Evans, Jones & Prendergast, 2016; Kourtis et al., 2013; Sugandhl et al., 2013).

Children exposed to HIV are vulnerable to a range of health problems. Literature indicates that, HIV exposure itself contributes to poor health outcomes such as illnesses

and death (Harvard AIDS Initiative, 2014; Koyanagi et al., 2011; Sugandhl et al., 2013). Results of a study by Landes et al. (2012) revealed that, out of 383 children, 41 (10.7%) died by 20 months of which 32 (18.7%) were HIV exposed and 9 (4.3%) were HIV unexposed. Furthermore, Kurewa et al. (2011) in their study observed that, by 9 months of age, HIV exposed children registered a higher mortality (150 per 1000 live births) than HIV unexposed children (47 per 1000 live births).

Illnesses are also higher among HIV exposed uninfected -children compared to their unexposed counterparts. This is largely due to an increased severity to common childhood infections such as pneumonia and group B streptococcal infection. These illnesses contribute to their frequent hospitalization in the first years of life than HIV unexposed infants (Ie Roux, Myer, Nicol & Zar, 2015; von Mollendorf et al., 2015). A study by Koyanagi et al. (2011) found that, HIV exposed uninfected -children made an average of 30% more sick clinic visits and had 20% more hospitalizations than their unexposed counterparts. Another case–control study in South Africa reported that, HIV exposed uninfected -children were significantly more likely to be admitted to hospital than their unexposed counterparts (Slogrove et al., 2012).

Provision of quality follow up care to HIV exposed children (HEC) is therefore urgently needed in order to improve their survival as it minimizes the risk of HIV infection, enhances proper clinical monitoring, promotes early recognition of HIV infection and prevents opportunistic infections (Nigatu & Woldegebriel, 2011; O'Donnell et al., 2014). Paediatric HIV follow up care provides a package of services which are primarily responsible for the sharp decline in the number of children newly infected and ultimately dying from this preventable infection (Ministry of Health, 2014).

A review of literature in some African countries shows that, delivery of quality care during follow up visits for HEC is poor (Mirkuzie et al., 2011; Sugandhi et al., 2013; Watermeyer, 2012). This is one of the factors contributing to loss of follow up among HEC (Adjorlolo-Johnson et al., 2013; Chinkonde, Sundby, & Martinson, 2009; Ditekemena et al., 2014; Kalembo & Zgambo, 2012; Mirkuzie, Hinderaker, & Mørkve, 2011; Nigatu & Woldegebriel, 2011). In Malawi, only 16% of HIV exposed children are retained in care at 24 months (Government of Malawi, 2015).

Little is known in Malawi regarding the quality of care offered to HEC during the first 24 months of life. This period is very critical because it carries the highest risk of HIV transmission from mother to infant since the child is still exposed to the virus through breastfeeding. Follow up visits are therefore very important as they provide the opportunity to closely monitor the infant while instituting interventions to reduce the risk of HIV transmission. This study therefore assessed the quality of care offered to HEC during follow up visit. The study was guided by the quality of care framework by Donabedian and focused on the structure, process and outcome of care offered to children exposed to HIV.

Background of the Study

The scale up of PMTCT services has significantly reduced perinatal HIV infection rate both globally and locally (UNAIDS, 2013). The PMTCT package which has been successful include the implementation of effective provider initiated testing and counselling (PITC) services, option B + (plus), Early Infant Diagnosis (EID), improved delivery practices for HIV-infected mothers and an enhanced understanding of how to

minimize risk of transmission during the breastfeeding period (Flynn & Abrams, 2015; WHO, 2010).

In Malawi, PMTCT program was established in 2001 and piloted in three hospitals namely; Embangweni Mission Hospital, Chiradzulu and Thyolo District Hospitals. The programme was officially launched in 2003 (WHO, 2014). Since then, PMTCT service sites have increased from 357 in 2007 to 585 in 2012 (Government of Malawi, 2012) and the program has remained a key strategy of the overall HIV prevention from mother to child (Chinkonde et al., 2009).

In July 2011, the government of Malawi was the first in Sub Saharan Africa to adopt the option B + strategy in which all pregnant and breastfeeding women with HIV are placed on ARV treatment for life irrespective of CD4 count or clinical stage (Schouten et al., 2011). Option B + is critical for reducing the risk of HIV transmission to infants, promoting safe breastfeeding but also reducing child mortality related to diarrhoea and chronic malnutrition such as stunting linked with not breastfeeding (UNICEF, 2012).

The government of Malawi understands that substantial reduction in paediatric HIV infection can be achieved as a result of high coverage of effective interventions that are directed towards early identification of HIV exposed children. One such intervention is Early Infant Diagnosis (EID). In 2012, about 40% of health facilities were providing EID services (Malawi Government Global AIDS Progress Report, 2012). These services require that infants born to HIV positive women are properly followed up in order to provide ongoing care and support throughout the period that the child is exposed to HIV until HIV status is ascertained i.e. twenty four months (MOH, 2014).

Early diagnosis of HIV in infants is necessary to reduce infant mortality. In a study by Violari et al., (2008) on early ART and mortality among HIV infected infants, it was found that, early HIV diagnosis and early initiation of ART reduced infant deaths by 76% and HIV progression by 75%. EID program is therefore a crucial part of efforts to reduce the burden of HIV disease in children as it includes provision of ongoing HIV care.

In Malawi, HEC are enrolled into standard clinical follow up care from 6 weeks until the age of 24 months (MOH, 2014). This is because, the children are still breastfeeding and, as such, they remain at risk of acquiring HIV infection throughout the breastfeeding period. During this period, efforts are directed towards reducing the risk of Mother To Child Transmission (MTCT) of HIV through breastfeeding.

According to PMTCT guidelines in Malawi, all HEC are offered daily Nevirapine (Nvp) from birth up to six weeks regardless of infant feeding method (MOH, 2014). Nevirapine shields the baby from HIV infection during this most risky time (UNICEF, 2012). The infants are then enrolled into the HIV care clinic and then followed up every month until age 6 months, thereafter every three months to at least 24 months when they are confirmed HIV negative (MOH, 2014).

At six weeks follow up visit, the following services are offered to HIV exposed infants; Deoxyribonucleic Acid /Polymerase Chain Reaction (DNA/PCR) testing, growth and nutritional assessment and provision of Cotrimoxazole Preventive Therapy (CPT) for the prevention of Pneumocystis jirovecii pneumonia (PJP) and other commonly acquired infections such as diarrhoea and malaria (MOH, 2014). Furthermore, mothers are also counselled on various issues such as the importance of Nevirapine, CPT and good infant

feeding practice. HIV testing (using rapid test) is repeated at twelve and twenty four months while the rest of the services i.e. growth and nutritional assessment, provision of CPT and mothers counselling are provided at every follow up visit (MOH, 2014).

This package of service offers the promise of significantly reducing the disease burden from infants and children exposed to HIV. However, several studies in Sub Saharan Africa reveal an unacceptable Loss to Follow up (LTFU) from PMTCT program resulting to poor retention of HEC in care (Ahoua et al., 2010; Chetty et al., 2012; Kalembo & Zgambo., 2012; Kurewa et al., 2011). A study conducted in Nigeria revealed that the greatest loss in the PMTCT cascade (16%) occurred prior to first infant visit which is at six weeks old (Rawizza et al., 2015). Loss to follow up of infants by age 6 weeks in Mozambique was 74% (Ciampa et al., 2011) while at three months in Kenya and South Africa was 19% and 18% respectively (Azcoaga-Lorenzo et al., 2011; Geddes et al., 2011). The loss to follow up was attributed to poor delivery of services to HIV exposed children resulting in thousands of unnecessary HIV infections of infants each year (Youngleson et al., 2010).

In Malawi, the loss to follow up of HIV exposed infants is equally unacceptably high with only 16% of infants retained in care at 24 months in 2014 (Government of Malawi, 2015). However, critical to the success of EID program are efforts to strengthen the delivery of quality follow up services given that good quality care significantly promotes the uptake of health services and lead to successful gains in PMTCT program. There is limited data in Malawi regarding the delivery of quality care to HIV exposed infants and their mothers. This study therefore sought to assess the quality of care offered

to HEC during follow up visits at Mzimba North Health centre, the largest and only urban health centre in the city of Mzuzu- Malawi.

Problem Statement

A review of literature in Sub Saharan Africa indicates that, delivery of quality care during follow up period for HIV exposed children is poor leading to high rates of loss to follow up and early mortality (Mirkuzie et al., 2011; Sugandhi et al., 2013; Watermeyer 2012). In Malawi, it is estimated that only 16% of HIV exposed children are retained in care at 24 months and the rest of the children are lost to follow up (Government of Malawi, 2015).

Children exposed to HIV are vulnerable to a range of health problems such as illnesses and death (Koyanagi et al., 2011; Landes et al., 2012; Slogrove et al., 2012). This highlights the importance of strengthening delivery of quality follow up services in order to address their multifaceted health needs but also promote their retention in care (Evans et al., 2016; Kourtis et al., 2013).

There is limited data in Malawi regarding the delivery of quality care to HEC during follow up period, yet this is a critical period where the risk of HIV is substantially high (Government of Malawi, 2014). This study sought to investigate on the quality of care offered to HEC during follow up period in order to gain in depth insight on how to improve follow up services so that more children are not infected with HIV and that more children are retained in care.

Rationale for the Research Study

The findings of the research study will assist to identify gaps that may exist in the delivery of care during mother-infant pair follow up visits at Mzimba North Health

Centre. This will lead to the identification of applicable strategies to improve those gaps. The study findings might also inform policy makers and health providers in their efforts to improve the provision of care to HIV exposed children during follow up period. The study will also act as a baseline for further research in the area of paediatric HIV management in Malawi and this will further contribute to generation of new knowledge in nursing practice, education, management and research.

Broad Objective

To investigate the quality of care provided to HIV exposed children of less than 24 months during follow up visits.

Specific objectives.

The specific objectives of the study were to:

- Assess the availability of infrastructure, human and material resources including guidelines of care during follow up visits.
- Compare the care given to the children with the care recommended by Ministry of health (MOH) through the MOH guidelines.
- Determine mothers' satisfaction on the follow up care.

CHAPTER 2

Literature Review

Introduction

This chapter provides a review of literature on Donabedian quality of care framework and other related studies that investigated the quality of care offered to HIV exposed children of less than twenty four months during follow up visit. Polit & Beck (2010) defined literature review as a critical summary of research on a topic of interest and often prepared to put a research problem in context. It aims at generating an understanding of what is known on a particular condition (Burns & Grove, 2011).

A computer assisted literature search was done through a range of academic databases such as Cumulative Index of Nursing and Allied Health Literature (CINAHL), EbscoHost, PubMed, Open Access, HINARI, ScienceDirect.com, Springer Open and Google scholar in order to review what is known about quality follow up care for HIV exposed children under twenty four months and their mothers during follow up visit.

The terms used during the search were as follows: quality of care AND HIV exposed children OR infant; quality of care AND mother of HIV exposed children; quality of care AND mother-infant pair; quality of health services AND HIV exposed children OR infant; quality of health services AND mothers of HIV exposed children OR infant; quality of health services AND mother-infant pair, follow up visit OR appointment AND HIV exposed children OR infant; follow up visit OR appointment AND mother of HIV exposed children; follow up visit OR appointment AND mother-infant pair. Key words and their synonyms included quality care, follow up visit, HIV exposed infants and children, mother-infant follow up care.

Manual search from what peers and other researchers have done was conducted from Kamuzu College of Nursing and Mzuzu University libraries. Furthermore, textbooks and unpublished papers were also accessed and reviewed. Some articles were identified from the bibliography of the retrieved articles. The search for articles focussed on publications from 2005 to 2016; however, there was a consideration of some articles which were published earlier than 2003. The researcher selected articles which were only published in English for easy understanding.

The literature review was guided by Donabedian conceptual framework on quality health care which features three elements namely structure, process and outcome. Presentation of the literature review has been divided into the following areas: Donabedian quality conceptual framework, application of the framework to the study, quality health care, structure component of the clinic which includes influence of physical structure, material and human resources to quality health care. In addition, process component of quality care which includes administration of Nevirapine prophylaxis, DNA/PCR test for HIV exposed infants at 6 weeks of age, administration of cotrimoxazole preventive therapy, growth and nutritional assessment and client counselling are also presented. Lastly, outcome in respect to service care delivery and conclusion are presented.

Donabedian Quality Conceptual Framework

The Donabedian model is a conceptual model that provides a framework for examining health services and evaluating quality of health care (McDonald et al., 2007). It was developed by Avedis Donabedian, a physician and health services researcher at the University of Michigan in 1966 (Frenk, 2000). Donabedian tried to lay a foundation

which provides a readily understood introduction to the ways quality in health care can be defined, measured, and improved (Donabedian, 1988). Donabedian proposed the triad Structure, Process and Outcome as a framework for assessing quality of care (fig. 1). According to the model, information about quality of care can be drawn from three categories; Structure, Process and Outcome (Glickman et al., 2007). The model is most often represented by a chain of three boxes containing structure, process and outcome connected by unidirectional arrows in that order (Fig. 1). These boxes represent three types of information that may be captured in order to draw inferences about quality of care in a given system (Fig. 1) (Donabedian, 2003).

Structure

Donabedian (1988) defined structure as the setting under which care is provided. This includes the attributes of material resources (such as facilities, equipment and money), human resources (such as the number and qualifications of personnel) and organization structure (such as medical staff organization, methods of peer review and methods of reimbursement). The structure forms the backbone of delivery of quality care in any health setting and Donabedian believed in the importance of a health care setting (structure), seeing it as a driving force for quality care (Glickman et al., 2007).

Process

Process denotes what is actually done in giving and receiving care. It includes the patient's activities in seeking care and carrying it out as well as the practitioner's activities in making a diagnosis and implementing treatment (Donabedian, 1988).

Outcome

Donabedian (1988) described outcome as effects of care on the health status of patients and populations such as changes in knowledge, behaviour and satisfaction of patients with care. Donabedian believed that, health outcomes are dependent on the care provided and that patients are able to feel and evaluate many outcomes allowing them to make judgments of the care they received.

The three elements (Fig. 1) of the quality framework interrelate with each other to produce quality health care. For instance, the structural elements of a facility create a conducive environment that will promote delivery of quality care which will consequently ensure that processes of care contribute to good outcome (Mavalankar, Ramani & Patel Amit, 2005).

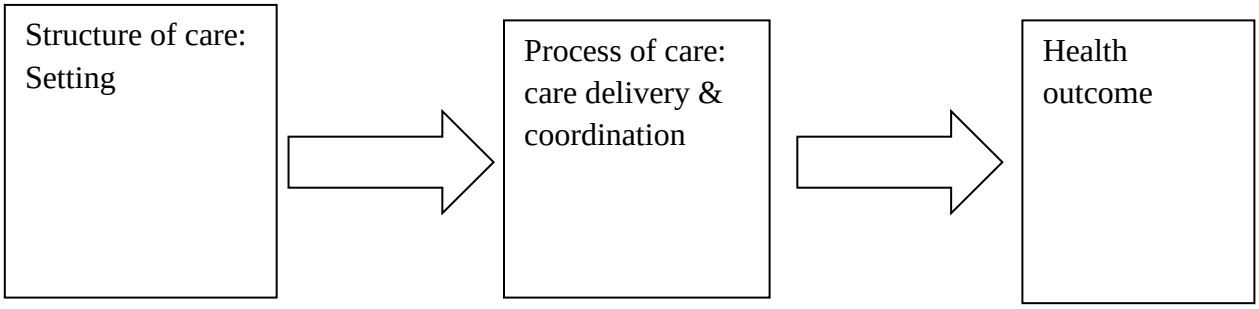


Figure 1: Donabedian's quality framework adapted from Mc Donald, Sundaran & Bravata (2003)

Application of the Conceptual Framework to the Study

Donabedian model is an appropriate framework for health care assessment for its ability to measure overall quality of a health system (Ghaffari, 2012). It is for this reason that the researcher of this study adopted the model (Fig. 2) in order to critically assess the study site (Mzimba North Health Centre) whether it provides quality follow up services to

HIV exposed children (HEC) attending the facility. The assessment mainly focused on the structure, process and outcome of health care delivery as stipulated by Donabedian conceptual framework.

Structure

In this study, structure included; availability of physical infrastructure, presence or lack of human and material resources, equipment and supplies (laboratory supplies, weighing scale, examination couch, board for measuring scale, tape measure, stethoscopes, thermometers and sharps containers), drugs and guidelines for provision of follow up care to HIV exposed children (Fig.2). Under physical infrastructure, the hospital building was investigated for the availability of clean, private, well ventilated and spacious waiting room which should be protected from sun and rain. In addition, availability of adequate counselling rooms (which are private and equipped with furniture), consultation rooms but also, presence of toilets (for both clients and health providers), waste disposal area, good drainage system, good water and power supply were also investigated. Furthermore, the clinic was investigated on the availability of adequate number of staff such as doctors, nurses, clinicians, counsellors and support staff (clerks, patient attendants, health surveillance assistants and hospital attendants).

Process

Process element in this study included services provided to HEC and their mothers as per national guidelines in Malawi (Fig. 2). These services are provided to infants according to their age thus, at birth the infant is given Nevirapine prophylaxis which is administered for six weeks. At six weeks, the baby is started on Cotrimoxazole Preventive Therapy (CPT) but also tested for HIV (DNA/PCR). On the same follow up

day, the baby is assessed for growth and nutrition pattern and mothers are counselled on different issues about PMTCT which may include infant feeding practices and importance of CPT.

During subsequent follow up visits, the same services (CPT administration, growth and nutrition assessment and counselling) are offered however; HIV testing is repeated at twelve and twenty four months in order to determine the child's HIV sero status. With regards to infant HIV testing, the researcher was more interested in assessing whether HIV exposed children recruited in this study accessed DNA/PCR at the recommended 6 weeks of age since it is the main focus of early infant diagnosis and indeed first test to determine perinatal HIV infection in infants exposed to HIV. The facility was therefore evaluated to see whether these services were provided to the infants and their mothers during follow up visit.

Outcome

Outcome of health care may be determined by evaluating individual changes in knowledge, behaviour and client satisfaction as a result of health care received (Donabedian, 1988). In this study, outcome of health care was assessed in terms of the extent to which mothers' were satisfied with the care they received during follow up visit (Fig.2).

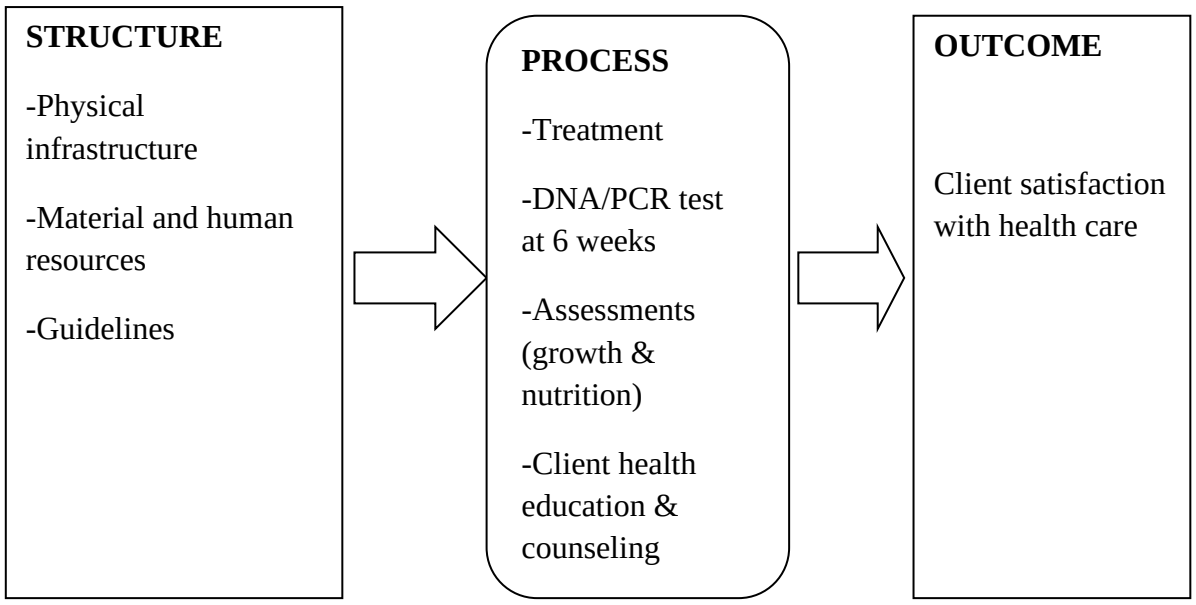


Figure 2: Modified Conceptual Framework of quality care by the researcher as applied in the study.

Quality Health Care

Quality has become an increasingly predominant component of the health care system as it is a driving force for health service utilization. However, because of its subjective nature and intangible characteristics, it has always been difficult to define quality (Mosadeghrad, 2012). Buttel, Hendler and Daley (2008) defined quality health care as the degree to which health services for individuals increase the likelihood of the desired health outcomes and are consistent with current professional knowledge. Donabedian (2003) on the other hand defined health care quality as the application of medical science and technology in a manner that maximises its benefit to health without correspondingly increasing the risk. One key aspect from these definitions is that; quality is patient/client centred because it is the provision of quality care that ensures desired health outcomes to the clients who are consumers of health services.

Good quality health care facilitates utilization of services by service users and when they are satisfied, they are often more likely to be attracted to the health facility and consequently remain compliant to treatment protocol. A study conducted in Kenya to investigate barriers to HIV treatment and care among children revealed that, good quality services attracted clients to seek medical care to a health facility. The same study found that, nearly all (98%) of the respondents sought care at a certain health facility and the main reason for preferring the facility was good quality care and quick service delivery (Kiragu et al., 2008).

In paediatric HIV, high quality care addresses multifaceted needs of HIV exposed children such as clinical monitoring, adherence counselling, support for appropriate feeding practices and opportunistic infections screening along with other critical services (Ojikutu et al., 2014) which promote client outcome and optimal survival. A study conducted in Nigeria to explore the association between quality of HIV care, loss to follow up and mortality in paediatric and adolescent patients receiving Antiretroviral Therapy found that, patients with a high quality score (those who received most of the care recommended by national guidelines) were less likely to be lost to follow up compared to those with low quality scores (Ojikutu et al.). These findings indicated that, providing high quality care is an important component to improved outcomes including reduction of loss to follow up and mortality in this age group.

Studies conducted in Kenya and Nigeria also revealed that, there is a strong link between poor delivery of quality care and loss to follow up in the PMTCT cascade. In these studies, HIV positive women and their exposed infants discontinued from attending to their clinic appointments due to poor delivery of care (Ferguson, 2013; Otieno et al.,

2010). These studies provide strong evidence that poor quality services may inhibit the PMTCT program from maximally achieving its goals of minimizing the transmission of HIV from mother to child (Mirkuzie et al., 2011) since a lot of mothers and children are lost to follow up.

