COMMUNITY-BASED CHILD GROWTH MONITORING AND PROMOTION TRAINING AND IMPLEMENTATION PROGRAM IN ZAMBIA: A SCOPE & CONTEXT EVALUATION

PhD THESIS

By

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A Thesis submitted to the University of Zambia in fulfilment of the requirements for the degree of Doctor of Philosophy in Nursing Sciences

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DECLARATION

I, Caroline Zulu, declare that this thesis is entirely my own work. I further declare that this work has not previously been submitted for the award of diploma, degree or any other qualifications at this or any other University. To the best of my knowledge, this Thesis contains no material published or written by another person, except where due all sources I have quoted been indicated and have acknowledged by means of complete references. The Thesis has been written in accordance with the guidelines for Doctor of Philosophy Degree Theses of the University of Zambia.

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ABSTRACT

Zambia amidst the chronic shortage of HRH, has been striving for almost two decades now , to “Provide cost effective health care services, as close to the family as possible”. Children being most vulnerable have suffered chronic high child mortality rates still as high as 88 per 1,000 live births. Implementation of Child Survival Programs in Zambia mainly Community-Based Child Growth Monitoring and Promotion Programs (CCGMP) which heavily relay on CHW for implementation. It is therefore necessary that clear and feasible guidelines for training, designing, implementing, monitoring and evaluating child growth monitoring and promotion programs (CCGMPs) are available, enforced and regularly evaluated. The main objective of this study was to evaluate the scope, content, context and depth of training and implementation programme for CCGMPs in order to improve child survival in Zambia.

An evaluation study conducted in Lusaka and Chirundu districts of Zambia. Mixed method design was applied, to increase the strength of the study through triangulation by applying five methods; systematic document review, cross sectional survey, uninterrupted direct observation, one-on-one exit interviews with mothers, and focus group discussions. Two different respondents were engaged; CCGMPs and mothers. Several methods of data collection and analysis were intentionally applied to allow comparing results from these different methods in order to triangulate and mitigate possible bias.

Study population comprised of the following according to the data collection methods that were applied: Five (5) curriculum related documents were systematically reviewed to determine curriculum content, duration of training and methodologies used during training. To ensure fair representation, proportional sampling with regard to population size between urban and rural areas while using simple random sampling, three (3) areas were selected from Lusaka and two areas from Chirundu from which a total of 400 CCGMPs were selected for the cross sectional survey. For qualitative case studies; uninterrupted direct observation, 50 CCGMPs were observed as they performed their tasks at GMPs, 50 mothers were systematically selected for one-to-one exit interview and 50 leaders of CCGMPs were included in the focus group discussions. Ten (10) participants from each of the five (5) areas selected of the two (2) study sites were included giving a total of 50 participants for each of the three (3) qualitative methods that were applied.

This study discovered inadequacies in the key components for training and implementation of CCGMP and child survival programs. Theoretical and practical training were both inadequate

which contributed to incompetent services provided by the CCGMPs and mothers' dissatisfaction

This study coined the ***"triple C index",*** a combination of three components: context, competency and contentment as essential elements for the training and implementation of CCGMP program. Standard curriculum content, context and competencies of training, practice and evaluation of CCGMPs programme needs to be established and adhered to in order to meet the contentment and organisations need to be accredited to relevant regulatory bodies in order to meet demand of their services.Suggestion was made on application of the *"triple three index",* a combination of the three (3) concepts that should be, systematically merged and well synchronised for any training program to be successfully designed, implemented, monitored and evaluated.

Keywords: curriculum content, competency, context, contentment

DEDICATION

To my one and only beloved daughter, Wiya, who has been an inspiration not only to my accomplishments but also in my time of joys, pain, loneliness and sorrows.
May God richly bless you my beautiful daughter.

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ACRONYMS

GM	Growth Monitoring
GMP	Growth Monitoring and Promotion
WHO	World Health Organisation
UNICEF	United Nations International Children's Emergency Fund
IMCI	Integrated Management of Childhood Illness
CGMP	Child Growth Monitoring and Promotion Programs
CSO	Central Statistical Office
CCGM	Community–Based Child Growth Monitors
CCGMP	Community–Based Child Growth Monitors and promoters
MOH	Ministry of Health
CBoH	Central Board of Health
ZDHS	Zambia Demographic and Health Survey
CSI	Child Survival Interventions
MUAC	Mid-Upper Arm Circumference
NFNC	National Food and Nutrition Commission
UNZABREC	University of Zambia Biomedical Ethics Committee
NNSS	National Nutrition Surveillance System
EDHS	Ethiopian Demographic and Health Survey
KDHS	Kenya Demographic and Health Survey
CBGM	Community-Based Growth Monitoring Model
HFP	Health Facility Practices
CGP	Community growth promoters
UNAID	United Nations Agency for International Development
NGOs	Non-Government Organizations
CHW	Community Health Worker

HIMS	Health Information Management Systems Register
UTH	University Teaching Hospital
IYCF	Infant and Young Child Feeding
CHU	Child Health Unit
PHC	Primary Health Care
MDGs	Millennium Development Goals
HIV	Human Immunodeficiency Virus
BMI	Body Mass Index
PEDS	Parents' Evaluation of Developmental Status
NCAPD	National Coordinating Agency for Population and Development
NPC	National Population Commission
CDC	Center for Disease Control and Prevention
UDO	Uninterrupted Direct Observation
FGD	Focus Group Discussions
CMO	Community Medical Office
SMAGs	Safe motherhood Action Groups
NHCs	Neighborhood health committees
TBAs	Traditional Birth Attendants
DHO	District Health Office
LCMO	Lusaka Community Medical Office
CHP	Child Health Promoters
CHAZ	Churches Health Association of Zambia
JICA	Japanese International Co-operation Agency
IGAs	Income Generating Activities
GRZ	Government of the Republic of Zambia
EPI	Expanded Program of Immunisation

CHAPTER ONE
BACKGROUND

"It is easier to build strong children than to repair broken men."
Frederick Douglass

1.1 Introduction

World Health Organization (WHO) defines Growth Monitoring and Promotion (GMP) as a systematic nutritional intervention that measures and charts the weight of children from 0 to 5 years of age and uses this information to counsel parents so that they take actions to improve child's growth (Ashworth et al., 2008). Globally and for many decades, the burden of childhood malnutrition and infection still play a major role in causing preventable deaths and disabilities that occur in much of the developing countries, especially among young children. Malnourished children suffer loss of precious mental capacity, fall ill more often, or grow up with lasting mental or physical disabilities. It is the monitoring of growth that is meant to help detect malnutrition early in children and is mainly done by Community–Based Child Growth Monitors and Promoters (CCGMP) with minimal input from health professionals particularly Nurses who mainly just immunise the children and the cooperation of the mothers who with children under the age of five years in the Community. The most widely promoted method of growth monitoring, which is the method favoured by UNICEF, is weighing and charting growth, since weight gain is believed to be the most sensitive indicator of growth and is universally applicable. Among other techniques, measuring arm circumference is claimed to be the easiest and cheapest alternative to weighing and has been recommended for use at the home and village levels whenever regular and frequent weighing is not possible(De Onis et al., 2012). Child growth monitoring and promotion must ensure that the following activities are kept in check every month for every child; Under-five attendance at CCGMP sessions, adequacy of growth on the under-five 'Road to Health' graph, as an indicator of state of health, Improvement in behaviours (e.g. child feeding), presentation of performance results at local-level meetings, and certainly Local-level initiatives to address the underlying causes of poor child growth (Griffiths and Rosso, 2007). Through Community-based child growth monitoring and promotion (GMP) sessions CCGMP and Health Care Professionals are able to monitor and register as well as to make decisions about the best ways to keep the children healthy.

Both developed and developing countries have been struggling with the negative impact of shortage of Human Resource for Health (HRH), let alone adequately trained personnel to perform tasks to provide quality health care services to the populations as part of an integrated response to reduce the global burden of diseases and associated effects.In view of this, from 2006-2011 the Ministry of Health Zambia, put in place a number of strategies aimed at meeting the goals of the 2006 –2010 Human Resources for Health (HRH) Strategic Plan. These include systematic surveys, censuses of HRH staffing and distribution, and expansion of the capacities of training institutions. In addition, strong partnerships have been established with key stakeholders in the health sector, including other government ministries and departments, local communities, private sector, faith-based institutions, non-governmental organisations (NGO), civil society organizations (CSO), and Co-operating Partners (CPs) (Dhang et al., 2009).

1.2 Background

This background discusses the context within which Zambia has been striving to provide child survival strategies and improve the growth of children. A health survey by WHO in 2003 showed that 154 countries worldwide used growth charts to monitor children's weight, with two-thirds of the charts covering preschool-aged children. In the mid-1980s, several consultations suggested that GM should be designed with additional promotional activities to become GMP (Ashworth et al., 2008). As a result of a chronic shortage of professional HRH of various cadres and at all levels of the health care system, numerous countries especially in the Sub-Saharan region have resorted to implement community-based child growth monitoring and promotion programs (CCGMP) as their main child health monitoring and promotion activity. GMP was envisioned as a cornerstone activity that would help target, at-risk children for secondary interventions, as a way of empowering caregivers and households to take an active role in preventing malnutrition of their children, and as a way to encourage the use of other services available through primary health clinics. Some of the confusion about the place of GM in nutrition programmes appears to be due to lack of agreement on the definition and expected outcomes of GM and GMP. Growth monitoring is a process of following the growth of a child compared with a standard by periodic, frequent anthropometric measurements and assessments(Ashworth et al., 2008).

Worldwide, Growth monitoring has a long history (Liu et al., 2015). In the 1960s Dr. David Morley introduced the use of anthropometric indicators for measuring the promotion of adequate growth of children in developing countries (Liu et al., 2012). Over the years, the use

of different types of growth chart emerged(Mayer et al., 2015). As time went by, WHO developed a standard growth chart in collaboration with other national and international institutions and promoted its use worldwide which was considered a mile stone of growth monitoring development in 1978 (Mangasaryan et al., 2011). The United Nations Children Education Fund (UNICEF) developed a number of primary health care strategies known collectively as the Child Survival and Development Revolution in the early 1980s(Liu et al., 2015). Growth motoring was one of the key activities in the GOBI-FFF strategy, alongside oral rehydration, breastfeeding, immunisations, family planning, food supplementation and promotion of the female literacy (Claeson and Waldman, 2000).

Zambia is one of the 22 African countries with the highest burden of under nutrition in children under five. Malnutrition manifests in many forms such as underweight, stunting and wasting (Paul, Sachdev et al. 2011(Paul et al., 2011). Deficiencies of a single nutrient are uncommon and multiple nutrient deficiencies usually predominate in the same individuals (Fiedler et al., 2012). Recent estimates in 32 selected districts indicated a prevalence of stunting, underweight and wasting at 52 per cent, 18 per cent and 5 per cent respectively (Bwalya et al., 2015). According to the WHO, malnutrition underlies a third of all child deaths and 17% of under-five children are underweight, a situation which could be avoided if growth monitoring and promotion programs are well implemented. Malnutrition and micronutrient deficiencies contribute to about 35% of under-five deaths (Munthali et al., 2015).

In the year 2015, the National Nutrition Surveillance System (NNSS) report, issued by the National Food and Nutrition Commission, found overall under age 5 stunting prevalence in Zambia to be as high as 50%. In particular, Mwinilunga, Mansa, Mbala, Chinsali, Lundazi, Chipata, Mumbwa, Chongwe, Chingola and Kalomo districts recorded stunting in children under 5 years well above 50%(Munthali et al., 2015). Although the NFNC used a different sampling method than the ZDHS, these recent findings are cause for serious concern. Male children 48% were more likely to be stunted than female children 42%, while more rural children were stunted 48% than urban children 39%(Munthali et al., 2015). Provincial variation in nutritional status of children is substantial; with stunting prevalence highest in Luapula province 56% and 36% each respectively in Western and Southern provinces Stunting remains the most common nutritional disorder that affects children in Zambia. Zambia health and demographic survey (ZDHS) report for 2013, forty-five per cent (45%) of children under age 5 were stunted/chronically malnourished(Bwalya et al., 2015).

The prevalence of wasting (low weight for height) among children under age 5 remains relatively constant at approximately 5% over three ZHDS surveys (1992, 1996, and 2001–02). Although, the results of the 2007 ZDHS showed notable improvement in nutritional status of children as measured by weight-for-age: from 23% underweight in 2001–2002 to 15% in 2007. All the ZHDS reports show that stunting is also inversely related to a mother‘s education. ZDHS data indicate that children born to mothers with no education are more likely to be stunted (45%) compared to 39% of children born to mothers with a secondary education(Masiye et al., 2010). This could imply that the more the knowledge, the better the child feeding and hence the less the chances of developing malnutrition. Another study conducted in Zambia in 2009 showed that high drop-out rate to follow up before the children’s fifth birth day was as high as 74%, as shown in the evaluation could mean that there is inadequate community sensitisation that should promote turn out of mothers with their children for the monthly sessions of community child growth monitoring(Charlton et al., 2009).

At the 1990 World Summit for Children, most nations including Zambia pledged, among various goals to improve children's health, by reducing mortality in infants and children aged younger than 5 years by one third of the 1990 levels or to 50-70/1,000 live births, and to reduce severe and moderate malnutrition among children aged less than 5 years (under-5) by half (Tontisirin and Bhattacharjee). This pledge could only be best achieved in developing countries with constrained resources critical shortage of Human Resource for Health (HRH) and high population boom, by improving training of community-Based child growth monitors,. As shown by literature that Community-based child growth monitoring and promotion (CCGMP) activities are extremely vital in countries like Zambia, where there is critical and chronic shortage of human resource for health with high fertility rate leading to low awareness by communities on the causes of disease and malnutrition in children and families do not have the necessary information to help them protect and promote their children's health. CCGMP activities can provide an entry point for households and local groups to use the information on child growth to guide activities that address the problems identified (Garner et al., 2000). CCGMP is a relevant complementary activity for many of the actions and interventions that need to be undertaken for the proper growth of children, especially in the under privileged communities. Like other Sub-Saharan countries, Zambia faces significant challenges of infant and young child survival as mortality rates remain unacceptably high.

Documented in a case study is how Zambia, known to be a peaceful, politically stable African country with a longstanding tradition of strategic management of the health sector and with a track record of innovative approaches dealt with its HRH problems, but still remains with a major absolute and relative shortage of health workers. The case of Zambia reinforces the idea that training more staff is necessary to address the human resources crisis, but it is not sufficient and has to be completed with measures to mitigate attrition, correct distribution and increase productivity of HRH(Ferrinho et al., 2011). This long standing shortage of the HRH, especially that of trained health worker professionals remains a panacea of the burden of provision of healthcare services and the persistence of this situation despite many efforts of governments to provide health promotion and disease prevention as part of innovated primary care services, has seriously derailed the government's mandate to, "Provide cost effective health care services, as close to the family as possible"; goal that Zambia has not achieved to-date by 2018. Despite all these strategies being implemented however, the country still has less than half the required WHO recommended HRH workforce in all categories (Tjoa et al., 2010). Currently there are 0.06 physicians, 0.77 nurses and midwives per 1000 persons and 80% of health workers in Zambia work in the public sector (Tjoa et al., 2010). There is high staff turnover at public health facilities, especially in rural areas where there is a net negative migration, despite the annual pool of graduates from training institutions.

This shortage of HRH has lead not only to high ratios between the health care workers and the public they serve but has also led to compounding problem of unequal distribution as was reflected in the ratio of population per cadre, in a case study that was under taken. The provincial distribution of personnel showed a skewed staff distribution in favour of urbanized provinces, e.g. in Lusaka's doctor: population ratio was 1: 6,247 compared to Northern Province's ratio of 1: 65,763. The situation is worse in rural areas as in the whole country, the data set showed only 109 staff in health posts: 1 clinical officer, 3 environmental health technologists, 2 registered nurses, 12 enrolled midwives, 32 enrolled nurses, and 59 other. (Ferrinho et al., 2011). This is attributed to dissatisfaction with compensation and non-monetary factors such as occupational hazards, physical and psychological violence, and unreasonable workloads (Gupta et al., 2011). Furthermore, the negative effects of HRH deficit in Zambia seems to have exerted its effects more on selected vulnerable populations, namely children and women evidenced by continued existing of poor health care indices (Corsi et al., 2012). For example despite all the efforts being implemented by the government

to ensure good health and growth for the Zambia children, child mortality remain unacceptably high at 29, 56 and 89 per 1,000 live births for neonatal, infant and under-five mortality respectively (Corsi et al., 2012). It is a prevailing fact that implementation of Child Survival Programs (CSP) in this country is largely (more than 90%) through community-based initiatives commonly referred to as Community-Based Child Growth Monitoring and Promotion Programs (CCGMP) (Corsi et al., 2012).

A study conducted in Zambia concluded that there is both shortages and poor distribution of health workers largely because the approach to human resources for health planning and programming is not informed by good analysis of the health labour market(Kamwanga et al., 2013). At best, the approach is frequently based on the number of health workers that are required to meet the needs of the population and focuses on training more workers. However, this needs-based approach is not enough to formulate policies, since it ignores the dynamics of the health labour market (Kamwanga et al., 2013). To resolving this challenge and achieve universal coverage depends largely on how Zambia succeeds in analysing the health labour market and what affects the supply and demand of the health workforce (Kamwanga et al., 2013). GMP is a key element of child survival at primary health care interventions as it enables monitoring and promotion of the growth and development of a child(Igarashi et al., 2010).It facilitates the detection of earliest changes and brings about appropriate responses to ensure that child growth continues uninterrupted.

1.3 Statement of the Problem

In this study the problem statement was conceptualised from reviewing many literature, and from previous observations as well as experiences. The objectives were formulated by adopting concepts from three theoretical frameworks in order tomeasure and evaluate knowledge, attitudes and practices at CCGMPs. Community-Based Child Growth Monitors and Promoters (CCGMPs) were targeted in this study because of the critical role that they play in trying to mitigate the crisis of shortage of Human Resource for Health (HRH) especially at grass route level of health care provision, in the community. Concepts from three models were broadly defined, mixed and organized to provide a rationale or structure for interpretation of information.

In Table 1 the Zambia Demographic Health Survey (ZDHS) reports indicate some improvement over the years in the trends of early childhood mortality rates, even though the these numbers still remain chronically and unacceptably high.

Table 1: Neonatal, post-neonatal, infant, child, and under-5 mortality rates (per 1000 live births)

Year interval	Neonatal Mortality	Post-neonatal mortality	Infant Mortality	Child Mortality	Under-five Mortality
1999-2003	29	47	76	57	128
2004-2008	26	26	52	37	88
2009-2013	24	20	45	31	75

Source: ZDHS reports

Table 2 demonstrates that compared to Mauritius, a low income country like Zambia, the Zambian under-5 mortality rates are far too high indicating that there should be some shortfalls in the implementation of programs to ensure child survival, inclusive of the GMP which is vital at Primary Health Care level.The high child morbidity and mortality are mainly caused by severe, yet preventable infections. Globally, it is estimated that 195 million children under five years old are stunted and 129 million are underweight which leads to more common yet preventable diseases that contribute to over one third of all deaths of children under-5 years old (Prudhon, Prinzo et al. 2006).

Table 2: Under-5 Mortality: Mauritius Vs Zambia

Mauritius		Zambia	
Year	<5 MR	Year	<5 MR
2005	17	2003	128
2010	15	2008	88
2015	8	2013	75

Source: ZDHS and Mauritius Demographic health survey reports

This study was conducted within the context that in 1990s MOH developed structures at community level known as NHCs to facilitate community members' participation in their

own health this led to training of several different groups of Community Health workers, including CCGMPs who as the major providers (85%) of child GMP services at Community level (Faber 2009). In addition, GMP program has been advocated as an effective, simple and inexpensive way of improving child survival in developing countries.Community-Based Child Growth Monitors and promoters (CCGMPs) program was evaluated because it is a key element of child survival intervention in primary health care strategies as they enable monitoring and promotion of child's growth and development by aiming at detection of earliest changes in children's growth so that appropriate actions can be taken to ensure continuation of uninterrupted growth (Igarashi, Sasaki et al. 2010).

Even though viewed globally, the improvements in infant and child health in the past 50 years have been spectacular, and overall reductions in under-5 and infant mortality are accelerating in much of the world(Bhargava et al., 2004)anddespite all the efforts by government to ensure good health and growth for children; child morbidity and mortality remain unacceptably high at 24, 45 and 75 per 1,000 live births for neonatal, infant and under-five mortality respectively (Liu et al., 2012).

CCGMPs training and implementations program was investigated because, this group of community-based health workers help to mitigate the crisis of shortage of HRH especially at grass route level of health care by providing preventive and health promotion services in the community by playing a critical role in preventing child diseases and promoting child health and survival. This group of volunteers' training and implementation program has not been standardised, not accredited, involves many organisations, does not seem to have any available training as well as implementation guidelines and program problems don't seem to be adequately addressed

In order to reduce preventable diseases and deaths of children, there is need for Zambia as a country to have a better functioning ***child health care system***, especially at primary health care level where most children can be captured for growth monitoring and promotion. It is therefore important to investigate the functioning of the "*6 Pillars"* of health care systems as recommended by WHO including: leadership and governance, infrastructure (soft and hard), supplies and commodities, ***HRH (strengthen GMP programs),*** access and financing. The study chose to evaluate the arm of human resource for health, CCGMPs in this case, who provide health care services at primary health Care level with the aim of informing policy in

order to strengthen child growth monitoring and promotion programs. GMP activities at community level are services used universally to monitor growth of children <5yrs, widely accepted in paediatric care.

1.4 Research question

"Is the training of the CCGMPs adequate in equipping them with the necessary knowledge, skills and competencies to enable them provide the much needed services that should improve and sustain child survival in Zambia?"

1.5 Objectives

1.5.1 Main objective

To examine and assess the scope, content and depth of training program for CCGMPs and how it affects their attainment of required skills and competencies to implement the required tasks necessary for child survival in Zambia.

1.5.2 Specific Objectives

1. Assess the scope, content and depth of CCGMPs' curriculum and training program
2. Determine challenges and gaps affecting training and practice of CCGMPs
3. Measurethe level of knowledge acquired by CCGMPs with regard to the training that they received
4. Examine CCGMPs' skills and competenciesin implementing the GMP activities and services
5. Explore perceptions and experiences of CCGMPs towards their training and implementation program
6. Investigate satisfaction of mothers with services that they receive from CCGMPs

1.6 Applied Theoretical Models

This study applied concepts from three (3) models for the purpose triangulation in designing and strengthening data collection tools and techniques, in order to improve validity and reliability of collected data. The strength of this study lies in triangulation applied at several levels of the research process starting from conceptualizing through to contextualizing of the research process and came up with a theoretical framework for this research (Nissen et al., 2005).The three theoretical models applied in this study were; the logic model, Sufflebeam's

CIPP model and Kirkpatrick's training evaluation model. This facilitated compressive investigation of variables in a multidimensional phenomenon comprising of cognitive, physical, emotional, environmental and political factors. These frameworks provided guidance and direction in the research process, by helping in determining variables that were measured, research methods that were appropriately applied and statistical relationships that were discovered in the study results. Concepts from the three theoretical models were applied as discussed below:

1.6.1 Logic Model of Evaluation

The logic model of evaluation which explains the Inputs (Program investments), Outputs (Activities Participation) and Outcome (Short, Medium, and Long term) of a given program was designed by Powell (Taylor-Powell et al., 2003). Underlying the logic model is a series of 'if-then' relationships that express the program's theory of change. "A theory of change is a description of how and why a set of activities are part of a highly focused program as comprehensive initiative is expected to lead to three levels of outcome; early, intermediate, and long-term outcomes over a specified period of time." (Anderson et al., 2003). Figure 1 shows graphic presentation of the summary components of the Logic Model in order to logically show how Inputs should lead to outputs and eventually to impact that can be short, medium or long term.