Furthermore, provision of quality care contributes to the retention of mothers and their infants in care. Retention is a key focus for effective follow up services as outcomes are optimal for mothers and infants retained in comprehensive PMTCT services (Okonji et al., 2014). At another health facility in Kenya, there were great concerns about quality of care delivered to mother-baby pairs which contributed to loss to follow up for most of the HIV exposed baby-mother pairs. But after improving service delivery, there was an improvement in retention of mother- baby (0-24 months) pairs from 14% to 57% (Kivwanga, Chome & Mwangi-Powell, 2013). Findings of this study concluded that good quality care improves client retention which is very critical in paediatric HIV follow up care. According to Donabedian framework, delivery of quality care at a health facility may be influenced by structural aspects, processes of care and clients'health outcome (Donabedian, 2003).

Structure in Respect to Delivery of Quality Services

Physical structure.

Health care structure constitutes a major component of the structural quality of a health system (Scholz, Ngoli & Flessa, 2015). They form the backbone of delivery of quality care in the health setting (AHRG, 2014). The World Health Organization alliance for Health policy and systems Research further defines facility structure as one component of the six building blocks of health care system (Savigny & Adam, 2009).

The World Health Organization (WHO, 2008) recommends the following essential infrastructural requirements at any HIV clinic; sufficient counselling rooms, consultation rooms, client's waiting room, specimen collection room and records room. In addition, it also recommends the availability of safe water supply, electricity, good waste management and toilets for both clients and health providers. These infrastructural requirements enhance the delivery of quality HIV prevention and treatment services (Coulibaly et al., 2014).

With regards to the waiting area, it is recommended that the area is protected from sun and rain but also have adequate chairs, television (for entertainment but also Information, Education and Communication-IEC), educational posters and written/pictorial IEC materials. It is also very important that the waiting area is spacious and well ventilated to minimize nosocomial transmission of infections (WHO, 2008).

Well-ventilated waiting areas are a key element of the environmental control measures needed to minimize transmission of air borne infections such as tuberculosis. This is most important in HIV clinics where adult services are combined with children services. This is because, HIV infected clients are mostly at high risk of co-infection with opportunistic pathogens and are more likely to transmit horizontally to children whose immune system is underdeveloped (Sugandhl et al., 2013). This may result in an increased risk of primary acquisition of HIV related infections in children (Futata, Fusaro, De Brito, & Sato, 2012).

In PMTCT, counselling is an important component of health care quality and counselling rooms are mainly used for adherence counselling, reproductive choice and family planning counselling, partner and couples counselling, discordant couples

counselling, safer sex and risk reduction counselling, disclosure support, PMTCT counselling, infant feeding, nutrition and psychosocial counselling (MOH, 2014; WHO, 2008).

It is expected that, counselling rooms should have adequate lighting, patient information materials (posters, brochures, hand-outs), counselling support tools (flip charts, diagrams, prevention wall charts) and demonstration tools (WHO, 2008). In order to avoid profound stigma which continues to surround HIV infection, attention to patient privacy (both audio and verbal) and confidentiality in counselling rooms is important. Clients feel more comfortable when their privacy is protected and they are more likely to participate actively in their treatment plan (Mosadeghrad, 2012).

Lack of privacy in PMTCT is documented to have a negative impact in the uptake and adherence of PMTCT services (Kalembo & Zgambo, 2012; Mapunjo & Urassa, 2007; Nuwagaba-Biribonwoha, Mayon-white, Okong, & Carpenter, 2007). A study conducted in Nigeria to assess barriers to the uptake of PMTCT services found that, 86.7% of the mothers were observed to have missed PMTCT services. The main reason for missing the services was lack of confidentiality/privacy at the clinic (Anigilaje, Ageda & Nweke, 2016).

Limited privacy is also documented to be a key source of stigma (WHO, 2013). Another study was done in the United States of America to explore the factors contributing to dropping out of clients from HIV treatment. The study revealed stigma as one of the factors for dropping out from HIV treatment and care program by many clients (Pecoraro et al., 2013).

In addition, HIV clinics ought to be visibly clean with good waste management and adequate safe water supply (for hand washing and drinking) to prevent the transmission of enteric and other pathogens. This is essential in providing quality HIV services, as patients with suppressed immune systems are vulnerable to water and airborne contamination (WHO, 2008). Another study in Iran to explore the perspectives of various healthcare stakeholders about health care service quality framework found that, all interviewed clients preferred a clean hospital environment in order to prevent hospital acquired infections (Mosadeghrad, 2012). A clean hospital environment assures patients that they are safe; an essential factor in the delivery of care.

However, many health facilities in Sub Saharan Africa do not have adequate physical infrastructure which affects delivery of quality care (CDC, 2013; Coulibaly et al., 2014; Mukherjee, Ghosh, Goswani & Samanta, 2012). A study conducted in Kwa-Zulu-Natal in which 20 clinics were assessed whether they were equipped adequately for the delivery of HIV services revealed that, 10 (50%) of the clinics did not have sufficient consultation rooms such that sharing of consultation rooms between health care workers was a common practice. The study further revealed that, 50% of the clinics had insufficient storage rooms for medication and that the rooms were leaking. There was also lack of electricity and water supply in some areas within the clinic (Crowley & Stellenberg, 2014). All these missing components are essential for ensuring quality services at the clinic.

Similar findings were also seen in a study which was conducted in 7 facilities in Tanzania where there was lack of water drainage system, power and water supply, but also leaking roofs, old buildings and rooms (Scholz, Ngoli & Flessa, 2015). Another

study which was conducted in 7 provinces of South Africa revealed lack of sufficient consultation rooms which prevented the primary health care nurses from working effectively in their facilities (Cameron, Gerber, Mbatha, Mutyabule & Swart, 2012).

There is limited literature in Malawi regarding studies that assessed HIV clinics whether they have essential infrastructural requirements as recommended by the World Health organization such as sufficient counselling rooms, consultation rooms, client waiting rooms, specimen collection room, records room, safe water supply, electricity, good waste management and toilets for both clients and health providers (WHO, 2008). A study conducted by Dube et al. (2012) to assess the implementation of early infant diagnosis (EID) at a primary care level in Malawi revealed limited physical space for counselling as one of the challenges that affected the implementation of EID. The study however, did not assess the availability of other infrastructural elements as recommended by the World Health Organization.

Influence of material resources to quality health care.

Adequate supply of commodities form an important component of decent working conditions for health workers which is essential to the improvement of quality of services (International Labour Organization, 2010). This is because consistent supply of resources facilitates high staff performance which improves client satisfaction (Schuster, 2016). In HIV programs, availability of material resources forms an essential component of the provision of quality care (Crowley & Stellenberg, 2014).

National guidelines in Malawi recommend the availability of all essential supplies and equipment in all clinics providing paediatric HIV care. These include; drugs such as cotrimoxazole and ART, essential laboratory supplies for performing dried blood spots

such as; filter papers, lancets, gloves, cotton wool, zip lock bags, glycine paper, specimen log forms, rip- resistant envelops, desiccant packets and humidity cards. In addition; equipment such as paediatric weighing scale, stethoscopes, tape measures, board for measuring height, thermometers, sharps containers and examination couch are required (MOH, 2014). Guidelines on follow up care and management of HIV exposed infants should also be available at the clinic.

Central to the provision of quality follow up care for HIV exposed children is the availability and functionality of these supplies and equipment. Clinical monitoring of HIV exposed infants throughout the continuum of care requires that infants be tested for HIV (DNA/PCR at 6 weeks), but also be given cotrimoxazole prophylaxis and assessed for growth and nutritional status (MOH, 2014). Provision of these services requires resources as outlined above in order to achieve maximum patient outcomes.

In addition to material resources, availability of clinical guidelines in HIV clinics is also a key component in the delivery of safe patient care (Crowley & Stellenberg, 2014). These are a set of proven best practices within the health care system which assist in the provision of quality care (Open Clinical, 2013). Use of guidelines contributes to the efficacious, effective and efficient delivery of care which meets the patient's needs and promotes best outcomes (Mosadeghrad, 2012). Since guidelines are based on latest scientific evidence, they are highly recommended to be available in HIV clinics in order to ensure that safe and updated care is delivered to clients (Open Clinical).

Literature reveals limited resources in most HIV care clinics in resource limited countries which affect health provider's performance to provide quality care. A study done in Tanzania revealed how quality standards of care in the provision of facility based

HIV care and treatment may be affected due to lack of basic supplies and equipment. The study which was conducted in ten health facilities found that, generally, all the facilities had inadequate laboratory equipment and antiretroviral drugs (Mapunjo & Urassa, 2007) suggesting that, the delivery of quality HIV care was compromised since availability of adequate supplies determines health worker's ability to provide quality care.

Furthermore, limited supplies serve as a barrier to health care facility performance and uptake of PMTCT services. A study which was conducted in 6 rural public primary health care facilities in Mozambique to assess structural health system limitations for PMTCT observed that, months with stock outs of HIV testing commodities had a lower average number of HIV tests performed in HIV exposed infants. Similarly, months with stock outs of drugs had a lower number of children receiving medication for PMTCT (Geelhoed et al., 2013). It was concluded that, structural health care system limitations such as irregular supply of essential commodities overshadow the potential benefits of managing HIV exposed infants.

Another study which was conducted in 5 health districts in Burkina Faso to assess missed opportunities for early access to care of HIV- infected infants revealed lack of laboratory reagents in all the 5 districts. This contributed to missed opportunities for early access to HIV care (Coulibaly et al., 2014). Another study conducted in Kwa-Zulu-Natal in which 20 primary health care clinics were assessed whether they were equipped adequately for the delivery of HIV services revealed that, basic equipment such as thermometers and blood pressure monitors were missing/not functioning properly in two (10%) of the clinics (Crowley & Stellenberg, 2014). This is likely to compromise proper delivery of quality care.

Availability of clinical guidelines in some HIV clinics is also a challenge which is likely to compromise the delivery of good quality care. A study conducted in Kwa-Zulu-Natal revealed that, only 2 (10%) of the clinics had updated guidelines (Crowley & Stellenberg, 2014). Unlike these findings, a study conducted in Malawi revealed that, availability of national guidelines for HIV/AIDS services was high. Of the 20 facilities that were assessed, 70% had a copy of the national laboratory protocol, 98% had both the national HIV counselling and testing guidelines and the national ART guidelines (Rondinelli, Bouchet & Rimal, 2011). However, the results did not reveal about the availability or lack of paediatric HIV management guidelines such as early infant diagnosis guidelines handbook and HIV exposed infant schedule protocol for follow up.

Although there is limited data regarding the availability of adequate material resources in HIV clinics in Malawi, some studies revealed that Malawi is equally affected by shortage of resources in HIV care facilities. A study which was conducted in twelve health care facilities in central Malawi, revealed shortages in resources such as HIV test kits which compromised the smooth running of health delivery (Ahmed et al., 2016). A similar study which was done in 20 health facilities across Malawi to assess the quality of HIV/AIDS services revealed that 70% of the facilities reported a shortage of HIV test kits (Rondinelli et al., 2011). However, these studies focussed on specific resources such as laboratory and pharmaceutical resources and not other resources critical in the delivery of paediatric HIV management. In addition, the focus of these studies was on measuring resource indicators for adult management of HIV services and not paediatric HIV management.

Influence of human resource to quality health care.

An adequate number of health providers in a health setting is essential in the provision of quality health care and is a key indicator for quality services (AHRG, 2014). This is likely to increase the uptake of PMTCT services by mothers living with HIV and their exposed infants. A study conducted in Ethiopia to identify factors associated with the uptake of PMTCT of HIV revealed that, by increasing the number of health providers, the likelihood of mothers getting PMTCT services significantly increased (Lerebo, et al., 2014).

However, reports reveal that, Sub Saharan Africa has the greatest burden of disease (24%) with only 3% of the world's health workers (WHO, 2010). Various HIV care facilities in resource limited settings are increasingly challenged by shortages of human resource (Bancheno, Mwanyumba & Mareverwa, 2010; Coulibaly et al., 2014; Gourlay et al., 2013) contributing to delivery of poor quality services.

A recent review of studies revealed that poor quality of care is linked to insufficient staffing levels (Hyer, Thomas, Mehra, Johnson, & Harman, 2009). This is because inadequate staffing levels lead to heavy workload which is a key stressor in the health care delivery system (Dieleman & Harnmeijer, 2006; Rujumba et al., 2010). A study which was conducted in Ethiopia to understand the levels of satisfaction of clients with PMTCT services revealed heavy workload by health providers. In this study, 71% of the health providers complained of a heavy workload which had increased since the introduction of PMTCT services suggesting added workload brought on by the HIV epidemic which is straining on already overstretched health workers (Asefa & Mitike, 2014; McCoy, Pake & Mwapasa, 2008).

Poor delivery of care as a result of human resource shortages was also observed in a study conducted in Kwa-Zulu-Natal in which 20 clinics were assessed whether they were equipped adequately for the delivery of HIV services. The study found out that, clinics which attended to a higher average number of patients had lower average scores of quality indicators of the study instrument suggesting inadequate staff to provide quality care to clients (Crowley & Stellenberg, 2014). It was concluded that, human resource shortages impede optimal delivery of quality HIV/AIDS interventions. In addition, staff shortages are reported to lead to poor performance by health providers which consequently lead to inaccessibility and inappropriate care, which contribute to reduced health outcomes in HIV positive mothers and their children (Dieleman & Harnmeijer, 2006).

Process in Respect to Paediatric HIV Follow Up Care

Donabedian's model suggests that, one of the elements that can be measured to evaluate whether a health facility is providing quality health care are process indicators (Donabedian, 2003). These are services provided to clients in order to improve their health. In paediatric management of HIV exposed babies, these services include the delivery of Nevirapine prophylaxis at birth which is administered for six weeks. At six weeks the baby is started on CPT but also tested for DNA/PCR. On the same follow up day, the baby is assessed for growth and nutrition pattern and mothers are also counselled on different issues such as infant feeding practices and importance of CPT and Nevirapine. During the subsequent follow up visits, the same services (CPT, growth and nutrition assessment and counselling) are offered to the infant. These process indicators are recommended by the world Health Organization as they form integral components of

routine care of HIV exposed children and are therefore supposed to be adhered to at every health facility managing HIV exposed babies (Ojikutu et al., 2014; UNAIDS/WHO, 2011).

Administration of infant Nevirapine prophylaxis

World Health organization recommends that HIV exposed infants (HEI) receive ARV prophylaxis at birth which is administered for six weeks (Okonji, Sandfolo, Myers, Scheepers & Schmitz, 2014)**.** Malawi adopted this protocol seeing it as a key strategy for preventing HIV infection in infants. The drug protects infants against the HIV virus which might have obtained access to the infant's circulation through maternal-foetal transfusion or systemic dissemination of the virus swallowed by the infant during passage through the birth canal (Hurst, Appelgren & Kourtis, 2015).

Several studies have revealed strong evidence that infant ARV prophylaxis reduces the risk of Mother–To Child Transmission (MTCT) of HIV. A study done in Zimbabwe to analyse the national early infant diagnosis dataset found that, infants who received ARV prophylaxis were significantly less likely to be HIV positive compared to infants who did not receive ARVs (10% against 23%) at 6 weeks postnatal period in 2010 (Madziro et al., 2015).

Another study which was conducted in rural Malawi to assess paediatric HIV free survival following PMTCT programs found that, among children who did not receive ARV prophylaxis, the estimated 24 months probability of HIV free survival was 61% and among those who did receive ARV prophylaxis, the estimated HIV free survival was 82% (Mandala et al, 2012).

A similar study conducted in rural Swaziland to assess the outcomes and challenges of scaling up comprehensive PMTCT services found out that, the overall prevalence of HIV infection among exposed infants (irrespective of maternal ARVs or infant ARV prophylaxis) was 21.3%. However, the prevalence of HIV infection among infants where both mother and infant received prophylaxis was 16.1% (Bancheno et al., 2010).

Provision of infant ARV drugs is a critical component of PMTCT, and is key to changing the trajectory of the HIV epidemic in Sub-Saharan Africa (Gourlay et al., 2013). However, literature has demonstrated that, some HIV exposed infants do not access the ARV prophylaxis due to institutional and human related factors. A qualitative study to assess barriers to the uptake of PMTCT services among vertically infected infants in Nigeria revealed a number of barriers that contributed to the infants' missing their drugs. In the study, 50% of the mothers did not administer the infant ARV prophylaxis because they delivered at home, 22.7% of the mothers refused to give the drug to the baby for fear of stigma, 9.1% narrated that they forgot to give the drug, 9.1% of the mothers said the baby did not tolerate the drug and therefore did not give it while 36.4% of the mothers delivered in private hospitals which were not giving the drug since the hospitals were not offering PMTCT services (Anigilaje, Ageda & Nweke, 2016).

A related study which was conducted in Zimbabwe to assess the uptake of services and behaviors in the PMTCT cascade revealed that, only 63% of HIV exposed infants registered into the PMTCT program received the ARV prophylaxis. The reason for the low uptake was drug stock outs, poor provider knowledge or attitudes and lack of trained provider to render PMTCT services to clients. The same study revealed that 23%

of the HIV exposed infants did not receive the ARV prophylaxis because they were delivered at home (McCoy et al., 2016). Another study by Gourlay et al. (2013), reported stock outs of ARV drugs as one of the challenges contributing to the inaccessibility of infant ARV prophylaxis by HIV exposed infants. It is therefore critical that efforts are directed towards eradicating these barriers in order to promote delivery of quality care to HIV exposed children.

DNA/PCR test for HIV exposed infants at six weeks of age.

World Health organization recommends that infants known to have been exposed to HIV should undergo a virological HIV test (DNA/PCR) at 4 - 6 weeks of age (WHO, 2010). In Malawi, infant DNA/PCR test is done when the baby is six weeks old (MOH, 2014). This is the first test done to determine if an HIV exposed child is infected with HIV as it detects perinatal HIV infection (MOH, 2014). It is very important to do the test early in life (six weeks postpartum) for early identification and treatment of HIV disease (Kebede, Gebeyehu, Jain, Sun & Haubrich, 2014). This is very critical because of the risk for rapid disease progression in infants (Madziro, 2010; O'Donnell, 2014).

Central to the achievement of early infant diagnosis is ensuring that HIV exposed children are tested early at the recommended age of 6 weeks old. However, some studies have reported a late presentation to the hospital for a number of HIV exposed children. A study conducted in Zambia to assess the longitudinal adherence to antiretroviral drugs for PMTCT of HIV revealed that, out of the 326 infants born at the facility, 262 (80.4%) underwent HIV testing at a median age of 10 weeks (Okawa et al., 2015). Another study conducted in Malawi revealed that, the median age at first DNA/PCR test was approximately 12 weeks, nearly 6 weeks later than the age recommended by World

Health Organization guidelines (Herce et al., 2015). This late presentation was attributed to persistent gaps in health worker EID training, Dried Blood Spots (DBS) collection, exposed infant registration and exposure screening among infants born at home who later present for routine health services.

In addition to late presentation, globally, coverage of EID test for HEI is low as only 39% of children in low- and middle- income countries were estimated to have access to HIV testing within the recommended six weeks of birth in 2012 (UNICEF, 2013). This was in part due to low rates of maternal HIV testing and diagnosis (Kellerman & Essajee, 2010). Studies from West Africa revealed similar low EID tests to HIV exposed children (HEC). In Cote d'Ivoire, for instance, only 24% of HEC tested for DNA/PCR in 2010 (Folquet-Amonissani, 2012). Similarly, in Burkina Faso, among HEC, 29.4% had an HIV virologic test (DNA/PCR) for early identification of HIV infection in exposed children (Coulibaly et al., 2014).

A related study from Nigeria revealed that only 35% of infants born to HIV infected mothers underwent HIV testing in the first 6 weeks of life (Rawizza et al., 2015). A report from Malawi equally indicates low coverage of early infant diagnosis in children exposed to HIV. In this report, it was revealed that, only 37% of infants born to HIV positive women received a virological test for HIV within two months of birth in 2014 (Government of Malawi, 2015).

Studies have further demonstrated that other factors affecting the uptake of early post partum diagnosis of HIV in exposed infants include: shortage of PMTCT reagents and consumables, well trained staff, lack of integration of services and limited central laboratories (Crowley & Stellenberg, 2014; Geelhoed et al., 2013; Mapunjo & Urassa,

2007). A qualitative study conducted in Uganda to explore the lessons learnt by health workers involved in the provision of PMTCT services revealed shortages of critical supplies for PMTCT such as HIV test kits. These shortages constituted missed opportunities for the provision of early infant diagnosis. It was concluded that there should be a constant supply of these items in HIV clinics in order to maximally achieve the goals of early infant diagnosis (Rujumba et al., 2012).

Similar observations were seen in a study conducted in Burkina Faso to assess if the national program of PMTCT reached its target. The study observed that 31% of the HIV clinics had shortages of PMTCT reagents and consumables. None of the HIV clinics offered the whole package of PMTCT due to shortage of supplies. It was concluded that, in order to provide quality PMTCT services, particular support with resources was needed.

Shortage of well trained staff also interferes with early infant diagnosis. In a study by Mirkuzie et al (2011), it was discovered that, infants were not done an HIV test because of lack of trained staff. In another study conducted in Burkina Faso, it was revealed that at six weeks postnatal visit, HEC were not tested for DNA/PCR due to shortages of well trained personnel. Due to limited staff, the study further discovered that the DNA/PCR test could only be performed one day in a month (Coulibaly et al., 2014). This led to high loss of follow up of infants without accessing EID services.

Lack of integration of services is another barrier to the uptake of DNA/PCR HIV test among HIV exposed children. A study conducted in Malawi revealed that, inadequate integration of maternal and child health services contributed to its underperformance in terms of early infant diagnosis coverage (Braun et al., 2011). Poor

integration of PMTCT services leads to unnecessary missed opportunities (Sovannarith et al., 2012; Yeap et al., 2010). A study conducted in Ethiopia found that, out of 86% of HEC who attended immunization clinics at six weeks postpartum, only 53% accessed EID services (Mirkuzie et al., 2011). This implies that large missed opportunities are occurring within the health system. These missed opportunities delay early identification of HIV infection in infants which may be detrimental to their survival. Efforts should be directed towards promoting early infant diagnosis of HIV in order to promote optimal health and survival of HIV exposed infants.

Administration of Cotrimoxazole Preventive Therapy (CPT).

An important component of the HIV care and treatment package for children exposed to HIV is the provision of cotrimoxazole prophylaxis. This widely available, inexpensive antibiotic is recommended for HEC at four to six weeks of life and continued until the child is confirmed HIV-uninfected and there is no further exposure to breast milk transmission (WHO & UNICEF, 2009). In Malawi, the drug is administered from six weeks of birth and maintained until six weeks of breastfeeding cessation (MOH, 2014).