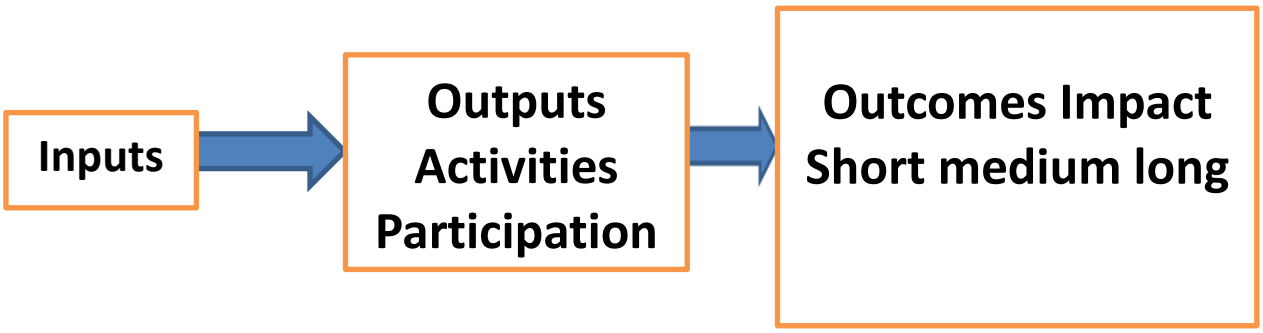


Figure 1: Graphic presentation of the Logic Model (Taylor-Powell et al., 2003)

This model was applied to establish if the input in terms of context of training and practice was adequate to bring about achievement of the set outcomes and goals for CCGMP programs. Concepts derived the from the Powel's Logic Model were applied to come up with appropriate variables that needed to be measures in relation to what inputs government and its partners' were providing towards the CCGMPs' training program and the support that was

offered to improve their level of knowledge, aspirations, attitude, skills and competencies in order to enable them implement the program that would bear a positive impact on the growth and health of the Zambian children. It was applied mainly in designing the questionnaire used for the cross sectional survey, to ask a series of questions about each different element to assess and review the CCGMPs' training and implementation. These guided in determining if the training curriculum and implementation was an all-inclusive program. The model provided a systematic way of looking at many different aspects of a training curriculum including; content, duration and methods, hence it was ideal to apply to this research aiming at achieving the objective; to analyse the gaps that exist in the training and implementation program for CCGMP. In the long run this would later inform and facilitate the development of best applicable training and implementation strategies that would address the identified gaps.

1.6.2 Stufflebeam's CIPP Model of evaluation an acronym comprised of four elements; "context, inputs, processes and products. This model advocates that the purpose of the assessment and evaluation of a training program is not to 'prove' but to 'improve' the program (Nicometi, 2009). Figure 2 presents the complex components of Stufflebeam's CCIP Model showing that; context evaluation measures all aspects of the environments within which programs are being implemented, input evaluation pertains to measuring program plans, process evaluation measures actions undertaken in the program, product evaluation measures if the outcomes are achieved or not.

Figure 2: Stufflebeam's CIPP Mode (Nicometi 2009)

Concepts from this CIPP model were applied to identify CCGMPs' learning needs in relation to them meeting community needs in the contextual evaluation component of the contentment of both the supply (CCGMPs) and demand (Mothers) that receive the service. The input and context evaluation component helped to determine variables to measure if program was responsive and if it could address identified needs of child survival. Its concepts were applied mainly, to ask a series of questions for both the cross sectional survey with CCGMPs and likert scale during one-to-one exit interviews with the mothers. This demand evaluation component facilitated the measurement and interpretation of program outcomes as well as judgement of its merit, worth, significance, and probity (Nicometi, 2009). Concepts applied from the Stufflebeam's CIPP Model facilitated analysis of gaps that exist between training of the CCGMPs (supply) and implementation (demand) of program. This model advocates that the purpose of the assessment and evaluation is not to 'prove' but to 'improve' programs.

1.6.3 Kirkpatrick's Training Evaluation Model

The third model that was applied is the Kirkpatrick's training evaluation model. According to Kirkpatrick's there are four levels of evaluating a learning/training program. The four levels of Kirkpatrick's evaluation model essentially measure: behaviour or results, meaning the effects on the business or environment resulting from the trainee's performance (Kirkpatrick, 2006). The four levels of Kirkpatrick's evaluation model were applied as discussed below:

Level one: Reaction

Reaction evaluation measured how CCGMPs perceived their training learning and program implementation experiences.

Level Two: Learning

At this level concepts were adopted `to measure knowledge and the capability of the learner (CCGMP) to perform skills competently.

Level Three: Behaviour

Behaviour evaluation is measuring the extent of applied learning, back on the job during implementation. Concepts were applied to measure CCGMPs' capability in implementation of learnt skills and the extent of improvement meaning competencies. Most CCGMPs admitted learning most of their skills while performing their tasks and not so much during training, most likely confirming that their training was inadequate.

Level Four: Results

Results evaluation is the effect of the trainee on the business or environment. This research attempted to measure the effect or impact of the program to the community by investigation the level of the mothers' satisfaction with CCGMPs services (Kirkpatrick, 2006).

Variables developed for the checklist of uninterrupted direct observation (UDO) were adopted from Kirkpatrick's evaluation model, which facilitated the evaluation of the CCGMPs' behaviour during practice after undergoing training by different organisations.

1.6.4 Research's theoretical framework

By borrowing concepts from the three models as discussed above, we came up with an illustration which shows analysis of many possible variables surrounding, compounding and leading to training of CCGMPs who provide community-based child survival and health interventions which may be summarised as; context, competency and contentment.

Concepts from the three models above were applied to identify study variablesmeasured in this research and to develop the theoretical framework. This theoretical framework facilitated for investigation and measurement of several variables fewer than three (3) main themes: Training process (context), Outcomes of training (competency) and satisfaction (contentment) with CCGMP programs as illustrated in Figure 3.

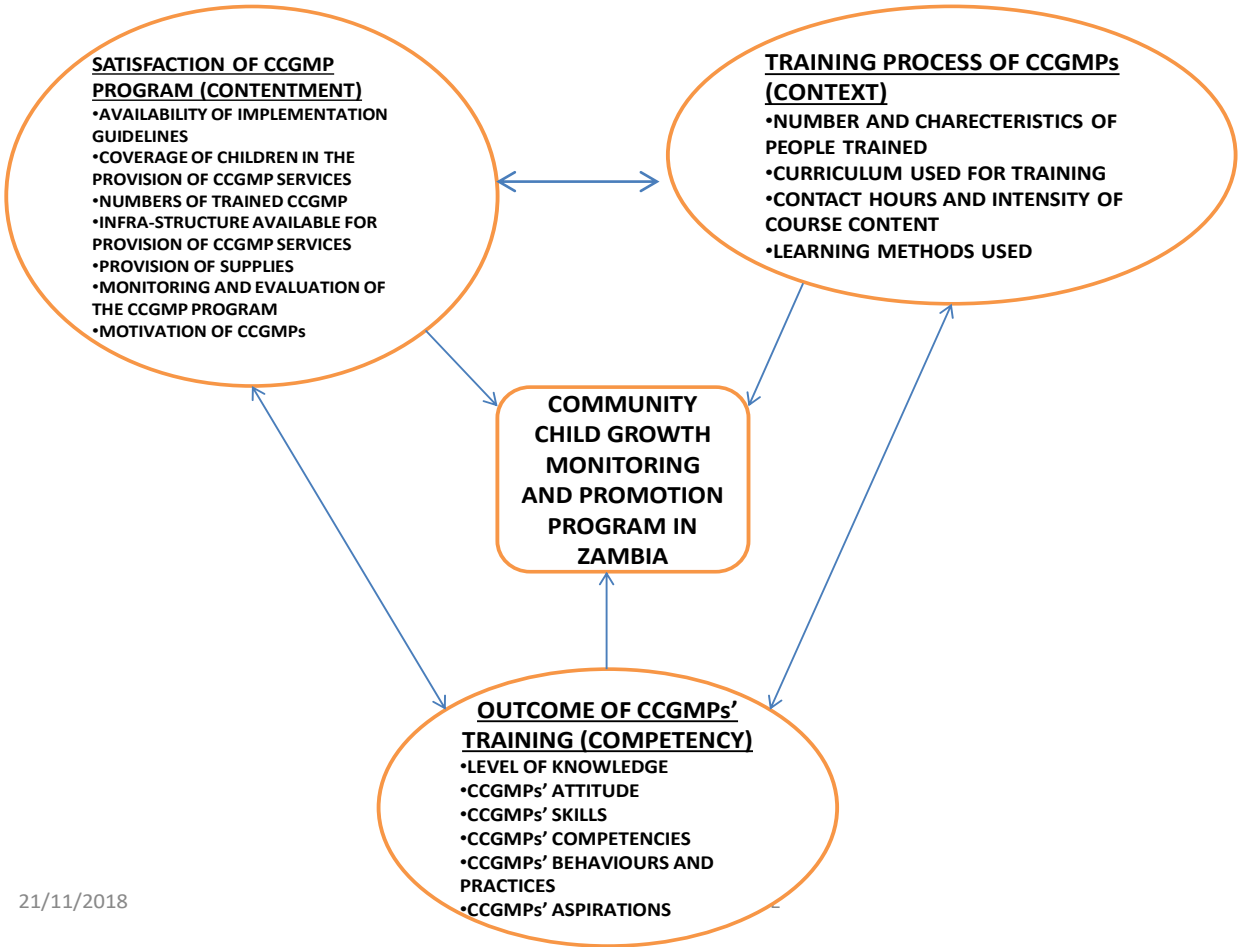


Figure 3: Diagram of the research theoretical framework.

1.7 Rationale

The study examined, interrogated and assessed the scope, content and depth of training program for CCGMPs in order to generate scientifically based data on how this training affects their attainment of required skills and competencies to implement the required tasks necessary for child survival in Zambia. CCGMPs were investigated as they are a key element of implementing child survival Intervention in primary health care strategies. They enable monitoring and promotion of child's growth and development for detection of earliest changes so that aappropriate actions can be taken to ensure continuation of uninterrupted growth (Igarashi, Sasaki et al. 2010) They play a critical role in preventing child diseases and promoting child health and survival and mitigate the crisis of shortage of HRH especially at grass route level of health care by providing preventive and health promotion services in the community.

The scope, content and depth of CCGMPs' curriculum and training program were assessed in order to identity existing gaps given the background that CCGMPs' training has not been standardised, not accredited, with no guidelines for the implementation program, with many organisations involved. Challenges and gaps were identified as determinants affecting CCGMPs' skills and competencies in implementing GMP activities and services. Also their problems don't seem to be adequately addressed as eluded by some studies that were conducted (Mumba Zulu et al., 2015). This has resulted in the persistence of many challenges with implementation of child growth monitoring and health promotion programs. In order to generate information on the impact of the CCGMP training and implementation programit was also necessary to explore perceptions and feelings of CCGMPs towards their training and implementation program. Mothers' satisfaction with CCGMPs' services was investigated in order measure mainly the satisfaction of recipients with services provided by the CCGMPs in line with child survival.

Despite government continuing to increase efforts in implementing child survival interventions in an effort to reduce child mortality, not as much focus has been directed towards community-based child health monitoring and promotion programs. This study was therefore necessary to establish gaps in the CCGMPs' the training and implementation programs in order to inform policy to improve the curriculum and training process as well as the implementation of CCGMP act.

1.8 Thesis Structure

This thesis has been organised into six (6) Chapters. Chapter One contextualises the study by providing the background, motivation, objectives of the study and the statement of the problem. It also highlights the research question and ethical issues.

Chapter Two discusses a review of literature and theoretical models that informed the researcher of some concepts that were adopted to provide a theoretical framework for this study. It also discusses the literature as it relates to this study.

Chapter Three documents the design and methodology that guided this study. It outlines the epistemological and ontological assumptions that underlie the methods used, data collection instruments, collection and analysis methods, fieldwork practice, the role of the researcher, validity, reliability, trustworthiness and credibility of the research.

Chapter Four presents the results of the fieldwork by discussing sample profiles and showing the main results using tables, bar charts and pie charts with summarised narration of the findings to each table and diagram. Results are presented according to the variables being tested and the data collection method used.

Chapter Five, results are discussed in attempting to answer the research question, with reference to the results presented in chapter four.

Chapter Six concludes, provides recommendations, implications of the study and finally areas of future research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Overview

This literature review synthesized worldwide, regional and national literature on the challenges and gaps in training and implementation of community-based volunteer health workers programs, CCGMPs inclusive. The concept of GMP was introduced in the mid-1980swith emphasis of linking the results of monitoring with follow-up promotional actions including nutrition counseling and provision of supplements and early disease detection and treatment in order to improve individual child nutritional outcomes improve health and reduce child deaths(Liu et al., 2015). GMP has been a key component of UNICEF's overall nutrition strategy and serves as core activity in most community-based health and nutrition programs(Prudhon et al., 2006).Multiple reasons for the poor impact of GMP have been cited in many studies including this one and among others are; focusing on nutrition status rather than faltering growth, misplacing emphasis on curative rather than preventive actions, enrolling children in GMP programmes after (instead of during) infancy, using of GM as an isolated activity instead of a cornerstone activity, lack of individualised advice, lack of positive feedback for mothers whose children are not growing adequately, lack of community participation, oversimplification of the GMP process, and poor quality of implementation(Gerein and Ross, 1991). As a result of these evaluations, agencies behind large-scale implementation of GMP have been criticised. It also stated that "growth monitoring and promotion interventions are bound to fail unless they are explicitly linked to efforts to address the underlying causes of malnutrition." A systematic review of the evidence for the impact of GMP in 2007 provided a comprehensive view of various programmes worldwide and provided evidence that significant reductions in malnutrition can be achieved through intensive health and nutrition education and basic healthcare without GM (Mangasaryan et al., 2011).

2.2 Scope, content and depth of CCGMP curriculum and training program Growth monitoring and promotion program is a program within the health care system that offers both services of child growth monitoring and child growth promotion (Griffiths and Rosso, 2007). Historically emphasis of GMP has been on monitoring growth rather than the 'promotion' of growth (Roberfroid et al., 2005), and yet the ultimate goal of the program is to promote the health of children. GMPs are guided by the Road-to-health chart, designed by David Morley and modified by the WHO, serves as a graphical representation of the child's

physical growth and also for the longitudinal follow-up of the child (Morley and Woodland, 1979). It is from this background that the MOH developed some guideline to guide the community volunteers as they delivered services of community child growth monitoring (Sasaki et al., 2011).GMP assesses the growth and development of a child in order to detect the earliest changes and bring about appropriate responses to ensure that growth continues uninterrupted (Igarashi et al., 2010). Clear and feasible guidelines for training, designing, implementing, monitoring and evaluating child growth monitoring and promotion programs (CGMPs) are therefore important so that strengths and weaknesses in activities of the program can be identified on time for amendment (Tremblay et al., 2010, Griffiths and Rosso, 2007).

After the launch of the new growth standards by WHO in 2006, a momentum was created to revisit GM activities and rethink the best use of the years of experience. As countries have begun to adopt the new standards, many questions have been raised concerning the programmatic uncertainties of GM at the community level. Many countries still face a challenge in dealing with the question of whether or not to implement GM and GMP. Despite all the developments in nutrition programming in the recent past years, GM still seems to be a convenient delivery mechanism for community interventions and national planners need better guidance if they are to transition to alternative options that are not based on monitoring growth in the communities, that is if GM has not proven to be effective in contributing to programmes for prevention of under-nutrition. Although it is not strictly necessary for inclusion in any community-based programme, under certain conditions having quality GMP can add desirable aspects to these programmes. The approach of regular monitoring of child growth provides the opportunity for better community actions to prevent under-nutrition (Pelletier et al., 2013).

In Chad, a low income country like Zambia, a situational analysis of infant and young child nutrition policies and programmatic activities was conducted to assist in identifying inconsistencies and to fill in gaps in current programming. Findings of this analysis indicated that Chad was not on track to reaching the MDGs of reducing mortality by two-thirds and malnutrition by half among children under-five years of age between 1990 and 2015. Even though most key IYCN topics to combat malnutrition and micronutrient deficiencies were addressed in national policy, no national nutrition policy was yet ratified in Chad and the analysis identified some barriers to optimal feeding practices (Wuehler and Nadjilem, 2011). It also revealed that, reviewed training materials and related programmes being implemented

in Chad provide specific guidance for nearly all of the key IYCN topics. Some of the programmes were intended for national coverage, but it was not confirmed whether these programmes were actually implemented nationally while monitoring and evaluation reports were available for some small-scale programmes (Wuehler and Nadjilem, 2011). Establishment of the policy and programme framework had commenced for improving IYCN practices necessitating formative research to guide the development of evidence-based training materials and programmes. There was a further need for rigorous monitoring and evaluation to ensure that training was adequate, programmes were implemented as designed, and effective programmes identified for expansion (Wuehler and Nadjilem, 2011). There has been great need for progress towards reducing malnutrition thereby reduce preventable childhood illnesses and mortality among children under-5 years of age in order to achieve related Millennium Development Goals (MDGs)

High quality GMP training can provide an opportunity for quality program implementation for prevention of under-nutrition and other child diseases before they occur. GMP helps community workers identify infants and children who have growth faltering (or are at risk for faltering) and promotes timely actions to improve the situation within a short time frame. It assists in focusing attention and resources on children at risk and motivates families and caregivers to change and improve practices(Carmen Casanovas et al., 2013).GMP sessions Produce ancillary benefits by providing opportunities for immunisation, screening and treatment for diarrhoea, malaria, and pneumonia, counselling on various health and nutrition topics and the provision of other community-level health or preventive services as needed. It helps in targeting and to tailor counselling messages to specific mothers as needed (Carmen Casanovas et al., 2013).

These additional benefits that are pertinent to GMP do not seem to receive enough attention during training of community-based health workers programmes. In general, the level of commitment from the health system required for successful training and implementation of GM and GMP has proven difficult to attain or maintain especially at a large scale like country wide, with the exception of few well-supported and well-supervised national programmes. Supportive supervision of community health workers requires ample allotment of professional staff, time and funding, which may not be realistic within a developing county's strained healthcare system (Zubrick et al., 2004). Appropriate implementation of GMP is dependent on the motivation of health workers; both at community and institutional levels.

Although good coverage has been shown in small-scale programmes, reaching all targeted children is generally difficult to achieve, and attendance is often less than desired. The frequency of GMP attendance often declined in children of older age groups, and children who were most at risk attended less often than better off children. Health managers worldwide attribute low attendance to a lack of interest by mothers after completion of vaccination, weak awareness campaigns to motivate mothers, and the inability of parents to respond to information provided during the sessions (due to illiteracy, inability to understand the growth chart or lack of access to food)(Onis et al., 2013)

During training, CCGMPs need to learn several concepts and skills for them to implement GMP programs that need dedicated workers for growth promotion in the community. Workers' tasks must be more specific and well defined. There is need for formulation of detailed, area-specific implementation plans, with allowance for local innovation and flexibility. Ensure liaison between community workers and the health system, agricultural system, and social services to resolve persistent and difficult growth failure. The most effective training curricula are task-oriented and "hands on," covering the entire growth promotion process, with an emphasis on problem solving. Supervision needs to be supportive, continuing worker training and addressing problems directly as they arise. On-going monitoring alerts management about developing problems. Build commitment to the program among staff at all levels. Use growth as an indicator of program functioning (Victora et al., 2010).

Individual nutrition counseling: Adequacy of growth determines content and intensity of counseling; nutritional negotiation and targeted materials (based on results of TIPS) to be used. Participation of mothers and families is necessary and can include; mothers help weigh child, interpret growth pattern; with worker, choose actions to improve growth; mothers share experiences with other mothers; counseling materials developed for mothers as primary audience. Guidelines for decision making based on child's progress. Criteria for adequate and inadequate growth are combined with health status; used at all program levels, with clear guidelines for decisions and action; targeting, referral, and integration of program components. Close coordination with program and community services for referral of children with growth failure; good targeting of referral services and follow-up after interventions are initiated; community awareness and decision making(Shandra et al., 2011). Community compiles, discusses, and frequently bases decisions/actions on growth data; takes pride in having few under-nourished children and in children who grow adequately; worker

and workload. Community worker makes home visits and calculating percent of children gaining weight is part of their training and job performance (Shandra et al., 2011). Tasks include weighing and charting, analysis of causes and how to target feeding, how to negotiate with mother; emphasis also on community motivation and counseling; task-oriented cases and practice sessions; self-assessment and community follow-up (Shandra et al., 2011).

2.3 Knowledge levels

Growth is a positive change in the size of a growing individual, is a dynamic measure of health, the best available indicator of nutrition status, and the only real measure of nutrition adequacy (Griffiths and Rosso, 2007). A study in India showed that malnutrition may predispose children to malaria infection as demonstrated by the significantly higher malaria parasitaemia prevalence rate in severely malnourished children than that of the general population of the similar age group. It also showed that malaria and anaemia remain closely associated even when malaria is declining and so scaling up antimalarial interventions may contribute to eliminate malaria and reduce the occurrence of anaemia among children(Bhargava et al., 2004). The same study demonstrated that despite concerted efforts to catalyse nutritional improvement in children using both international and national initiatives at various levels, the global impact on nearly all forms of malnutrition fell far short of that required to meet the health goals for children by the year 2000 (Bhargava et al., 2004).

In the Sub-Saharan and under developed countries, reports of the children's' nutritional status are a serious source of worry. In a study conducted in Kenya, it was significant that there were higher prevalence rates of chronic malnutrition in children 0 to 11 months which worsened in children 36 to 47 months. High prevalence of global malnutrition was found in children 12 to 23 months. As expected, chronic malnutrition was found related to socioeconomic (SES) indicators (Rutstein, 2008).Kenya, like Zambia, is one of the 42 countries that account for 90% of all under-five deaths in the world. Findings of the 2003 Kenya Demographic and Health Survey (KDHS) reveal that one in every nine children born dies before age five, mainly of acute respiratory infection, diarrhea, measles, malaria, and malnutrition. According to reports from the Central Bureau of Statistics and the National Coordinating Agency for Population and Development (NCAPD) in Kenya, the infant mortality rate increased from about 60 per 1,000 in 1990 to 74 in 1998 and 77 in 2003, while under-five mortality continued to increase from about 90 per 1,000 in 1990 to 112 in 1998 and 115 in 2003 (Rutstein, 2008). This is a reversal in trend after global initiatives to improve

child health caused a decline in infant and child mortality in Kenya in the 1970s and 1980s (Yousif, 2007).

Child mortality rates in Kenya were as high as 126 males per 1000 and 120 females per 1000 live births, majority being caused by diarrhoea, acute respiratory infections, measles, malaria, dengue fever and malnutrition (Omariba et al., 2007). In view of the fourth Millennium Development Goal (MDG) by the United Nations states; to reduce the under-five child mortality rate by two-thirds by 2015whose steps were under taken by a joint initiative of the WHO and UNICEF to develop child survival interventions specific to Kenya and the African context in general (Omariba et al., 2007).This involved addressing various factors associated with mortality rate including nutritional status, breastfeeding, maternal and child health status, environmental health factors, and socioeconomic factors in order to develop appropriate interventions whose goal was to reduce child mortality in Kenya(Omariba et al., 2007).

In Ethiopia the overall health status of children is worse than in Zambia and according to the *Ethiopian Demographic and Health Survey* (EDHS) report, the prevalence of stunting was 44%, underweight 29%, and wasting 10%. These numbers are still one of the highest in sub-Saharan Africa and very far from ideal. Currently, the Government of Ethiopia and a range of non-governmental organizations are working on prevention and promotion activities to fight malnutrition in children. One of these activities is growth monitoring and promotion (Acosta and Fanzo, 2012). The country implements GMP through the use of growth charts, which are seen as monitoring and educational tools that help both health workers and mothers to visualize child growth and to take further action. The high prevalence of malnutrition in many developing countries seems to confirm the fact that even though GMP would appear to be a prerequisite for good child health, several studies have shown that there is a discrepancy between the purpose and the practice of GMP (Acosta and Fanzo, 2012).

The growth monitoring and promotion component in AINM-C aimed at strengthen community outreach activities under the extension of coverage program. Growth monitoring and promotion (GMP) of children less than two years is seen as the key intervention to deliver counseling on exclusive breastfeeding and complementary feeding, hygiene and other health messages to mothers through counseling, group talks, demonstrations and follow-up home visits(Elena et al., 2008). The model of the intervention is the improvement in children's nutritional status through the promotion of changes in the knowledge and practices

of mothers and caretakers of these children by community health workers who have been trained and, therefore, have themselves new knowledge and counseling skills (Shaya et al., 2008).

Similar to Zambia, mortality rates among Nigerian children remain unacceptably high with infant and under-five mortality rates of 87 per 1000 and 171 per 1000 respectively (National Population Commission (Abuja, 2008). The WHO 2006 reports that 38.3% and 28.7% of under-5 children in Nigeria are stunted and underweight respectively. A study was conducted in Nigeria who alluded to the fact that the success of growth monitoring and promotion (GMP) depends on the knowledge and expertise of the PHC workers. The study was aimed at assessing PHC workers' knowledge, attitudes and practices regarding monitoring growth and development in Nigerian children (Iyanuoluwa et al., 2011). Results of a study done in Nigeria showed that though the PHC workers' awareness about GMP was high (95.2%), their knowledge of the procedures was however poor with only 49.2%, 30.6% and 29.3% knowing the regularity of growth monitoring for children at 0-1 year, 1-2years and 2-5years of age respectively. Furthermore, 37.1% did not know at what point on the growth chart is intervention necessary nor the appropriate advice to give the mothers and the care to be instituted. The researcher concluded that despite of a high level of awareness about GMP, a poor knowledge of the procedures and its interpretation was observed. Training and re-training of PHC workers at all levels in Nigeria was recommended (Iyanuoluwa et al., 2011).

A study conducted in a semi-urban community in South Africa in 2003,showed results that the community-based growth monitoring model (CBGM) was not a blue print in alleviating the shortcomings in health and nutrition surveillance of preschool-aged children, but should be recommended for alleviating shortcomings of Health Facility Practices (HFPs) in urban areas (Schoeman et al., 2003). The CBGM had the capacity for large-scale implementation, monitoring, follow-up and evaluation of programmes on a sustained basis, including nutrition surveillance, and vitamin A, iron and food supplementation. It provided accurate and representative data on nutritional status and ensures comprehensive detection and targeting of high-risk groups for intervention. It also demonstrated that community participation and mobilisation was able to increase preschool child growth monitoring coverage extensively and contribute to improved health and nutrition surveillance (Schoeman et al., 2003).

Zambia is one of the world's poorest and least developed nations. As of 2011, it was ranked 164 out of 187 in the United Nations Human Development Index and life expectancy at birth

is just 49. Two thirds of the population lives on less than one dollar per day and one in six children dies before their fifth birthday (CSO 2010). Nutritional status of a child is an important determinant factor of his/her health and survival. Evaluation of child nutritional status is usually based on three anthropometric indices of height-for-age (stunting), weight-for-height (wasting) and weight-for-age (underweight). Local-level ownership and responsibility of community-based programs are essential. Growth monitoring data should be presented and discussed at a local-level forum so as to contribute to increasing improvement and accountability for the well-being of all children in the community (Adebayo, 2003). Horizontal integration with other local-level initiatives will help communities to identify and implement actions that give them the highest gains in nutrition indicators. A reliable referral and supervision system needs to be in place to ensure medical treatment for children where necessary and to provide on-the-job training, supervision and encouragement to the community-based child growth monitors and promoter – CCGMPs (Griffiths and Rosso, 2007).

2.4 Skills and Competencies

A study conducted in Pakistan report that growth, as measured by change in weight-for-age, was no different in children whose mothers understood the chart and those who did not, though the understanding of growth charts has been proven to be in proportion to the level of the literacy of the mothers (Akram et al., 2000). Since explanation of charts to the mothers uses staff time, it was noted that more important activities tend to be neglected (Akram et al., 2000). However, as one of the basic purposes of the growth chart is to educate mothers regarding the growth of the children and in this way motivate them to take appropriate action, so lack of understanding by mothers does not achieve this purpose. In addition individual growth monitoring is resource intensive, as it requires more manpower and printed growth charts for every child. So in resource depleted health systems, like that of Pakistan, this becomes impossible and many times growth monitoring is not practiced (Akram et al., 2000).

The ineffectiveness of growth charts also lies in the fact that more time is spent in weighing and charting individual children's weight, leaving very little time to focus on the actual analysis of the charts, provide counselling to those whose children's weight is faltering and follow-up activities(Akram et al., 2000). Therefore individual growth monitoring may not be an appropriate method of measuring growth in health settings of developing countries while community based child growth monitoring can help to achieve more objectives and goals (Akram et al., 2000).

In developing countries, malnutrition among children is a major public-health issue that usually leads to severe infections and mortality. A study conducted in Nigeria on primary health care workers' role in monitoring children's growth and development, which assessed their knowledge, attitudes and practices regarding the program, emphasised the fact that, the success of growth monitoring and promotion (GMP) depends on the knowledge and expertise of the PHC workers. Results of this study indicated that though the PHC workers' awareness about GMP was high (95%), their knowledge of the procedures was however poor with only 49%, 30% and 29% knowing the regularity of growth monitoring for children at 0-1 year, 1-2years and 2-5years of age respectively. Furthermore, 37% did not know at what point on the growth chart was intervention necessary and the appropriate advice to give the mothers and the care to be instituted. In conclusion it was clear that despite a high level of awareness about GMP, a poor knowledge of the procedures and its interpretation was observed. Training and re-training of PHC workers at all levels in Nigeria was therefore recommended (Okeke, 2010).

In rural areas, a lack of infrastructure often limits the promotion and implementation of community-based GMP activities. Growth monitoring can potentially provide a platform for the promotion and implementation of community-based nutrition activities, provided that the growth-monitoring program has a high coverage. A study was conducted in a mountainous rural village that lacks health facilities in KwaZulu-Natal, South Africa; to determine the acceptability of a community-based growth-monitoring project in terms of child attendance and maternal attitude (Faber et al., 2009). Attendance registers from 1996 to 2000 were used to determine the attendance ratio, coverage, adequacy of growth monitoring, and frequency distribution of the age of participating children. Focus group discussions were used for the qualitative assessment of maternal attitudes. The community-based growth-monitoring project had an estimated coverage of 90%, with at least 60% of these children covered adequately, and attendance was equally distributed over one-year-interval age categories for children aged five years and younger. The study concluded that, Community-based growth monitoring can therefore provide a suitable platform for the promotion and implementation of community-based nutrition activities (Faber et al., 2009).

Anthropometric data is essential to ascertain prevalence of malnutrition in a community. A cross-sectional study conducted on Pakistani children from upper-middle socio-economic strata showed clearly that with appropriate feeding the weight of Pakistani children was

comparable to that of the NCHS standards. In another longitudinal study by on more than one thousand children followed for five years, they demonstrated similar results with height, weight and occipital-frontal circumference. The major difference between these two studies and the present sample of children is the socioeconomic background. Children in the present study are exposed to poor sanitation, over-crowded housing and hence infections, which are the major contributors of malnutrition and subsequent growth retardation. In addition to changes in the nutritional status of children between 0-5 years, age-specific or sex specific changes over a period of time can also be determined by using collective data at different points in time. Results showed that apart from socio-economic differences, ethnic and social backgrounds also have a profound effect on the nutritional status of children (Akram et al., 2000).

A study was done in Gaza between 1987-92 using a similar methodology to demonstrate nutritional differences between two cohorts before and after a nutrition intervention program. The study concluded that growth monitoring of individual children, although a good counselling tool has its limitations, especially in developing countries with large rural populations, where access to health facilities is difficult, where populations in both urban and rural settlements move for employment and better opportunities. Monitoring of individual children as a means of ascertaining the efficacy of health care measures then becomes inaccurate. It is impossible to judge whether the nutrition status of children in a community has improved over a period of years, using individual monitoring (Shah et al., 2003).

Most studies indicate that growth monitoring has been the single most useful tool for defining health and nutritional status in children at both the individual and population levels (Rohde et al., 2008). The detection of alterations in growth of the child should be done early through growth monitoring activities in order to prevent serious adverse effects on the health of the children. This is to prevent child mortality as Centre for disease control and prevention records that, of the twenty four million children born each year in Africa, four million (16%) will not survive to see their fifth birthday, even though over 50% of these deaths are largely preventable through immunization, growth monitoring and timely interventions (Grummer-Strawn et al., 2010).It is necessary to use the growth monitoring or Road-to-health chart, designed by David Morley (Brown and Morley, 1993) which was modified by WHO 1988, that serves as a graphical representation of the child's physical growth for longitudinal follow-up of the child. This monthly follow-up helps in combating malnutrition through timely and early detection of faltering growth, because growth faltering can be detected long

before any easily-observable sign or symptom of malnutrition becomes evident (Roberfroid et al., 2005).

Prior to this study between 2006 to 2008, while working with the CCGMPs at Kanyama Health Centre, situated within Lusaka Zambia, it was observed that there were a lot of discrepancies as they executed their tasks and anecdotal information was collected, by checking 20 children's cards, of which only nine of the cards had growth curves drawn on them. The rest of the cards had either figures of the child's weight written within the graph or only plotted dots that were not joined by a line to make a growth curve to show whether the child was gaining enough weight for age or not . It seems evident that weighing children and recording the weights on the cards was just a routine rather than a way to define adequate or inadequate growth. This practice poses a doubt to the effectiveness of the existing training packages for community-based child growth monitors and promoters in terms of improving the growth and health of the Zambian children and ultimately preventing malnutrition.

Anecdotal information after spot checks and short interviews with the health professionals, revealed that meetings of health professionals, CCGMPs and mothers to discuss and agree on what should be done to maintain or to improve the health of the children rarely took place due to lack of time and chronic shortage of human resource for health (HRH). This is an indication that supervision, support and on-the-job training for CCGMPs by health professionals were hardly existent. The CCGMPs, conducted only group health education to the mothers/caretakers, without supervision by professional health workers. It is clear that individualised attention was lacking in terms of providing information, education, and communication, let alone individual nutrition counselling to the mothers was rarely conducted. This was evidenced by a check of the 20 cards that showed that the space on the growth monitoring card where the CCGM is supposed to record the counselling aspect in terms of the date when the mother received nutrition counselling, nutrition status of a child, advice given on the type of feeding and follow up date, were all blank. This makes follow-up care very difficult especially for children whose growth is faltering and these are the children who are likely to end up in Paediatrics Ward suffering the consequences and complications of severe malnutrition (Rajaratnam et al., 2010).

Another problem that was noted prior to this study between 2006 to 2008, while working with the CCGMPs at Kanyama Health Centre, was the poor referral system between the health centres staff and the community based child growth monitors (CCGM) or vice-versa. It

was observed that children were being referred from the community without written referral forms and the attending CCGMP hinted that this was due to none availability of the referral forms or probably the (CCGM) had inadequate knowledge on how to refer. Sometimes the child may come with a written referral form from the CCGM to the health centre, but the attending health professional almost always do not fill in or write a feed back to the referring CCGM to confirm receiving the child, explain what the child suffered from, what treatment the child received and what information or care to be reinforced by the CCGMP when the child goes back to the community. This poses a concern as to whether the referral system is serving its purpose, as it seems to be affected by such communication breakdown. Correct referral is an integral part in the provision of continuity of care for the child and feedback to the CCGM gives them motivation as well as increases their knowledge and skill

2.5 Challenges and gaps affecting training and practice of CCGMPs

Community-based child growth monitoring and promotion program is a program that offers both services of child growth monitoring and child growth promotion at community level of the health care system and these services are usually provided by trained community-based child growth monitors and promoters, who work on voluntary basis (Must et al., 1992).

In 2006, WHO published child growth standards for attained weight and height to replace the previously recommended 1977 NCHS/WHO child growth (Liu et al., 2015). A joint statement between WHO and UN which recommended cut-offs, summarized the rationale for their adoption and advocate for their harmonized application in the identification of 6–60 month old infants and children for the management of severe acute malnutrition (SAM)(Maitland et al., 2006).Morbidity and mortality data due to malnutrition, infectious diseases and parasites should be collected, analysed, and interpreted together, regularly as part of the surveillance system and not just during emergencies to help in the monitoring of children's health (Prudhon et al., 2006). This approach would help identify the underlying public health causes of childhood illnesses especially malnutrition and child mortality both in endemic and emergency situations, e.g. measles or diarrhoea, which may interact with poor food security and increased mortality risk. Such data may also confirm or challenge the assumption that mainly children younger than 5 years are at a higher risk for malnutrition and mortality (Tremblay et al., 2010).

Lack of anthropometric data on children may end with fatal results as children have potentially high risk of mortality due to under-nutrition if they are not being targeted for

selective feeding interventions (Tremblay et al., 2010). Malnutrition is particularly lethal in combination with infectious diseases such as respiratory tract infections (RTI), malaria, measles, diarrhoeal diseases the major killer diseases affecting children (Prudhon et al., 2006). Infection and micronutrient deficiencies can induce immunodeficiency in otherwise healthy children, increasing susceptibility to diarrhoea and other infections (Prudhon et al., 2006). Nevertheless, regional and even national data on malnutrition and infection in children often hide variations between and within countries (Prudhon et al., 2006).

In another study conducted in a low resource country like Zambia, chronic malnutrition was also found related to maternal practices such as mother recognizes general and specific qualitative component– key informant interviews and observation of growth monitoring and promotion in the community danger signs, mother takes the child to monthly monitoring session, mother can show child card, which were combined in an index and classified as high and low. Multiple regression analysis was used to find the independent effect of each variable and to control for those associated with nutritional indicators. In children less than two years of age factors significantly predictive of chronic malnutrition are the age (older children more than younger) and sex (boys more than girls) of the child, ethnic group (Mayan more than Ladino) and building material of walls. In all children less than 5 significant determinants of chronic malnutrition are also age and sex of the child, ethnic group, building material of walls and type of floor. After controlling for these variables, differences in nutritional indicators between intervention and comparison groups remained significant (Sarkar et al., 2013).

2.6 Perceptions and experiences of CCGMPs

Since 1980's Child Growth Monitoring (GMP) in Zambia, has been carried out country wide with the under-five clinics within the Maternal and Child Health care services (Griffiths and Rosso, 2007). In response to the government's health reforms which emphasize the provision of quality health care services as close to the family as possible realised that they can only do so by partnering with the communities so that they take action to improve the health of their children. Hence the Ministry of Health developed structures at community level, the Neighbourhood Health Committees that include community members in order to train Community-Based Child Growth Monitors (CCGM) who participate in the provision of child growth monitoring and promotion services at Community level (Griffiths and Rosso, 2007). A manual was developed in the year 2001 by then the Central Board of Health (CBoH) for community members who are trained to use when carrying out child growth monitoring and

promotion activities. This manual was meant to address the attention of Community Child Growth Monitors (CCGM) from merely a weighing children and plotting their weights to also address counselling mothers/caretakers to take up action that will prevent malnutrition in our children (Faber, 2009, Griffiths and Rosso, 2007).

With a total population of 13, 046,508, of which 20% are under-5 children (Masiye et al., 2010), Zambia had by the year 2008 an estimated under-five mortality rate of 88 deaths per 1,000 live births (Masiye et al., 2010). Malnutrition contributes about 20-30% of these deaths making it a major cause and leading to the development of the major killer diseases being; Malaria, diarrhoea, pneumonia, measles and malnutrition (Bachmann, 2009). The poor nutritional status of the children leading to high mortality rate is attributed to economic constraints, high birth rate, malaria and high prevalence of HIV\AIDS (Masiye et al., 2010). Due to these constraints and because it could not cope with the high demand for quality health care services, the Ministry of Health (MOH) came up with guidelines for implementing the Community-Based Child Growth Monitoring and Promotion aiming at achieving its vision, "Bringing cost-effective health care services as close to the family as possible." CCGMP training and implementation programmes may be not an emergency but they certainly require a situation that is relatively stable in order to achieve the country's goal of ensuring and maintaining child survival. Developments need to be under way such that communities should begin to improve and reconstruct their own lives. Growth promotion requires trained people at the local grass root level with proper support, some basic guidelines and sufficient time with families. Community child growth monitors and promoters (CCGMPs) are usually experienced and respected mothers (occasionally fathers), or parents who have successfully managed the rehabilitation of a malnourished child. CCGMPs need to know how to effectively implement their most important tasks of how to weigh children, record data and counsel mothers (Griffiths and Rosso, 2007). CCGMPs require constant supervision from the local clinic nurses and/or well-trained health worker together with even the nearest hospital nutritionist. It is the CCGMPs at community level who decide whether weight gains are adequate or not and counsel mothers, congratulating the healthy children using the graph of the road-to-health and advising mothers on feeding and the next steps to follow up. They also help facilitate and support actions at family and community levels to address specific problems generally faced including those that affect the growth and health of the children (Griffiths and Rosso, 2007).

An important function of CCGMPs is to identify or facilitate the building of suitable structures to function as weighing posts, secure measuring equipment, record books and other logistics needed for growth monitoring activities to take place at GMPs (Masiye et al., 2010). A package of effective nutrition interventions to reduce the levels of chronic malnutrition (stunting) has been globally agreed upon by experts in the field. It includes: adequate maternal nutrition during pregnancy and lactation, early initiation of breastfeeding, exclusive breast feeding for the first 6 months, continued breastfeeding and adequate complementary feeding from 6 to 24 months, and increased micronutrient intakes during the critical 1,000 days (Masiye et al., 2010). Effective interventions for treatment of acute malnutrition (wasting) include the use of specific therapeutic foods, treatment of medical complications for severe cases, and the use of various supplementary foods for moderate cases. Given the close link between under-nutrition and infections, the implementation at scale of interventions aimed at preventing and treating infections such as immunization, diarrhoea, and malaria control will further contribute to malnutrition reduction (Masiye et al., 2010). A sufficient number of CCGMPs need to be trained, so that the time volunteered by one individual does not infringe on their other responsibilities of daily life (Masiye et al., 2010). While CCGMPs usually work on a voluntary basis, some recognition and motivation of their contribution is required e.g. t-shirts, ID cards, etc. There should also be a well-defined system and guidelines for referring sick children to other health services that the CCGMPs should be well aware and well acquainted to (Masiye et al., 2010).

Local-level ownership and responsibility of the program are essential hence the need to go flat out and train CCGMPs who are part and parcel of the community. Growth monitoring data should be presented and discussed at a local-level forum so as to contribute to increasing pride and accountability for the well-being of all children in the community. Horizontal integration with other local-level initiatives will help communities to identify and implement actions that give them the highest gains in nutrition indicators (Masiye et al., 2010). A reliable referral and supervision system needs to be in place to ensure medical treatment for children where necessary and to provide comprehensive training, supervision and encouragement to the CCGMPs (Griffiths and Rosso, 2007). In rural areas, a lack of infrastructure often limits the training, promotion and implementation of CCGMP and nutrition activities. Growth monitoring can potentially also provide a platform for the promotion and implementation of community-based nutrition activities, provided that the growth-monitoring program has a high coverage (Faber, 2009).

Zambia has been getting help from UNICEF through Ministry of Health and Agriculture to develop policies that can combat malnutrition and one of the ways to implement these policies with the ever shortage of human resource for health is through the less expensive more feasible training of CCGMPs, for the implementation of the program (Munthali et al., 2015). The World Bank is another partner that supports policy development through National Food and Nutrition Commission through nutrition screening and information dissemination. Together with other collaborating partners, policy implementation such as food fortification and reduced Iodine deficiency from 72% in 1992 to 4% in 2004 was achieved through the community-based child growth monitoring and promotion program (Engle et al., 2007). There was massive reduction in Zambia of the underweight ratio from 28% in 2002 to 15% in 2007, which was attributed to good infant and young children feeding practices including the initiation of breast feeding within the first one hour of birth, exclusive breast feeding for six months and initiating the right food, at the right age for complementary feeding. These practices reduce the chances of diarrhoea and malnutrition (Masiye et al., 2010). Infant and young feeding programmes were launched and intensified in 2006, with support from United Nations Agency for International Development (UNAID). These programmes strengthened policy on healthy feeding practices for mothers and children and saw the capacity building of 600 health workers and 200 community based volunteers to promote mass sensitization in best practices for infant and young child feeding. UNICEF continues to build the capacity of both health workers and community volunteers in best practices for infant and young child feeding practices (Munthali et al., 2015). The World Bank noted that between 2007 and 2009, more capacity building programmes were implemented to community-based child growth monitors and promoter, in the provision of community-based therapeutic care for severe to moderately acute malnutrition (Engle et al., 2007).

Stunting levels tend to persist as this form of malnutrition is also not aggressively addressed and yet community-based child growth monitors are able to detect this form of malnutrition once they are well trained. Stunting is a form of malnutrition whose existence suggests little effort by government to address its well-known contributing factors (Munthali et al., 2015). A correlation was established between stunting in children and educational levels of their mothers. Stunting in children was more common in mothers without formal education 54%, followed by mothers with only primary school education 49%, then mothers with secondary school education 37% and 20% of mothers with higher education (Masiye et al., 2010). For this picture to improve, government could impact on programs to educate mothers in order to reduce stunting. Stunting may not be a severe form of malnutrition but it is serious in that it is

irreversible and tends to have effects in the mothers during their child bearing age.The reviewed literature showed that objectives expectations and evaluation of various GM and GMP vary (Masiye et al., 2010).