The drug provides adequate prevention against serious, often fatal, opportunistic infections, notably Pneumocystic Jiroveci Pneumonia (PJP) and improves the quality of life of HEC while reducing the burden of care on health care system and caregivers (WHO & UNICEF, 2009). The drug also protects against episodes of malaria and gastrointestinal diseases (Kourtis et al., 2012). Its use for this indication is referred to as cotrimoxazole prophylaxis (WHO & UNICEF, 2009).

Despite its benefits of improving health and survival of HEC, the uptake of this drug is low in SSA due to a number of factors one of which is drug stock outs. A study

conducted in Zimbabwe found drug stock outs as one of the challenges to the uptake of CPT as babies would go without the drug after visiting the HIV clinic (Sibanda, Bernays, Weller, Hakim, & Cowan, 2015).

Another problem undermining the uptake of CPT is the problem of loss to follow up. It is reported that in Sub Saharan region, approximately 10% of children are identified as loss to follow up (Vreeman et al., 2009). A study conducted in Nigeria found that the greatest loss of follow up in the PMTCT care cascade occurred prior to first infant visit (16%) (Rawizza et al., 2015) which is very critical because it is the period during which the infant is given CPT plus other life saving interventions (Kalembo & Zgambo, 2012).

In addition, stigma contributes to the low uptake of CPT. In a qualitative study by Sibanda et al. (2015), mothers reported being reluctant to collect CPT prescription refills from the HIV clinic for fear of being seen by friends/relatives. Other studies revealed that some mothers fail to adhere to child's appointment dates to collect their drugs because of transport costs, time constraints, distance to the clinic or mothers' perception that the child is well (Yeap et al., 2010; Vreeman et al., 2009 & Wachira, 2012). Efforts to strengthen the administration of the drug are very important to promote optimal health to HIV exposed infants.

Growth and nutritional assessment

Growth monitoring is defined as the process of following the growth rate of a child in comparison to a standard by periodic, frequent anthropometric measurements in order to assess growth adequacy and identify faltering early (Akanbi & Anyarsor, 2014). It forms a standard component of services that HEC are offered during follow up period.

Growth and nutrition assessment is a low cost strategy for improving health and survivor outcomes for HEC (Ram et al., 2012) as it indicates growth progression which is one of the best indicators of an infant's overall health. On the other hand, growth and nutrition screening help to identify growth failure, a sensitive marker of HIV infection in HEC (South to South, n.d).

Literature suggests that, infants exposed to HIV have elevated risks of growth and nutrition problems. This may be so due to a number of factors ranging from maternal and infant factors. A study conducted in South Africa to assess growth parameters by weight and length in HIV infected and uninfected infants born to HIV infected mothers in South Africa revealed that, infants who were born to mothers with advanced HIV disease and were formula fed or had gastrointestinal infections were at a greater risk of growth disturbances (Venkatesh et al., 2010).

Furthermore, HIV associated morbidity by the mother may hinder a mother's ability to provide adequate care to her child which may negatively impact on their growth and nutrition pattern (McDonald et al., 2013). In addition, these children are born in HIV stricken households which are often food insecure and this may further limit dietary diversity and increase the risk of multiple deficiencies (McDonald et al.).

A study in India to assess growth patterns among HIV- exposed infants revealed that, infant related factors which increased the risk of stunting, under weight and wasting among HIV exposed but uninfected infants included those who were born preterm and low birth weight (Ram et al., 2012). The same study revealed that HIV exposed but uninfected infants had poor growth outcomes and it was concluded that, efforts should be

directed towards early growth monitoring in all HIV exposed infants in order to improve health and survival outcomes of these infants.

For all of these reasons, it is critical to monitor growth and nutrition pattern of HEC i.e. Mid Upper Arm Circumference (MUAC), weight and height, plot it in the Road to Health booklet, and interpret the findings and trends at every follow up visit (South to South, nd). Malawi national guidelines equally recommend the same infant monitoring trends at every follow up visit (MOH, 2014).

While growth and nutrition assessment is critical in the management of HEC, studies have demonstrated that most health workers do not actively perform it in part due to shortage of equipment, high caseloads and insufficient practical skills by health workers (Bilal, 2014). Another report by UNICEF- Zimbabwe (2013) revealed that active growth and nutrition screening is low in health facilities due to low motivation by health care providers, inadequate knowledge and equipment. The same report indicated that, height assessment is not done consistently in the majority of health facilities as it is regarded as time consuming by health providers. There is scarcity of literature in Malawi regarding the practice of health workers in regards to monitoring growth and nutrition patterns in HEC. It is however critical that these assessments are consistently conducted during follow up visit for early identification of nutrition problems which may be life limiting if treatment is delayed.

Client counselling

Client counselling is a standard component of PMTCT program. Firstly, because it contributes to the prevention of MTCT of HIV (Solomon, Visnegarwala, Philip, Susan & Alexander, 2012; WHO, 2010) since it equips mothers with necessary information to

protect their infants from getting the virus. Effective client counselling also promotes adherence to drugs and other PMTCT services. A study conducted in Ethiopia to assess the level of adherence and predictors of adherence to the option B + PMTCT programme revealed that, proper counselling was a positive predictor of adherence to ARV drugs in 87.1% of the respondents (Ebuy, Yebyo & Alemayehu, 2015). This explains the importance of effective counselling in HIV program.

National guidelines in Malawi recommend that, mothers should be counselled at each and every follow up visit (MOH, 2014). During these follow up visits, mothers are counselled on various PMTCT issues such as; infant feeding practices, drug adhererence, ways of minimising MTCT of HIV, safer sex and risk reduction and the importance of cotrimoxazole prophylaxis and infant Nevirapine. These are the most important components in efforts to eliminate vertical transmission of HIV but literature suggests that counselling on these areas is inadequate which contributes to maternal low knowledge about PMTCT (Bwalya et al., 2011; Nguyen, Oosterhoff, Ngoc, Wright & Hardon, 2008; WHO, 2013).

A study which was conducted in Ethiopia to understand the levels of satisfaction of clients with PMTCT services revealed that, only 52% and 10% of the women were counselled on MTCT of HIV and safe infant feeding respectively (Asefa, 2014). A similar study by Kalembo and Zgambo (2012) found that clients had inadequate information on PMTCT services given that they could not remember the information communicated to them during counselling suggesting inadequate counselling by health providers. Similar observations were seen in a study conducted in Soweto, South Africa to assess challenges to delivery of quality care in a PMTCT of HIV programme. The

study which recruited 201 HIV infected pregnant women revealed that, 97.5% of the women received counselling but when asked to recall the message they received, only 43.3% narrated accurate information about PMTCT suggesting critical gaps in PMTCT counselling (Mnyani & McIntyre, 2013).

Studies have indicated that, barriers to effective counselling may be due to several factors ranging from health provider factors, client factors and health system factors. Inadequate knowledge and practices by health providers for instance, negatively affects PMTCT counselling because less competent providers are more likely to deliver poor quality counselling. Work by Rujumba, Mbasaalaki-Mwaka and Ndeezi (2010) discovered lack of counselling skills, knowledge gap in paediatric HIV and heavy workload as major challenges faced by health providers in providing effective counselling. Similar findings were observed in a qualitative study conducted in South Africa to explore factors influencing uptake of HIV care and treatment among children. The study revealed inadequate counselling skills by health workers which affected the quality of information given to clients (Yeap et al., 2010).

Another study further revealed lack of communication skills by counsellors given that clients were not given a chance to ask questions or seek clarification during counselling. Respondents (91%) from the same study further claimed that counsellors did not listen to them during the counselling process while 48% felt that it was difficult to understand what the counsellor was telling them suggesting lack of two-way communication and use of more technical words during the counselling process (Kumar, Singh & Kusuma, 2015).

WHO Bulletin, (2010) also reported that most often, health providers lack the skills needed to offer support and advice to PMTCT women. Other studies from Tanzania and Zambia noted high levels of stress, depression, burnout and frustration by PMTCT counsellors as barriers to comprehensive counselling (Buskens & Jaffe, 2008; Bwalya et al., 2011).

On the other hand, client factors that affect effective counselling may include poor compliance and passive resistance to adopt new behaviour and practices. This may lead to poor provider- client interaction and is more likely to compromise the delivery of quality counselling thereby decreasing client compliance to follow instructions (Buskens & Jaffe, 2008).

Furthermore, delivery of effective counselling may be affected by infrastructure deficiencies and little contact time between health provider and client (Bancheno et al., 2010; Kumar et al., 2015; Yeap et al., 2010). Lack of counselling rooms contributes to ineffective counselling sessions but also compromises privacy and confidentiality which may result in poor compliance and retention in care of mothers postpartum (Euphenia et al., 2013).

In Malawi, delivery of effective client counselling is equally a challenge. A study conducted by Levy, Webb and Sellen (2010) revealed knowledge gap about PMTCT issues by health care providers which contributed to delivery of poor quality counselling because despite being counselled, clients lacked proper understanding about PMTCT principles. However, there is scarcity of data in Malawi regarding mothers' level of understanding about the significance of PMTCT interventions particularly on the importance of infant Nevirapine, CPT and proper infant feeding practices yet these

interventions form a critical component in efforts to minimise vertical transmission of HIV from mother to child.

Outcome in Respect to Service Care Delivery

Outcome of health service delivery is an important element in health care because it signifies the extent to which quality care is delivered (Mosadeghrad, 2012). According to Donabedian (2003), one element that is measured to assess service quality is outcome of care (changes in people with regards to their health) and these changes might be in relation to health status, knowledge and behaviour. Clients are therefore able to judge good quality services through these changes which may consequently lead to client satisfaction, an important attribute of quality health services (Mosadeghrad).

According to Ahonkhai, Bassett, Ferris and Freedberg (2012), patient satisfaction is the extent to which a patient's health care experience matches his/her expectations. This explains why patient satisfaction studies are regarded as important pillars of evaluating delivery of quality health services (Asefa, 2014; Watermeyer, 2012). Understanding aspects of health care service delivery from the perspectives of clients is therefore of particular importance.

Furthermore, client satisfaction with care is regarded as a crucial element as it reflects provider's ability to successfully deliver care that meets the clients' expectations and needs (Kagashe & Rwebangila, 2011). Since clients are critical evaluators of quality health care, they have intrinsic ability to judge or evaluate all aspects of health care, i.e. processes associated with health services such as length of waiting for consultation, availability of drugs, equipment and human resources (Muhondwa, Leshabari, Mwangu, Mbembati & Ezekiel, 2008; Márquez-Peiró & Pérez-Peiró, 2008; Thiedke, 2007).

In addition, evaluation of client satisfaction helps to determine the uptake of services. This is because clients who are satisfied are likely to utilize health services efficiently but also adhere to treatment protocol (Baltussen & Ye, 2006; Deressa et al., 2014). In HIV treatment programs, this has important implications as it promotes positive patient outcomes (Dang et al., 2013). It is therefore important to understand clients' perceived quality of HIV services during follow up visits if we are to promote client retention and utilization of HIV services.

There are a lot of factors which influence client's judgement to perceive services as good, satisfactory or poor. A qualitative study conducted at one of the HIV clinics in South Africa discovered that, adequate human and material resources, adequate counselling rooms, good processes and organization of routine activities, good staff - patient relationships and communication were the reasons why respondents were highly satisfied with the care they received at that clinic (Watermeyers, 2012).

A study conducted in Ethiopia to assess the level of satisfaction of clients with PMTCT services revealed that 74.7% of the women were satisfied with PMTCT services. The main reason for their satisfaction was good counselling sessions (Asefa & Mitike, 2014). Similar findings were observed in a study conducted in Tanzania to assess client's satisfaction with services for PMTCT of HIV. The study revealed that, 75.2% of the clients were satisfied with PMTCT services mainly because of the counselling sessions. The same study revealed that nearly a quarter of the clients who accessed PMTCT of HIV services were not satisfied. The main reason for their dissatisfaction was lack of privacy during counselling, poor quality of counselling, long waiting time and cost incurred when travelling to seek PMTCT services (Lyatuu, Msamanga & Kalinga, 2008).

Other studies conducted in Zambia and Kenya narrated dissatisfaction with services mostly due to long waiting time, physical infrastructural deficiencies, lack of drugs and other resources (Dansereau et al., 2015; Kiragu et al., 2009). This explains why patient satisfaction regarding health care is considered of clinical relevance as it helps to measure the quality of health services and to identify barriers which may hinder effective delivery of care to clients (Dansereau et al.; Préau et al., 2012).

While several previous studies have been done on this area, their focus was mainly on mothers' satisfaction of services for their individual care. There is scarcity of data on mothers' satisfaction of care provided to their HIV exposed children during follow up visits. This information is very critical because it will help to measure the quality of health services offered to HIV exposed children during follow up period.

Conclusion

This chapter covered a critical summary of previous studies that investigated the quality of care offered to HIV exposed children and their mothers. This review was conducted in order to generate an understanding of what is known on quality of care provided to HIV exposed infants and their mothers during follow up visits. From this literature review, it has been learnt that, provision of quality care to HIV exposed infants is important as it promotes the uptake of PMTCT services and retention into care of HIV positive mothers and their infants. In addition, it improves positive outcomes in HIV exposed children since their multifaceted needs are addressed.

It has also been discovered that, structural component of health care constitutes a major part of health care system as it forms a conducive environment for the smooth delivery of processes of care which results into positive patient outcomes. However, the

literature review showed that, in many countries, delivery of quality care is challenged by health care infrastructure deficiencies and a critical shortage of human and material resources.

Critical infrastructure deficiencies have been shown to be in areas of counselling and consultation rooms which most of the times lead to long waiting time, a factor, described as disincentive for seeking care and likely to lead to loss to follow up of clients. In addition, availability of clinical guidelines is also a challenge which may further compromise delivery of quality care since clinical guidelines form a key component in the delivery of safe and comprehensive patient care.

Furthermore, the review of literature has revealed profound gains in HIV exposed infant's health outcome if they receive standard clinical care. For instance, provision of infant Nevirapine prophylaxis was shown to significantly reduce the risk of HIV in those infants who received the drug compared to those who were not given the drug. Similarly, early infant diagnosis of HIV which is done at 6 weeks of age has been shown to improve infant's optimal health as it promotes early initiation of ART if the child is identified to be HIV positive.

From the review of literature, it has also been shown that, mothers/caregivers have intrinsic ability to judge or evaluate all aspects of health care whether good or bad. Thus, if health care services meet their expectations, they are likely to be satisfied with the care they received which consequently facilitates utilization of services and promotes retention in care.

While some studies have been carried out on this area, there is limited information about the topic in Malawi. Studies that have been conducted were limited to specific

indicators of quality (material resources and physical space) which might not conclusively measure quality health care provided to women living with HIV and their exposed children (Ahmed et al., 2016; Dube et al., 2012; Rondinelli et al., 2011). Donabedian conceptual framework recommends evaluating three elements namely; structure, process and outcome in order to determine whether a health facility is providing quality health care. The study therefore sought to fill this research gap by empirically exploring all the attributes of quality health care services offered to HIV exposed children during follow up visit. This information would be useful for managers, professionals and policy makers who would like to improve the performance of health care services of HIV exposed children.

CHAPTER 3

Methodology

Introduction

Research methodology refers to techniques researchers use to structure a study, gather and analyze information relevant to the research question (Polit & Beck, 2010). This chapter presents the research design, study setting, study period, study population, inclusion and exclusion criteria, sample size and sampling methods, validity and reliability, recruitment process, data collection process, data management and analysis, ethical consideration and plans for dissemination.

Research Design

The study utilized a descriptive quantitative cross sectional design. Descriptive studies are useful since they enable a researcher to discover new meaning, describe what exists, determine the frequency with which something occurs, and categorize information (Burns & Grove, 2011). In this study, the researcher had the opportunity to describe the extent to which quality of care was offered to children exposed to HIV during follow up visits.

Study Setting

The study took place at Mzimba north health centre**.** It is the largest and only urban health centre in the city of Mzuzu serving a total catchment population of about 239,000 (Republic of Malawi, 2016). The health centre serves as a primary contact hospital, and because of its location, it attends to a large number of patients (about 1,000 patients) per day (Hospital HMIS, July, 2016). The health centre provides many services including Antiretroviral Therapy (ART). Paediatric HIV services at the institution started

in August 2011 and are provided every day. These services are combined together with adult HIV services. The study setting was chosen because it is the largest health centre within Mzuzu city where a large number of children exposed to HIV are managed. Understanding the extent to which quality of services were provided to children exposed to HIV during follow up visit was therefore considered to be very important.

Study Period

The estimated period for the study was from June 2015 to December 2015 but was extended to July, 2016 to recruit the required number of participants.

Study Population

The study population were mother- baby pairs attending follow up visits at Mzimba North Health Centre. These were women living with HIV together with their HIV exposed children who were below 24 months old. According to the Ministry of Health in Malawi, HIV exposed infants and children are followed up till they are 24 months when they are confirmed HIV negative (MOH, 2014). Mothers were recruited for the purpose of finding out the extent to which quality care was provided to their children.

Inclusion and Exclusion Criteria

Inclusion criteria.

- Mothers of HIV exposed children below 24 months who attended follow up visits for at least two times. It was assumed that, by attending follow up visits for at least two times, the mother would be more likely to be well informed with the services that were provided at the clinic and hence be able to properly communicate experiences and opinions of the subject matter in a reflective manner.
- Ability to communicate in English, Tumbuka or Chichewa for easy communication.

- Mothers who gave voluntary consent.
- Mothers whose children were not sick so that they are not delayed from receiving treatment.

Exclusion criteria

- Mothers of HIV exposed children who were above 24 months of age because the children were no longer under the HIV exposed follow up program.
- Mothers of HIV exposed children who attended follow up visit only once since they may not be quite familiar with the services they offer during follow up visit.
- Mothers not able to communicate in English, Tumbuka or Chichewa because the data instrument tools were formulated in these languages since they are local languages in the location and known to both the researcher and research assistants. Therefore, if mothers were not able to communicate in these languages, there could have been communication problems.
- Mothers who did not give voluntary consent.
- Mothers with sick children since recruiting them would have led to delays in instituting treatment.

Sample Size

The sample size for this quantitative study was 250 mother - baby pairs. To determine the sample size, information from Mzimba north health centre was utilized which indicated that from August 2011 to December 2013; about 4228 HIV exposed infants got delivered at the hospital. Out of these babies, only 867 came for follow up visit. Therefore, the sample size for this study was calculated using 95% Confidence

Interval and a maximum allowable error of 5%. According to Lemeshow, Hosmer, Klar and Lwanga (1990), the equation for this interval estimate is:

$$n= [Z^2 (P) (1-P)]/ e^2$$

Where; n is the sample size, Z is the standard value of the normally distributed variable which for a 95% confidence interval takes a value of 1.96.

P is the proportion of mother –baby pairs whose care complies with standards at HIV follow up clinic, out of the total number of mother – baby pairs delivered at Mzimba north health centre.

e is the allowable error which for this study was set at 0.05.

$n= [Z^2 (P) (1-P)]/ e^2$

$Z= 1.96$

$P= 867÷4228$

$= 0.2051$

$e= 0.05$

$n= [1.96^2 (0.2051) (1-0.2051)]/0.05^2$

$= [1.96^2 (0.2051) (0.7949)]/0.0025$

$= [(0.7879] (0.7949)]/0.0025$

$= 0.62630171/0.0025 \quad =250$

Sampling Method

A sample is a subset of the population that is selected for a study while sampling is a process of selecting a group of people, events, behaviours, or other elements that are representative of a population being studied (Burns & Grove, 2011). Selection of respondents in this study was based on convenience sampling method. Convenience sampling is a non probability sampling technique where subjects are enrolled into the study because of their convenient accessibility to the researcher until the desired sample size is reached (Robert & Priest, 2010). Selection of these subjects is based on the inclusion and exclusion criteria that is; those who meet the inclusion criteria and volunteer to participate in the study are selected (DePoy & Gitlin, 2015).

Recruitment of the subjects was done after the researcher had given detailed verbal and written information about the study and mothers were given time to ask questions about the study. Thereafter, mothers were asked if they were interested to take part in the study. Those who showed interest were asked to fill the written consent form to show their willingness to participate in the study. Convenience sampling was chosen for this study because mothers and their HIV exposed infants had already come to the hospital to get treatment and it was convenient to recruit them to participate in the study as long as they met the inclusion criteria and gave both verbal and written consent. Bowling (2009) wrote that the advantages of convenience sampling include easy recruitment and accessibility of potential respondents.

Data Collection Instrument

A structured questionnaire with close ended questions was formulated based on objectives of the study, national guidelines and Donabedian framework on quality health

care. According to Donabedian, information about quality health care can be drawn from the three elements; Structure, Process and Outcome. The tool had four parts which were based on this framework.

Part A of the questionnaire (Appendix 7) captured demographic data of mother and child. Information about Structure was captured through an observation checklist (Part B, Appendix 7) on physical infrastructure, availability of essential equipment, supplies, drugs and human resource within the clinic. Information about Process was gathered through one to one interviews (Part C, Appendix 7) which covered dimensions of care offered to HIV exposed children during follow up visits (adopted from national guidelines). This included, Nevirapine administration, HIV testing, growth and nutritional assessment, Cotrimoxazole Preventive Therapy (CPT) administration and counselling. Mothers were therefore asked to recall components of care received during follow up visits. Information about Outcome (Part D, Appendix 7) was also gathered through one to one interviews in which mothers were asked if they were satisfied with the care they received during follow up visits.

Validity

In this study, content validity was achieved by giving the instrument to a panel of experts including specialists in child health, research experts and statisticians. These experts reviewed the instrument to establish whether it was sufficiently comprehensive to elicit the proper range of responses, flow of questions and adequacy hence any errors that the researcher might have overlooked were identified for fine-tuning. This was in line with what Polit and Beck (2006) wrote that, content validity can be achieved by inviting

experts to analyze the instrument's adequacy in representing the content area being measured.

Reliability

In this study, the researcher adapted some existing checklist tools based on Ministry of Health Paediatric HIV management and follow up services which stipulated the services that a child exposed to HIV should be provided throughout the follow up period. In addition, interrater reliability was achieved by properly training data collectors to collect data using a questionnaire. This promoted accuracy but also minimized errors by data collectors. Data collectors were also followed up on daily basis to answer any queries/ questions that they had.

Pretesting of the Data Collection Tool

Pre-testing of the questionnaire was conducted in August 2015 at Mzuzu Central Hospital and permission was sought from the Hospital Director (Appendix 13). This is one of the central hospitals in Malawi located in the Northern Region and provides paediatric HIV management similar to Mzimba north health centre. 20 questionnaires were pre tested thus, each one (i.e. researcher and two research assistants) had at least seven respondents.