Activities done at the GMP session include; Filling a card for the child who does not have one, Weigh each child younger than five years (5), Determine whether each child has gained enough weight and draw the child's growth curve on his /her growth chart, Decide if the child has adequate or inadequate growth, Using the counselling cards to: Talk to the mother or care taker and reach agreement about what she can do during the coming month to maintain and improve the growth and health of her child, Decide on what feeding advice to give the mother /caretaker based on the age of a child, Check for the presence of illness, such as diarrhoea, cough, fever or others. Follow up on the effects and actions taken, Refer children whose problem cannot be taken care of in the Community, Filling in the Community Based Growth Monitoring register and tally sheets for evaluation and planning of CCGMP programs. GMP sessions are supposed to be conducted monthly within the community at centrally agreed upon place. Some of these places have shelters that were built by the communities, some use school building within the community as agreed with the school authorities and some communities are still conducting the sessions under trees (Munthali et al., 2015).

Graphical representation of the child's physical growth helps in combating malnutrition through timely and early detection of growth faltering. Using the graphical representation and actually drawing the Road-to-health graph on the under-five card can help to detect growth faltering long before any easily-observable sign or symptom of malnutrition becomes evident (Roberfroid et al., 2005). Growth monitoring and promotion can help to detect malnutrition early and this will in turn reduce infant and child mortality resulting from malnutrition and thus boosts the achievement of the fourth millennium development goal (Marriott et al., 2012). Most health workers tended to handle growth monitoring techniques well, but they failed to calibrate scales, to keep the at eye level, and often to remove extra clothing. Crowded clinics allowed healthy workers little time (mean, 30 seconds) to interact with mothers and children and to give mothers practical advice. The study showed that 75% of the clinics provided group health education that used appropriate education techniques (for example, mothers' participation and audio-visual aids) and that children and mothers attended the clinics infrequently, especially after 12 months. The attendance pattern matched the immunization schedule. It was found that most mothers (77%) took their children to the growth monitoring clinic for immunizations, 73% could interpret the growth curve, yet they

could not do what the health workers told them to do because they could not afford to buy the suggested foods (89% of mothers). The findings of the study showed that insufficient growth promotion, beginning during training, has a ripple effect at the service level and with mothers (Ashworth et al., 2008).

The definition for GMP as being tailored to counselling based on the GM results and follow-up problem solving feasible problems with caregivers, allows them to look into growth monitoring-specific outcomes and benefits, as compared with general counselling and other interventions that could be delivered outside the GM session as well (Mangasaryan et al., 2011). A community-based programme should include a number of interventions such as general counselling to caregivers (either individually or in groups) and delivery of different services within the context of the community based programme. These interventions and services could be delivered during the same GMP session, using the opportunity of the contact with caregivers. These services, however, are not dependent on measuring the growth of children and can also be delivered outside the GM context. Combining GMP and additional interventions needs to be planned carefully to ensure that the quality of both is maintained. In some settings, workers may become overburdened by additional tasks and focus most of their attention on delivery of services rather than effective counselling and problem-solving with mothers. Evidence is accumulating on the types of community interventions that are effective, practical, and sustainable. The decision to include GM and promotion sessions in community-based programmes needs to be made at the national and subnational levels after careful consideration of priorities, available resources, and the feasibility of reaching a high quality of GMP activities. (Mangasaryan et al., 2011).

2.7 Satisfaction of the demand (mothers)

Worldwide, Zambia inclusive where an estimated 195 million children under five years old are stunted and 129 million are underweight this poor growth of children usually leads to increased child mortality because of severe infections and more common yet preventable childhood illnesses which contribute to over one third of all deaths of children under-five years (Prudhon et al., 2006). A survey conducted by National Food and Nutrition Commission in 2009 in 32 selected districts of Zambia showed an increase in the prevalence of stunting from 50 per cent to 52 per cent, underweight and wasting were 18 per cent and 5 per cent respectively (Hotz et al., 2011). Due to these high levels of malnutrition that leads to chronic high mortality rates, to ensure adequate coverage of the child survival interventions,

Zambia adopted and implementing is Community-based child growth monitoring and promotion program. Promotion of child growth is related to the control of under-five morbidity and mortality rates, an international health priority. Growth charts and GMP activities at community level are services used universally to monitor the growth of children under-five years and this practice is widely accepted in paediatric care. Facts established by literature impel that evaluation of CCGMP programs should start from training of these health workers who are the main providers child growth monitoring and promotion services. There are many other factors that may hinder the effective performance of the Community-Based programs but timely summative and on-going evaluation is necessary to be able to identify the problems and to make corrective measures in good time so that programs can be able to achieve the set goals. It is a concern that national wide, the effectives of these community-based child growth monitoring and promotion program (CCGMP) have not been regularly evaluated either through a reliable surveillance system or through research. In a few areas where growth monitoring programs have been evaluated, the findings have been disappointing thereby questioning the value of routine child growth monitoring programs. In addition, there is a growing concern that the process of child growth monitoring has become more of a weighing ritual rather than growth monitoring and promotion (Harris and Drimie, 2012).

The main goal of GM activities is to assess growth adequacy and identify faltering at early stages before the child reaches the status of under-nutrition. Community based growth monitoring is not itself an intervention that can treat growth faltering when it is identified. It is rather an activity which, in addition to making a child's growth visible, may become an important point of contact with the caregiver and stimulate discussions at the community level. If implemented as a standalone activity, GM does not provide any benefits apart from knowledge about a child's growth status (Mangasaryan et al., 2011).

In Malawi a qualitative study was conducted aimed at describing perceptions of Malawian nurses about nursing interventions for malnourished children and their parents using a phenomenographic research approach. Through the analysis, two major concepts, comprising four categories of description, emerged: managing malnutrition today and promotion of a favourable nutritional status. According to the participating nurses Identification and treatment of malnutrition, education during treatment, education to prevent malnutrition, and assurance of food security were regarded as the most important areas of intervention (Johansson et al., 2011). Results of the study concluded that if objectives of the entire

program were to be achieved, it was important to improve knowledge levels of providers of service as key to successful program implementation.

Over the past decade, the effectiveness of GMP as an approach to preventing malnutrition and more especially, the added value of growth motoring to growth promotion has been the subject of debate (Griffiths and Rosso, 2007). The coverage of GMP is relative and the implementation is considered weak with poor linkage between growth monitoring and promotion activities due to staff ineffectiveness and poor organisational structure (Ashworth et al., 2008). In addition it is reported that the "Road to health card" is not being used effectively as a tool in monitoring growth and promotion of child health and that a sharp growth faltering occurred in the first year of life so early interventions were vital (Tarwa and De Villiers, 2007).

In 1988, Zambia undertook an evaluation of the growth monitoring program in Lusaka. The training survey involved interviews with teachers of nutrition, community health, or child health, and examination of the courses' curricula. The service survey encompassed health worker activities at 11 growth monitoring clinics and included four hundred and five (405) mothers served by these clinics. Results showed that all 8 health institutions adequately trained students in weighing, plotting weight, and how to read the growth curve. However, training did not cover growth monitoring as a cohesive whole but separately under various subjects and did not teach growth promotion. It revealed that only 2 health institutions informed students about the curative role when growth falters and used participatory learning techniques. None of the health institutions addressed growth monitoring consultation and follow-up action in the case of growth faltering (Msefula, 1993).

In another evaluative study conducted in 2009, which measured the effectiveness of growth monitoring and promotion (GMP) program in Zambia, a three months prospective study of growth outcomes was undertaken at randomly selected health facilities and community posts within Lusaka district. Children under two years old (n=698) were purposively sampled from three health facilities (n=459) and four community posts (n=77) where health workers had undergone training in GMP and three health facilities where staff had not received training (n=162). Qualitative data on knowledge, attitudes, and practices of GMP were collected from health facility managers (n=6), health workers (n=35), and mothers (n=27)whose children attended all follow-up visits. Results indicated that the anthropometric status of children in all groups deteriorated, with children at community posts having the worst outcomes (change in

weight-for-age Z-score -0.8+/-0.7), followed by trained (-0.5+/-0.6) and untrained (-0.3+/-0.47; P<0.05) health facilities. A similar trend was seen for weight-for-length. The overall dropout rate was 74.1%. Weight-for-age Z-scores were higher at one and two months follow-up visits for children who did not complete the study at trained health facilities and community posts compared with those who remained in the study. Mothers/caregivers identified GMP as important in attending the under-five clinic, associated their child's weight with overall health status, and expressed a willingness to comply with health workers' advice. However, health care providers were poorly motivated, inadequately supervised, and demonstrated poor practices. The study therefore concluded that the GMP program in Lusaka is functioning sub-optimally, even in facilities with trained staff. This could be suggestive that there is a deficit in knowledge and skills levels of the providers of child growth monitoring and promotion services in Zambia (Charlton et al., 2009).

2.8 Conclusion of Literature Review

Literature above and many others are a clear indication that despite the existence of many Child Survival programmes in all countries, the CCGMP programs could not be performing as effectively as expected due to inadequacy of various factors, from their training to the implementation of the services. There is need therefore to investigate the arms of training as well as implementation of these CCGMPs to determine if it’s scope, context and content, are adequate enough to guarantee their attainment of required skills and competencies and enable them provide quality services in order to improve child survival. This background problem therefore prompted the need to explore and evaluate the scope, content and context within which CCGMPs in Zambia are trained to attain the required skills and competencies to enable them and implement their programme and provide quality services in order to improve child survival. Growth monitoring has been advocated as an effective, simple and inexpensive way of preventing most childhood malnutrition, even though this view has been questioned because of the lack of evidence of the fact that growth charts are a better educational tool than health and nutrition education without growth charts.

CHAPTER THREE
METHODOLOGY

3.1 Overview

This chapter describes the methodology that was employed in conducting this study. It describes the way in which the research was structured, the site and population from which the samples were selected. Detailed explanation is made of the several specific methods that were applied, the context within which the study was conducted, the sampling methods and tools used and steps taken in the data collection techniques used and data analysis. Ethical consideration and interventions that were employed to ensure that human rights were not violated are described in this chapter. Limitations of the study as well as the measures taken to mitigate these limitations so that they do not negatively affect the data collected and the validity and reliability of the results.

3.2 Study Site and Population

The study was conducted in Lusaka and Chirundu districts of Zambia. The two districts were purposively selected in order to necessarily provide a diverse picture of the urban and rural settings of Zambian society. The two districts represent the two main areas with different life styles in Zambia; Lusaka represents the urban area with more and better health facilities for access but are highly populated; Chirundu is a rural area with limited health facilities leading to a lot of hardships of accessibility of health care services, but less and sparely populated.

Chirundu: a rural district, with a total population of 52, 687 in the year 2014 (Chirundu Community Medical Office (CCMO 2014) statistics. Twenty percent (10, 537) of this population are children under five years of age who need close growth monitoring and promotion of health for the children to grow well and be responsible citizens in future. The site was purposefully chosen because being a rural setting, about 97 to 95 % of children's growth monitoring and health promotion activities are carried out by CCGMPs, meaning that most children here have limited or no access to health professional services for child growth monitoring and promotion(CCMO 2014). It is therefore obvious that in Chirundu, a large percentage of children entirely depend on community-based child growth monitoring and promotion services. This recently formed rural district and realigned from Southern to Lusaka province has a town in Zambia at the border with Zimbabwe. It is the site of two of the five major road or rail bridges across the Zambezi River, the Chirundu Bridges.

Chirundu is mainly a rural area with hard to reach communities that need the services of community-based child growth monitors and promoters. Like other rural areas most problems that are experienced are few health facilities leading to inaccessibility of health care services including child growth monitoring and promotion services due to long distance to health care facilities. As a result of rural hardships, child caregivers depend entirely on community-based child growth monitors in the villages and they hardly have accesses to professional health care services. Currently the district has basically only two health services providing facilities: Chirundu Community Medical Office (CMO) and a first level referral, Mtendere Mission Hospital. Chirundu Community Medical Office (CMO) provides administrative and technical support to seven Rural Health Centers shown in the population demographic map in the appendices. Out of the seven Rural Health Centers in Chirudu District, 2 areas were selected for the purposes of this study because they are the most highly populated and accessible. These are: Chipepo Rural Health Center with population coverage of 14, 734, and Lusitu Rural Health Center with population coverage of 10,036. Mtendere Mission Hospital used to be the major and only supplier of health care services in Chirundu district working under Siavonga DHMT until only in 2013 when the government decided to establish the necessary district administrative offices including the Community Medical Office, under the Ministry of Community Development, Maternal and Child Health (CCMO 2014). Mtendere Hospital is currently the only first level referral hospital in Chirundu District. The mission hospital started as a small Rural Health Centre in 1964, but has grown over the years up to the current covered area of 5,460 square meters and 145 bed capacity. The Hospital currently offers an extensive range of in-patient and out-patient diagnostic and treatment services including Laboratory, Ultrasonography, Endoscopy, Radiology, Operating Theater, Dental Care, Pharmacy, Public Health Services, as well as community based Mother and Child Health, which includes community-based child growth monitoring and promotion (Records Mtendere mission hospital 2009).

Mtendere Hospital has a catchment population of about 18,000 shared serving eight major villages, but due to the inadequate equipment and personnel in other adjacent hospitals and the great distance to University Teaching Hospital in Lusaka, it is functions as the main referral centre for two districts Chirundu as well as Siavonga district. Moreover other areas also benefit from this hospital; those in the neighbouring districts including the neighbouring country, Zimbabwe (Records Mtendere mission hospital 2009).This fact raises the inhabitants of the catchment area to a number more than 60,000. Chirundu district has 10 Neighborhood

health committees (NHCs), 24 trained Community Health Workers (CHWs) of which 17 are active and 7 are not. There are 17 trained Traditional Birth Attendants (TBAs) while 5 are untrained. These form 7 Safe motherhood Action Groups (SMAGs). (Records: Mtendere mission hospital 2009). These Community-Based health care Volunteers provide different health care services within the communities of the vast coverage area of Chirundu district. Some data for community-based volunteers were obtained from Mtendere Hospital, Public Health department as the District Health Office (DHO) is still new and in the process of updating the statistics (Records Mtendere mission hospital 2009).

Lusaka: is the capital city of Zambia, an urban district, with a total population in the year 2014 of 2,115,596, Lusaka Community Medical Office (LCMO 2009) statistics. Twenty per cent (423, 119) of this population are children under five years of age who need close growth monitoring and promotion of health for the children to grow well and be responsible citizens in future. According to the census report for 2010, the population for Lusaka Province grew at an average rate of 4.6 per cent per annum during the inter-censual period 2000-2010.Lusaka District was the fastest growing district within the country, with an annual rate of population growth of 4.9 per cent, followed by Kafue District at 4.2 per cent per annum and Chongwe District at 3.4 per cent. Luangwa District had the least annual rate of population growth in Lusaka province at 2.5 per cent per annum. The population density increased from 63.5 persons per square kilometer in 2000 to 100.1 persons per square kilometer in 2010, representing an increase in density of 36.6 persons per square kilometer. Lusaka district was purposefully chosen in this study because of being the largest city in Zambia with the fastest and highest populated urban setting, meaning that most children live in Lusaka. These children have to compete for the limited access to professional health services especially for child growth monitoring and promotion (LCMO, 2009).

Crude statistics that were collected from the community desk at Lusaka Community Medical Office indicate that, the total number for the Community-Based Health Volunteers in the district according to the latest data collected in 2013was 2070 (LCMO, 2009). These are the active ones and if all were included they were going to be a bit more. The total number of health facilities within Lusaka district is 30 including 2 small centres still operating at the level of health posts which are subsets of two big centres namely; Garden and Kanyama health posts.

Each of these health centres has roughly 10 community health volunteers providing different health care services within the communities. The areas in Lusaka District are divided into 8 zones for health administration purposes and three densely populated areas were selected for the purposes of this study. These are: Kanyama compound with a population of 169,435 from Zone 4, George compound with a population of 160,177 from Zone 3 and Mtendere compound with a population of 99,234 from Zone 8. The sampling of these health centers coverage areas was to ensure representation from three different zones as shown in the map of Lusaka attached (Appendix IV).

3.3 Study Design

Research Paradigm

This research applied a Mixed (quantitative and qualitative)methods design , combining both Quantitative and Qualitative design approaches (Mengshoel, 2012)that comprised i) A cross-sectional survey and a ii) Qualitative Case Study: the case in this study being the "Training and implementation program for Community-Based Child growth monitors and promoters." The methods were intentionally mixed in order to integrate and draw on the strengths of each design in understanding theoretical, philosophical and practical perspectives of findings (Myers et al., 2010). This facilitated clarification of any ambiguity that could have existed on various dimensions of adequacy in training programs' of Community-Based Child Growth Monitoring and Promotion (CCGMP) and their ultimate contribution to implementation of child survival programs (Taylor-Powell et al., 2003). The four (4) methods are hereafter described in detail:

3.3.1 Document review

This research conducted document review as a data collection method for evaluation to gather background information, determine if implementation of the CCGMP program reflects program plans, to collect information that helped to develop other data collection tools for evaluation, to collect data to answer some evaluation and research questions (Nicometi, 2009).

Documents, reports and many recent studies conducted both in Zambia and internationally were reviewed in relation to the training and implementation of CCGMPs' programs. The documents were identified and actively sourced from the national, provincial, district health

offices and at the health post level, as well as from non-governmental and faith-based organisations. Web-based documents were also searched and sourced then reviewed. In the process of reviewing five (5) selected documents, relevant information on curriculum content, training duration and methodology was extracted so that gaps were identified in almost all the training curriculum. Upon comparison of content in all the documents, the National Food and Nutrition Commission (Sherman and Muehlhoff, 2007) curriculum was found to be the most inclusive in terms of adequate content, scope and context of CCGMP training and was therefore chosen as the universe of analysis applied to evaluate the curricular in this research study. The documents were identified and actively searched for by the authors at national and district offices as well as at the health post level. Web-based sources were also searched. The documents included in the review process were: National Food and Nutrition Commission (NFNC 2007) Training curriculum for Child Nutrition Promoters (CNP), Community Health Workers (CHW) Training manual, Community Health Assistants (CHA) training Curriculum, Implementation Manual for CHW, Expanded Program of Immunisation (EPI) Guidelines(Perry and Crigler, 2014). Table 3 shows the five documents that were reviewed in this study and were related to curriculum, training and implementation of CCGMP programme in Zambia.

Table 3: Reviewed documents

AUTHOR	TITLE	YEAR	CITY
National Food and Nutrition Commission(NFNC)	Training curriculum for Child Nutrition Promoters (CNP)	2007	Lusaka
Ministry of Health (MOH)	Community Health Workers (CHW) Training Manual	1998	Lusaka
Ministry of Health (MOH)	Implementation Manual for CHW	2000	Lusaka
Ministry of Health (MOH)	Expanded Program of Immunisation (EPI) Guidelines	2006	Lusaka
Ministry of Health (MOH)	Community Health Assistants (CHA) training Curriculum	2014	Lusaka

A. Selection of Documents

Reading and studying different documents permitted a process of selecting the documents with the relevant information. Documents related to the training and implementation of CCGMP program were selected including documents containing CCGMPs' curricula, practical manuals, guidelines and other information on Child growth monitoring.

B. Curriculum Categories studied

Several characteristics were studied under the three curriculum categories: curriculum content, teaching methodologies, duration of training and practicing guidelines in order to facilitate the identification of any gaps in the CCGMPs' training package and process. The following characteristics in terms of curriculum content, scope and context were studied under their respective theme;

Curriculum content: Number of units in the curriculum, topics to be covered under each unit, subject matter to be covered under each topic. In terms of curriculum content, under the four (4) major recommended topics including; ***Growth monitoring, interpreting growth indicators, nutrition counseling and handling a sick child by the CCGMPs***; this study investigated how much the various organisations that were responsible for training the CCGMPs covered during training

Teaching methodologies: Prescribed, recommended and appropriate number of prescribed methods to be applied under each topic as well as trainers and learnersroles to be undertaken during the learning process were evaluated.

Duration of training: number of hours prescribed to cover each unit and the duration for practical experience. The three themes above, were determined from reviewing the documents for the purpose of measuring the dependent variable; "adequacy of CCGMPs training."

Other aspects of the curriculum that were also reviewed from the documents were: Training and practicing guidelines: prescribed skills and competencies that should be acquired from training, guidelines, policies and procedures and competencies that should be mandatory for the CCGMP to learn and acquire during training and those that can be acquired later during practice. The following important training aspect that should be documented in the curricular were also searched for; Trainers' and trainees Communication channels, training organizations' responsibilities and accreditation procedures for the CCGMPs' training program.

C. Data Analysis and Management

Content analysis approaches was applied to analyse data for document review. Framework Method of qualitative data analysis was applied as this study used a mixed method study design (Ritchie et al., 2003). A step-by-step explanation of the application of the Framework Method is illustrated by showing the main steps taken for the qualitative data analysis process at this stage of document review. The following steps were applied to analyse data from document review:

An analytical framework was created and a set of information was grouped, codes and organised into categories that were jointly developed by researchers involved in this analysis in order to manage and organise the data. This framework created a new structure for the data which was summarize/reduce, rather than the full original document content in a way that could support answering the research objective to identify gaps on the different curricular. An analytic memo was written in the investigation of particularly the curriculum content. Information from documents was grouped into the three main categories that were determined; curriculum content, methods used and duration of training (Ritchie et al., 2003).

During the analysis process, codes were grouped into clusters around similar and interrelated ideas or concepts to create the three categories: Categories and codes were arranged in a structure to form the analytical framework. During the process of developing categories we ensured that they were closely and explicitly linked to the raw data from documents as a way to start the process of abstraction of the data (i.e. leading towards the general rather than the specific or anecdotal) (Ritchie et al., 2003).

Data collected from documents was grouped according to their respective predetermined categories and were coded using N-vivo statistical package (Fielding, 2012). Content analysis was then applied to collect all the relevant data from the selected documents pertaining to both training and practice of CCGMPs. This process of content analysis allowed for the evaluation of the documents' content and context focusing on one of the three areas of curriculum content at a time from the different curricula in order to facilitate the identification of existing gaps within the different curricular.

3.3.2 Cross sectional Survey (CSS)

The cross-sectional survey was both descriptive and analytical as it was used to describe the training and practice of CCGMPs as well as to investigate the association between many

variables like the relationship of several social-demographic characteristics and how they affected the outcome of training in terms of knowledge and skills acquisition, as well as their experiences during implementation.

Survey participants

The main group of respondents in this research was those that participated in the Cross Sectional Survey, and these were the 400Community-Based Child Growth Monitors and Promoters (CCGMPs) who were the main target population. These respondents had received different types of community health workers training and/or were actively involved in community activities within the selected study sites serving children as CCGMPs.