The pre test assisted to check the instrument for validity, accuracy and reliability. In addition, it also helped to assess the feasibility of the study in terms of availability of respondents and whether a proposed method was appropriate. The researcher followed all normal procedures to conduct a study. There were no major issues identified except for some few questions which were rephraised in order to enhance proper understanding and it took 30 minutes for the respondents to finish responding to the questions.

Recruitment process

- Firstly, mothers were allowed to receive routine follow up care of HIV exposed children.
- Then the clinic nurse manager informed mothers about the study and those who were interested to take part in the study and met the inclusion criteria were led into a separate private room where the researcher was collecting data.
- The mothers were further given detailed verbal and written information about the study but also given ample time to ask questions.
- Those who agreed to take part in the study were given a consent form for them to sign to indicate their willingness to participate in the study (Appendices 1&2).
- Interviews guided by a structured questionnaire (Appendix 7) were conducted within the hospital in a private room to ensure privacy.
- In addition, respondents were assigned codes which were used when they participate in order to promote privacy and confidentiality.
- The interviews were conducted in Tumbuka, Chichewa or English for easy communication and understanding of the questions.

Data collection process

- Data collection was conducted over a period of four months from August to November 2015.
- The researcher hired two research assistants who were trained for one (1) day in order to orient them to the questionnaire. The researcher also responded to any question and provided clarification on some areas which were not clear to them. The data collectors were mainly oriented on part A, C and D of the questionnaire

(Appendix 7) which captured client demographic data, services provided during follow up visits and client satisfaction. Part B (observation tool) which captured the structural attributes of the facility was done by the researcher.

- The researcher and two research assistants were arriving at the study setting around 8.am and data collection was done through one to one interviews with mothers.
- To gain more understanding of the environment and routine activities regarding follow up care services so as to make conclusive observations about the facility (Part B- observation checklist; Appendix 7), the researcher took part in the provision of care for one week. During that period, the researcher observed the structural attributes of the facility mainly on; the number of health workers and their cadres, number of rooms whether adequate, spacious, clean, and well ventilated, availability of water supply, proper waste disposal area and toilets for both staff and clients, availability of essential equipment, supplies and guidelines for follow up care. Health care workers available at that time were also asked to verify the findings observed.

Data Management and Analysis

Data management

Data were collected using a questionnaire (Appendix 7 Part A, C & D) and an observation checklist (Appendix 7 Part B). Data from completed questionnaires were checked for completeness and accuracy of responses after each interview before the respondent went home so that if there were response gaps, they should be amended. In addition, questionnaires collected from data collectors were also checked for completeness of responses and in case of any errors, the data collectors were contacted for

explanation and corrections were done accordingly. The completed questionnaires were entered in a Statistical Package for the Social Sciences (SPSS) and the data were kept in the researcher's personal computer with a pin code known to her while the completed questionnaires were kept in a locked drawer for safety purposes.

Data analysis

Data were analyzed using SPSS version 20. Data cleaning was also carried out in SPSS. Descriptive statistics in form of frequencies, percentages, means, medians and standard deviation were computed for demographic variables such as age and sex of the child, occupation, religion, marital status and education of the mother. Descriptive statistics were also computed for the service delivery variables (Part C) and mothers' satisfaction variables on Part D of the questionnaire. The results are presented in form of tables and figures.

Dissemination of Study Results

Study findings will be communicated to the academic staff and health personnel at Kamuzu College of Nursing (KCN) and Mzimba north health centre respectively. Copies of the thesis will also be sent to KCN library, Ministry of Health –HIV/AIDS Unit, Office of the President and cabinet-department of nutrition, HIV/AIDS and Mzimba north health centre. The results will also be published as journal articles in nursing and midwifery journals. In addition, the results will be disseminated at conferences both locally and internationally.

Ethical Consideration

The study respected the rights of mothers of children exposed to HIV and much emphasis was put on their right to privacy, anonymity, confidentiality, respect, self-

determination, fair treatment and protection. In this regard, respondents were given information about the study (Appendices 1& 2) and were allowed to think over their participation in the study before giving consent. The information covered the aim of the study, data collection methods and procedures, benefits or risks and duration of the study. In addition, respondents were allowed to ask any question in order to clear any misunderstandings.

Furthermore, subjects were assured from the beginning of the study of their right to refuse or withdraw from the study at any time and that their refusal to participate would not affect their access to health care at the hospital. Subjects were duly informed that there will be no monetary and other benefits for taking part in the study but their information would contribute to the delivery of quality follow up care for children exposed to HIV.

Furthermore, respondents were informed that the study did not have any foreseeable physical harm (risks), however, it was mentioned that they could experience fear of disclosure related to issues concerning HIV and AIDS. Respondents were assured that their responses would be kept confidential and that their identity would not be disclosed in the publication or presentation of the findings.

In case of any emotional or psychological harm, subjects were advised to forward their complaints and concerns to the principal investigator at Kamuzu College of Nursing. After that, respondents were requested to sign a written informed consent prior to participation in agreement to their willingness to participate in the study (Appendix 2). Data collection for this study was carried out after obtaining approval from College of Medicine Research Ethics Committee (Appendix 10) and the District health officer from

Mzimba north health centre (Appendix 11). In addition, data were collected after obtaining consent from mothers of children exposed to HIV (Appendix 2).

Summary

This chapter has presented the overall outline (research methodology) that the study covered. This included research design, study setting, population, sample and sampling method used, data collection techniques, instrument used including study validity and reliability as well as ethical issues.

CHAPTER 4

Study Findings

Introduction

This chapter presents results of a descriptive quantitative study which was done to assess the quality of care provided to children exposed to HIV and their mothers' during follow up visits at Mzimba north health centre. Data were collected through a structured questionnaire which was formulated based on study objectives. These objectives were to: assess the availability of physical infrastructure, human and material resources including guidelines of care, to assess if care of children is provided according to national guidelines and finally to determine mothers' satisfaction on the care that was provided to them and their infants during follow up visits.

With regards to availability of adequate physical infrastructure, human and material resources, an observation checklist was used to assess the clinic for the availability of these things. In addition, a structured questionnaire which adopted national guidelines of care was used to assess whether children received care according to national guidelines. And finally, to determine whether mothers' were satisfied with the care they received, they were asked to recall every aspect of care they were offered and whether they were satisfied.

The study findings are presented as follow: demographic data, findings of the observation checklist of the facility, assessment of service care delivery and satisfaction of mothers with the care they received during follow up visits. Descriptive statistics such as frequencies, percentages, mean and standard deviation were computed from the dataset and the results are presented in tables.

Demographic Data

The total number of mother- child pairs was 250 and there were no set of twins and all the infants came with their biological mothers. The age range of mothers in the study was 16 to 43 with a mean of 28 and Standard Deviation of 5.18. In regards to education, 53.6% (n=134) had gone as far as secondary education and 0.8% (n=2) had no education. There were more Christians 96.8% (n=242) than Moslems (2.8%; n=7). Table 1 summarises demographic information for the respondents.

Table 1: Demographic characteristics of mothers

Characteristics	Frequency	Percentage
Mother's age		
16-20 years	9	3.6
21-25 years	66	26.4
26-30 years	82	32.8
31 years above	93	37.2
Education		
No education	2	0.8
Std1-8	107	42.4
Form 1-4	134	53.6
Tertiary education	8	3.2
Occupation		
Professional worker (teacher, police)	6	2.4
Business	92	36.8
Housewife	143	57.2
Other occupation	9	3.6
Religion		
Christian	242	96.8
Moslem	7	2.8
Other Religion	1	0.4

Characteristics of children

The age range of children was 2 months to 24 months with a mean of 11 and Standard Deviation of 7.06. There were more male infants 57.6% (n=144) than females. Of the 250 children incorporated into the study, 98.4% (n=246) were born at a health facility and the rest at home (The results are summarized in Table 2).

Table 2: Demographic characteristics of children who came for follow up at Mzimba North Health centre HIV clinic

Characteristics	Frequency	Percentage
Sex of child		
Male	144	57.6
Female	106	42.4
Child age		
2-6months	77	30.8
7-12months	66	26.4
13-18months	50	20.0
19-24months	57	22.8
Place of birth		
Central hospital	64	25.6
District hospital	25	10.0
Health centre	157	62.8
Other (home deliveries)	4	1.6

Availability of physical infrastructure, material and human resources (Structure)

Physical infrastructure

The clinic had six rooms namely; clinicians' room, nurse consultation/ART room where nurses were distributing drugs to patients, sample collection room where Health Surveillance Assistants (HSAs) were collecting dried blood spot samples, registry/records room where computers and patients' files were kept, store room where equipment and

other supplies were kept and toilets for both health providers and patients. The toilets had doors which could be locked and sink with running water. There was also a good waste disposal bucket and good drainage system. It was also observed that, the clinic had safe water supply both inside and outside the clinic including hand washing sink basin. The clinic also had power supply.

In addition, the clinic had a waiting area for clients which was well ventilated and had good lighting and was protected from sun and rain. There was also a television screen and posters on the walls. The clinic had a daily client attendance of between 80-100 clients against a sitting capacity of approximately 50 people. This made the waiting area to be small such that other clients were standing while waiting to be seen by the health provider.

What was missing from the clinic were counselling rooms for clients. This compromised individual counselling due to limited privacy and confidentiality. In cases where a patient needed special counselling, they were temporarily using a clinician's room as such other services were delayed because the clinician had to temporarily stop attending to other clients until the counselling was done. Sometimes, the clients were being counselled in the nurses' room where they distribute drugs in the presence of other people which also compromised client privacy. In addition to lack of counselling rooms, consultation rooms were not adequate since there was only one consultation room against a daily client load of up to 100 patients.

Availability of material resources (equipment, supplies and drugs)

The clinic had adequate number of essential supplies according to national standards. These supplies and equipment included examination couch, board for

measuring height, tape measure, stethoscopes, thermometers, cotton swabs and sharps containers. With regards to availability of equipment, what was missing was a paediatric weighing scale as such mothers were going to the under five clinic first to get their children weighed.

All essential laboratory supplies were available such as HIV test kits, filter papers, lancets, zip lock bags, specimen log forms, glycine papers, desiccant packets, humidity cards and cotton wool. In addition, the clinic had procedure manuals, guidelines and PMTCT protocols pasted on the walls for health providers' reference. It also had an adequate number of drugs such as Cotrimoxazole and Antiretroviral drugs.

Availability of human resource

The clinic had four nurses, one clinician, one counsellor, two support staff who were working as clerks and three health surveillance assistants who were collecting blood samples. All these health care providers were employed by government and were consistently present almost every day. All the health care providers had been working at the clinic for more than one year and were familiar with all the routine work. In addition, there were also two mentor mothers who were employed by an organization called Mothers to Mothers (M2M). Their role included advising and educating mothers on different issues surrounding PMTCT. These health providers were attending to 80 - 100 patients per day. According to WHO recommendation of one health worker for every 439 people, these staffing levels were adequate (Richter, 2016).

Assessment of Provision of Care According to National Guidelines (Process)

WHO guidelines stipulate that, HIV exposed babies should be given Nevirapine as soon as they are born which is continued for six weeks. After six weeks, the baby should

be enrolled into the HIV Care Clinic follow up where the infant is started on cotrimoxazole preventive therapy (CPT) and is tested for DNA/PCR at six weeks. During follow up visits, infants are also assessed for growth and nutrition pattern and mothers are counselled on different aspects about PMTCT such as infant feeding. The clinic was therefore assessed to determine whether these stipulated care guidelines were provided.

Nevirapine administration for HIV exposed infants

Out of the sample, 97.2% (n= 243) of the infants received nevirapine at birth and maternal verbal report indicated that they all (97.2%) administered the drug to the baby for 6 weeks. As for the 2.8% (n=7) of the infants who did not receive the drug, 2.4% (n=6) of the infants' mothers were HIV negative at birth and the infants were therefore regarded as HIV unexposed at the time of birth hence not given the drug and for the other one (n=1), the mother didn't know why her child was not given the drug.

DNA/PCR test for HIV exposed infants

In regards to DNA/PCR test, 98.8% (n=247) were tested on their first visit. Of the 1.2% (n= 3) who were not tested, one was not eligible for DNA/PCR since he was old (1 year 4 months) as a result HIV rapid test was done. The other one was not tested because there were no reagents while the third one came late after the clinic was closed.

Child age at first visit

Of the 247 infants who got tested, 89.2% (n=223) were six weeks old, while 0.4% (n= 1) was one year four months old (Fig. 3)

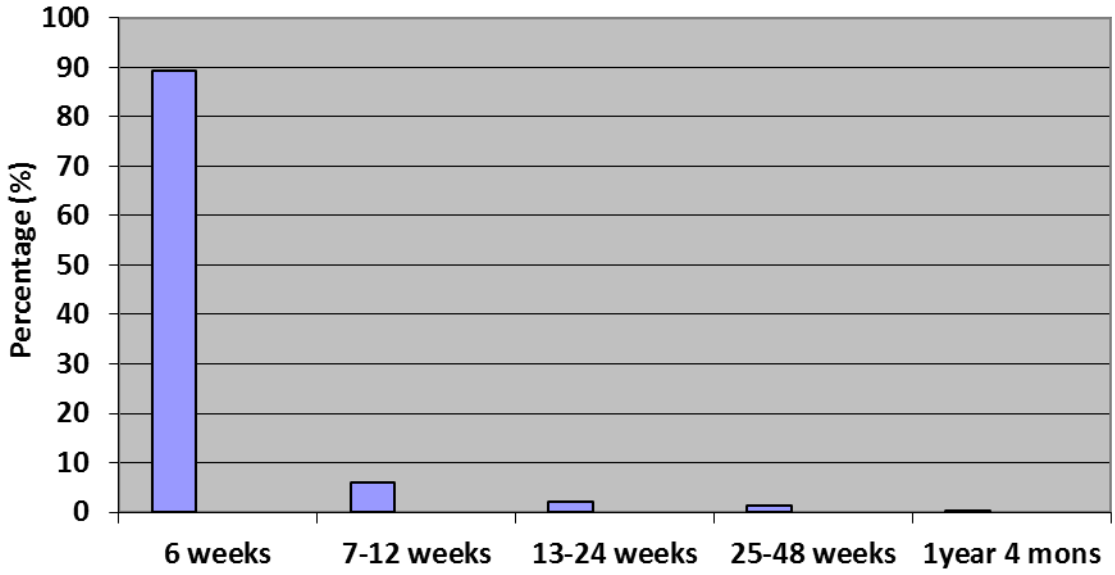


Fig. 3 Percentage of child age at first visit

Growth and nutritional assessment

Growth and nutrition in children is assessed by weighing, measuring height and Mid Upper Arm Circumference (MUAC). Infants who are less than 6 months of age are not eligible for MUAC because it is regarded as not reliable for measuring nutrition status in this age group. As a result, Weight- For- Length z- score (WFLz) is used. The study showed that 97.6% (n=244) were weighed while 75.6% (n=189) were measured height. About 30.8% (n=77) of the infants were less than 6 months old and therefore not eligible for MUAC. Only 36.0% (n=90) of the infants who were eligible for MUAC were checked while 33.2% (n=83) were not checked MUAC though eligible.

Provision of Cotrimoxazole Prophylaxis Treatment (CPT)

In regards to CPT, all the children in the study received CPT during their follow up visits.

Infant feeding in the first six months

Out of the total sample, 95.6% (n=239) were exclusively breastfed in their first six months of life, 1.6% (n= 4) exclusively formula fed while 2.8% (n=7) were mixed fed in their first six months of life.

Counselling

In this study, mothers were asked to recall the information they discussed with health providers during follow up visits. Specifically, the issues that they were asked were about importance of taking NVP, CPT but also issues related to infant feeding.

Knowledge about the importance of infant Nevirapine (NVP)

Mothers were asked what they were informed about the importance of NVP and for those who were informed it was expected of them to mention that NVP reduces the risk of mother to child transmission of HIV (MTCT-HIV). Out of the total sample, 95.0% (n=235) said that they were told about the importance of taking NVP. Of these, 91% (n=228) were able to narrate that NVP reduces the risk of mother to child transmission of HIV while 2.8% (n=7) said they had forgotten.

Knowledge about the importance of CPT

Mothers were asked what they were counselled on regarding the importance of CPT. Those who were counselled were expected to mention that the drug prevents Pneumocystic Jiroveci Pneumonia (PJP), Malaria and diarrhoea. Out of the total sample, 95.6% (n=239) indicated that they were told by the health provider about the importance of taking CPT and the rest denied being told about the importance of taking CPT. Of the 95.6% (239) who were counselled, only 31.6% (n= 79) were able to mention its benefits

to the child. The rest of the respondents mentioned that CPT prevents MTCT of HIV. The participants' responses on the importance of CPT are presented in Table 3.

Table 3: Participants' responses regarding the importance of CPT

Participant response	Frequency	Percentage
1. Prevents PJP	31	12.4
2. Prevents Malaria	30	12.0
3. Prevents Diarrhoea	18	7.2
4. Prevents MTCT of HIV	160	64

Knowledge about infant feeding

Mothers were asked whether they were counselled about breastfeeding duration. The mothers were supposed to be counselled to exclusively breastfeed their children for six months and then introduce complementary foods together with continued breast feeding up to 2 years of age. After six weeks of breastfeeding cessation, they should go for HIV rapid test.

Out of the total sample, 99.6% (n=249) claimed to have been counselled. However, when they were asked to explain about the duration of breastfeeding, 83.2% (n=208) narrated the right information while 16.8% (n=42) gave different responses. Of those who gave different responses, 14.8% (n=37) said they were advised to breastfeed up to 22 months then stop and go for HIV rapid test when child is 24 months, 1.6% (n=4) said they forgot what they discussed while 0.4% (n=1) said she was told to stop at 1 year 5 months.

Satisfaction of Mothers with Service Care Delivery (Outcome)

Mothers were also asked if they were satisfied with the care they received, whether they would return to the clinic on the next subsequent visit and whether they would encourage other people to go to the clinic. In addition, they were also given the opportunity to suggest ways of improving follow up services at the clinic. A total of 27.6% (n=69) said the services were good while 72.4% (n=181) said the services were satisfactory. All mothers 100% (n=250) said would return to the facility but also encourage other people to come to the facility for follow up visit.

Suggestions for improving follow up services at the clinic.

Mothers were asked to give suggestions for improving follow up services and out of the total sample, 73.6% (n=184) gave suggestions which were categorized as facility factors, health provider factors, client related factors and factors related to organization of routine activities. (These have been summarized in table 4).

With regards to facility factors, mothers recommended that the waiting area should be enlarged and that there should be adequate consultation and counselling rooms at the clinic (n=69). They also recommended that, client file storage system should be improved (n=11) in order to prevent delays. In addition, mothers recommended that, hospital management should have well functioning computers (n=3) but also procure a paediatric weighing scale (n=6). 13 out of 184 mothers complained that they become shy when they are going to the clinic as it is located just so close to other departments so they recommended that the clinic should be relocated to another place to promote privacy but also avoid stigma.

Suggestions related to health provider factors were to have enough health providers (n=65), health providers to be working fast (n=6) in order to prevent unnecessary delays which were contributing to long waiting time, not to be sent back when they come late (n=6), to have proper counselling sessions (n=18), health workers to have a good attitude towards clients (n=2) and that there should be no favouritism (n=2).

With regards to organization of routine activities, mothers suggested that the clinic should start early (n=6) so that they go to their various duties early. Mothers also recommended that, mother – infant pairs should be seen on separate days from adults (n=50). However, 2.6% (n=6) of the mothers had a different opinion as they suggested that, mother- infant pairs can be seen the same day with adults, only that they should be given a priority. In relation to client factors, mothers recommended that, they should be given food supplements (n=53) and mosquito nets (n=1).

Table 4: Summary of suggestions for improving follow up care

Suggestion	Frequency	Percentage
Facility factors		
• To enlarge clinic (Waiting & counselling rooms)	69	27.6
• To isolate the clinic	13	5.2
• The clinic not to close early	6	2.4
• Hospital management to procure a weighing scale for children	6	2.4
• To have good computers	3	1.2
• Improve file storage system	11	4.4
Health provider factors		
• To have enough health providers	65	26
• Health providers to be working fast	6	2.4
• Not to be sent back	9	3.6
• Proper counselling	18	7.2
• Providers' good attitude	3	1.2
• No favoritism	2	0.8
Organization of routine services		
• Clinic to start early	5	2
• Separate days	50	20
• First priority to children	6	2.4
• Same review date	2	0.8
Client factors (incentives)		
• Food supplements	53	21.2
• Mosquito nets	1	0.4

Summary

This chapter analyzed and presented results of the study. Among structural characteristics of the facility, the study revealed that the clinic had most of the things such as sample collection room, records room, store room, toilets, waste disposal area, power and water supply. However, it did not have adequate clients' waiting area and consultation rooms. In addition, the clinic did not have counselling rooms.

In regards to process attributes of the facility, most of the clients received care according to Ministry of Health (MOH) guidelines on follow up visits. The most striking result was that, NVP uptake was higher (97.2%) than national figures obtained in 2013 (92%) and 2014 (93%) in Malawi. Similarly, CPT uptake was significantly higher (100%) than the 2013 national CPT coverage which was at 86%, exclusively breastfed within 6 months of life and DNA/PCR at 6 weeks were 95.6% and 89.2% respectively.

However, there were inconsistencies on the extent to which other services were provided. For instance, nutritional assessment was not adequately done because only 36.0% were monitored their MUAC. In addition, most of the participants (95.6%) were counselled on the importance of CPT but only 31.6% were able to explain the right information. This shows a critical service delivery gap in the context of counselling which may erode the successes of PMTCT program.

With regards to outcome, all mothers were satisfied with the care they received during follow up visits. However, despite the satisfaction, they mentioned some challenges that they encountered during follow up visits and gave their recommendations for improvement. This provides evidence of service delivery gaps identified mainly on structure and process attributes.

CHAPTER 5

Discussion of findings

Introduction

The study assessed the quality of care provided to children exposed to HIV and their mothers' during follow up visits at Mzimba North Health centre. This chapter presents discussion of study results which is followed by study limitations, recommendations and conclusion. The discussion is based on the study objectives which were guided by Donabedian framework on quality health care. The objectives of the study were to: assess the availability of adequate physical infrastructure, human and material resources for the delivery of quality care; to assess if children were provided with care according to Ministry of Health guidelines and to determine mothers' satisfaction with the care they were provided during follow up visits.

With regards to structure, the facility was investigated for the availability of adequate waiting area for clients, counselling and consultation rooms, toilets, good waste disposal, power supply and safe water supply (physical infrastructure). In addition, the facility was also investigated for the availability of adequate human and material resources for the delivery of quality care.

For service care delivery (Process), the facility was assessed whether it provides care for HIV exposed children according to national guidelines such as Nevirapine administration at birth, DNA/PCR at six weeks, CPT administration, nutritional assessment and mothers' counselling which is also done from six weeks until 24 months when a definitive diagnosis of HIV free is done. With regards to client outcome, mothers

were assessed whether they were satisfied with the care they received during follow up visits.

Availability of adequate physical infrastructure, human and material resources

Physical infrastructure

While it was found that the clinic had proper waste disposal, power supply, safe water supply and adequate toilets for both clients and health providers, there were some infrastructural deficiencies given that the clinic had no counselling rooms, one consultation room and a small waiting area (which were not enough compared to client daily attendance rate of up to 100).

These infrastructural deficiencies had negative implications on the delivery of quality follow up care. One notable implication is client long waiting time at the clinic. This is because, due to lack of counselling rooms at the study site, mothers were sent to HIV Testing and Counselling (HTC) room away from the clinic to get their children tested for HIV. After the HIV test, they were required to go back to the clinic for routine follow up care. This flow of activities is likely to lead to long waiting time since mothers are required to be on two queues (HIV clinic and HTC room).

Another implication to this flow of activities could be increased risk of client drop out from care which may contribute to low uptake of HTC services. As observed by Davyduke, Pietersen, Lowrance, Amwaama and Taegtmeyer (2015), physical separation of testing areas from the point of clinical contact presents an opportunity for patient drop out. In settings where HTC is provided within the HIV clinic, there has been an increased acceptability and uptake of HTC services (Topp et al., 2011; Dalal et al., 2011). This indicates the importance of having counselling rooms within the HIV clinic.

Furthermore, client movement to and from the HIV clinic and HTC room may also compromise client privacy and confidentiality which may contribute to poor uptake of PMTCT services and adherence to treatment (Mapunjo & Urassa, 2007; Kalembo & Zgambo, 2012; Nuwagaba-Biribonwoha et al., 2007). A study conducted in Nigeria to assess barriers to the uptake of PMTCT services observed that, 86.7% of mothers had missed PMTCT services. The main reason for missing the services was lack of confidentiality/privacy at the clinic (Anigilaje, Ageda, & Nweke, 2016).

A similar study which was conducted in South Africa to evaluate HIV lay counsellors discovered inadequate space for counselling which compromised privacy and confidentiality (Mwisongo et al., 2015). As a result of this, counselling sessions were rushed through, making them less effective, a factor which is likely to demotivate clients from being retained in care (Haffejee, Groenevald, Fine, Paterl & Bowman, 2010).

Limited privacy and confidentiality are critical sources of stigma in HIV care clinics (Chilongozi et al, 2008; WHO, 2013). In a study by Kwapong, Boateng, Agyei-Baffour and Addy (2014) on assessment of health service barriers to HTC among pregnant women; results revealed that, 8.2% of women did not go for HTC for fear of stigma while 7.4% did not access HTC because there was no privacy and confidentiality at the facility. This shows that, privacy and confidentiality are pivotal in the uptake of PMTCT since HTC is the entry point into PMTCT of HIV programme.

Results of this study also showed that consultation rooms were insufficient given that, there was only one consultation room against a daily client volume of up to 100. This has a negative impact on the delivery of quality care. Similar results were found in a study by Crowley & Stellenberg (2014) in which 50% of the clinics did not have

sufficient consultation rooms such that sharing of consultation rooms between health care workers was a common practice. This practice is likely to have led to compromised privacy and confidentiality. Lack of privacy in consultation rooms is a critical source of client drop out in PMTCT as observed in a study by Sibanda et al. (2015) where it was observed that, some women found it difficult to collect prescription refills from the HIV clinics for fear of being seen by friends or relatives.

Insufficient counsultation rooms further contribute to long waiting time which is reported to contribute to patient drop out from care (Skovdal, Campbell, Nhongo, Nyamukapa, & Gregsons, 2011). A study by Shroufi, Mafara, Saint-Sauveur, Taziwa and Vinoles (2013) discovered that attendance for PMTCT mothers to follow up appointments was poor, in part due to long queues and overcrowded clinics.

Results of this study further showed that, clients' waiting area was small compared to daily client volume of up to 100. This forms a critical infrastructural gap because that is where patients stay while waiting for their turn for consultation. Observations from this study showed that, due to inadequate waiting area at the facility clients were overcrowded. In addition, some clients were standing while waiting for their turn on the queue. This has an implication on the delivery of quality care because some clients may get dissatisfied with the services which may consequently lead to loss to follow up. The length of time spent standing in clinic queues were recorded causes of patients' higher sources of dissatisfaction and patients dropping out of ART program in South Africa (Miller, Ketlhapile, Rybasack-Smith & Rosen, 2010).

The World Health Organization recommends that, clinics that offer HIV care services should have essential infrastructural requirements such as sufficient counselling

rooms, consultation rooms and client's waiting rooms (WHO, 2008). The availability of these structures enhances the delivery of quality HIV prevention, care and treatment services (Coulibaly et al., 2014). Efforts to invest in infrastructural upgrading are therefore a priority if we are to yield more gains in the follow up care of HIV exposed infants.

Availability of human resource

With regards to availability of human resource, the study revealed that the clinic had ten health workers attending to a maximum of one hundred patients per day. According to WHO recommendations of one health worker for every 439 people (Richter, 2016), these staffing levels were adequate. However, despite having ten health workers, there were critical service delivery gaps in some areas at the clinic. For instance, the clinic had inadequate number of counsellors given that out of the ten health workers, only one was a counsellor, a situation which may easily compromise the quality of counselling at the clinic due to heavy workload. High workload is a key stressor which can lead to distress and staff burn out (Bancheno et al., 2010). Counsellors experiencing burn out and stress may not be able to perform efficiently and effectively leading to poor quality counselling. This is supported by a study conducted in Nigeria which found that, because of shortages of HIV counsellors at the study facility, there was increased staff workload which led to poor client-staff relationships (Anigilaje, Ageda & Nweke, 2016).

Another area which faced critical service delivery gap was growth monitoring of children given that there was only one support staff who was assessing Mid Upper Arm Circumference (MUAC) and checking height for children. The same support staff was

also checking weight and height for adult clients since the clinic combined both adult and child HIV services. This may equally lead to stress and burn out due to pressure of work.

Apart from the 10 health workers at the clinic were two mentor mothers who were employed by another organization (Mothers2Mothers) in order to assist with mothers' education on issues surrounding PMTCT. Advantages of having mentor mothers in PMTCT have been documented in studies by Okonji et al. (2014); Sam- Agudu et al. (2014) and Shroufi et al. (2013) as they provide vital psychological support, counselling and experiential guidance to PMTCT clients. A study by Okonji et al. (2014) found that women who interacted with a mentor mother had a higher uptake of maternal and infant PMTCT services. A study in Zimbabwe found evidence that, mentor mothers' support had led to improved retention given that there was a reduction in patient default. The same study observed an increase in adherence particularly in PMTCT positive behavioral change (Shroufi et al.).

Availability of essential equipment, supplies and drugs

The study found that, the clinic had almost all essential equipment, supplies and drugs except that it did not have a paediatric weighing scale such that mothers were going to the under five clinic first to get their children weighed and then go to the HIV clinic for routine follow up services. The under five clinic was approximately 100 meters from the HIV clinic. This practice may not be tolerated by some women because some mothers may find it tiresome to be on the weighing queue at the under five clinic and then go to another queue at the HIV clinic given that both clinics attended to a high patient load. This may contribute to avoidable missed opportunities and long waiting time which is reported to be a critical barrier to the uptake of HIV care and treatment (Saleem et al.,

2014; Yeap et al., 2010). This emphasizes the need to integrate exposed infants' follow up services at one single point within the existing clinic in order to promote quality service delivery (Mirkuzie et al, 2011).

Service Care Delivery

This section discusses objective number two which assessed if children exposed to HIV are provided with care according to national guidelines. This service care package includes; Nevirapine administration at birth, DNA/PCR at six weeks, CPT administration, nutritional assessment and mothers' counselling which are also provided from six weeks until 24 months when they are confirmed HIV negative.

Nevirapine administration

WHO recommends that infants born to HIV positive mothers receive ARV prophylaxis in order to reduce the risk of mother to child transmission of HIV (WHO, 2010) which is by far the most common way that children (90%) become infected with HIV (AIDS info, 2014). Without treatment, the likelihood of HIV passing from mother-to-child is 15-45%. However, ART and other effective interventions for PMTCT can reduce this risk to below 5% (WHO, 2015).

In this study it was found that 97.2% (n=243) of infants received Nevirapine at birth and maternal verbal report revealed that, the drug was administered for six weeks. These results are slightly higher than national figures obtained in 2013 (92%) and 2014 (93%) in Malawi (Government of Malawi, 2015). Overall, the results indicate a significant increase in the uptake of infant ARV prophylaxis which is critical in the reduction of MTCT of HIV. Similar results were observed in studies conducted in

Swaziland and Ethiopia where about 98.8% and 91% of the exposed newborns received ARV prophylaxis respectively (Bancheno et al., 2010; Shargie, Eek & Abaychew, 2011).

The increase in the uptake of infant ARV prophylaxis might be multifactoral. Drawing on experience from Ethiopia, possible reasons for the uptake of infant ARV prophylaxis might be that, the country had an integrated and comprehensive care and follow up program as well as an improved service quality in health facilities. In addition, there was an increased awareness about the importance of PMTCT intervention among infant's parents (Shargie et al., 2011).

In Malawi, particularly in this study, possible reasons for the high uptake of infant ARV prophylaxis would be as a result of mentor mothers (referred to in this study as HIV- positive women who serve as peer counsellors for PMTCT clients, provide guidance and support in keeping appointments and promoting antiretroviral adherence and retention in care) who counsel and encourage women to remain in the care and adopt PMTCT services (Shroufi et al., 2015).

A report by Okonji et al. (2013) provides strong evidence about the importance of mentor mothers in relation to infant ARV uptake. In their report, it was indicated that, Malawi registered a significant increase in infant ARV prophylaxis uptake of about 95% to all infants whose mothers interacted with mentor mothers. A similar observation was made in 53 health facilities in Kenya which were supported by mentor mothers to provide PMTCT services. The study discovered a remarkable rise in the number of HIV exposed infants issued with infant ARV prophylaxis from 55.88% in 2011 to 87.36% in 2014 (Njogu, Wambua, Gichangi & Mudany, 2016). In Uganda, infant nevirapine at birth increased to 86.0% in intervention facilities (facilities with mentor mothers) compared to

59.0% in control facilities (facilities without mentor mothers) (Schmitz et al., 2014). These results indicate that, mentor mothers play a big role in the uptake of PMTCT services.

Another reason that might have contributed to high uptake of infant ARV prophylaxis in this study could be attributed to the fact that most of the mothers (98.4%) delivered at the hospital which greatly increases the likelihood of getting infant ARV prophylaxis since national guidelines recommend that every newborn exposed to HIV should be given the medication soon after birth (MOH, 2014). Therefore, before being discharged home after delivery, all babies known to be exposed to HIV are given the medication. Consistent with this observation is a study conducted in Ethiopia which revealed that, infants born at a health facility had almost 7 times higher chance to get PMTCT services such as infant ARV prophylaxis compared to a child born at home (Lerebo et al., 2014).

High uptake of infant Nevirapine prophylaxis provides a window of hope in efforts to minimise vertical transmission of HIV from mother to child since ARV drugs reduce the risk of MTCT of HIV (Anoje et al., 2012). Previous studies provide strong evidence about the likelihood of minimal HIV transmission risk from mother to child if the ARV drugs are administered to both the mother and the baby. A study conducted in Ethiopia found that, the risk of being HIV positive was 23 times lower in HIV exposed infants who received ARV prophylaxis than those who did not receive the prophylaxis while in Zimbabwe MTCT rate was lower (4.5%) to infants who received the prophylaxis compared to those who did not receive the prophylaxis (12.8%) (McCoy et al., 2016; Negash & Ahlers, 2016).

Another study which was conducted in Nigeria found that, transmission rates of mother- baby pairs who received ARVs for PMTCT was 4.8% at Zero to 6 weeks of age compared to 19.5% when neither baby nor mother received the drugs (Anoje et al., 2012). These study results indicate that PMTCT interventions and in this case infant ARV prophylaxis are essential in the prevention of MTCT of HIV.

Infant DNA/PCR test

HIV DNA/PCR test is an essential first step in the clinical management of paediatric HIV infection, as it determines if an HIV exposed infant is infected with HIV (Audet, 2012; Okonji et al., 2014) thus, starting a cascade of patient management resulting in early ART administration. It also enables the identification of those who are HIV- exposed but uninfected, facilitating follow up care and prevention measures that will help to ensure that they remain uninfected (Anoje et al., 2012).

According to the recommendations by the World Health Organization (2010), infants known to have been exposed to HIV should undergo a virological test for HIV infection at 4 to 6 weeks of age. National guidelines in Malawi recommend that infants exposed to HIV be tested by polymerase chain reaction (PCR) for the detection of viral deoxyribonucleic acid (DNA) at six weeks of age wherever the facilities and resources for these assays are available (MOH, 2014).

In this study, 89.2% of infants accessed DNA/PCR test at the WHO recommended age of six weeks old. This is higher compared to national figures (37%) obtained in 2014 in Malawi (Government of Malawi, 2015). The high coverage of infant HIV testing in this study could be attributed to the support provided by mentor mothers who counsel women on the benefits of early HIV testing resulting in an increased awareness about the

importance of early infant HIV testing. As reported by Okonji et al. (2013), there was a substantial increase in the number of PCR test at 6 weeks from 65% in 2011 to 87% in 2013 among clients who interacted with mentor mothers in all facilities with mentor mothers. In Malawi to be particular, uptake of infant DNA/PCR test increased to about 85% from 4% in facilities where mentor mothers were operating (Okonji et al., 2013). In Uganda, infant PCR test at 6 weeks after birth increased to 71.5% in facilities with mentor mothers compared to 45.8% in facilities without mentor mothers (Schmitz et al., 2014).

Another contributing factor for a high coverage of DNA/PCR test in this study could be attributed to the constant availability of support staff (health surveillance assistants) who were performing the DNA/PCR test on a Dried Blood spot (DBS). These support staff were performing DBS samples from Monday to Friday such that there was no day that a child could be sent home because of shortage of staff. This ensures that all HIV exposed infants are tested for HIV when they present at the clinic which is very critical in early infant diagnosis. Contrary to this practice, experiences drawn from Burkina Faso revealed that DBS samples could only be performed one day in a month because of lack of trained staff to perform the procedure. This led to high attrition rate because of inadequate delivery of this service (Coulibaly, 2014).

Central to the success of early infant diagnosis is testing HIV exposed infants early at the WHO recommended age of 6 weeks. This has a lot of gains as it promotes the early identification and treatment of HIV disease and prevents opportunistic infections, offers the health care workers the opportunity to strengthen effective clinical monitoring and proper infant feeding counselling (MOH, 2014; Nigatu & Woldegebriel, 2011).

These services are critical for the sharp reduction in the number of vertical transmission of HIV infection from mother to baby (MOH, 2012).

Results of this study also seem to be relatively higher than those obtained in earlier studies conducted in other African countries. For instance, studies conducted in Zimbabwe and Nigeria revealed that within the first 6 weeks of life, 53% and 35% of HIV exposed infants accessed DNA/PCR test respectively (Rawizza et al., 2015; UNICEF, 2013). Similar results were obtained in Ethiopia, Tanzania and Kenya which revealed that 53%, 45% and 40% of HIV exposed infants accessed EID services at 6 weeks respectively (Azcoaga-Lorenzoet al., 2011; Mirkuzie et al., 2011; O'Donnel, 2014). Related studies conducted in Mozambique and Cote d'Ivoire showed that, 25% and 24% of HIV exposed infants accessed EID services at 6 weeks respectively (Cook et al., 2011; Folquet-Amonissani et al., 2012).

Reasons to this low coverage of infant HIV testing within the first six weeks of life are multifaceted which could in part either be because, HIV-positive women were never tested during antenatal care, or because they were lost from the PMTCT program before delivery, or because they did not return with their infants for post-partum testing (Essajee et al., 2015). It is therefore very critical that more efforts are directed towards strengthening DNA/PCR test in all HIV exposed infants at 6 weeks if the programme of early infant diagnosis is to be successful.

Growth and nutritional assessment

Growth progression is one of the best indicators of any infant's overall health. In HIV exposed children, growth failure is recognized as one of the most common manifestations of HIV infection because in the presence of HIV, infant's growth may be

negatively affected since HIV affects the infant's immune system and makes the infant more susceptible to infections (e.g., ear infections, pneumonia, diarrhoea) and death (Isanaka, Duggan & Fawzi, 2009; Ram et al., 2012). In addition, HIV increases caloric needs and can cause malabsorption of macro and micronutrients leading to growth failure (Sint et al., 2013). This explains why it is more important to screen HIV exposed children at each and every follow up visit.

In this study it was learnt that; 97.6% (n=244) of HIV exposed children were weighed on their follow up visit (at the time of data collection) while 75.6% (n=189) were measured height. About 30.8% (n=77) of the infants were less than 6 months old and therefore not eligible for MUAC because it is regarded as not reliable for measuring nutrition status in this age group. As a result, Weight- For- Length z score (WFLz) is used (Mwangome, Fegan, Fulford, Prentice & Berkley, 2012). However, only 36.0% (n=90) of the infants who were eligible for MUAC were assessed while 33.2% (n=83) were not assessed. This has negative implications on the overall growth and quality of life of HIV exposed children because failure to completely assess these infants may lead to delays in recognizing the progression of HIV disease since growth faltering is a remarkable indicator of HIV infection in HIV exposed children (Ram et al., 2012). It also contributes to missed opportunities for early identification and prevention of growth and nutritional related problems (Ram et al.).

Furthermore, HIV exposed children are already at risk of growth problems despite being uninfected. This is because, maternal HIV -1 infection reduces passive immunity which, in turn, may enhance the risk of infections and subsequent poor growth in HEC (McGrath et al., 2012). Maternal clinical stage of HIV further places the infant at risk of

poor growth. A study conducted in South Africa found that maternal immunosuppression was associated with stunting and underweight in HIV exposed but uninfected infants (Venkatesh et al, 2010).

Another study conducted in Kenya to explore the prevalence of stunting in HIV-1- exposed uninfected infants found that, despite being uninfected, infants born to HIV infected mothers experienced steady declines in growth and more than 50% experienced stunting by 2 years of age (McGrath et al., 2012). These findings underscore the importance of monitoring growth at every follow up visit in order to promote early detection and prevention of growth problems.

Inadequate growth monitoring in this study may be attributed to pressure of work due to high patient load since the clinic provides combined services for both adults and children and attends to up to 100 patients per day. Usually there was one support staff who was assessing MUAC and height for all children. The same support staff was also given other duties such as manual searching of clients' files, checking height and weight in adult clients but also documentation of every task done to each client. Due to this pressure of work, the likelihood of failing to perform other services may be high which may compromise care.

Another study revealed similar challenges such as, inadequate personnel to perform growth monitoring, lack of adequate knowledge on growth monitoring by health personnel and shortages of equipment as challenges that impede successful implementation of growth monitoring (De Onis et al., 2012). A report by UNICEF-Zimbabwe (2013) also revealed that, active growth and nutrition screening of children was low in health facilities due to low motivation, inadequate equipment and knowledge

by health care providers. The same observation of inadequate knowledge about the importance of growth monitoring may also apply in this study since it was performed by mentor mothers. The same report indicated that, height assessment was not done consistently in the majority of health facilities as it was regarded as time consuming by health providers. Efforts should be directed at removing these barriers for the successful implementation of this low cost strategy of monitoring growth and nutrition status in HIV exposed infants during follow up visits (Ram et al., 2012).

Administration of cotrimoxazole prophylaxis

An important component of the HIV care and treatment package for children is the provision of Cotrimoxazole Prophylaxis Therapy (CPT). WHO recommends that all HIV exposed infants be started on CPT at 4 to 6 weeks of age until at least 6 weeks after cessation of risk of HIV transmission and definitive exclusion of HIV infection in infants (WHO & UNICEF, 2009). In Malawi, CPT is started from age 6 weeks until risk of HIV transmission through breast milk ceases (usually 6 weeks after cessation of breastfeeding) and HIV infection is excluded (MOH, 2014).

In this study, it was discovered that all the infants (100%; n=250) received CPT on their follow up visit during study period. This figure is significantly higher than the 2013 national CPT coverage which was at 86% (Government of Malawi, 2014). The higher CPT uptake rate in this study may be attributed to the constant availability of the drug at the clinic during the study period which rendered all infants visiting the clinic to access the drug. Moodley, Reddy, Mahungo and Masha (2013) in their study to explore factors associated with coverage of CPT in HIV exposed children in South Africa also found similar results. In this study, 93.7% of mothers reported that, CPT was always

available at the facility and that they were dispensed adequate supply of CPT until the next scheduled visit.

Unlike other studies where mothers reported drug stock outs at the clinic (Sibanda et al., 2015), none of the respondents in this study reported of being sent back without CPT due to drug stock outs. This implies that, children were protected from several infections such as Malaria, severe respiratory infections and gastrointestinal diseases (MOH, 2014).

CPT has demonstrated to be an important preventive treatment against several infections in HIV exposed infants in several studies. It is also reported to be associated with reduced rates of morbidity and mortality (MOH, 2014; Sovannarith et al., 2012; WHO & UNICEF, 2009). Studies by Kourtis et al. (2013) and Taha et al. (2011) revealed that CPT was significantly associated with lower frequency of severe respiratory infections, Malaria and gastrointestinal morbidity in HIV exposed infants.

Work by Sandison et al. (2011) also provides strong evidence of how CPT prevents Malaria. In their small (n=85) randomized study in rural Uganda, CPT yielded a 39% reduction in Malaria incidence. These findings corroborated the results of a study by Homsy (2014) in which HIV exposed children who were on CPT had a 47% lower risk of Malaria than those who were not on CPT at age 2 years.

Infant feeding in the first six months of life

There is growing body of evidence that Exclusive Breast Feeding (EBF) carries a lower risk of HIV transmission (Bwalya et al., 2011; Derebe et al., 2014; Kuhn & Aldrovandi, 2012 & WHO bulletin, 2010) and that it is commonly associated with favourable infant outcome (Ditekemena et al., 2014). This explains the reason why the

World Health Organization (WHO) recommends that, mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life then gradually start complementing breastfeeding with suitable hygienically prepared foods from age 6 months up to 24 months or beyond (WHO, 2010).

Results of this study showed that 95.6% (239) of infants were exclusively breastfed in their first six months of life while 1.6% (n=4) exclusively formula fed and 2.8% (n=7) were mixed fed in their first 6 months of life. The Malawi Demographic health survey conducted in 2010 revealed that EBF in the first 6 months of life is widely practiced in Malawi with a steady increase from 53% in 2004 to 71% in 2010 (MDHS, 2010).