A. Selection and Sampling procedure

Inclusion criteria for CCGMPs eligible to participate as respondents to this study was that they should have been residents of Lusaka and Chirundu districts and/or providing community-based child growth monitoring and promotion services to the children at the time when the research was being conducted. CCGMPs who had some form of training using any curriculum related to community-based child growth monitoring and promotion from the MOH, Church-based Organisation or any other NGO or were at that time working as a CCGMP and/or were oriented by nurses and/or their colleagues on what to task were shown how to perform the tasks as they provide the services. Exclusion criteria were those CCGMPs who were unavailable at the time of the data collection process and those that did not provide consent.

At sampling stage, multistage sampling was applied to select respondents for this research and several different sampling methods were applied at each stage of sampling, a process which applied triangulation in order to ensure validity of data that was collected, and also the research findings. Sample size of CCGMPs from each of the two selected study districts, for the cross sectional survey was calculated using the following statistical formula:

$$n = \frac{Z^2PQ}{d^2}$$

in which**;** n=the desired sample size, Z=the standard deviation set at 1.96 (or rounded off to 2.0) which corresponds to 95 percent confidence level**,** p=the proportion of the target population estimated to have a particular characteristic in this case it's the trained

community-based child growth monitors and promotersp (50 percent=0.5), q=0.05-pd=degree of accuracy desired is .05 the p-value

$$n = \frac{(1.96)^2 (0.5)(1-0.5)}{(0.05)^2} = \frac{0.9604}{0.0025} = 384.16 = 385$$

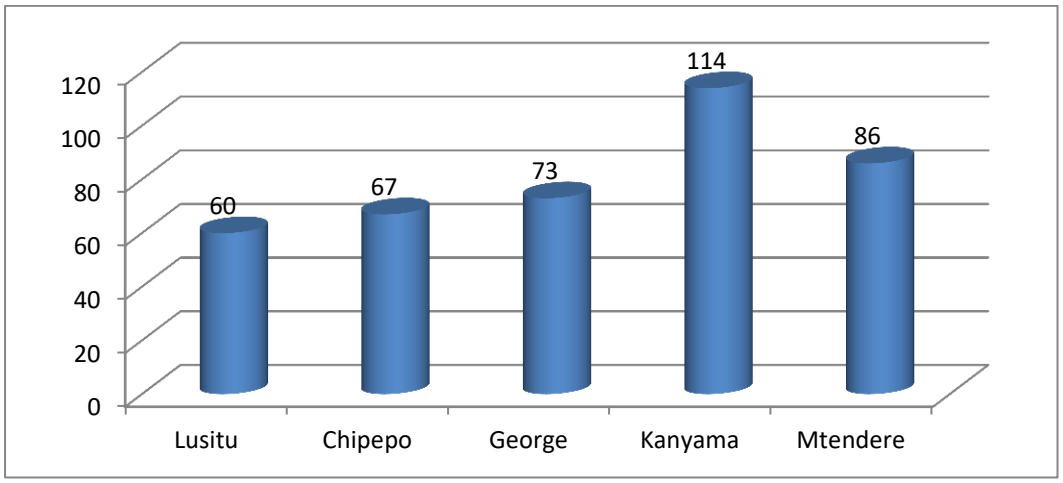
To cater for attrition rate we adjusted for 10% non-response giving a total of 400 CCGMPs to participate and the two (2) districts shared 200 participants each to be included in the sample for the cross-sectional survey.

The 400 CCGMPs who participated in this cross sectional survey were further selected using convenient sampling between two (2) selected Health Centers' catchments areas of Chirundu and three (3) areas of Lusaka that met the criteria of being both accessible and highly populated, compared to other areas in the two districts (Appendix III & V). The criteria used to selected the five (5) areas within the two earlier conveniently selected districts to represent urban setting (Lusaka) and rural setting (Chirundu), that were included in the study was on the basis of having the largest catchment population in the two districts as well as being accessible for the research team to be able to collect data. Figure 4 shows how proportional sampling was calculated at this stage to obtain proportionate sample sizes from the five (5) sites from which data was collected, each area according to its catchment population size, in order to ensure adequate representation from each site(Marshall, 1996)**.**Kanyama being the highest populated compound had the highest number of research participants, 114 (28.5%)representation. As expected, each of the three compounds in the urban area of Lusaka had more respondents than the two areas in the rural areas of Chirundu as these were less populated. This method of sample size determination was intentionally applied at this stage in order to have equitable representation to lessen the possibility of bias. This was to ensure better representation in the total sample population and so increased the validity of the findings.

Proportional sample size determination by data collection sites

Figure 4 illustrates that the actual respondents were then selected from the five (5) sites by proportional sampling method. Participants included all CCGMPs that came to work at the GMPs at each time that the research team went to the GMPs to collect data until the sample size was reached in accordance to the proportional sample size determined per site as earlier calculated.

Figure 4: Proportional sample



Data collection sites

Exclusion criteria was leaving out those CCGMPs who were not available at the time of data collection and those who were unable to provide consent to participate in the scheduled interview and/or had no chance to be chosen to continue participating in later parts of the research i.e.; either for UDO or focus group discussion as different criteria were applied to select participants for the different methods of data collection at different times of the research process as later explained.

B. Variables studied

Several independent variables were investigated in order to measure the dependent variable which was the adequacy of CCGMPs' training program. The cross sectional survey being the major design in this research included variables in all of the following main areas; participants' socio-demographic description, the curriculum content, duration of training, methods used during training, knowledge levels, skills and practices of CCGMPs as well as the challenges that they face during their training and program implementation.

C. Data collection tools and process for CSS

To collect the data, a structured questionnaire was designed to ensure that the desired responses were obtained from all respondents in answering to the set objectives. Each questionnaire was filled in using one-to-one interview method with each respondent to ensure that responses were as accurate as possible, as this method allowed the data collectors to clarify the questions to the respondents and to probe for better responses. This method was

chosen in this study to ensure clarity and collection of more accurate data because most of the respondents were semi-literate. Structure of the scheduled interview questionnaire comprised of four (4) sections in relation to the variables that were studied:

Section A was designed to elicit information on the respondents' socio-demographic statistics for the purpose of the participants' general description and distribution as well as determining how they may be associated with the training and implementation of CCGMPs' program.

Section B consisted of questions that facilitated investigation of CCGMPs' training by assessing the scope, content and depth of CCGMPs' curriculum and training program under three major areas of curriculum content, training duration and methodologies used during training. The survey questionnaire contained a list of major topics that CCGMPs were expected to cover during their training. A likert scale (annex 1) within the larger structured questionnaire was designed by dividing the questions into the major topics, and the interviewer checked the CCGMP's response according to the topics that they covered. Grading was done by topic on the likert scale to determine how much content was covered during the CCGMP's training.

Section C consisted of questions that measured knowledge levels and determined skills, as well as how these affected the practices of CCGMPs in terms of performing their tasks for monitoring and promotion of children's growth and health.

Section D facilitated collection of information on the exploration of CCGMPs' perceptions and experiences towards their training and implementation program, challenges and gaps affecting training and practice as they performed their skills in delivering services. They also provided recommendations and suggestions of how to overcome challenges.

For the purpose of ensuring both validity and reliability of the data collected, a trial was done to pre-test the developed data collection tools by administering them to a small group of respondents from similar settings to were the main study was to be conducted, as the respondents were expected to have similar characteristics with those who participated in the main study. The pre-test was conducted in order to identify and correct any flaws in the data collection tools and to assess time requirements to administer the tools (Coughlan et al., 2007). The pre-test helped to modify questions were ever necessary and to refine the interview technique, thereby improving the reliability and validity of the study. Pre-testing

also helped the research team to determine the appropriateness of the data collection tool and technique for the target group in terms of several studied variables like; education level, culture or ethnic issues, training content, scope and process in terms of methods used and duration of training for skills and competency acquisition (Brenner et al., 2011).

The actual process that was applied in order to conduct the pre-test is hereby briefly described. It was conducted at randomly selected catchment areas which possessed similar characteristics as for those of the selected study sites but excluded the actual sites selected for the main study but within the same areas of Lusaka and Chirundu districts. These sites were excluded from the actual research in order to reduce chances of responder bias. The interview schedule was pre-tested on ten percent (10%) of the actual study sample size. After the pre-test, the necessary adjustments were made as they were noted for both the data collection instruments to be used and the results of the pre-test were discussed with the research team and corrections were made as necessary and agreed upon before the actual research. By this process, the data collection tool and process were refined so as to reduce bias and strengthen the validity and reliability of our research process.

D. Data management and analysis

Actual collection of data was on a daily basis and at the end of the day; the research team checked each script for completeness of information and for internal consistency during data processing. Data was then translated into numerical form (coded) before it was entered into a computer using SPSS version 22 software package for analysis, in consultation with a statistician, to generate findings, interpret them and form conclusion (Charnes et al., 2013).

The analysis of numerical (quantitative) data was represented in mathematical terms, using common statistical measurements. Frequency distribution indicated the frequency of each response and provided additional information including the mean, since it allowed for examining the level of consensus among the data. The mean score represented a numerical average for a set of responses. Standard deviation indicated the degree of consistency among the responses. The standard deviation, in conjunction with the mean, provided a better understanding of the data. Cross tabulation being higher levels of statistical analysis used two-by-two tables in applying Chi-square and Regression analysis tests. The Chi-Square statistic was used to evaluate Tests of Independence between several variables with the dependent variable by using cross tabulation (bivariate table). Cross tabulation presented the distributions of two categorical variables simultaneously, with the intersections of the

categories of the variables appearing in the cells of the table. The Test of Independence assessed whether an association existed between the two variables by comparing the observed pattern of responses in the cells to the pattern that would be expected if the variables were truly independent of each other. Calculating the Chi-Square statistic and comparing it against a critical value (0.05) from the Chi-Square distribution allowed for the assessment of whether the observed cell counts were significantly different from the expected cell counts. Logistic regression was used to predict categorical (dichotomous) variables from a set of predictor variables (determinants). With categorical dependent variable, discriminant function analysis was employed with all of the predictors being continuous and well distributed. Logistic regression was chosen where the predictor variables were a mix of continuous and categorical variables and/or if they were not nicely distributed since logistic regression makes no assumptions about the distributions of the predictor variables. Logistic regression was applied in this research since it did not matter that the dependent variable (adequacy of CCGMP training), that is if the CCGMP was adequately trained or not. This is because for a logistic regression, the predicted dependent variable is a function of the probability that a particular subject will be in one of the categories (for example, being adequately trained or not as the set of scores on the predictor variables).

Qualitative methods of managing and analyzing data were applied to responses of open-ended responses. Both thematic and content analysis was conducted through grouping data into themes by placing similar responses in their respective groups. The themes were then coded by N-VIVO software package and then content analysis per grouped data in the different themes was manually applied. At this stage triangulation was also achieved by comparing results of this qualitative data from responses of the open ended questions with those of quantitative findings from the structured questionnaire. Findings were then interpreted and presented statistically. This further improved the validity and reliability of this research's findings (Driscoll et al., 2007).

3.3.3 Qualitative Case Studies

In this study the "case" refers to "Training and implementation program for Community-Based Child growth monitors and promoters." Qualitative case study was conducted by mixing three (3) data capturing approaches namely; uninterrupted direct observation, one-to-one exit interview with mothers and focus group discussions (FDGs) with CCGMPs. This is at another stage were triangulation was achieved by mixing the three (3) methods in order to strengthen the findings of the qualitative case study. Through these data collection

techniques, efforts were made to explore further the issues of interest that were also highlighted in the cross sectional survey. Application of these approaches and the variables that were studied are explained below one-by-one:

3.3.3.1 Uninterrupted Direct Observation (UDO)

Uninterrupted Direct Observation (UDO) research technique was conducted by directly observing phenomena as they occurred in their natural setting in order to ascertain skills and competencies performed by the CCGMPs as they undertook their tasks. Skills and competencies of CCGMPs were observed using a checklist, as they provided services during GMPs. Without being interrupted, CCGMPs were directly observed on how they were carrying out their usual activities including providing general IEC, preparing for GMP sessions by correctly hanging, checking the correctness of the weighing scale, weighing the children, recording the weights on the under-5 card, giving nutrition advice, tallying on the tally sheets as well as referring the children for vaccines and further health care management to the nurses.

Further observations were made on how the CCGMPs were conducting their counseling sessions with mothers that needed nutrition counseling, whether they were seen to be referring to the data they collect by checking on the under 5 cards and the tally sheets**.** Whether they were transferring the data that they were capturing to the Health Centre so that it can be used by the health information management system (HIMS)**,** what sort of data was collected and how it was used within the CCGMP program. If the CCGMPs were supervised as they were working to ensure that they were performing their tasks as expected and to facilitate the reinforcement of skills they were trained to perform or if there was any appraisal system for the CCGMPs'. UDO also helped to determine if there were any available guidelines or standards and/or if CCGMPs were referring and adhering to them as they delivered services in order to satisfy the demands of the service recipients. Through observation we were also able to approximate and confirm the ratio of children to the CCGMPs and the coverage of children per GMP.

A. Selection of Participants

For uninterrupted direct observation (UDO), fifty (50) CCGMPs were conveniently selected and ten (10) were observed from each of the five (5) study site. Inclusion criterion for

participants was that the CCGMPs should have initially been included to participate in the cross-sectional survey.

B. Categories studied

CCGMPs' skills and competencies were observed and evaluate as they performed their duties during GMP sessions by using a check list that included key skills to be performed amoung others; provision of IEC, preparation for growth monitoring sessions in terms of cleaning the premises, hanging the weighing scale, checking if the scale is working well, weighed the children, plotting the children's weight, interpreted each child's weight and conducted counseling sessions to the mother as needed. Check list also included how and where they referred a child, if they did this appropriately and/or timely, and how they entered data on the under 5 cards and on tally sheets according to their training.

C. Data management and analysis

A list of tasks, skills and areas of competencies that the CCGMPs were expected to attain and perform after their training, was drawn from the documents that were earlier reviewed and these were used to form a checklist that was used to observe the performance of CCGMPs as they deliberated their duties. Thematic analysis was applied by grouping up the collected data into the following themes: Preparation for GMP session, Weighing of the children, plotting the children's weight on the under-5 card, interpreted each child's weight and conducted counseling sessions. N-vivo software package was applied to code the data that was grouped into five (5) main themes according to the areas from the checklist. Then applying content analysis, the categories of data were manually discussed according to the way they were ticked on the check list while observing each CCGMP during data collection. Triangulation was again enhanced as data collected using this method was used to complement findings of the cross sectional survey by confirming and verifying some findings on the performance of skills and competencies of CCGMPs.

3.3.3.2 One-to-one exit interviewswith Mothers

A. Participants' Selection and Sampling

Applying this method facilitated the inclusion of a different category of respondents other than the CCGMPs, these are, mothers of children who were recipients of services provided by the CCGMPs. This method of data collection included a different group of respondents and so yet at this level of implementation of activities, ensured the achievement of triangulation

by allowing mothers to express either satisfaction or dissatisfaction with the services that they received from the CCGMPs. This further strengthened the validity and reliability as findings from data which were collected from this different group of respondents, was used to compare and contrast with that which were collected from the main participants the CCGMPs.

Respondents comprised of fifty (50) mothers of children that received the services from CCGMPs at the five (5) selected study sites. Inclusion criteria was that the mothers had to be residents of the study sites and their children had been receiving child health growth monitoring services from CCGMPs for a minimum period of one (1) year. Fifty (50) mothers were conveniently recruited by choosing ten (10) mothers from each selected health centre. Simple random sampling was applied by randomly picking ten (10) numbers written on small papers. These numbers belonged to some mother who picked up similar numbers as they arrived to form a queue at the GMP, a practice used on a daily basis to maintain order so as to attend to them on the basis of "first come, first serve". Numbers were written on separate papers according to the number of mothers that attended GMP sessions on the particular days that the research teams went to collect data. The little papers with numbers were folded and place in a dish. Then ten numbers were randomly picked and those mothers who picked similar numbers as the ones which were randomly picked were included as participants of the one-to-one exit interview. This probability method of sampling gave an equal chance to each mother who attended the GMP session on that particular day, to participate in our study and so minimised possible respondent selection bias.

B. Variables studied

After they finished being attended to by the CCGMPs, mothers were interviewed on a one-to-one basis at exit, in order to measure their satisfaction with the services that they received. The one-to-one interview approach was conducted to quickly build a personal rapport between the moderator and the respondent and allowed each respondent to share their personal experiences and opinions in greater depth and detail, in order to provide more accurate responses. One-to-one exit interview was considered appropriate as it facilitated to elicit information to achieve a holistic understanding of the mother's point of view on the services that they received from CCGMPs. It also revealed areas of interest for further research in the area of service recipient's satisfaction with the CCGMP programs. The data collection tool and method that was applied was in form of a likert scale which was thought

to be appropriate to be scored by the respondents who were semi-literate. This type of interview involved asking informants questions with several options of possible answers that were provided on checklist and mothers were assisted to score whether they agreed or did not agree, and they were free to choose as many options as they thought they agreed or disagreed with. This was conducted in conformity with triangulation to obtain more details on the satisfaction of mothers with the services delivered by CCGMPs. One-to-one interview facilitated probing by the moderators to ensure that the semi-literate respondents understood both the questions and possible answers and they were free to choose their own options.

The questionnaire for the one-to-one exit interviews was designed in two sections in line with the two main categories that were studied under one theme being "satisfaction of mothers with CCGPMs' services.

Section A was designed to elicit socio-demographic data of the respondents'
Section B was a checklist of services that mothers were happy with or not.Thisfacilitated in obtaining information on the satisfaction of the mothers with the services provided by CCGMPs to their children. Ten questions were asked and respondents scored on the check list of services to determine if they were happy or not with the services that they received as recipients of the health care services that were being provided by CCGMPs. The semi-structured interview questionnaire consisted of a combination of few closed questions mainly in relation to the social demographic description and ten (10) questions pertaining to the services that mothers were satisfied with or not.

D. Data Collection

The interviewer explained asked the mother to either agree or disagree to being happy with the services that were provided. The semi-structured interview schedule was developed after thorough literature review and concepts were adopt from other recommended tools which have previously been used and approved in other research that measured satisfaction of health care services by the recipients (Bennett et al., 2014).

One-to-one interviews were conducted and responses were being checked accordingly on the checklist on behalf of the mothers, allowing the researcher to gain an insight, in an open and unprejudiced way, into the aspect of service demand from mothers, who are the recipients of the health care services provided by the CCGMPs. Mothers were able to freely say where

they wish to check on the designed checklist (Annex 3) and so were free to express their view points on their experiences and satisfaction with the services they received at the GMP sessions.The questions had two possible responses including either agree or disagree and the mothers were allowed to choose options as were applicable to them in order to express their satisfaction or dissatisfaction of the services that they received. The responses were checked on the checklist and graded accordingly and those who scored 80% and above were considered to be satisfied while those who scored below 80% were considered not satisfied with the CCGMP services.

E. Data analysis and management

Anonymity and confidentiality was assured for participants, as there was no way of tracing what answer each respondent gave or which checklist was answered by which respondent since the questionnaires did not have any form of identification. Answers were then grouped into themes, coded by N_VIVO software which and thematic analysis was conducted to describe and make conclusion of the findings.

3.3.3.3 Focus Group Discussions (FGD)

The study further aimed to discover, analyse, clarify and seek patterns of a phenomenon of CCGMPs' training and work experiences and how these affect their motivation and practice as they provide the services. To achieve this, focus group discussions (FDGs) were conducted and these strived to stay open to the views and perceptions CCGMPs as they expressed themselves. This phenomenological approach was relevant to this study because its major focus was to describe and understand CCGMPs training that they undergo and their daily work experience. FDGs were conducted with leaders of CCGMPs at all the five (5) sites where the research was conducted. The FDGs were conducted to further explore the feelings and perception of CCGMPs towards their training and implementation program and the challenges that they face. The guide for FGDs was developed the following steps: The purpose of the focus group discussion was stated, which is to allow for a more detailed qualitative data collection to complement or confirm the quantitative information collected using the earlier used methods. Date time and venue was pre-determined, arranged and communicated to the participants and that the FGD would take 15 to 30 minutes. In order to stay focused during the discussions, the list of topics to be covered were pre-framed as open-ended questions to encourage participants' free expression in order to elicit the necessary information to be collected (Kamuzora and Gilson, 2007).

A. Selection of Participants

The composition of the group for FGD was maintained between8 to 10 leaders of the CCGMPs, normally those who were also members of the Neighborhood Health Committees (NHCs) who were trained and also participated in providing CCGMPs services in the community. Different open ended questions were asked to stimulate open discussion from the participants and several 'ice-breakers' were engaged which encouraged members of the whole group to open up and express their perceptions and feelings of the training they received and how it affects their practice as CCGMPs.

Criteria used to select participants for Focus Group Discussions (FGD)was that they should have been leaders (key informants) within the CCGMP groups and 8-10 of these leaders were purposively selected from each of the five (5) earlier selected study sites for CSS.

B. Data collection

A list of pre-developed open ended questionswas asked to facilitateand guide the FGD,and responses from the discussions were the data that was collected. During the discussions several determinants that affected the training and implementation of CCGMPs program were discussed including; organisational structure that governs the functioning of the CCGMPs, how their trainings were conducted and how they carried out the GMP activities. Other determinants that were discussed included; availability of infra-structure like buildings, furniture, supplies to facilitate provision of services by CCGMPs**,** work conditions of the CCGMP like motivation, remuneration, supervision**,** work load for CCGMP in terms of numbers of CCGMPs to child ratio, hours of service delivery**,** provision of medical/surgical supplies to the CCGMPs to facilitate their work**,** motivation that exists in terms of appraisal, reward or remuneration system for the CCGMP**,** availability of logistics e.g: stationary, transport to facilitate the work of CCGMPs, safety measures provided for the CCGMP as they provided the service in terms of provision and use of protective clothing: coats, aprons, shoes, uniforms etc.

Discussions lasted 15 to 20 minutes and a Focus Group Discussions (FDG) guide was used to facilitate and guide discussions to maintain order and ensure that relevant data was collected according to the variables that were being studied. Consent was sort from the participants to record the discussions on tape after explaining that the FDG was only for research and

academic purposes. It was further explained that the results of the research would be disseminated to the relevant authorities and published. The questions on the FDG guide also helped to avoid diverting from the intended topic and wasting time focused participants' responses on the themes that needed to be discusses to ensure collection of the necessary data. During the FDG the researchers guided the discussion mainly by asking the questions, listened to and observed the CCGMPs as they expressed themselves.

Open-ended questions were asked and inductive probing was adopted during the data collection process. This allowed the researchers to clarify expressions and meanings of the respondents' expressions at the health posts and communities, and further permitted the participants to freely express themselves.The FDG guide was divided into three sections, which acted as the pre-determined themes. The first section helped to collect information on the curriculum content of the CCGMP training program in Lusaka and Chirundu districts, regardless of which organisation provided the training. Specific topics discussed elicited detailed information from the CCGMPs' on the topics covered, the knowledge and competencies that they thought they had acquired during their training processes. Questions asked were in relation to what they had been trained.