In this study, the high rate of infant EBF may be attributed to efforts by mentor mothers at the clinic who were educating and encouraging mothers to adopt various PMTCT interventions such as exclusive breastfeeding in order to promote HIV survival of their babies. These counselling sessions were ongoing at each and every follow up visit day in order to enhance mothers understanding on the benefits of EBF. A report by Okonji et al. (2013) outlines the benefits of mentor mothers in PMTCT. In the report, it was observed that clients who were linked to mentor mothers had higher EBF rates of up to 80% in 2013. In Uganda, EBF practice rate among HIV positive women rose to 90.1% in facilities with mentor mothers compared to 55.9% in facilities without mentor mothers (Schmitz et al., 2014).

A study conducted in South Africa to evaluate the effect of clinic- based support by HIV- positive peer mentors revealed that, mothers who were linked to mentor mothers

were more likely to exclusively breast feed their babies for at least 6 months compared to those who did not interact with mentor mothers. The study concluded that, support from mentor mothers is efficacious in helping mothers living with HIV to engage in positive health behaviours for their infants (Rotheram-Borus et al., 2014).

Exclusive breast feeding practice in this study is quite high compared to those reported in Kenya and Ethiopia which were 80% and 87% respectively (Negash & Ehlers, 2016; Njogu et al., 2016). Children exclusively breastfed have the highest survival benefits than those who have not breastfed at all or those who were mixed fed because it is associated with reduced infant mortality and morbidity given that the risk of respiratory and gastrointestinal infections is lower.

On the other hand, children who are mixed fed are likely to have unfavourable outcomes such as risk of MTCT of HIV and other infections for the reason that, mixed feeding predisposes the infant to scaring and sores in the intestines which facilitate the entry of HIV. In addition, these infants would succumb to other infections such as diarrhoea or malnutrition (Bosire et al., 2016; Ditekemena et al., 2014; Kurewa et al., 2010; Sint et al., 2013).

Another study by Derebe et al. (2014) observed that, infants who were mixed fed were six times more likely to have HIV sero positive status compared with infants on exclusive breastfeeding. Similar observations were made in Nigeria by Ugochukwu (2010) in which out of 15.5% babies (n=47) who were mixed fed, 32 (68%) turned out PCR positive. Another study found that, HIV transmission rates among babies whose mothers practiced mixed feeding was higher (25.6%) compared to those who were

exclusively breastfed (11.8%) (Anoje et al., 2012). This suggests that exclusive breastfeeding is safer than mixed feeding.

Counselling

In PMTCT, counselling forms an important component of programs to prevent MTCT of HIV (Bwalya et al., 2011). Clients are counselled on various issues surrounding PMTCT such as importance of antenatal clinic (ANC), taking ARV drugs including infant ARV prophylaxis and CPT but also the importance of good infant and young child feeding. In this study, mothers were asked to recall the information they were counselled on mainly, about importance of taking Nevirapine, CPT but also issues related to infant feeding.

With regards to knowledge about Nevirapine, 95.0% claimed to have been informed about the importance of Nevirapine. Of these 91% were able to narrate its importance while 2.8% had forgotten the information. These results reveal that more mothers are educated about the importance of Nevirapine which is very critical for drug adherence (Vreeman et al., 2009) and ultimately preventing perinatal HIV transmission among exposed infants.

It is worth noting that, in PMTCT program, counselling starts at ANC and continues through to postpartum period. In this study, it might be assumed that a great number of women attended ANC where they had the opportunity to learn about the drug and its importance hence having a high level of knowledge about its importance. Furthermore, the high level of knowledge might also be attributed to the availability of mentor mothers both at the ANC and labour ward who further counsel mothers before

they are discharged home after giving birth. These vigilant counselling sessions are likely to enable women to retain the information given by health providers.

Regarding the importance of CPT 95.6% (n=239) indicated that they were told about the importance of taking CPT while 4.4% (n=11) denied being told this information. Surprisingly, of the 239 who were counselled about the importance of CPT, only 31.6% were able to mention its benefits to the child. The rest of the participants mentioned that CPT prevents MTCT of HIV.

These findings reveal strong evidence that counselling on CPT is inadequate because despite being counselled on the importance of CPT, 64% of mothers narrated wrong information (that it prevents MTCT of HIV). This number is on the higher side and it indicates inadequate maternal understanding of the importance of CPT confirming what Bwalya et al. (2011) observed in their study that counselling in PMTCT was insufficient.

These findings are similar to a study conducted by Moodley et al. (2013) where only 52.5% of mothers understood the reason for CPT suggesting inadequate information from health providers. This observation might also be true in this study given that mothers were narrating wrong information about the importance of CPT.

The wrong information might also indicate mothers' confusion between the importance of infant ARV prophylaxis and CPT. Since infant ARV drugs are administered to the infant from birth to 6 weeks and then from 6 weeks the baby is started on CPT, mothers may easily think that these drugs serve the same purpose. That could possibly be the reason why many mothers narrated that CPT prevents MTCT of HIV.

In addition, inadequate counselling skills by health providers to assess mothers understanding about various issues being informed might also contribute to mothers' inadequate knowledge about the importance of CPT. It might also be due to inadequate client counselling due to shortage of counsellors but also lack of counselling rooms which might either demotivate the nurse to provide effective counselling or compromise the quality of counselling due to breaches of privacy.

Although, the clinic was providing group counselling to clients early in the morning before daily routine work, it is likely that some mothers had unmet needs which would have required individual private counselling. Earlier studies also confirmed that group counselling achieved small gains on women regarding PMTCT knowledge (Gupta et al., 2007).

With regards to knowledge about infant feeding, 99.6% (n=249) claimed to have been counselled. However, when they were asked to explain about the duration of breastfeeding and when they should go for a final infant HIV test, 83.2% (n=208) narrated the right information while 16.8% (n=42) gave wrong responses; thus; 14.8% (n=37) said they were advised to breastfeed up to 22 months then stop and go for HIV rapid test when a child is 24 months, 1.6% (n=4) said they forgot what they discussed while 0.4% (n=1) said she was told to stop at 1 year 5 months. These results further indicate a critical gap in counselling within PMTCT program because when mothers were asked about infant feeding practice, 83.2% narrated that they were counselled to breastfeed up to 24 months and then go back to the clinic after 6 weeks of breastfeeding cessation for an HIV rapid test. Another proportion of mothers (14.8%) narrated that they

were told to breastfeed up to 22 months and then stop, after 6 weeks of breastfeeding cessation, they should go for an HIV test which will determine the final HIV status.

However, national guidelines in Malawi recommend that, all children regardless of HIV exposure or HIV infection status should breastfeed up to 24 months and then after six weeks of breastfeeding cessation, child should go for a final HIV test (MOH, 2014). Mothers' responses are inconsistent with national guidelines suggesting that there is confusion on duration of infant and young child feeding practices.

These results mirror the findings from another study conducted in eleven low-resource settings across Swaziland, Namibia and South Africa in which mothers complained about receiving confusing information and mixed messages from different health providers (Buskens & Jaffe, 2008). These confusing messages may negatively influence the recommended practice of infant and young child feeding and affect the delivery of comprehensive PMTCT services (Bancheno et al., 2010; Haile, Setegn & Biadgilign, 2015; Ochola, 2008). These mothers need up-to-date, clear messages and support on optimal infant feeding practices that will help them to maximize their baby's HIV free survival (PATH, 2008; Sint et al., 2013).

The contradictory messages were also observed to be due to inadequate dissemination of new policy regarding infant feeding practices to health providers and counsellors (Sint et al., 2013). Several studies reported that, rapid changes in global recommendation about infant feeding in the context of HIV, inadequate dissemination of new policy regarding infant feeding practices and slow roll out of updated national guidelines have been a source of significant confusion for health providers about infant feeding recommendations resulting in giving confusing information to clients (Adler,

Brewinski, Heap & Bolu, 2012; Sibeko, 2009; Sint et al.). These findings stress the urgent need to invest more efforts in improving client counselling (a standard component of PMTCT program for women) if we are to decrease new paediatric HIV infections due to vertical transmission.

Outcome of Service Care Delivery

Findings of this study revealed that 27.6% (n=69) and 72.4% (n=181) of mothers perceived the care they received as good and satisfactory respectively. No one perceived the care as poor and when they were asked to give suggestions for improving the services, 73.6% (n=184) of mothers brought forward suggestions for improving follow up care services at the clinic suggesting that they observed some shortfalls at the clinic (table 5).

Similar to this observation was a study which was conducted in Zambia in which 89% of women rated care as good or very good and yet 21% were shouted at, scolded or otherwise treated badly (Dansereau et al., 2015). This confirms what Collins and O'Cathain, 2003 as cited by Wouters, Heunis, Rensburg and Meulemans (2008) wrote that, patient satisfaction surveys consistently report high levels of satisfaction as patients hide a range of negative experiences. In line with the same, Wouters et al. (2008) wrote that, human satisfaction is a complex concept that is related to a number of factors including individual values and expectation. This implies that, mothers might have their own inherent expectations about services which may influence their perceived satisfaction of services.

With regards to suggestions for improving follow up care, mothers' gave different recommendations which were categorized as facility, health provider, client related and routine organizational recommendations. In regards to facility, mothers recommended

that; the waiting area should be enlarged and that, there should be adequate consultation and counselling rooms. These recommendations were also highlighted in previous studies as essential to delivery of quality care. For instance, if the waiting area, consultation and counselling rooms are adequate, they will reduce hospital waiting time, congestion, loss to follow up and stigma (Dalal et al., 2011; Saleem et al., 2014; Topp et al., 2011; WHO, 2013).

Furthermore, some mothers complained that, they become shy when they are going to the clinic as it is located too close to other departments. They recommended that the clinic should be relocated to another place to promote privacy and avoid stigma. In addition, they also recommended that the clinic should not be labelled as an HIV clinic because that was stigmatising. This is in support of what Yeap et al. (2010) found that, labelling of clinics as HIV-specific facilities was stigmatising and could be a deterrent to seeking care.

Recommendations related to health providers were to have adequate health providers particularly counsellors. They also recommended that health providers should not show favouritism and that they should have a good attitude towards clients. Studies conducted in Nigeria, Uganda, Kenya and Tanzania showed staff favouritism and staff negative attitude as major barriers affecting quality services (Duff et al., 2010; Gourlay et al., 2013; Juma & Manongi, 2009; Hill et al., 2015; Sam- Agudu et al., 2014). Removing these barriers could significantly improve delivery of quality care.

Another recommendation was that, mothers should not be sent back without assistance. This was suggested by some women who reported that, they were once sent back when they presented late at the clinic and yet they were on the long queue at

underfive clinic where they were weighing their children. While efforts are being made to encourage women to come for follow up to the health facility, some women are being sent back home without assistance. This practice is a missed opportunity to quality follow up care but also has the potential to significantly impact health seeking behaviour among women.

With regards to organization of routine activities, mothers suggested that the clinic should start early so that they go to their various duties on time. It was also recommended that, children and their mothers should be given the same review date in order to reduce financial burden incurred in form of transport costs. In a study by Wachira et al. (2012), different appointment schedules between mother and baby were found to be a barrier by caregivers in taking their children to the clinic for follow up care. Another study conducted in Uganda observed that, by giving same appointment date to mother and her baby, client retention improved significantly (Ministry of Health- Uganda, 2014).

Furthermore, it was recommended that mother - infant pairs should be seen on separate days from adults while others said they can be seen the same day but children should be given a priority**.** This recommendation was suggested because the clinic provided combined adult and child HIV services and because of that, there was always a high patient load which contributed to long waiting time and congestion. In addition, clients who came earlier to the clinic were attended first (first come first serve practice) and children were not given a priority to services such that, they remained in the queue till their turn. This practice negatively affects children given that they were in unfamiliar environment and surrounded by unfamiliar faces. As a result, they became

uncooperative, a situation which is likely to demotivate mothers from attending to subsequent appointments. Uganda observed that, by giving priority to mother- baby pairs to get services, retention in care increased significantly (Ministry of Health- Uganda, 2014).

In regards to client factors, mothers recommended that, they should be given food supplements and mosquito nets. Food incentive was recommended in previous studies and was found to be an important facilitator to the uptake of PMTCT services (Iroezi et al., 2013, Saleem et al., 2014; Wachira et al., 2012).

In summary, the purpose of this study was to assess the quality of care provided to children exposed to HIV and their mothers' during follow up visit. The discussion was guided by study objectives and Donabedian quality framework which utilizes the three elements of Structure, Process and Outcome. Previous studies have also been reviewed to support and compare results of this study.

Limitations of the Study

This study had several limitations; firstly, time and financial limitation were major constraits that were experienced in this study. Secondly, the study was done at a single site as such findings may not be generalizable to other settings. Another limitation is recall bias since some information required the mother to remember the services that she got in the past. This might affect the validity of data. Utilization of a quantitative design and structured questionnaire left out some vital information which could have revealed additional information regarding provision of care during follow up of HIV exposed children. Furthermore, conducting the individual interviews right within the hospital may have influenced some participants to be hesitant to express their true opinions.

The use of convenience sampling was another limitation as it provides little opportunity to control for biases since the researcher may choose people from own social and cultural groups, as such, the sample may not be a true representation of the target population and generalization of results may be limited. To control for this bias, the researcher conducted the study at a facility where she does not work and does not know the clients attending the clinic. As such she was not affected culturally, socially and professionally.

Despite several limitations, this study has several strengths. Since there is limited data in Malawi regarding the quality of care given to HIV exposed children during follow up visits, the study adds some valuable information to health care delivery system. In addition, the study will contribute relevant observations, since many HIV exposed children in Malawi are followed up in primary level facilities such as Mzimba North Health centre.

Recommendations of the Study

Based on the results of the study, recommendations have been made to help improve the delivery of quality follow up services for HIV positive mothers and their exposed children as written below:

Recommendations in respect to structure

- There is need to enlarge the clinic in order to accommodate the high client load that it is currently attending to. Particular focus should be on extending clients' waiting area but also have adequate consultation and counselling rooms for the smooth running of daily activities.

- The clinic should be child friendly and well furnished with toys and wall drawings to keep children entertained and occupied while waiting for consultation. This will help children to settle and be less anxious given that they spend more hours at the clinic before being assisted.
- Management should procure essential equipment such as paediatric weighing scale in order to promote integration of follow up services.
- There is need to have adequate number of counsellors in order to improve counselling sessions.

Recommendations in respect to Process

- There is need to improve client counselling by developing tools that will promote sharing of health information in ways that will enable mothers to understand every aspect of PMTCT and make meaningful decisions for the health and survival of their children. One such tool may be use of counselling cards which have well documented benefits of improving the quality of counselling and standardisation of messages but also improving retention of information and understanding.
- There is also need to give/distribute printed educational information to women in order to improve information retention.
- There is need for staff education and motivation on the benefits of monitoring growth and nutrition status in HIV exposed children in order to improve its practice.
- There is need to integrate exposed children follow up services at one single point within the HIV clinic so that mothers don't need to go to the under five clinics to

have their children weighed and then go back to the HIV clinic. This will promote delivery of quality services.

- Mother –infant pair clinic days should be separated from adults in order to improve delivery of quality paediatric HIV services given that the staff will not be burdened by heavy workload.

Recommendations in respect to Outcome

- There is need to have a suggestion box at the clinic in order to capture clients'opinions on how the clinic operations can be improved. This will provide an opportunity for health providers and hospital management to assess client satisfaction with services but also identify gaps for improvement.

Areas for Further Study

- There is need to plan for a multisite study on the same research topic in order to have a broad generalization of issues that affect the delivery of quality follow up care services to HIV exposed infants.
- There is also need to conduct the same research study topic in a primary level facility which does not have mentor mothers within the same region (northen region) in order to compare the results particulary on process (service care delivery) which was extremely higher in this study.
- A qualitative study on the same research topic should be conducted in order to identify setbacks affecting mothers when they visit the clinic as it was noted that participants in this study had a lot of issues to share.

- Future research should try to explore quality improvement strategies that may work out at a primary level facility like Mzuzu health centre in order to improve the delivery of quality follow up services to HIV exposed children and their mothers.

Conclusion

This chapter presented the discussion based on study findings in relation to the objectives of the study as well as the conceptual framework of the study. From the study findings, it was found that, there was an adequate number of essential drugs and equipment. The study also found that, the clinic had safe water and power supply, good drainage sytem and waste disposal, specimen collection room and records room which are critical for the delivery of quality care. With regards to process, the study showed a higher uptake of Nevirapine, cotrimoxazole preventive therapy, HIV testing at six weeks and exclusive breastfeeding in the first six months compared to previous studies.

The study also showed that, the structure elements of a facility forms a critical component for the delivery of quality care and that lack of it may lead to negative implications. As stated by Donabedian (2003), good structure increases the likelihood of good process and that good process increases the likelihood of a good outcome. It has been shown in this study that, structural deficiencies negatively affected processes of care and ultimately clients' outcome. For instance, inadequate counsellors, equipment, waiting area, counselling and consultation rooms, resulted to ineffective counselling sessions, long waiting time, overcrowding, breaches of privacy and confidentiality and poor growth monitoring. There were also inconsistencies regarding duration of breastfeeding and time for a final HIV test suggesting that women had inadequate knowledge about infant and young child feeding practice. Although all women said that,

they were satisfied with the care (outcome), they mentioned some shortfalls for the clinic which is strong evidence that the clinic had some service delivery gaps.

These gaps require more efforts in order to improve delivery of quality care. It is interesting to note that some of these gaps may not necessarily need novel technological solutions to be improved but simple low cost interventions such as staff in service education, effective counselling strategies, supportive supervision, support group establishment, service integration and resource mobilisation.

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Appendices

Appendix 1: Caregivers' Information Letter

Dear participant

My name is Chikondi Chimbatata and I am currently registered as a student at the University of Malawi, Kamuzu College of Nursing for the degree of Master of Science in Child Health. I am conducting a research project on "Assessment of quality of care offered to HIV exposed children under 24 months and their mothers during follow up visit at Mzimba north health centre – Malawi and i wish to ask you to participate in the study mentioned above. Before you participate in the study, it is important to understand what the research is all about. The aim of the study is to assess the quality of care offered to HIV exposed children during follow up visits.

As a participant, you will be asked to answer some questions related to the study. Participation in the study is entirely voluntary. You may choose to participate or withdraw from the study at any time, which will not have any effects on the services that you are receiving from the health care providers or administrators in this health centre. Furthermore, participation in the study does not have any foreseeable physical harm (risks) however you may experience fear of disclosure regarding HIV and AIDS and fear that you may be denied of treatment if you don't participate in the study. Be assured that, if you may not agree to participate, you will not be denied of any health services at this health centre. Also be aware that confidentiality will be ensured as your identity will remain anonymous and code numbers will be used instead of names. Also feel free to ask any question about the study or its procedures.

Be aware that there are no benefits for participating in the study. However, exploring the quality of care offered to HIV exposed children during follow up visits will help to understand better how they are cared for when they visit the clinic. In cases of any emotional or psychological harm you may forward your concern and complaints to the researcher at Kamuzu College of Nursing.

Should you agree to take part in the study, I will ask you to sign a consent form or put a finger print on the space provided and the interview process is expected to take 45-60 minutes of your time. The interview will be conducted at a time that is most convenient to you and within the hospital in a private room to ensure privacy.

Thank you for your cooperation.

Should you require any further information regarding the study please contact me on the following number: 0999 321 207 or COMREC Secretariat at P/Bag 360, Chichiri, Blantyre 3 or you may call on 01989766.

Appendix 2: Caregiver's Consent Form

Please read and sign the form if you are taking part in this study

I voluntarily give permission to participate in the study after reading/ another person read to me everything about the study, its aim, possible risks and I have understood. I have been given the opportunity to ask questions about the study and its procedures and have been satisfied with the responses.

I understand that the information I will give will be kept confidential and that there are no benefits for participating in the study. I understand that I have the right to participate or withdraw from the study at any time and my refusal will not have any effects on the services that I receive from the health care providers.

Furthermore, am aware that the study does not have any foreseeable risks, however i may experience fear of disclosure regarding issues concerning HIV and AIDS and I have been assured that my identity will remain anonymous and all my responses will be kept confidential.

Participant's Signature/ thumb print…….. Date.....

Name of research assistant…. …….. .Date…….

Researcher's Signature ……. .Date……..

Should you require any further information regarding the study please contact me on the following number: 0999 321 207 or COMREC Secretariat at P/Bag 360, Chichiri, Blantyre 3 or you may call on 01989766.

Appendix 3: Kalata ya chimamanyisko kwa awo wakumulera mwana

Bakutemweka bamama/badada,

Zina lane ni Chikondi Chimbatata, wakusambira zau nesi ku sukulu ya Kamuzu koleji uko nkhusambira vakukhuza umoyo wa wana ndipo nkhufufuza vakukhuzana na "Umo bana awo bababika kufuma kwa wazimayi awo wali na kachibungu ka HIV wakupwelerekera pa nyengo iyo wakulondezgekera ku chipatala cha Mzimba north health centre. Nalemba kalata iyi nachakulata chakuti nipemphe kuti mutolepo malo pakunjira nawo mu kafukufuku uyu. Kweni pambere mundapange chilichose, nkhwakukhumbika kuti mupulikiske makora vyakukhwaskana na kafukufuku uyu. Chakulata cha kafukufuku uyu nkhukhumba kuwona umo wovwiri ukupelekekwera kwa waniche awo wakubabika kwa wapapi awo wana kachibungu ka HIV panyengo iyo wakwendera ku chipatala.

Manyani kuti mukuchichizgika chala kutolapo malo kweniso ni wanangwa winu kuleka nyengo yili yose iyo mukukhumba kwambula suzgo lililose ndipo kuti vizamupangiska kuti imwe muleke kupokera wovwiri kufumira kwa wakugwira ntchito pa chipatala chino yayi. Manyaniso kuti palije chakofya 130hilli chose pa kafukufuku uyu, kweni nyengozinyake mungawa na mantha kuti mukhumbikenge kuti mujizunule umo muthupi mwinu muliri kwakulingana na matenda gha Edzi.

Mukwenera kumanya kuti ivo vose tidumbiranenge pano yazamusungika mwachisisi ndipo vizamumanyika yayi kuti wazgola mafumbo agha ni njani chifukwa mazina yinu yazamulembeka yayi pa mapepala ya mafumbo mu malo mwake tizamugwiriska ntchito ma nambala. Manyaniso kuti muna wanangwa wakufumba fumbo lililonse panyake ndondomeko ya kafukufuku uyu.

Manyani kuti muzamupokera ndalama panyake dipo lililose yayi chifukwa chakuti mwatolapo malo pa kafukufuku uyu kweni muzamuwovwira mwenecho wa kafukufuku uyu kuti wamanye umo wana awo wababika kufuma kwa wapapi awo wana kachibungu ka HIV, wakuwapwelelelera uli panyengo iyo wakulondezgeka ku chipatala cha Mzimba north health centre. Ndipo pala pangawa madandaulo yaliyose yakukhwaskana na kafukufuku uyu, kumanani na uyo wakupanga kafukufuku uyu ku sukulu ya Kamuzu koleji.

Pala mwajipereka kutolapo gawo pa kafukufuku uyu, muzamupempheka kusayina fomu panyake kuyikapo chigunhyo chinu. Muzamuzgola mafumbo panyengo yidoko waka pafupi fupi ma miniti 45-60. Mafumbo aya muzamuzgola nyengo iyo imwe mwakhumbira mu chipinda chimodza cha pa chipatala chino kuwopeska nthimbanizgo apo tiri mukati mwakudumbiskana.

Yewo

Pala mukukhumba kumanya vinandi vakukhwaskana kafukufuku uyu, panyake maghanoghano yali yose, mukhale wakumasuka kwiza na madandaulo yinu kwa mwenecho wa kafukufuku uyu pakuyimba foni iyi, 0999321 207 olo ku COMREC, Sekilitariyeti, pulayiveti bagi 360, Chichiri Blantyre 3, foni yawo ni 01989766.

Appendix 4: Kalata Yakuzgomerezga ya awo wakumulera mwana

Nkhumupemphani kuti muberenge makora ndondomeko yose yakafukufuku uyu ndipo paumaliro wakhe sayinani zina linu, panyake dindanipo chigunhyo chinu pamalo awo yapelekeka pala mwazomera kutolapo gawo pa kafukufuku uyu.

Nkhuzomera kwambula kukakamizgika kutolapo malo pa kafukufuku uyu, kufumbika mafumbo na kuzgola mafumbo umo ningamanyira pala namalizga kuwerenga nakupulikiska kalata yakulongosola za kafukufuku uyu, chakulata chake na vakusuzga vake. Nipasikenge wanangwa wakufumba mafumbo yali yose yakukhwaskana na kafukufuku uyu, ndondomeko yake, ndipo nakwaniriskika na mazgolo yake.

Napulikiska kuti vose ivo niyowoyenge panyake kupereka mu kafukufuku uyu, visungikenge mwachisisi ndipo palije chandulo cha ndalama yiliyose iyo ningapasika pakutolapo malo. Napulikiska kuti nina wanangwa wakuleka nyengo yiliyose kwambula chifukwa ndipo ichi chizamutimbanizga yayi wovwiri wuliwose uwo nkhupokera pa chipatala chino.

Napulikiska kuti palije chakofya chilichose panyengo iyo nitolengepo malo pa kafukufuku uyu, nangawuli panyake niwenge na mantha chifukwa nifumbikenge vakukhuzana na HIV na Edzi. Kweni nasimikizgirika kuti mazgolo yane yose yazamusungika mwa chinsisi.

Dzina la wakutolapo
malo/chidindo…….Dazi…….

Dzina la wakuwovwira kufumba mafumbo…….
Dazi……...

Mwenecho wakufufuza……Dazi……

Pala mukukhumba kumanya vinandi vakukhwaska kafukufuku uyu, panyake

maghanoghano yali yose, mukhale wakumasuka kwiza na madandaulo yinu kwa

mwenecho wa kafukufuku uyu pakuyimba foni iyi, 0999321 207 olo ku COMREC,

Sekilitariyeti, pulayiveti bagi 360, Chichiri Blantyre 3, foni yawo ni 01989766.

Appendix 5: Kalata ya wosamalira ana ya Chichewa

Wokondedwa,

Ndine Chikondi 133hilli133ata, wophunzira zaunamwino kusukulu yaukachenjede ya Malawi, ku Kamuzu Koleji. Ndikuphunzira zokhuza umoyo wa ana ndipo ndikupanga kafukufuku wokhuza za **'**momwe ana amene anabadwa kwa azimai omwe ali ndikachilombo ka HIV amasamalidwira pa nthawi yomwe akutsatiridwa ku chipatala cha Mzimba north health centre –Malawi. Ndiye ndalemba chikalatachi ndi cholinga chofuna kukupemphani kuti mutengepo mbali polowa nawo mukafukufukuyu. Koma musanatero, ndikofunika kuti mumvesese zokhuza kafukufukuyi. Cholinga cha kafukufukuyu ndi kuona za momwe ana amene anabadwa kwa azimai omwe ali ndikachilombo ka HIV amasamalidwira pa nthawi yomwe akutsatiridwa.

Pamene mukutenga mbali mu kafukufukuyi, muzapemphedwa kuti muyankhepo mafunso okhuza kafukufukuyi. Dziwani kuti simukukakamizidwa kutengapo mbali komanso muli ndiufulu ngati mukufuna kusiya nthawi imene mungafune popanda vuto lina lililonse ndipo izi sizizapangisa inu kuti musalandire thandizo kuchokera kwa ogwira ntchito pachipatala chino. Dziwaninso kuti palibe chiopsezo china 133hilli chonse pakafukufukuyi komabe pena mutha kukhala ndi mantha chifukwa muzafunsidwa mafunso okhudza zamatenda a HIV ndi Edzi**.** Komanso mutha kukhala ndi mantha kuti mukapanda kutenga mbali simuzalandira thandizo. Koma dziwani kuti muli ndi ufulu wokana kulowa mukafukufukuyi ndipo izi sizizapangisa kuti musalandire thandizo.

Mukuyeneranso kudziwa kuti mayankho anu adzasungidwa mwachinsisi ndipo sizizadziwika kuti anayankha mafunsowa ndindani chifukwa mayina anu sazayikidwa pa mapepala a mafunso m'malo mwake tizagwiritsa ntchito manambala. Dziwaninso kuti muli ndi ufulu ofunsa funso lililonse ngakhale ndondomeko ya kafukufukuyi.

Dziwaninso kuti simuzapeza phindu landarama lili lonse potenga mbali mukafukufukuyi koma muzathandiza opanga kafukufukuyi kudziwa momwe ana amene anabadwa kwa azimayi amene ali ndi kachirombo ka HIV amasamalidwira panthawi yomwe akutsatiridwa ku chipatala cha Mzuzu heath centre. Ndipo ngati patakhala madandaulo ena ali onse okhuza kafukufukuyi, kumanani ndi yemwe akupanga kafukufukuyu ku sukulu ya 133hilli koleji.

Ngati mwavomereza kutengapo mbali pakafukufukuyi, muzapemphedwa kusayina fomu kapena kutsindikiza chala chanu ndiponso kuyankhapo mafunso kwanthawi pafupi fupi mphindi 45-60. Mafunsowa muzafunsidwa pa nthawi yomwe inu mungakonde, muchimodzi mwazipinda zapa chipatala pano.

Zikomo.

Ngati mungafune kudziwa zina zokhuza kafukufukuyi kapena nkhawa, khalani omasuka ndikubweretsa madandaulo anu kwa mwini kafukufukuyi poyimba foni pa nambala iyi: 0999 321 207 kapena ku COMREC sekiliterieti, pulaiveti bagi 360, chichiri, bulantaya 3 ndipo foni yao ndi 01989766.

Appendix 6: Kalata Yachivomerezo ya Chichewa ya wosamalira ana

Sayinani dzina lanu kapena tsindikizani chala chanu pamalo omwe apelekedwawo ngati mwavomera kutengapo mbali pakafukufukuyu

Ndavomera ndikupeleka chilolezo mosaumilizidwa kutengapo mbali pakafukufuku, kufunsidwa mafunso ndikuyankha mafunsowo mmene ndingadziwire nditatha kuwerenga/ kuwerengeredwa ndikumvesetsa kalata yolongosola zakafukufukuyu, cholinga chake ndi zovuta zake. Ndapasidwa ufulu wofunsa mafunso ali onse okhuza kafukufukuyu, ndondomeko yake ndipo ndakhutira ndimayankho ake.

Ndamvesetsa kuti 135hill zomwe ndiyankhule kapena kupereka mukafukufukuyu zizasungidwa mwachinsinsi ndiponso kuti palibe phindu la ndalama lililonse lomwe ndingapeze potenga mbali mukafukufukuyu. Ndamvesetsanso kuti ndili ndi ufulu wosiya nthawi ina iliyonse popanda chifukwa ndipo kuti izi sizizasokoneza chithandizo ndikulandira.

Ndamvesetsanso kuti palibe chiopsezo china 135hilli chonse panthawi yomwe ndikutenga mbali mukafukufukuyi komabe pena ndizatha kukhala ndi mantha chifukwa ndizafunsidwa mafunso okhudza zamatenda a HIV ndi Edzi**.** Koma ndasimikizilidwa kuti mayankho anga onse azasungidwa mwachinsisi.

Dzina la otenga mbali/ chidindo cha chala……Tsiku……

Dzina la wothandizira kufunsa mafunso…….Tsiku……...

Mwini kafukufuku……Tsiku……...

Ngati mungafune kudziwa zina zokhuza kafukufukuyi kapena nkhawa, khalani omasuka ndikubweretsa madandaulo anu kwa mwini kafukufukuyi poyimba foni pa nambala iyi: 0999 321 207 kapena ku COMREC sekiliterieti, pulaiveti bagi 360, chichiri, bulantaya 3 ndipo foni yao ndi 01989766.

Appendix 7: Questionnaire of Caregiver's

Assessment of quality of care offered to HIV exposed children under 24 months and their mothers during follow up visit at Mzimba north health centre – Malawi.

Part A: Demographic data and infant information

1. Participant's (ID) identification number_____
2. Date of interview_____
3. Interviewer name_____

A1. How old (Child age) is your child?_____

A2. How many times have you come for follow up visit?_____

Please tick the appropriate response and circle the correct code

A3. At what (facility) was the child born?

	Tick	**Code**
a. Central hospital	[ ]	……..1
b. District hospital	[ ]	……..2
c. Health centre	[ ]	……..3
d. Other	[ ]	……..4
Specify_____		

A4. What is the (sex) of the child?

a. Male	[ ]	…….1
b. Female	[ ]	…….2

A5. What is your (religion)?

a. Christian	[ ]	…...1
b. Moslem	[ ]	..….2
c. Other	[ ]	……3
Specify_____		

A6. What is your (marital status)?

a. Married [ ].....1
b. Single [ ].....2
c. Widow [ ].....3
d. Separated [ ].....4
e. Divorced [ ].....5

A7. What is the highest level of (education) you have attained?

a. Std 1-4 [ ].....1
b. Std 5-8 [ ].....2
c. Form 1-2 [ ].....3
d. Form 3-4 [ ].....4
e. No education [ ].....5
f. Other [ ].....6
Specify_____

A8. What is your (occupation)?

a. Professional worker (Teacher, Nurse, Accountant, Police)].....1
b. Business [ ].....2
c. Housewife [ ].....3
d. Farmer [ ].....4
e. Other [ ].....5
Specify _____

A9. How old (mothers age) are you? _____

PART C: SERVICE CARE DELIVERY FOR HIV EXPOSED CHILDREN DURING FOLLOW UP VISIT

Neverapine administration and caregiver's knowledge about its importance

B1. Did your child receive neverapine at birth? (If yes go to Q B3).

a. Yes [ ].....1
b. No [ ].....2

B2. If no; were you told why your child did not receive Nevirapine?

a. Shortage of the drug [ ].....1
b. Nurses forgot to give me the drug [ ].....2
c. Child's status was unexposed since mother was HIV sero negative [ ].....3
d. Other [ ].....4
Specify_____

B3. If yes, how long did you administer the drug to your child?

a. 2 weeks [ ].....1
b. 3 weeks [ ].....2
c. 4 weeks [ ].....3
d. 5 weeks [ ].....4
e. 6 weeks [ ].....5
f. Other [ ].....6
Specify_____

B4. Did the healthy worker explain to you the importance of Nevirapine? If No go to Q B6.

a. Yes [ ].....1
b. No [ ].....2

B5. If yes, would you state its importance?

a. Reduces the risk of MTCT of HIV [ ].....1
b. Reduces the risk of malaria [ ].....2
c. Prevents the risk of premature death [ ].....3
d. Improves child's health status [ ].....4
e. Others [ ].....5
Specify_____

HIV testing and counselling

B6. Did the child get tested for HIV (DNA/PCR) during the first visit? If yes go to B8

a. Yes [ ].....1
b. No [ ]..

B7. If no; were you told why the child did not get tested?

a. Shortage of reagents [ ]..1
b. Child not eligible for DNA/PCR because was older than 12months [ ].....2
c. Shortage of counsellors [ ].....3
d. Don't know [ ].....4
e. Others [ ].....5
Specify_____

B8. If yes; how old was the child at that time?

a. 0- 6 weeks [ ].....1
b. 7- 12 weeks [ ].....2
c. 13-24 weeks [ ].....3
d. 25-48 weeks [ ].....4
e. 49- 96 weeks [ ].....5
f. Other [ ].....6
Specify_____

B9. How long did it take to get the (results)?

a. 1 week [ ]…….1
b. 2 weeks [ ]…....2
c. 3 weeks [ ]…….3
d. 4 weeks [ ].....4
e. 5weeks [ ]…....5
f. 6 weeks [ ]…....6
g. Other [ ]…....7

Specify_____

Growth and nutritional assessment

B10. Did the health provider weigh the child?

a. Yes [ ]…….1
b. No [ ]…….2

B11. Did the health provider take the length (height) for the child?

a. Yes [ ]…….1
b. No [ ]…….2

B12. Did the health provider measure the upper arm (MUAC) of the child?

a. Yes [ ]…….1
b. No [ ]…….2
c. Not eligible (less than 6 months) [ ]…….3

B13. Did the health provider plot child's weight in the health booklet RTHC (verify with card)?

a. Yes [ ]…….1
b. No [ ]…….2

Cotrimoxazole prophylaxis administration and caregiver's knowledge on its benefits

B.14. Did you get Bactrim for the child?

a. Yes [ ].....1
b. No [ ].....2

B.15. Did the health worker explain to you the importance of taking Bactrim?

a. Yes [ ].....1
b. No [ ].....2

B.16. If yes; would you state its importance?

a. Prevents PJP [ ].....1
b. Prevents Malaria [ ].....2
c. Prevents diarrhea [ ].....3
d. Other [ ].....4
Specify_____

Knowledge about follow up care period

B17. Were you informed on how long your child will be followed up? If no go to B19.

a. Yes [ ].....1
b. No [ ].....2

B18. If yes; would you please tell me how your child will be followed up till a definitive diagnosis is made?

a. Every month for six months then every three months until 24 months [ ].....1
b. Every three months [ ].....2
c. Every 6 months [ ].....3
d. Other [ ].....4
Specify_____

Infant feeding practices and caregiver's knowledge about ways of minimizing MTCT of HIV.

B19. Did you discuss about infant feeding during follow up visit?

a. Yes [ ]……..1
b. No [ ]……...2

B20. What did they tell you about infant feeding and duration of breastfeeding?

a. Exclusive breastfeeding (EBF) till 6 months then complimentary feeds, breastfeed up to 2 years [ ]..……1
b. EBF till 12 months [ ]……2
c. EBF till 6 months then stop [ ]…….3
d. Other (specify) [ ]…….....9

B21. How did you feed your child in the first six months or how are you feeding your child now (if less than 6 months)?

a. EBF [ ]…….1
b. Exclusive formula feeding [ ]…….2
c. EBF and other feeds (mixed feeding) [ ]…….3
d. Local feeds only [ ]…….4
e. Other (specify) [ ]…….9

B22. Did you discuss with the health care provider about dangers of mixed feeding (giving other foods to a breast feeding infant who is below six months)?

a. Yes [ ]…….1
b. No [ ]…….2

B23. What did you discuss regarding ways to minimize HIV transmission to the infant during breast feeding?

a. Taking prescribed ART [ ]……...1
b. Avoid mixed feeding [ ]……...2
c. Good positioning & attachment [ ]……...3
d. Other (specify) [ ]……9

Part D: Caregivers satisfaction with the services received

C.1. How do you feel about the overall quality of care you received?

a. Good [ ]……1
b. Satisfactory [ ]……..2
c. Poor [ ]……..3

C.2. Would you return to this facility for follow up services?

a. Yes [ ]……1
b. No [ ]……2

C.3. Would you encourage other people to come to this clinic?

a. Yes [ ]……1
b. No [ ]……2

C.4. Do you have any suggestions for improving follow up services for HIV exposed infants and children offered at this facility?.....

……

……

THANKS FOR YOUR PARTICIPATION!

Part B: Observation checklist

Structural Component	Criteria	Yes	No
The facility has adequate waiting area	Waiting area for clients		
	Spacious		
	Good ventilation		
	Good lighting		
	Protected from sun & rain		
	Sufficient places for sitting		
Availability of counselling rooms	Counselling room provides privacy for clients		
	Door that can be closed		
	Desk		
	Chairs for: Provider		
	Client		
	Companion		

	Hand washing facilities inside or near		
	Examination couch		
	Container with leak proof plastic bag for contaminated waste		
Availability of consultation rooms	Consultation room provides privacy		
Availability of specimen collection room	Spacious and well ventilated		
Availability of records room	Spacious		
The facility has working toilets for clients & providers	Doors can be locked		
	Sinks with running water or bucket with tap		
	Toilets with running water		
	Waste disposal bucket		
	Toilets available for: Clients		
	Providers		
Availability of essential equipment, supplies and drugs			

Availability of essential equipment	Examination couch		
	weighing scale		
	Stethoscope		
	Tape measure		
	Board for measuring height		
	Thermometer		
	Cotton/ gauze swabs		
	Examination gloves		
	Sharps container		
	Tape measure		
Availability of essential drugs	Bactrim		
	Antiretroviral drugs		
Availability of essential laboratory supplies	Reagents for HIV testing		
	Filter paper		
	Lancets		
	Gloves		
	cotton wool,		
	zip lock bags		

	specimen log forms		
	rip- resistant envelops		
	glycine paper		
	Desiccant packets		
	humidity cards		
The facility has guidelines on follow up services of HIV exposed children	Follow up schedule protocol		
	EID guidelines handbook		
	Procedure manuals for HIV testing		
Availability of adequate number of staff	Nurses		
	Doctors/ clinicians		
	Counsellors		
	Support staff		
	Health Surveillance Assistants		

Appendix 8 Tumbuka Questionnaire

Mafumbo ya wapapi pakufufuza wakukhumba kuwona umo wana awo wababika kufuma kwa wazimayi awo wana ka chibungu ka HIV wakupwelelekera pa nyengo iyo wakulondezgeka ku chipatala cha Mzuzu health centre.

CHIGAWA CHAKWAMBA (A): Mdauko wa na wakumupwelelera

1. Nambala ya wakutolapo malo_____
2. Dazi_____
3. Zina la wakufumba mafumbo_____

A1. Kasi mwana winu wana vyaka viringa?_____

A2. Kasi mwizako kalinga kuchipatala na mwana?

Chongani zgolo lakwenelera nakuzgunguzga nambala yakwenelera

A3. Mwana wakababikira chipatala cha nkhuni?

a. Chipatala chikulu [ ]……1
b. Chipatala cha boma [ ]……2
c. Chipatala chidoko [ ]……3
d. Vinyake [ ]……4

A4. Ni mwana uli?

a. Mwanalume [ ]……1
b. Mwanakazi [ ]……2

A5. Ndimwe bachipulikano uli?

a. Chikhirisitu [ ]…….1
b. Chisilamu [ ]…….2

c. Vinyake (zunulani) [ ]…….3

A6. Muli pa nthengwa?

a. Wakutengwa [ ]…….1

b. Wambula kutengwa [ ]…….2

c. Wali kutaika [ ]…….3

d. Tilikulekana [ ]…….4

e. Nthengwa yili kumala [ ]…….5

A7. Kasi sukulu mukalekezgera mphani?

a. Sitandade 1-4 [ ]…….1

b. Sitandade 5-8 [ ]…….2

c. Folomu 1-2 [ ]…….3

d. Folomu 3-4 [ ]…….4

e. Nindasambirepo [ ]…….5

f. Zinyake (zunulani) [ ]……6

A8. Mukugwira ntchito uli?

a. Wakuluta pa nthazi na masambiro (usambizi, u nesi, kupendesera ndalama, upolisi) [ ]…….1

b. Bizinesi [ ]…….2

c. Nkhukhala waka panyumba [ ]…….3

d. Yaulimi [ ]…….4

e. Vinyake (zunulani) [ ]…….9

A9. Muli navyaka viringa_____

Chigawa C. Vakukhwasya chipwelelero icho wana wakupokera pa nyengo iyo wakulondezgeka

Kapelekelo ka munkhwala wa Nevirapine na ivo bamama wakumanyapo za uwemi wakhe

B1. Kasi mwana winu wakapokera munkhwala ya Nevirapine nyengo iyo wakababikanga? (pala zgolo ni enya, zgolani fumbo nambala B3).

a. Enya [ ].....1
b. Yayi [ ].....2

B2. Pala zgolo ni yayi, akamuphaliranipo chifukwa icho mwana winu wakarekera kupokera mankhwala?

a. Mankhwala kukawevye [ ].....1
b. Manesi wakaluwa kupereka mankhwala [ ].....2
c. Mwana wakawa pachakofya chilichose yayi chifukwa nyina wakawevye matenda ya HIV [ ].....3
d. Vinyake (zunulani) [ ].....4

_____

B3. Pala mukamupasa mankhwala, wakamwa nyengo itali uli?

a. Masabata yawiri [ ].....1
b. Masabata yatatu [ ].....2
c. Masabata yanayi [ ].....3
d. Masabata yankhonde [ ].....4
e. zinkhonde na yimoza [ ].....5
f. Vinyake (zunulani) [ ].....6

_____

B4. Kasi manesi walikumuphalirani za uwemi wa Nevirapine? Pala yayi lutani fumbo nambala B6.

a. Enya [ ].....1

c. Yayi [ ].....2

B5. Pala enya, mungayowoya uwemi wake?

a. Alikumuteteza kutola kachibungu ka HIV [ ].....1
b. Alikumuteteza ku malungo [ ].....2
c. Kuthaska nyifwa za wana wambula kukwana miyezi nine yakubabikira [ ].....3
d. Kovwila kusintha miyoyo ya wana [ ].....4
e. Vinyake (zunulani) [ ].....5

_____

Kupimisya ndopa

B6. Kasi mwana winu walikuyezgekapo ndopa zake kuti wawone kuti wana kachibungu ka HIV? Para enya, lutani ku B8.

b. Enya [ ].....1
c. Yayi [ ].....2

B7. Para yayi, wakakuphalirani chifukwa icho wandamupimire?

a. Kuchepa kwa vyakupmira [ ].....1
b. Mwana wambula kuzomelezgeka [ ].....2
c. Kuchepa kwa wakupereka ulongozgi [ ].....3
d. Nkhumanya yayi [ ].....4
e. Vinyakhe (zunulani) [ ].....5