C. Data Management and analysis

This method of FGD facilitated the collection of detailed qualitative data from the key informants of the CCGMPs on their opinion of training and also their suggestions of how to best implement the training of CCGMPs so that ultimately, the children receive the best quality services. Data was collected by recording on tape recorder then was transcribed and the *'framework method'* of qualitative data analysis was applied. A method which is embedded within a broad family of qualitative analysis methods often termed as thematic analysis or qualitative content analysis which was developed by researchers; Jane Ritchie and Liz Spencer. They worked for the Qualitative Research Unit at the National Centre for Social Research in the United Kingdom in the late 1980s and the method was meant for use in large-scale policy research, now used widely in other areas, including many fields of health research (Ritchie et al., 2003). This approach facilitated the identification of commonalities and differences in qualitative data, before focusing on relationships between different parts of the data, thereby seeking to draw descriptive and/or explanatory conclusions clustered around themes. Through its defining feature, the matrix output: rows (cases), columns (codes) and

'cells' of summarised data, the researcher could systematically reduce the data to analyse it by theme which was coded by N-Vivo software package.

In-depth content analysis of key themes was them applied across the whole data set from the FGD, while the views of each of the FGD participant remained connected to other aspects of their account within the matrix so that the context of the individual's views was not lost. The ability to compare and contrasting data which is vital to qualitative analysis was conducted with ease across themes as well as within individual cases as was built into the structure through the process of the framework method. The Framework Method provided clear steps to follow and produced highly structured outputs to summarise data (Ritchie et al., 2003).

It is important to note that caution was taken as the Framework Method cannot accommodate highly heterogeneous data, i.e. data must cover similar topics or key issues so that it is possible to categorize it. Individual interviewees may, of course, have very different views or experiences in relation to each topic, which can then be compared and contrasted. The Framework Method is most commonly used for the thematic analysis of semi-structured interview transcripts like for FGD, hence we applied it in this research and it can, in principle, be adapted for other types of textual data, including documents as explained above, as well as field from notes of observations. In mixing with quantitative research when exploring qualitative methods, the nature of the Framework Method was appropriate because its methodical processes and 'spread sheet' approach seem more closely aligned to the quantitative paradigm (Ritchie et al., 2003). Qualitative research skills were applied to appropriately interpret the matrix, and facilitate the generation of descriptions, categories, explanations and typologies. It was therefore essential that this study applied the Framework Method for analysis and ensured that the process was guided by experienced qualitative experts, though it did not preclude those new to qualitative research from contributing to the analysis as part of the research team.

3.4 Validity and Reliability

Validity has to do with truth, strength and value in the degree to which a test or an instrument measures what it is supposed to measure (Burns and Grove, 2010). Content validity was ensured by providing a framework as a basis for formulating the items that adequately represented the content. When developing the tools, the investigator was concerned with the fact that the items contained in the measurement tool, were representative of the research content domain and the objectives intended to be measured (LoBiondo-Wood et al., 2013).

Ability of each research instrument in establishing its validity was obtained from literature review, consultation with other research experts on the content involved and investigator's personal observations and experiences(Roberts et al., 2006).The content of all the research tools that were used in this study were obtained from relevant and recent literature on the research subject matter. More subject matter was gathered from discussion with several research experts who also peer reviewed the data collection instruments at specially organised meetings.

In ensuring validity and reliability of the data collection tools, personal experiences and expertise of the researcher and her supervisors who are lecturers and have worked for many years with community health workers were also applied. The content of the questions in the research instruments were repeatedly formulated and tested in different ways to increase the truthfulness of possible answers and the honesty of respondents particularly on issues of competency in their practice. During data collection, the research team met weekly to discuss and address questions and issues as they arose. The other way reliability was increased was by triangulation, by using different theories, data sources, data collection methods and investigators and data analysis methods used in the study.

To ensure consistency of data, all data collectors were trained for a period of three days before data collection. Several talks and instructions were discussed with research team and data collectors and role plays of interviews were conducted to help the data collectors learn the data collection technique. Data collectors were trained in the following important roles to fulfill: conducive time and place which was mutually agreed with the interviewee was arranged for each interview and for the focus group discussions. The interviewer introduced themselves by explaining the organisations that the interviewers worked for, as well as the purpose of the interview. The interviewers did everything they could to put the informants at ease throughout the interview or focus group discussion or any data collection process in the concern for confidentiality. It was emphasized that there were no incorrect answers or responses, but that the expression of the thoughts and feelings of respondents was what was of utmost importance. During interviews and discussions the interviewee maintained a neutral attitude throughout the process of data collection in order to exclude any bias. Attempt was made to create and maintain an informal atmosphere to ensure that the informants were at ease and comfortable (Myers et al., 2010).

3.5 Ethical Considerations

Data was collected under the close supervision of the principal investigator. Before the interview, the interviewer explained the nature and purpose of the study reassuring the respondent of anonymity and confidentiality then to sort consent from the respondent. The interviewer was obligated to create a conducive rapport with the respondent. Privacy was maintained during interviews and will take place at times and places mutually agreed upon with the respondents, research assistants and the researcher (Association, 2001). Each interviewer conducted a maximum of five interviews per day lasting 20-25 minutes each to minimise errors that may occur due to rushing and tiredness of the data collectors. In case a respondent became anxious or suspicious during the interview, the researcher or research assistant was instructed to temporarily discontinue the interview and calm down the respondent by reaffirming the fact that the information she would provide will be treated confidential and only when the respondent had calmed down and was still willing to continue with the interview, was the researcher able to resume the interview. The research team was always considerate to respondents and was always respectful of their specific needs. The teams made each interviewee feel important and paid undivided attention to each informant throughout each interview. A scientific approach was followed and the interviewers listened attentively and analytically to the views of each interviewee express. Questions were repeated for clarification in case of any vagueness. To avoid violation of human rights, written approval was sort from the UNZA Biomedical research ethical committee (UNZABREC) prior to the administration of any study procedures.

Consent was obtained from each participant, by a process of the researcher and research assistants explaining the importance and objectives of the research so that the participants understood the value in them participating. Initially this was explained in a group of all participants found at a particular venue on a particular day. Then before the scheduled interviews were administered, the researcher or research assistants explained the importance, objectives and nature of the research again to individual respondents. The role and rights of the respondents were explained to them and that their participation though very vital to the study is voluntary. Respondents were allowed their rights to participate or not, with no implications to their other aspects of work and life socially or emotionally. If they decided not to participate, they were not forced in any way to respond to the interview. If they changed their mind during the course of the interview, they were free to decline with no implications. Confidentiality and anonymity was observed by using research serial numbers

instead of participant's name on scripts so that there is no way to trace which script was answered by whom (Association, 2001). During the period of data collection, recordings and scripts were kept by the researcher in a locked cabinet so that no one else had access to them until during data entry and analysis.

Ethical issues were specifically considered by taking the following steps; volunteers (CCGMPs) and mothers who were interviewed gave written consent after the purpose and nature of the study were explained to them. The University of Zambia Biomedical Ethics Committee (UNZABREC) approved the study (IRB 0001131 of IORG 0000774, reference number 009-10-11), and the study was conducted according to the standard ethical norms laid down by the committee. These among others include, avoidance of any harm to the research subjects, obtaining consent from each respondent and maintenance of privacy, confidentiality and anonymity. Written permission to conduct the study was also obtained from the MOH, the Provincial Health Office and from the two District Medical Offices, from where the data was collected. Collection of data using all the five (5) methods that were planned were reviewed and approved by the two District Health Offices of both Lusaka and Chirundu districts where the study was conducted, and the members of staff helped to schedule the dates and organise for interviews, observations and focus group discussions.

CHAPTER FOUR
PRESENTATION OF FINDINGS

4.1 Overview

This chapter presents research findings obtained from both quantitative and qualitative data that was collected from the five (5) data collection methods used in this study. The first part presents findings from, a cross sectional surveys with the Community-Based Child growth monitors and promoters (CCGMPs) (n=400). The second part presents findings from the four (4) qualitative case studies.

4.2 Scope, Content and Depth of CCGMPs' Curriculum and Training Program

Three (3) major determinants of training were investigated in this study which included; curriculum content which was used as the yard stick for training, duration of training and methods used during training.

4.2.1 Document Review

The following themes were extracted from the documents that were reviewed: Content of the prescribed curriculum in terms prescribed of units and topics to be covered, duration of training as in prescribed time to be spent per topic, methods prescribed in the curriculum for delivering training to the CCGMPs considering their education level, prescribed skills and competencies that the CCGMPs were expected to acquire and perform after training, ways of monitoring and evaluation of training (assessments, assignments, tests and exams), and implementation guidelines from the Ministry of Health.

The National Food and Nutrition Commission curriculum (NFNC 2000) was chosen as the universe of analysis used to evaluate curricular content because it contained most of the topics recommended by WHO to be taught to CCGMPs. WHO also recommends that the CCGMPs' training must take a duration of six (6) weeks of theory and six (6) weeks of practical experience(Sherman and Muehlhoff, 2007).

Results are presented according to the four (4) categories to be included in the curriculum as prescribed by WHO in line with recommended major topics, duration of training which should be at least 6 weeks theory and six weeks practical giving a total of twelve (12) weeks equivalent to 480 hours and at least five (5) different methods. These included; lecture/discussion, demonstration, group discussions with plenary presentations, role playing and field experiences, of delivering training to the CCGMPs.

Table 4 indicates that the only curriculum document with adequate content of major GMP topics 4 (100%) to be covered for the training of CCGMPs is theNational Food and Nutrition Commission (NFNC 2007) curriculum for Child Nutrition Promoters (CNP). The rest of the documents were lacking in all the aspects of; Topic content, training duration and number of methods to be used for training of CCGMP given the back ground that most of them are adults as well as lowly educated.

Table 4: Reviewed documents on adequacy of content

Document Title	**Major GMP topics contained in the curriculum document (%)**	**Hours spent (duration)on training GMP topics(%)**	**Number of methods usedto delivertraining of the CCGMPs(%)**
National Food and Nutrition Commission (NFNC 2007) Child Nutrition Promoters (CNP),	**4 (100)**	**480 (100)**	**5 (100)**
Community Health Workers (CHW) Curriculum	**2 (50)**	**80 (16)**	**3 (60)**
Community Health Assistants (CHA)	2 (50)	**100 (20)**	**3 (30)**
Implementation Manual for CHW	**0**	**0**	**0**
Expanded Program of Immunisation (EPI) Guidelines	2 (50)	**60 (12)**	**2 (40)**

After reviewing five (5) major and other several selected documents, gaps were identified in all the training curricular that were reviewed. Instead of including all thefour (4) major topics that were required to be covered during CCGMP training which included: Child Growth Monitoring, Interpreting growth indicators, Child Nutrition Counseling and Handling of a sick child, results of reviewing the documents indicated that most of the curricular contained only two (2) out of four main topics that was necessary in the training of CCGMPs to be covered in order for them to learn how to perform their tasks.

Instead of the recommended training duration of at least six weeks theory and six weeks practical giving a total of twelve (12) weeks equivalent to 480 hours; some curricular documents included as low as less than a total of two weeks of training in Child growth monitoring, a gap in the duration of training. Contrary to the use of at least five different

methods of teaching recommended and prescribed by the NFNC curriculum for the trainers to apply: putting in mind that most of the trainees were older in age and that they were semi-literate, it was discovered that some curriculum documents recommended the application of different and fewer methods to be used by the trainers for CCGMPs'.

Another finding was that most of the curricular, except the National Food and Nutrition Commission (NFNC 2007) Training curriculum for Child Nutrition Promoters (CNP), also contained many other topics and skills that were covered during training that were unrelated to child growth monitoring. In addition, most categories of volunteers were trained using curricular that contained many other courses as a result, not so much emphasis or sometimes not enough time was allocated to growth monitoring lessons and activities especially for the practical aspect of learning. This similar finding was noted in another research where CHAs were trained in almost every health task that they were expected to perform to provide all forms of health care serving community members of all age groups. (Zulu et al., 2013).

It is mandatory that any curricular, apart from containing related major topics and sub-topics of any kind of training, the following important aspects needed to be clearly explained in the curriculum document;clearly stated skills and competencies that the CCGMPs were expected to acquire and perform after training, training implementation policies, guidelines and procedures, communication, responsibilities, accreditation for the CCGMPs' training and methods of monitoring and evaluation of training (Assessments, assignments, tests and exams) (Katowa-Mukwato and Banda, 2016). However, it was identified in this study through document review that these important aspects were lacking in almost all the curriculum documents that were reviewed, except for the CHA curriculum which had some aspects of tests and exams, which were prescribed and needed to be undertaken by the trainees throughout their training period.

It also noted that there was lack of updated and appropriate program implementation guidelines for CCGMPs and other volunteers from the Ministry of Health (MoH) apart from the implementation manual for CHW which was produced by in 1993, and was now outdated and somehow irrelevant to the current issues pertaining to child growth monitoring and promotion program. This is because protocols pertaining to child growth monitoring, care and mainly immunization schedules have been rigorously and frequently reviewed and updated,

without considering the review and update of training and implementation guidelines and policy documents

Key informants during Focus Group Discussions (FGD) confirmed the findings that different organisations were responsible for their training and just as they were trained using several different curricular, so did these organisations have different areas of emphasis during training hence they also graduated different cadres of CCGMPs. Results revealed that the main different cadres of CCGMPs trained included: Child Health Promoters were trained by Japan International Collaboration Agency (JICA), Child Nutrition Promoter by Care International while Community Health Workers, Traditional Birth Attendants and TB Treatment Supporters were trained by the government through the District Health Teams, and some Breast Feeding Promoters and nutritionists were trained by some Faith-Based Organisations namely the Catholic and Seventh-Day Churches (Monze Diocese and Chikankata). Participants of FGD confirmed that training was provided by many different organisations as one of them stated; *"We were trained by different organisations who conducted different programs; Nutrition promoters were trained by JICA, CHW by DHMT, TBA and HBC givers by the church and so many more. So our trainings were different in terms of content covered under GMP, methods used and most of all the duration varied from 2 to 6weeks or more of both theoretical and practical experience."* (1 P1)They also explained that, even though all these organisations used nurses from the health centres as trainers, the content that was taught was different as the trainers emphasised on what the training sponsors requested them to teach.

4.2.2 Cross-Sectional Survey

This was the major data collection method applied in this study design which included a total of n=400 CCGMPs as participants.

4.2.2.1 Distribution of Participants

Table 5 represents the socio-demographic attributes of the sampling distribution. Majority (77.5 %) of the respondents were female as expected since traditionally the women play a major role in taking care of children and not men. As a result more women volunteer to be CCGMPs. Age group of 40 years and above has the highest number of respondents 272 (68%), while age group of below 40 were 128 (32%). Most participants had attained an educational level of secondary school 291 (72.8%) this included very few with tertiary education while those that had gone through primary school or had never been to any formal

school were 109 (27.3). Majority, 337 (84.3%) were married while 63 (15.8%) were either single or widowed. All were Zambian and majority (71%)were self-employed, mostly managing their own small businesses of buying and selling as their source of income and the rest of the respondents 116 (29%) were employed as casual workers of which some were clerks at the government clinics.

Table 5: Social Demographic distribution of participants

Variable	**Category**	**n (%)**
Gender of participants	Male	90 (22.5)
	Female	310 (77.5)
Age of participants	Below 40 years	128 (32)
	Above 40 years	272 (68)
Religious denomination	Roman catholic	176 (44)
	Protestant & Pentecostal	224(56)
Education Level	Secondary & Tertiary	291 (72.8)
	Primary & Never been to school	109 (27.3)
Marital status	Single/Widowed/Divorced	63 (15.8)
	Married	337 (84.3)
Main source of income	Formally Employed	116 (29)
	Self Employed	284 (71)

Table 6 presents a larger majority (95.3%) that met the inclusion criteria and had undergone some formal training in different categories of Community-Based Health workers of which some were community-based child growth monitors and promoters (CCGMP). Majority (84.8%) were trained in programmes that were closely related to CCGMP Training, representing a significant number of the volunteers that provide the CCGMP services. These included those trained as Child Health Promoters (CHP) 166 (41.5%), the community health workers CHW 120 (30%), nutritionists 23 (5.8%) and traditional birth attendants 46 (11.5%). Minority (15.3%) were trained in other categories of programmes not so related to CCGMP but were providing the services and they included lay counselors 23 (5.8%) HIV testing and ARV adherence support, 19 (4.8%) were trained in other several categories such as TB treatment supporters, peer educators, income generators and malaria treatment supporters. These were however, also actively involved in CCGMP activities and were therefore

included in this research. A few respondents 17 (4.3%)acknowledged that they were trained after volunteering to work as CCGMPs and their training was informal mainly by fellow volunteers while working in the field.

Table 6: Training of CCGMPs

Variable	**Category**	**n (%)**
Trained in Community based child growth monitoring	Yes	381 (95.3)
	No	19 (4.8)
Category of training	CCGMP closely related Training	339 (84.8)
	Other Community-Based trainings	61 (15.3)
Organisations that trained CCGMPs	By Government through DHMTs	106 (26.5)
	NGO & Faith Based Organisations	294 (73.5)

NGOs that sponsored CCGMPs training

Figure 5 shows that majority (73.5%) were trained by different Non-Governmental Organisations (NGOs) and by faith-based mission hospitals 26 (6.5%), while 106 (26.5%) were trained by the government under their respective District Health Offices. Figure5 presents findings of data that were cross tabulated between the venue of data collection and the NGO that sponsored the training of CCGMPs. Jica took the lead in training the CCGMPs in the urban area of Kanyama (83.6%) and George (42%) compound in Lusaka. In the rural areas of Chipepo (25%) and Lusitu (22%), Mtendere Mission Hospital was the leading training organisation. This figure confirms the fact that almost all the CCGMPs are trained by eigther NGOs in the urban areas and by faith-based organisations in rural areas.

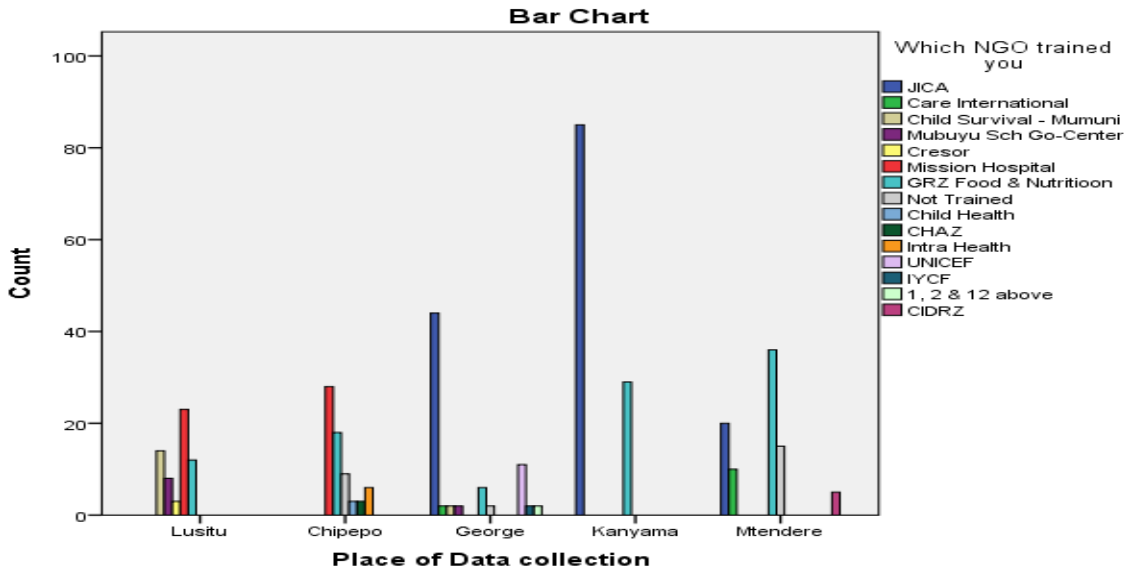


Figure 5: Organisations sponsored training of CCGMPs by site

4.2.2.2 Curriculum content covered by topic

Table 7 shows responses to the likert scale that was used to measure the major topics that must be covered during CCGMP training. Majority (63.8%) of respondents indicated that they had covered enough of the topic Growth Monitoring, by scoring more than 70%. However, 144 (36%) showed having covered less than 70% of content on this topic and so were rated as not having covered enough content on this topic. Similarly on the topic Interpreting growth indicators, about half 202 (50.5%)indicated that they covered more than 70% of topic and the remaining half 198 (49.5%) did not cover enough content on the topic, by scoring less than 70% which was rated as having covered inadequate content.

A different trend of responses was noted on the topic; Nutrition counseling as onlya few, 127 (31.8%) indicated having covered more than 70% of this topic while the majority, 282 (68%) responded not having covered enough content on this topic, less than 70%.This trend also applies to the content taught on the topic; Handling a sick child which continued to indicate a reduction in the content covered were only 75 (18.8%) indicated that they covered more than 70% and majority, 325 (81.3%) had not covered enough, less than 70%. which is content coverage. This could have been the reason that later in this study, generally the CCGMPs were performing poorly in the two areas of counseling mothers of children with nutrition problems and on referring children that needed to be referred.

Table 7: Topics covered during CCGMPs training

Topic	Covered content	n (%)
Growth Monitoring	>70%	255 (63.8)
	<70%	144 (36%)
Interpreting growth indicators	>70%	202 (50.5)
	<70%	198 (49.5)
Nutrition Counselling	>70%	127 (31.8)
	<70%	272 (68)
Handling a sick child	>70%	75 (18.8)
	<70%	325 (81.3)

Most key informants during FGD, confirmed that they were trained in the following major topics from the curriculum content: Weighing the children so that they can be able to monitor if weight is increasing or decreasing, determining vaccines to give at different intervals and if child needs to be vaccinated at this visit or not. If child is due for vaccination, then the child is referred to the nurse or to the health centre for vaccination. Sometimes the CCGMP had to escort the mother and child to the health centre and how to provide Nutrition Counselling, referral of a sick child and tallying. The duties they perform were more than the lessons that they learn for example they had not learnt how to deal with children who were HIV exposed from their HIV positive mothers and they also feel the need for more lessons in nutrition counseling. As was expressed one key informant during FDG *"We are now faced with this challenge of children who are exposed to HIV positive mothers; we have not learnt how to handle them or how to refer them. We also need to train more on how to educate the mothers on good nutrition for the children especially for children who are malnourished."* (4 P2)

4.2.2.3 Duration of training

Table 8 presents the duration of training for the CCGMPs. About half of the participants (48.8%) had been trained more than ten (10) years before the time undertaking of this study, while the other half (51.3%)had been trained less than ten (10) years before this study was conducted. Duration of CCGMPs' theoretical training varied from six (6) months to not having been formally trained though they acquired some on-the-job practical training as they volunteered to work. For theoretical training only 127 (31.8%) had trained for an adequate

duration theoretically for six (6) weeks and above, while majority (68.3%) had trained for less than six (6) weeks which is inadequate duration for the CCGMPs' training, according to the National Food and Nutrition Commission (NFNC 2000) curriculum which was used in this study, as the universe of analysis to evaluatetraining. Only about 112 (28.0%) trained for a period of 6 weeks, followed by those who trained for 1 week 82 (20.5%) and two weeks 80 (20.0%) respectively. Worse still, 73 (18.3%) trained theoretically for only two weeks, while 17 (4.3%) were trained for only 1 to 3 days.

Duration of practical training ranged from 3 months to never being allocated time for practical training. Very few participants 46 (11.5%) had trained in the practical area for six (6) weeks or more and the majority of the respondents 352 (88%) had practical training for less than 6 weeks. Of these, 149 (37.3%)had practical training for less than a week and almost the same number 142 (35.5%) had practical training for a period of only a week. Thirty seven 37 (9.3%) responded that their practical training was only two weeks, followed by 36 (9.0%) whose practical training was for four weeks. Those not formally allocated time for practical training were 26 (6.5%).

Table 8: Duration of training for CCGMPs

Variable	**Category**	**n (%)**
Duration of being trained	For 10yrs and above	196 (48.8)
	For less than 10yrs	205 (51.3)
Duration of theoretical training	Duration Adequately Trained > 6 weeks	127 (31.8)
	Duration Not Adequately Trained < 6 weeks	273 (68.3)
Duration of practical experience	Duration Adequately Trained > 6 weeks	46 (11.5)
	Duration Not Adequately Trained < 6 weeks	352 (88)

Similarly, most key informants during FDGs expressed the fact that their training duration was not enough particularly the practical experience.

One key informant expressed;*"We are taught most of these topics in class but we are not trained the practical aspect. We learn these skills on our own as we work with our friends. The trainers do not follow us up in the practical sites to ensure that we are learning the skills*

correctly."(P3). Most of the skills were learnt during GMP sessions and orientation session before the child health week.

4.2.2.4 Methods used in training

Table 9 presents responses of a mixture of methods used during CCGMPs training and only about half, 215 (53.8%) indicated that the following methods were used; classroom lecturing/teaching, demonstrations, slide shows, role plays, reading, group discussions, written exercises and received individual feedback. The rest 185 (46.3%) indicated that not enough methods were used to train them but only lecturing and discussion methods were used.

Table 9 Adequacy of Methods used in training

Variable	Category	n (%)
Adequacy of methods used during training	Adequate methods used during training	215 (53.8)
	Inadequate methods used during training	185 (46.3)

During FGD, key informants explained that different methods of teaching were used during their training and that the methods were interesting and enjoyable, though they confirmed that very short time spent in practical sessions. The following methods were mentioned as used during training: Use of flip charts to write on as the trainers were teaching, role plays e.g. some were asked to weigh the dolls to practice the skill of weighing, watching video clips e.g. danger signs of children when sick were shown, drama was performed through role plays and dances depicting GMP sessions. Some composed songs to be reminded of what they were learning e.g. on the immunisation schedule. Group work was also done and smaller groups were formed to discuss different topic which they later presented to the larger group on plenary

4.2.2.5 Relationship between adequacy of curriculum content and training duration

Table 10 indicates that there is statistically significant relationship between curriculum content covered and duration of time spent to cover the content. The chi-square test showed a statistical significance of P-value 0.015, continuity correlation of significance 0.027,

likelihood ratio of 0.02 and linear-by-linear association of significance 0.015. This shows that there is a close relationship between spending adequate time for training in order to be able to cover enough curriculum content so as to adequately train the CCGMP. It was necessary to present and highlight this result as inadequate training duration seems to be the major cause for inadequate training since most organisations that provided CCGMPs' training, did so in a very short period of time.

Table 10: Curriculum Content Covered compared with Training Duration

		Training Duration		Total
		Inadequate >6weeks	Adequate <6weeks	
Curriculum Content	Inadequate >70%	277	15	292
	Adequate <70%	95	13	108
Total		372	28	400

Table 11 presents a summary of participants' variety of suggestions and recommendations to the government through the Ministry of Health (MOH), a good number of them 248 (62%) suggested that the government (GRZ) should pay them a some allowances regularly, provide basic supplies, transport in form of either bicycles or money to facilitate work and protective clothing uniform, T shirts, aprons, umbrellas, gumboots and infrastructure. The rest 151 (37.8%) made a list of suggestions that the government should conduct more training and refresher courses, provide drugs for use by CCGMPs, consider awards to long working CCGMPs or consider their children for employment whenever opportunity arises.As they expressed that there training was in adequate, key informants during FDGs echoed the need to conduct regular and frequent refresher courses and orientation especially when new guidelines have been developed.

Table 11: Summary of CCGMPs' recommendations

Recommendations			
	Frequency	Per cent	Cumulative Per cent
GRZ Pay & provide supplies + protective clothing	248	62.0	62.2
More training + other	152	37.8	100.0
Total	400	100	

Table 12 shows that there was no association between adequate training and all of the demographic characteristics of the participants including; age, educational level, marital status, organisation that trained and source of income of the CCGMPs. It is not surprising that there is an association of statistical significance of odds ratio (0.1, 1.5OR) between the adequacy of training and organisation that trained the CCGMP. Evidence showed that NGOs and Faith-Based organisations trained the CCGNPs more adequately than the government through the DHMTs probably due to the fact that the later trained them for many more other roles and tasks while the earlier organisations specified their training more on the GMP roles, and also spent more time to train them. Surprisingly, this trend of statistical significance was similar between adequacy of training and source of income of the CCGMPs. Self-employed CCGMPs were more adequately trained than the formally employed CCGMPs at an OR 0.1, 2.1.

Table 12: Demographic variables compared with training adequacy

Variable		Proportions	Adjusted Odds Ratio (aOR) (95% CI)
Place of data collection	Urban	68%	2.01; 95%CI (0.6, 6.6)
	Rural	32%	
Age range	≤40yrs	34%	1.10; 95% CI (0.3, 4.2)
	>40yrs	68%	
Educational Level	Secondary	73%	3.20; 95%CI (1.0, 10.1)
	Primary	27%	
Marital Status	Married	84%	1.23; 95%CI (0.2, 6.1)
	Single	16%	
Source of Income	Self-Employment	71%	0.50; 95%CI (0.1, 2.1)
	Formal Employment	29%	
Org. which Trained	NGO/FBO	73%	0.50; 95%CI (0.1, 1.5)
	Gov. DHMT	27%	
Trained as	No GMP content	15%	0.20; 95%CI (0.0, 0.9
	GMP content	85%	

4.3 Knowledge Levels

Knowledge of CCGMPs was presumed to be mainly attained during their training and it was the major determinant of the practice of CCGMPs during service delivery. Data on knowledge levels were collected and measured on a likert scale according to how much coverage of major topics from the curriculum during training of CCGMPs.

Table 13 presents summary of results on data computation on knowledge level of CCGMPs. Different determinants of knowledge were measured according to major topics covered during the CCGMPs' training and data was analysed then compiled. Results of data analysis of all variables that measured CCGMPs' knowledge levels after compilation revealed that, only 22.5% were knowledgeable while majority (77.5%) were not knowledgeable. Variables measured were on the topics that were covered during training. Results on knowledge levels in this study were reported according to topics that were covered. A good number of participants 339 (84.8%) defined CCGMP correctly but 61 (15.3%) defined the concept wrongly and 382 (95.5%) knew the color of under 5 card according to gender of the baby yet it's surprising that still, 18 (4.5%), had no knowledge of this basic but important aspect with regard to child growth monitoring. A negative finding of a large number of CCGMPs301 (75.2%) did not know how to correctly check the scale before weighing the child, and actually wrongly explained how to check the scale while only, 99 (24.8%) explained correctly how to check the scale before weighing the children. Only 141 (35.3%) respondents knew how to correctly record weight on the under 5 card, while majority 259 (64.7%) wrongly recorded the babies' weight on the card. Majority, 299 (74.8%) described how to correctly weigh an older child and the rest 101 (25.3%) were unable to explain the correct procedure on how to weigh an order child. It is still surprising that even though 358(89.5%) knew how to prepare a child for weighing especially in cold weather, 42 (10.6%), still did not know how to correctly prepared a child for weighing, an important pre-requisite prior to weighing a child. On the other hand, a positive finding was that majority 333 (83.3%) had Knowledge of the reason for weighing the under 5 child while only67 (16.7%) were not knowledgeable. In addition to this finding, it was encouraging that most 278 (69.5%) of the respondents knew how to interpret the curve of the road-to-health though 122(30.5) could not correctly interpret this important curve.

Table 13: Knowledge levels of CCGMPs

Variable	**Category**	**n (%)**
Knowledge Levels	Knowledgeable	90 (22.5)
	Not Knowledgeable	310 (77.5)

On nutritional advice to be given to a mother of a child with growth faltering, majority, 314 (78.5%) gave the correct advice and only 86 (21.5%) gave the wrong advice. Almost all, 397 (99.3%) knew the interval of conducting growth monitoring sessions on each baby that its monthly and only 3 (0.8%) did not know the interval. On the knowledge of the interval for immunisation schedule, a question on one of the commonest administered vaccine of Diphtheria, Pertussis and Tetanus (DPT) was sampled and results disappointingly indicated that the largest number of respondents, 245 (61.2%) did not know the age and interval at which the vaccine DPT was to be given to the babies, though at least 155 (38.8%) were knowledgeable. On the knowledge of the importance of information on the under 5 card findings were surprisingly different as majority 261 (65.3%) were knowledgeable and only139 (34.7%) were not knowledgeable. On the use of the under-five that bit is very important in the life of the baby, 265 (66.3%) were knowledgeable, 110 (27.5%) were partly knowledgeable and 25 (6.3%) had no knowledge.

Table 14 shows results of logistic regression indicating no association of statistical significance between almost all the social demographic variable; age, educational level, source of income and knowledge levels of the CCGMPs. It was however, not surprising that there was a statistical relationship between the level of knowledge and the CCGMPs trained intopics that covered more growth monitoring (GM) content and so these CCGMPs were more knowledgeable in GMP than those trained in less topics on the GMP content of SD 0.2 at 95% CI, OR 0.0, 0.5.

Table 14: Determinants of CCGMPs' knowledge level

Variable		Proportions	Adjusted Odds Ratio (aOR) (95% CI)
Age range	<40yrs	(34%)	2.1; 95% CI (1.1, 3.8)
	>40yrs	(68%)	
Educational Level	Secondary	(73%)	1.6; 95% CI (1.0, 2.8)
	Primary	(27%)	
Marital Status	Single	(16%)	0.9; 95% CI (0.5, 1.7)
	Married	(84%)	
Org. which Trained	Govt DHMT	(27%)	1.4; 95% CI (0.8, 2.5)
	NGO/FBO	(73%)	
Source of Income	Self Emplo	(71%)	1.8; 95% CI (1.0, 3.1)
	Forma Emplo	(29%)	
Curriculum Content	No GM content	(15%)	0.2; 95% CI (0.01, 0.5)
	GMP content	(85%)	

4.4 CCGMPs' Practice

The practice of CCGMPs was presumed to be mainly determined by the knowledge that they acquired from the training that they underwent as well as that which they attained both during and after training.

Table 15 presents some determinants of practice that affected the performance of CCGMPS. Majority of the respondents (60.5%) had been working for less than 10 years and158 (39.5%) had worked for less than 10 years as CCGMPs. CCGMPs working at different catchment areas indicated that majority (79%) had less than 10 while 186 (46.5%) indicated that most of the times during Growth monitoring sessions there were less than 5 CCGMPs available to carry out the work at the GMP session. This means that there was a critical shortage of these volunteers that provide basic health care services in the communities.

Table 15: GMP sessions practice of CCGMP

Variable	Category	n (%)
Place of data collection	Lusitu	10 (20.0)
	Chipepo	10 (20.0)
	George	10 (20.0)
	Kanyama	10 (20.0)
	Mtendere	10 (20.0)
Preparation of Equipment before session	Prepares adequately	37 (74.0)
	Inadequate preparation	13 (26.0)
Hanging of weighing scale	Weighing scale well hanged at eye level	34 (68.0)
	Weighing scale unsafely hanged, poor view not at eye level	16 (32.0)
Tested Weigh scale correctly before session	Tested scale correctly before and at intervals during session	33 (66)
	Wrongly tested or did not test weighing scale before session	17 (34)
Weighs Babies correctly	Weighs Babies correctly	21 (42)
	Unable to weigh Babies correctly	29 (58)
Records weight correctly	Plots and draws graph correctly	2 (4)
	Wrongly records weight	48 (96)
Appropriately provides Nutritional counselling	Appropriately provides Nutritional counselling	22 (44)
	Provides inappropriate or no Nutritional counselling	28 (56)
Health Education to targeted groups	Provides HE to targeted groups before GMP session	43 (86)
	Do not provide HE to targeted groups before GMP session	7 (14)

When asked how often GMP sessions were conducted in the area, most respondents 360 (90.0%) answered that they were carried out on a monthly basis while, 40 (10.0%) at newly established points said that they were conducted once in a while. Most (44.0%) responded that the only other service offered apart from weighing children at the GMP is general Health Education, and only 152 (38.0%) included that other several services were offered including; Nutrition counselling, vaccinations and referral for further management of sick baby then sixty eight 68 (17.0%) respondents included these other services; VCT, post natal care to neonate and mother, treatment of minor elements as being offered during GMP sessions.

Many CCGMPs (65.8%) indicated that weighing scale were not readily available, while only 137 (34.3%) indicated that they were available though they had to share one scale between 4 to 8 GMP point, had to walk for several kilometers to collect them from nearest Health Center and were usually in poor condition especially the weighing bags and 24 (6.0%) and that especially standing scales were a major challenge.

Regarding work load of the CCGMP, the scenario is not different from the professional health workers. The number of children that were attended to at GMP sessions, majority (68%) estimated that they attended to more than 200 sometimes up to more than 500 children at GMP sessions, while only 128 (32%) estimated that they attended to less than 200 children at GMP. Due to these overwhelming numbers of children who come for GMP sessions, most of the times CCGMPs had challenges to cope and so some children were sent back home unattended, meaning that children did get lost out to follow up, posing a danger of vaccines not being given at the stipulated time, eventually leading to vaccine failure in children.

It is however encouraging that majority (84%) reported that they continually receive technical support of health workers from nearby health centre mainly during GMP session while only 64 (16%) reported that the health workers were unable to come to the GMP sessions due to shortage at clinic. Almost all respondents (99.5%) indicated that they liked and needed professional health worker supervision as they conducted their work and most (97.5%) agreed that the CCGMP program was helpful and useful to the entire community, though 10 (20.5%) indicated that it was not. Asked how helpful and useful the CCGMP is 138 (34.5%) noted that it reduces distance and serves time for mothers to attend to other chaos since the sessions are conducted nearer to their residential areas than at the health centres, 134 (33.5%) expressed that it was helpful as it reduced congestion at clinic and makes work easier and improves coverage of children to be monitored and improves health of children.

Only 81 (20.3%) of the respondents to this study, indicated being remunerated and/or motivated for the work they did while majority 319 (79.8%) said that they were not remunerated or motivated at all. Asked how they were motivated, 285 (71.3) indicated not being motivated at all, 77 (19.3%) indicated that they were paid a small allowance by government once per year only during Child health week. A few respondents 31 (7.8%) explained that they made an agreement with their community leaders to charge mothers as they bring their children for the GMP session a small fee of K1, while 4 (1.0%) indicated

having been given T-shirts once in a while and only 3 (0.8%) mentioned being motivated by workshops and refresher courses once in a while.

4.5a: Mothers' Satisfaction

Table 16 presents results of Uninterrupted Direct Observation (UDO) conducted as the CCGMPs deliberated their services to the children during the GMP sessions and 10 randomly selected volunteers from each site were observed by the researchers giving a total sample size of n=50. Majority (74.0%) of the CCGMPs that were observed prepared the necessary equipment well before the GMP sessions started while 13 (26.0%) did not prepare before the GMP session and so they kept on looking for some equipment during the sessions. Most of these did not have either a properly working scale and the weighing bag was not there so they had to improvise by using the *chitenge*[1] from the mothers. The weighing scale was well hanged at eye level by 34 (68.0%) of the observed CCGMPs and 16 (32.0%) hanged the weighing scale unsafely with poor view as it was not at eye level. Most of the CCGMPs 33 (66%) tested the weighing scale correctly only before the GMP session and 17 (34%) wrongly or did not test the weighing scale before or during the GMP sessions.

Majority (58%) attempted to weigh babies correctly but most were lacking weighing bags so they had to improvise with a *chitenge*[1] to use as the weighing bag in order to perform this duty. As a result they were not accurate in their weighing procedure. The rest of the group 21 (42%) were able to correctly weigh the babies. However, almost all of the CCGMPs 48 (96%) were observed wrongly recording the weight and only 2 (4%) were observed to plot and draw graph of road-to-health correctly in the children's cards. A large number of CCGMPs 21 (42%) were observed telling the mothers the baby's weight after weighing then the mother informs another CCGMP to record the weight in the card, some 14 (28%) both plotted and wrote weights on the graphs in the card. As many as 13 (26%) only wrote the actual weights and did not draw the road to health graph in the cards.

It was also observed that less than half (44%), appropriately provided nutritional counselling to the mothers and the rest 28 (56%) either provided inappropriate nutritional counselling 18 (36%) while 10 (20%) did not provide any nutritional counselling. It was encouraging to observe that 43 (86%) provided general health education to targeted groups before GMP sessions and only 7 (14%) did not provide any health education.

[1] piece of wrapping cloth around the baby

Table 16: Directly observed practical skills of CCGMPs' at GMP sessions

Variable	Category	n (%)
Duration of being a CCGMP	For > 10 years	158 (39.5)
	For < 10 years	242 (60.5)
Number of CCGMPs in their area	More than 10	84 (21.1)
	Less than 10	316 (79)
Availability of weighing scale and bag at GMP	Scales available	137 (34.3)
	Scales not available	263 (65.8)
Number of children at every GMP session	> 200 up to 500 Children per GMP	272 (68)
	< 200 children per GMP	128 (32)
Technical support by health workers	Supported at every weighing session by HW, mainly for vaccinations	336 (84)
	Do not receive technical support from HW	64 (16)
Motivated/remunerated	Yes	81 (20.3)
	No	319 (79.8)

4.5b: Uninterrupted Direct Observation (UDO)

Table 17 presents more findings of the conducted Uninterrupted Direct Observation. Majority of the CCGMPs (72%)were observedcorrectly referring children for EPI protocol for vaccination to the health workers, meaning that they knew when the vaccines were due for the children. However, 14 (28%) wrongly referred the children for vaccinations. Most (78%) of the CCGMPs correctly administeredVitamin A according to EPI protocol, while 11 (22%) were not observed giving Vitamin A as it was not available. Similarly, almost all 46 (92%) were observed deworming the children according to EPI protocol and only 4 (8%) were not observed doing this activity due to unavailability of (Vermox) the deworming tablets. Even though counselling & referring of HIV exposed children was fairly a new concept to the CCGMPs, majority 42 (84%) were observed appropriately counselling & referring HIV exposed children while only 8 (16%) did not do so. Half 25 (50%) of the CCGMPs were observed appropriately counselling and referring HIV+ children, while half 25 (50%) did not do so. Most (80%) were observed correctly entering data on tally sheets and 10 (20%) could

not enter data on tally sheets. Similarly, 39 (78%) were able to collect, compile data and report findings to Health Workers at clinic while 11 (22) could not do so at the end of the GMP session.

Table 17: Observed skills

Variable	Category	n (%)
Referral for EPI protocol vaccination	Correctly refers children for EPI protocol vaccination	36 (72)
	Wrongly refers children for EPI vaccination protocol	14 (28)
Giving Vit A	Give Vit A according to EPI protocol	39 (78)
	Gives Vit A but sometimes it's not available	11 (22)
Deworms children according to EPI protocol	Deworms children according to EPI protocol	46 (92)
	Deworms when tablets are available	4 (8)
Counselling & referring of HIV exposed children	Appropriately counsels & refers HIV exposed children	42 (84)
	HIV+ babies not identified or referred	8 (16)
Counselling and referring HIV+ babies	Appropriately counsels and refers HIV+ children	25 (50)
	Cannot identify or refer HIV+ babies	25 (50)
Entering data on tally sheet	Correctly enters data on tally sheets	40 (80)
	Cannot enter data on tally sheets	10 (20)
Collects, compiles and reports data to Health workers	Collects, compiles data and reports to Health Workers at clinic	39 (78)
	Do not compile data for Health Workers	11 (22)

4.5b: Comparing Weighing & Recording baby's weight

Table 18 presents cross-tabulated data on how competent the CCGMPs were in weighing the children and how they recorded the weights. Only 2 (4%) were observed weighing the babies, plotted and drew the graph correctly, while 7 (14%) plotted and wrote actual weights in the U5 cards without drawing the road-to-health graph. These were also observed attempting to weigh the babies correctly but had no weighing bags to perform the procedure, so they improvised with a *chitenge*[1]. Surprisingly as indicated in table 5.1c, the P-value for cross

tabulation of these two variables, using the chi-square test was 0.351, indicating that in this study, there was no statistically significant relationship between the two skill of the CCGMPs of weighing techniques and recording the weights on the under 5 cards. Resultson overall competencies from observation of CCGMPs' as they performed their duties indicate that, only 4% displayed the required competencies, while majority (96%) were lacking the necessary competencies.

Table 18: Skills on weighing compared with recording children's weights

		Recording of weight on the U5 card		Total
		Records Correctly	Incorrect Recording	
Weighing of babies	Weighed Correctly	2	19	21
	Incorrectly Weighed	0	29	29
Total		2 (4%)	48 (96%)	50

4.5 Mothers' Satisfaction

At each of the five (5) sites of data collection selected for this study namely, Lusitu, Chipepo, George, Kanyama and Mtendere; one-on-one exit interviews were conducted with 10 (20%) mothers making a total sample size of n=50 women respondents, in order to determine if they were satisfied with the services that they received from CCGMPs or not.