B8. Para enya, wakawa na vyaka viringa pa nyengo iyo

a. Masabata 0-6 [ ].....1
b. Masabata 7-12 [ ].....2
c. Masabata 13-24 [ ].....3

d. Masabata 25-48 [ ].....4

e. Masabata 49-96 [ ].....5

f. Vinyake (Zunulani) [ ].....6

B9. Pakatola masabata yalinga kuti mupokere/ mupulike zgolo?

a. Sabata yimoza [ ].....1

b. Masabata yawiri [ ].....2

c. Masabata yatatu [ ].....3

d. Masabata yanayi [ ].....4

e. Masabata yankhonde [ ].....5

f. zinkhonde na yimoza [ ].....6

g. Vinyake (Zunulani) [ ].....7

B10. Kasi mwana winu wakakwera sikelo?

a. Enya [ ].....1

b. Yayi [ ].....2

B11. Kasi mwana winu wakamuyezga kutalika kwa musinkhu wake?

a. Enya [ ].....1

b. Yayi [ ].....2

B12. Kasi mwana winu wakamuyezga ukulu wakawoko, muchanya mwakasukusuku?

a. Enya [ ].....1

b. Yayi [ ].....2

B13. Kasi badokotala bakalemba sikelo yamwana mukabuku kake kakuchipatala?

a. Enya [ ].....1

b. Yayi [ ].....2

B14. Mukapokera mankhwala gha Bakitirimu?

a. Enya [ ].....1

b. Yayi [ ].....2

B15.Kasi badokotala bakamulongosolerani za uwemi wakumwa Bakitirimu?

a. Enya [ ].....1

b. Yayi [ ].....2

B16. Pala enya, zunulaniko zauwemi wake wakumwa bakitirimu?

a. Yakutithaska ku vilaso vikulu [ ].....1

b. Yakutithaska ku maleriya [ ].....2

c. Ukuvikililika ku kufumira [ ].....3

d. Vinyake (Zunulani) [ ].....4

B17. Kasi wakamulongosolerani va ndondomeko ya kalutiro ka kuchipatala na mwana winu?

a. Enya [ ].....1

b. Yayi [ ].....2

B18. Pala enya, munganilongosolera ndondomeko ya umo mwana winu mulutirenge nayo ku chiapatala

a. Mwezi uliwose mpaka miyezi sikisi, mbwenu mwezi itatu yiliyose kufika mwana wakwaniske mwezi 24 [ ].....1

b. Miyezi itatu iliyose [ ].....2

c. Miyezi sikisi yiliyose [ ].....3

d. Vinyake (Zunulani) [ ].....4

B19. Kasi mukadumbiskanapo vakukhuzana na kalyeskero ka mwana?

a. Enya [ ].....1

b. Yayi [ ].....2

B20. Pala enya, munganiphalira ndondomeko ya kawonkheskero ka mwana winu?

a. Kuwonkheska bere pera kwa mwezi 6, nakumuyambiska vwakurwa vinyake kweni walutilizge kuwonkha mpaka mwezi 24 [ ].....1

b. Kuwonkheska bere pera mupaka mwana wakwane chaka [ ].....2

c. Kuwonkheska bere pera mwezi sikisi mbwenu kumulekeska [ ].....3

d. Vinyake (Zunulani) [ ].....4

_____

B21. Mwana winu mukamulyeskanga uli or vichi mu miyezi sikisi yakudanga panji mukumulyeska uli mwana winu sono uyo wandakwaniske miyezi sikisi

a. Kuwonkheska bere pera kwa mwezi 6 [ ].....1

b. Mkaka wakugula pela [ ].....2

c. Kuwonkheska bere nakumupasa vwakurwa vinyake [ ].....3

d. Vwakurwa ivo vikusangika pa khomo [ ].....4

e. Vinyake (Zunulani) [ ].....5

_____

B22. Mukadumbiskanapo za uheni wa kwakuyabiska mwana vwakurwa vinyake pambere wandafike mwezi sikisi?

a. Enya [ ].....1

b. Yayi [ ].....2

B23. Mukadumbiskana vichi vakukhuzana na mwana winu umo wangajithasira pakuleka kutola matenda ya Edzi pa nyengo iyo wakonkha?

a. Mama kulutirizga kumwa mankhwala ya ma ARV [ ].....1
b. Kuleka kumupasa mwana vakulya vinyake wandafike mwezi 6 [ ].....2
c. Kumukola nakumuyika makola ku bele [ ].....3
d. Vinyake (Zunulani) [ ].....4

_____

CHIGAWA D: Maganizo ya mama pa wovwiri uwo mwana wawo wakupokera

C1. Mukauona uli wovwiri uwo mukapokera?

a. Wanguwa makola [ ].....1
b. Nkhakhutiskika [ ].....2
c. Wanguwa makola yayi [ ].....2

C2. Kasi mungakhumba kuti mwizeso kuchipatala chenichichi ichi kukhumbaso wovwiri wa mwana?

a. Enya [ ].....1
b. Yayi [ ].....2

C3. Mungawachiska banthu wanyake kuti bize kuchipatala chenechichi ichi?

a. Enya [ ].....1
b. Yayi [ ].....2

C4. Muna maghanoghano yakulutiska pa nthazi wovwiri wabana awo wakubabika kwa amama awo walina ka chibungu ka HIV pa chipatala chino?_____

<u>Naonga chomene chifukwa chakujipereka kwinu.</u>

Appendix 9: Chichewa questionnaire

Mafunso a makolo pakafukufuku wofuna kuunika momwe ana amene anabadwa kwa azimai omwe ali ndi kachilombo ka HIV amasamalidwira pa nthawi yomwe akutsatiridwa ku chipatala cha Mzuzu health centre- Malawi.

GAWO LOYAMBA (A): Mbiri ya mwana ndi womusamalira.

1. Nambala ya otenga mbali.....
2. Tsiku.....
3. Wofunsa mafunso.....

A1. Kodi mwana wanu ali ndi zaka zingati? .....

A2. Kodi mwabwera kangati kuchipatala ndi mwana wanu?

Chongani yankho lolondola ndikuzunguliza nambala yoyenera

A3. Kodi mwana wanu anabadwira chipatala chanji?

a. Chipatala chachikulu [ ]…....1
b. Chipatala cha boma [ ]…….2
c. Chipatala chaching'ono [ ]…....3
d. Zina [ ]…….4

A4. Kodi mwanayu ndimwamuna kapena wamkazi?

a. Mwamuna [ ]……1
b. Nkazi [ ]…….2

A5. Ndinu a chipembezo chanji?

a. Chikhilisitu [ ]……1
b. Chisilamu [ ]…… 2
c. Zina [ ]…….3

A6. Kodi muli pa banja?

a. Wokwatiwa [ ]…...1
b. Wosakwatiwa [ ]……2

c. Nanfedwa [ ]……3

d. Tinalekana [ ]…….4

e. Banja linatha [ ]…….5

A7. Kodi sukulu munalekeza kalasi yanji?

a. Standade1-4 [ ]…….1

b. Standade 5-8 [ ]…….2

c. Folomu 1-2 [ ]…….3

d. Folomu 3-4 [ ]…….4

e. Sindinaphunzireko [ ]…….5

f. Zina (Tchulani) [ ]…….6

A8. Mumagwira tchito yanji?

a. Ndinafika kukoleji ndipo ndine (Mphunzitsi, Namwino, Wazachuma, Wapolisi) [ ]…….1

b. Yabizinesi [ ]…….2

c. Mzimayi wapakhomo [ ]…….3

d. Yaulimi [ ]…….4

e. Zina (tchulani) [ ]…….5

A9. Muli ndi zaka zingati?_____

Gawo C: Zokhuza chithandizo chomwe ana amalandira pa nthawi imene akusatiridwa.

B1. Kodi mwana wanu analandira Nevirapine atangobadwa? (Ngati inde, pitani pa funso B3).

a. Inde [ ]…..1

b. Ayi [ ]…..2

B2. Ngati ayi, anakuuzani chifukwa chomwe sanalandirile Nevirapine?

a. Kunalibe mankhwalawo [ ]…..1

b. Anaiwala kundipasa [ ]……2

c. Mai anali asanapezeke ndi kachilombo [ ]……3

d. Zina, Ttchulani _____[ ]…….4

B3. Ngati inde, mwana anapasidwa Nevirapine kwa masabata angati?

a. Awiri [ ]…….1

b. Atatu [ ]…….2

c. Anayi [ ]…….3

d. Asanu [ ]……4

e. Asanu ndi kamodzi [ ]……5

f. Zina, Tchulani_____ [ ]……6

B4. Anakufotokozerani za ubwino wa Nevirapine? (Ngati ayi, pitani pa funso B6).

a. Inde [ ]…….1

b. Ayi [ ]…….2

B5. Ngati inde, tchulani ubwino wake.

a. Amachepesa chiopsezo chotengera ka chilombo kwa mwana [ ]……1

b. Amachepesa chiopsezo chodwala malungo [ ]……2

c. Amateteza imfa yosayembekezereka [ ]……3

d. Mwana amakhala wa thanzi [ ]……4

e. Zina, tchulani_____ [ ]…….5

Kuyezesa kachirombo ka HIV

B6. Kodi mwana wanu anayezedwapo magazi ake kuti aone ngati ali ndi kachilombo ka HIV?

a. Inde [ ]……1
b. Ayi [ ]…....2

B7. Ngati ayi, tchulani chifukwa chimene sanamuyezere magazi ake.

a. Kunalibe zoyezera [ ]…….1
b. Mwana anali atadusa chaka chimodzi [ ]…….2
c. Kunalibe alangizi [ ]…….3
d. Sindikudziwa [ ]…….4
e. Zina, tchulani. [ ]…….5

_____

B8. Ngati inde; mwana anali ali ndi masabata angati pa nthawiyo?

a. 0-6 [ ]……1
b. 7-12 [ ]……2
c. 13-24 [ ]……3
d. 25-48 [ ]……4
e. 49-96 [ ]……5
f. Zina (tchulani) [ ]……6

_____

B9. Panatenga masabata angati kuti mulandire zosatira?

a. Sabata imodzi [ ]……1
b. Masabata awiri [ ]…....2
c. Masabata atatu [ ]…….3
d. Masabata anayi [ ]…….4
e. Masabata asanu [ ]…….5
f. Masabata asanu ndi kamodzi [ ]…….6
g. zina (tchulani) [ ]…….7

B10. Kodi mwana wanu anamukweza sikelo?

a. Inde [ ]……1

b. Ayi [ ]…….2

B11. Kodi mwana wanu anamuyeza kutalika kwa msinkhu wake?

a. Inde [ ]……1

b. Ayi [ ]…….2

B12. Kodi mwana wanu anamuyeza pa nkono wake?

a. Inde [ ]……1

b. Ayi [ ]…....2

B13. Kodi adokotala analemba sikelo yamwana mukabuku kake?

a. Inde [ ]……1

b. Ayi [ ]…….2

B14. Kodi anakupasani mankhwala a bakitirimu?

a. Inde [ ]……1

b. Ayi [ ]…..2

B15. Kodi a chipatala anakufotokozerani ubwino wokumwa bakitirimu?

a. Inde [ ]……1

b. Ayi [ ]…….2

B16. Ngati inde, fotokozani?

a. Amateteza chibayo chachikulu [ ]……1

b. Amateteza malungo [ ]…….2

c. Amateteza kusegula m’mimba [ ]…….3

d. Zina (tchulani) [ ]…….4

B17. Kodi anakufotokozerani za ndondomeko ya kasatiridwe ka mwana wanu?

a. Inde [ ]……1

b. Ayi [ ]…...2

B18. Mungandifotokozere ndondomeko ya momwe mwana wanu atasatiridwire?

a. Mwezi uliwonse mpaka miyezi sikisi, kenako miyezi itatu iliyonse kufikira atakwana miyezi 24 [ ]……1
b. Miyezi itatu iliyonse [ ]…….2
c. Miyezi sikisi iliyonse [ ]…….3
d. Zina (tchulani) [ ]…....4

B19. Munakambirana zokhuza kadyesedwe kamwana?

a. Inde [ ]…….1
b. Ayi [ ]…….2

B20. Ngati inde, mungandiuze ndondomeko ya kayamwitsidwe kamwana wanu?

a. Kuyamwisa mwakathithi kwamiyezi sikisi, ndikumuyambisa zakudya zina, koma apitirize kuyamwa mpaka miyezi 24. [ ]……1
b. Kuyamwisa mwakathithi kwa chaka chimodzi [ ]…….2
c. Kuyamwisa mwakathithi kwamiyezi sikisi kenako kumusiisa [ ]…....3
d. Zina (tchulani) [ ]…….4

B21. Kodi mwana wanu mumamudyesa motani pa miyezi itatu yoyambirira kapena mukumudyesa chain panopa (ngati sanakwanise miyezi isanu ndi umodzi)?

a. Anayamwa mwa kathithi [ ]…….1
b. Mkaka wogula wokha [ ]…….2
c. Anayamwa mwakathithi komanso kudya zakudya zina [ ]…….3
d. Amadya zakudya zomwe zimapezeka pakhomo [ ]…….4
e. Zina, tchulani [ ]…….5

B22. Munakambirana za kuopsya komuyambisa mwana zakudya zina asanafike miyezi isanu ndi umodzi?

a. Inde [ ]…….1
b. Ayi [ ]…….2

B23. Munakambirana chani paza momwe mwana wanu angapewere kutenga kachirombo ka HIV panthawi imene akuyamwa?

a. Mayi kupitiriza kumwa mankhwala ama ARV [ ].....1
b. Osampasa mwana zakudya zina pamene asanakwanise miyezi sikisi [ ].....2
c. Kumugwira ndi kumuvumatisa bwino bele [ ].....3
d. Zina (tchulani) [ ].....4

Gawo D: Maganizo a amayi pa chithandizo chomwe mwana analandira

C1. Munamva bwanji pazachithandizo chonse chomwe munalandira?

a. Chinali chabwino [ ].....1
b. Ndinakhutisidwa nacho [ ].....2
c. Sichinali chabwino [ ].....3

C2. Kodi mungazabwerenso kuchipatala kuno kudzalandira chithandizo?

a. Inde [ ].....1
b. Ayi [ ].....2

C3. Mungawalimbikitse athu ena kubwera kuchipatala kuno?

a. Inde [ ].....1
b. Ayi [ ].....2

C4. Muli ndi maganizo aliwonse othandiza kukonza chithandizo chomwe ana amene anabadwa kwa azimayi amene ali ndikachirombo ka HIV angamasamalidwire kuchipatala-

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Zikomo potenga nawo gawo pa kafukufukuyi!

Appendix 10: Approval Certificate from College of Medicine Research Ethics Committee (COMREC)



UNIVERSITY OF MALAWI

CERTIFICATE OF ETHICS APPROVAL

This is to certify that the College of Medicine Research and Ethics Committee (COMREC) has reviewed and approved a study entitled:

P.02/15/1673- Assessment of quality of care offered to HIV exposed children during follow up visit at Mzuzu Health centre by Mrs Chikondi M. Chimbatata

On 23 July 2014

As you proceed with the implementation of your study, we would like you to adhere to international ethical guidelines, national guidelines and all requirements by COMREC as indicated on the next page

Approved by
College of Medicine
23 JUL 2015
(COMREC)
Research and Ethics Committee

Dr. C. Dzamalala- Chairperson (COMREC)

23rd July 2015
Date

Telephone: + 265 01 311 061
+ 265 01 310 579
dhomzimbanorth@yahoo.co.uk
All Communications should be addressed to:
DISTRICT HEALTH OFFICER



In reply please quote no.....
MINISTRY OF HEALTH AND POPULATION
MZIMBA NORTH DHO
P.O. BOX 299
MZUZU
MALAWI.
3rd June, 2014.

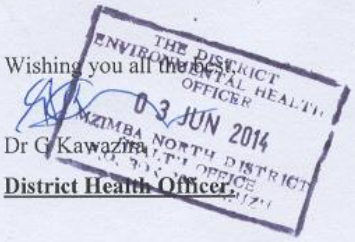
Chikondi Chimbatata
Kamuzu College of Nursing
Private Bag 415
Blantyre.

Dear Sir/Madam,

PERMISSION TO CONDUCT A STUDY TITLED ASSESSMENT OF QUALITY OF CARE OFFERED TO HIV EXPOSED CHILDREN DURING FOLLOW UP VISIT AT MZUZU HEALTH CENTRE

Reference to the subject above, permission has been granted to you to conduct a research study titled *"Assessment of quality of care offered to HIV exposed children during follow up visit at Mzuzu health centre.*

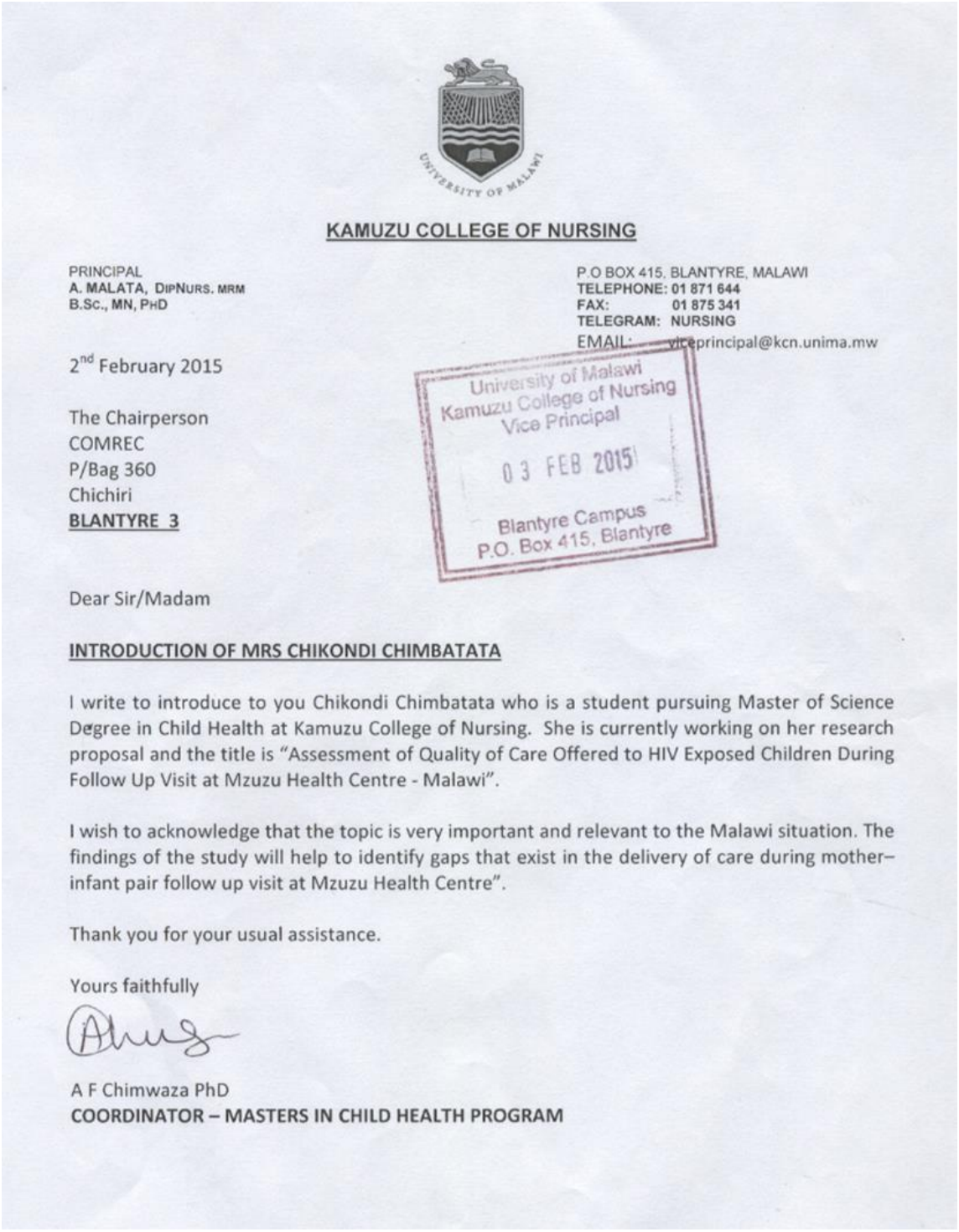
Hope the results of your study will be shared with us for the improvement of client care at the facility.



Wishing you all the best.

Dr C Kawazira
District Health Officer.

Appendix 12: Introduction letter from Kamuzu College of Nursing



KAMUZU COLLEGE OF NURSING

PRINCIPAL
A. MALATA, DIPNURS. MRM
B.SC., MN, PHD

P.O BOX 415, BLANTYRE, MALAWI
TELEPHONE: 01 871 644
FAX: 01 875 341
TELEGRAM: NURSING
EMAIL: viceprincipal@kcn.unima.mw

2nd February 2015

University of Malawi
Kamuzu College of Nursing
Vice Principal
03 FEB 2015
Blantyre Campus
P.O. Box 415, Blantyre

The Chairperson
COMREC
P/Bag 360
Chichiri
BLANTYRE 3

Dear Sir/Madam

INTRODUCTION OF MRS CHIKONDI CHIMBATATA

I write to introduce to you Chikondi Chimbatata who is a student pursuing Master of Science Degree in Child Health at Kamuzu College of Nursing. She is currently working on her research proposal and the title is "Assessment of Quality of Care Offered to HIV Exposed Children During Follow Up Visit at Mzuzu Health Centre - Malawi".

I wish to acknowledge that the topic is very important and relevant to the Malawi situation. The findings of the study will help to identify gaps that exist in the delivery of care during mother–infant pair follow up visit at Mzuzu Health Centre".

Thank you for your usual assistance.

Yours faithfully

A F Chimwaza PhD
COORDINATOR – MASTERS IN CHILD HEALTH PROGRAM

Appendix 13: Approval letter for pretesting from Mzuzu Central Hospital

Telephone: 01 320 916 / 878
Fax: 320223/320973/270
directormch@malawi.net

In reply please quote No.....

The Hospital Director,
Mzuzu Central Hospital,
Private Bag 209,
Luwinga,
Mzuzu 2.

February 3, 2015

Chikondi Malimba Chimbatata
Kamuzu College of Nursing
P. O. Box 415
Blantyre
Malawi

Dear Madam,

APPROVAL TO CONDUCT A PILOT RESEARCH STUDY AT MZUZU CENTRAL HOSPITAL

Refer to your letter dated 16 January 2015 in which you requested for permission to conduct a pilot study titled "***Assessment of quality of care offered to HIV exposed infants during follow up visits at Mzuzu Health Centre*** " at our institution (Mzuzu Central Hospital).

I am pleased to inform you that your request has been approved. You will be required to present this letter to the in-charge of the department you have selected before you can start your data collection.

Yours sincerely,

Master R. Chisale
MZCH Research and Publication Committee Chairperson
For: THE HOSPITAL DIRECTOR