Table 19 presents results of determinants of mothers' satisfaction with the services being provided by the CCGMPs from the one-to-one exit interviews that were conducted. The first part of the table shows the social demographic attributes of mothers who participated in the in-depth interview. Most of the mothers (66%) were within the age group of 20 – 30 years old and the17 (34%) were above 30 years old. A large number of these mothers 30 (60%) belonged to the religion of Protestants and Pentecostals while20 (40%) were Catholics. All the women who participated in this study had been to school though none of them went for

tertiary education. The Highest level of education attained and majority of them were those who went up to secondary school 36 (72%) and those that went only up to primary school were 14 (28%). Almost all of these women were married 48 (96.0%), while only 2 (4.0%) were widowed. Majority of the women 46 (92%) depended on their husband for their livelihood and to provide for the home, while only 4(8%) were selling some vegetables in order to be able to provide for them and their children's basic needs. During interviews the interviewer checked on a list of services that mothers indicated to be satisfied with. Later similar services that the mothers were satisfied with were grouped into themes, coded using N-VIVO statistical package and thematic analysis was conducted. Responses indicated that majority (64%) were not satisfied with 80% of the services provided by CCGMPs, while only 18 (36.0%) rated the services as very satisfactory (above 80%). One mother expressed herself that: "*We are not happy with most of the services provided by the community volunteers. They are usually in a hurry to just finish the queue so that they can go back to doing their own work. Sometimes they don't finish the queue as we mothers are too many. As a result, our children sometimes miss out on the vaccines, since they are the ones who refer our children to the qualified nurses for immunisations."* (M1)

Table 19: Satisfaction (Contentment) of mothers with CCGMPs' services

Variable	Category	n (%)
Age of mothers	> 30 years old	17 (34)
	20 – 30 years old	33 (66)
Religious denomination	Roman catholic	20 (40)
	Protestant & Pentecostal	30 (60)
Highest level of education	Secondary	36 (72)
	Primary	14 (28)
Marital status	Married	48 (96)
	Widowed	2 (4)
Satisfaction of mother with services provided by CCGPM	Very satisfied (80-100%)	18 (36)
	Somehow satisfied/Not sure	32 (64)

4.6.1Focus Group Discussions Findings

This phenomenological part of the research focused on investigating CCGMPs' daily life experiences during training and as they provided services. A meaning oriented approach was undertaken which included discovering, analysing, clarifying and seeking patterns of their training and practice.The *'framework method'* of thematic qualitative data analysis was appliedand findings represent reported statements of respondents' perceptions, feelings and work experiences that are paramount and answer most objectives of the study. These findings are hereby presented under themes after grouping similar responses**:**

4.6.2 Perceptions and Experiences of CCGMPs

Table 20 indicate key statements from respondents during FGD**.** Responses show that **t**raining was provided by many different organisations as confirmed by several participants. Many also indicated that several teaching methods were used during their training similar to findings indicated in the cross sectional survey. Teaching methods that were mentioned included: Use of flip charts to write on as the presenters were presenting, Role plays eg: they were asked to weigh the dolls to practice the skill of weighing, Watching video clips eg: danger signs of children when sick were shown, Drama: participants were asked to perform Plays and dances depicting GMPs. Songs were composed in order to remind them of what they have learnt eg: the Vaccination schedule, Group work was done: groups were formed and asked to discuss certain topic which they later presented to the larger group on plenary.

Table 20: Key Statements from respondents

Theme	**Sub-Theme**	**Resp. code**	**Respondents' Statements**
Training inadequacies (Competency)	Initial Training (Both theory and practical)	1: P1	*"We were trained by different organisations who conducted different programs; Nutrition promoters were trained by JICA, CHW by DHMT, TBA and HBC givers by the church and so many more. So our trainings were different in terms of content covered under GMP, methods used and most of all the duration varied from 2 to 6weeks or more of both theoretical and practical experience."*
		3: P6	
	In-Service	4: P2	*"Some of us were trained within a very short period of time as a result we did not learn most of the things during training. We learnt to perform most of the tasks as we provided services to the*

	training (Mainly practical)		*children."*
		2: P8	*"We are now faced with this challenge of children who are exposed to HIV positive mothers; we have not learnt how to handle them or how to refer them. We also need to train more on how to educate the mothers on good nutrition for the children especially for children who are malnourished."*
			"I was neither trained nor supervised by nurses during practical training. And ever since I was trained 7 years ago by JICA and since they have gone, I've never been called for any refresher course"
Challenges of practice (Context)	Lack of Government recognition	1: P5	*"We feel that we do not belong to any Ministry and yet we contribute a lot to the Ministry of Health, as we work extremely hard to provide different health care services in our communities, we also tally all the GMP activities and provide most of the information that the health workers at the clinic use to write their reports. Without us working in the communities and submitting the information they cannot write reports to higher offices, and yet our work is never recognised let alone acknowledged."*
		5: P9	*"Some qualified health workers really demoralise us. They say that after all we are not recognised by the government and are just volunteers, not on government pay role, therefore we should not claim or complain about anything like conditions of service etc…"*
		2: P2	*"We are not answerable to anybody and so whether we work or not, or even when we stop to work as some of our colleagues have done, nobody seems to care as no one asks us or even follows us up once we drop out. The needs in the community are what drives the few of us who continue to work hard for the children so they can grow up healthy and better citizens of our country"*
	Lack of logistics	1: P4	*"There is no transport what so ever, we carry the entire requirements for conducting GMP sessions in our hands and walk to and from the health centres to collect as well as take back; scales, tally sheets, Vitamin A and deworming tablets since they are in short supplies and other zones have to use them as well. If a child gets very sick we escort the mother with the child on foot to the clinic."*
		4: P9	*We are never provided with any stationery, no*

		referral forms, pens to write with, papers to record important things, sometimes there are no registers, no tally sheets not even the under-5 cards let alone medical surgical supplies like vaccines, gloves, thermometers… Even scales are not enough so sometimes we are forced to cancel the GMP sessions at the expense of the children whose growth needs to be monitored and they need to be immunised."
No protective clothing or identification	3: P1	
	5: P1	*"We have to on our own look for protective clothing or even beg from nurses for an old apron. Once we see a faded apron on a nurse, we follow her and beg that she may kindly give us the finished apron so that we can use it as we work"*
Work Overload	2: P7	*"Sometimes we deal with well-to-do women who do not allow us to touch their children unless they see some sort of identification. An identity card will go a long way to help us be identified as CCGMPs."*
	4: P8	*"We are overwhelmed with the large number of children so that sometimes we cannot cope with the work. On very busy days, we even return some children back home unattended as there is too much to do since we conduct GMP only once per month in each area, regardless of the numbers of children"*
No remuneration	1: P3	*"Due to too much work, we do not have time to counsel mothers who come with children that have nutritional problems because we have to weigh all the children and sometime we have up to 300-400 children. We work all day from 7 to 16 hours on the day for GMP session, and yet the government does even recognise us."*
	4: P3	*"We spend the whole day working from 7 hours to 16 hours and are given nothing not even water or a drink. After that we go back home tired, hungry and with nothing at the end of the month."*
	5: P2	*"But surely even a volunteer needs to eat, bath and put on clean clothes, especially with the huge work load*

			that we have to perform. Sometimes the children are not securely dressed and we are splashed with urine or stool on our clothes. Our spouses even wonder when we get back home because we are usually so dirty, since we have no protective clothing."
			"Long ago, in the 1990s, some NGOs like JICA, had awarded hard working volunteers with bails of second hand clothes and that used to motivate us to continue doing our work,".
The plight of volunteers	Incentives or/and motivation	2: P4	*"Since the government has no money to pay us and we are considered to be volunteers, we request to please be exempted from Hospital user fees and queues especially when we or our children or dependents are sick and they need the services of a big Hospital like UTH. This would motivate us. Despite providing free services to others they we are not exempted from paying user fees and queuing at big hospitals."*
		5: P2	*"Even if we are not considered for a small salary or an allowance, probably just a bag of mealie-meal per month can be considered just so that we can supplement towards feeding our families since we spend so much time doing voluntary work."*
		4: P1	*"When there is a job opportunity that does not need any special qualification and we can perform very well due to our experience, we just get shock to see totally new, young and inexperienced people being employed. Sometimes we are even the ones who teach them what to do. But we are usually not considered even if we apply and so we remain volunteers forever."*

4.7 Challenges of practice

Several challenges were identified in this study and are hereby presented undersub-themes.

4.7.1 Lack of recognition by Government

Almost all the key informants expressed their disappointment that the MoH did not recognise them, let alone contribution of their work to the health sector. In fact the entire group of Community Health Workers (CHW) who are volunteers felt that the (MoH) did not recognise them as part of the team of health care workers. They indicated that no one was really responsible for them in terms of supervision or mentorship, though a few said that they report

to a nurse who is responsible for them called a "community-in-charge." However, generally as volunteers, they felt neglected that they did not belong to any ministry. They did not feel part of the MOH despite working so much on behalf the ministry. Some indicated that they had no supervisors and so they could work or stop to work whenever they felt like since they were not answerable to any supervisor.

4.7.2 Inadequate pre- and in-service training

Besides being inadequately trained initially, refresher courses were not being conducted for the CCGMPs as a result they relied on the inadequate information they could gather during their work and yet guidelines concerning child growth promotion keep on changing.

4.7.3 Lack of logistics

CCGMPs expressed that they had no permanent shelters in the community to work from so each time there was a GMP session they had to ask from some kind land owners for working space and then asked for furniture (mainly stools) to use when providing services. The community that they worked with was rather difficult and so they usually refused to offer their space for GMP activities. Lack of stationary for a long time was also reported and that only tally sheets were sometimes provided which usually ran short as well. There were no books for record keeping, no referral forms, not even plain papers to write referrals on. They also reported having no transport so they walked while carrying all the requirements to use to and from health centres. They also had to walk to and from the clinics with seriously ill patients who would be lucky if they borrowed a bicycle or wheel barrow, as they had no means of transporting them for referral to the clinics.

Almost all requirements were either in short supply or not available including: scales, tally sheets, Vitamin A and deworming tablets to use during the GMP sessions. Scales were also not readily available; one scale had to be shared throughout a zone amoung 5 to 10 GMP points and sessions per zone. There also no bags to put in the babies when weighing so the volunteers usually have to improvise with the mother's *Chitenge*[1] to weigh the babies. Other surgical and medical supplies needed are also never provided to the volunteers like, soap to wash hands, cotton wool swabs, gloves, instruments like receivers and all that is needed in the Home-Based care bag.

They were also not supplied with any protective clothing, not even an apron to protect their personal clothes as they worked with the children. They indicated that some NGO had in the past come to their aid and given them some T-shits, aprons and *chitenges*[1]. But those had long been torn, faded and so thrown away and were never replaced. During rainy season they faced the challenge of getting soaked and walking in mud, dirty water since they have no gumboots, raincoats or umbrellas and indeed no shelters to work from.

4.7.4 Work Overload

The ratio between the CCGMP and children that they look after is another over whelming reality. Each GMP session usually has less than five (5) volunteers to work with 300 to 500 children. These numbers may even double during child health week. However and whatever they do, they have to weigh and monitor the growth of each child as well as refer all those that are due for vaccination to the nurse or health worker. So they do the filtering of the children as well. Due to the overwhelming numbers of babies to work with, it has been impossible for CCGMPs to provide Nutrition counselling even if the volunteers notice babies that need this kind of service.

4.7.5 No remuneration

There was no remuneration, allowance or motivation for the volunteer to continue carrying on their work. No volunteer receives any award or reward, only sometimes do they receive words of appraisal from the nurses that they work with. At one health centre they said that they were given only K 4, while at another clinic they mentioned K20 per year, only during child health week. However not all receive this money, only a few volunteers get to receive it, and they are paid 6 to 7 months after the event. During child health week the work is usually more than 5 times the usual GMP sessions, they reported. Most of the CCGMPs from other clinics said that they were not paid any money at all, in fact they were given nothing and yet the work they did is so much.

4.8 The plight of volunteers to the government

Key respondents to the FGD felt that there was urgent need for their curricular to be harmonised. They felt that being trained by different organisations was acceptable but these should use the same syllabus. Most importantly, training organisations should not compromise either on time or on the curriculum content when training these CCGMPs.

Regular and timely refresher courses should be conducted for the CCGMPs. The volunteers are not asking for much. Respondent's suggestions, in order for them to be motivated were:
It was important to conduct regular and timely refresher courses as guidelines for the program are frequently reviewed and updated but the CCGMPs are not updated. They feel that the refresher courses are not very expensive so the cannot understand why the ministry does not invest in this building capacity venture, which can help to improve the volunteers' skills and quality of care.

The government should provide protective clothing, uniforms as well as identity cards. Volunteers feel that this is extremely important and urgent for them to continue performing their duties. Volunteers should be considering for employment if and when an opportunity occurs like when employing cleaners. The volunteers are not considered, even the young one instead strangers from outside their communities are being employed. This is demotivating and discouraging to the volunteers. They felt that they need to put on uniform or some form of identification and protection from cross infection. Lack of uniforms and/or identity cards also put them in an awkward situation as they were not identified in the community and therefore they were sometimes not trusted by the mothers. Some mothers tended to be suspicious as to who was handling their baby as the volunteers had no identification, to show that they had undergone training and were competent enough to carry out their tasks.

They expect respect from all the nurses who work with them. Some nurses were quoted to be arrogant saying; *"Volunteers are not recognised and are non-pensionable by the Ministry of Health"*5, P5. And yet the volunteers tally, collect lots of community data and indeed work so much on behalf of the nurses.

CHAPTER FIVE
DISCUSSION

5.1: Overview

The key finding is that upon evaluating the scope & context of training and implementation program for Community-Based Child Growth Monitors and Promoters (CCGMPs) in Zambia, their training was inadequate with the practical aspect suffering the most in terms of duration. Discussion of results is based on the six (6) objectives that were achieve by undertaking the study to; assess the scope, content and depth of CCGMPs' curriculum and training program, determine challenges and gaps affecting training and practice of CCGMPs, measure the level of knowledge acquired by CCGMPs with regard to the training that they received, examine CCGMPs' skills and competencies in implementing the GMP activities and services,explore perceptions and experiences of CCGMPs towards their training and implementation program and investigate satisfaction of mothers with services that they receive from CCGMPs.

5.2 Main Research findings

5.2.1 General Description of Study Population

The study population's social-demographic attributes were described in order to better understand the characteristics of participants as these may also have affected their training, acquisition of knowledge and practice. As expected traditionally more women tend to volunteer to be child and patient carers and so even in this sample majority 310 (77.5 %) of the respondents were female and the rest few were men as expected. This is an African tradition and similar findings were recorded in several studies including a study done in South Africa in which the study results indicated that volunteers that worked at GMP were mostly women (87% (Smuts et al., 2011).

Most of the training for CCGMPs was conducted by NGOs and Faith-based organisations and not by the government as expected. Findings presented of data that were cross tabulated between the venue of data collection and NGO that trained CCGMPs, showed that despite the government encouraging preventive health care services as compared to curative health care services, it has not reaaly committed itself to training community health workers who are the main providers of preventive health care, especially to children through GMP activities. This study's findings clearly show that the government has left it to other organisations to carry out this function of training CCGMPs with the leading training organisation being Mtendere

Mission Hospital, a faith-based organisationas was presented in finding of a study done in South Africa (Faber et al., 2009).

Our study illustrated a typical trend of the commonest sources of income in the Zambian community in urban and rural areas. In the rural areas of Lusitu and Chipepo the commonest source of income is small scale farming, while in the urban areas of Mtendere, Kanyama and George the commonest source of income is small own businesses of trading in different household commodities in order to earn a living. This study also provided the fact that Non-Governmental Organisations (NGOs) took the lead in training the CCGMPs as they trained half of the sample (51%), a finding which government should consider seriously and address urgently if it is to fulfill its commitment of improving child survival by providing more health promotion services for all the children through adequately trained community-based health care providers who are cost effective, so that they can be equipped with quality skills and competencies to be able perform their expected tasks.

5.2.2 Training

This study indicate strong evidence that the scope, content and depth of CCGMPs' curriculum "*context"* of their training program was inadequate both in the theoretical and practical areas. Theoretically the inadequacy was noted mainly in the curriculum content that was covered within a short duration of training period. The practical aspect suffered the most with serious inadequacy in duration of practical exposure. Some were never even allocated time or/and supervision to practice what they learnt theoretically so that they could not learn practical skills, let alone sharpen their competencies.

Main findings of this research indicated that the inadequacy in the training of the CCGMPs was both in its quantity of curriculum content that was theoretically taught and mainly in the quality of skills, competencies and attitudes that needed to be acquired in the practical experience. This was because of the fact that the CCGMPs' duration of training was significantly shortened, far from the recommended. This is in line with results of a study conducted in Africa and Asia that included child growth monitoring,which evaluated nine projects, governmentally and non-governmentally implemented, in which most of the settings had adequate infrastructure to support GM activities but training was incomplete due to limited time spent on training the community staff to perform the required tasks, leaving only a small proportion of them being able to adequately measure children's weight. Main findings

indicated that the quality of training of community health workers requires significant time, resources and efforts. (Mangasaryan et al., 2011).

Inadequate training for CCGMPs was likened to the application of several unstandardised curricular by different organisations used to train the various cadres of Community Health Workers (CHW) who were performing multiple tasks including and not only those related to GMP activities but many other health care provision services for all age groups of in the population community as well.

5.2.2.1 Scope, Content and Depth of CCGMPs' Curriculum and Training Program

Results of the study indicated inadequacies in the delivery of the curriculum content with serious reduction in the number and content of the topics that the CCGMPs covered during training against the recommended standard according to the National Food and Nutrition Commission (NFNC) Training curriculum for Child Nutrition Promoters (CNP) which was referred in this study as the universe of analysis out of the five (5) curricular documents that were reviewed. The inadequacy of training CCGMPs was due to reduced quantity of curriculum content that was theoretically taught and could have led to the poor quality of skills and competencies that they perform as observed in the UDO process. Their performance was far below the expected standard to be acquired in the practical experience, as also findings indicated that their duration of training was significantly shortened, far below the recommended. CCGMPs were expected to perform certain skills and competencies to a standard that should lead to the early prediction of any health problems in children.

Duration of CCGMPs' training both theoretical and practical was inadequate, with the practical experience suffering the most inadequacy. The CCGMPs were generally trained for a very short duration of time, implying that they covered less curriculum content even though trainers applied a variety of methods of training. Even though from the cross sectional survey, most CCGMPs indicated that most of the topics were covered during training, the extent to which these topics were covered was questionable due to the limited time spent on training. How much learning took place in this short period of time is questionable as confirmed in the FGD when most key informants explained that they learnt most of the skills after the short period of formal training as they provide services in the field.

Noted in this study, was the lack of consistency in training by different organisations, probably due to non-availability of guidelines or/and standard curriculum. Most organisations

decided to reduce on the number of GMP topics in order to reduce on the time and cost of training which was supposed to take place for a recommended minimum time of six weeks of theory and another six weeks of practical training. But most of the CCGMPs were trained formally for only two weeks or even less for theoretical learning and less than one week or none at all for practical experience. This cut down on the training time definitely compromised the delivery of the curriculum content and the learning of the CCGMPs. It was also noted that the government and its stakeholders were training the CCGMPs on too many other aspects of community health issues other than on GMP, thereby not emphasizing on child growth monitoring making the learning of the skills difficult and probable impossible for the learners of a low educational background to achieve the expected level of competencies, during training. The practical training for the CCGMPs was barely achieve as very little time or no time at all was allocated for this important aspect of training. It was however encouraging to note that those CCGMPs who were passionate about their duties managed to learn the skills while already working with the children in the community. Therefore, training of these main implementers of the Child Growth Monitoring Program the CCGMPs was adversely affected to being incomplete and inadequate. It is inevitable that in order to meet set goals and child survival targets, government and its stakeholders should ensure that the CCGMPs are adequately trained by ensuring the use of standard curricular during the training process and that the recommended duration should be adhered to, through clear and available guidelines which should be enforced by a well stipulated accreditation process.The authenticity of these findings is reassured by the application of triangulation to confirm that CCGMPs were inadequately trained. This was achieved by analysing data on training adequacy by grouping and measuring the variables into three main content areasincluding; curriculum content, training duration and trainingmethods and upon computation, results indicated that; only 13 (3.3%) of the participants were adequately trained while 383 (95.8%) were inadequately trained.

In applying another method of document review in the research process in which 4 main documents were reviewed, results revealed gaps in all the training curricular that were being used in the country. The only document that recommended adequately number of relevant topics to be covered and duration of time for theoretical and practical aspects of training for CCGMPs to acquire the necessary knowledge, skills and competencies was the National Food and Nutrition Commission (NFNC, 200). This curriculum document contained details of topics and sub topics under the following four (4) main topic themes including: Child Growth Monitoring, Interpreting growth indicators, Child Nutrition Counselling and

Handling of a sick child. The document further provided guidelines that the duration of training should be six (6) weeks theoretical training and six (6) weeks practical experience. It also provided guidelines that the trainers should use at least five different recommended methods of teaching as most of the trainees were older in age and that they were semi-literate and needed suitable methods for adult learning. For these reasons, a decision was arrived at that the curriculum from NFNC 2000for training Child Nutrition Promoters (CNP) be used in this study as the universe of analysis. After reviewing 5 selected documents, several gaps were identified in all the training curricular. However, even in the (NFNC 2000) document, the following important aspects of training guidelines were lacking; clearly stated skills and competencies that the CCGMPs were expected to acquire and perform after training, training implementation policies, guidelines and procedures, communication, responsibilities, accreditation for the CCGMPs' training and methods of Monitoring and Evaluation of training (Assignments, tests and exams), and program implementation guidelines by the Ministry of Health. Similar findings of lacking enough training practice and clear implementation guidelines were expressed in other documents as well (Bossert et al., 2003).The rest of the curricula and documents that were reviewed also contained many other topics that the volunteers were learning in details other than the ones to do with topics on child growth monitoring and did not therefore consider it as a priority (Council, 2002). This study confirmed that the more the curriculum content covered on GMP topics, the more the knowledge that was acquired by CCGMPs as there was a correlation of statistical significance of 0.058 between the curriculum content covered and the knowledge acquired by the CCGMPs, meaning that there was a relationship between the two variables. Important aspects were lacking from all the reviewed curricular documents, hence the recommended need for urgent standardization of the CCGMP curriculum.

These programs heavily rely on community health workers for the success of their implementation and so the contribution of children's health by this cadre of health workers in Zambia cannot continue to be ignored (Griffiths and Rosso, 2007). Given the fact that this level of health workers are vital to the provision of health care services to the children in Zambia, it is important that the designing, planning, training and implementation program of this category of HRH should have clear and feasible guidelines including monitoring and evaluating community-based child growth monitoring and promotion programs (CCGMPs) to avoid inefficiency and ensure that they achieve their intended goal; to improve and sustain child survival in the country.

Although training was inadequate in terms of both delivery of curriculum content and duration, enough variety of teaching methods were applied during most training and CCGMPs expressed that the training sessions were interesting and enjoyable, even though too little time was spent on practical sessions. Study shows that some trainings were well designed but the time for training was not enough, particularly the practical aspect, and so leading to inadequate acquisition of skills by the CCGMPs.

Although findings from the FGD indicated that a variety of methods were used during the training, the full benefits of the learners, learning from these methods was also questionable due to the limited time spent on training. Coupled with GM skills, most of these CCGMPs were also trained within the short period of time in other roles other than specifically for GMP skills. This multiple skills training undoubtedly contributed to jeopardised the learning of CCGMPS on GMP skills as they had competing attention and concentration. This finding is similar with findings of studies done in many developing countries in recent years, where programmes that have been established to deliver community-based child survival interventions (CSI)were often patchy, low quality, inequitable, and short-lived especially in terms of training as they tend to use minimally-trained community-based health workers (CHWs) (Mwangome et al., 2012). These programs are meant to be implemented in order to improve the cost-effectiveness of health care systems by reaching large numbers of previously underserved people (in this case children) and yet aimed at providing high-impact basic services at low cost, however in the process disadvantaging the population that they should serve (Berman et al., 1987). The existing health care system doesn't seem to be very inclusive especially of the training of community health workers and yet they contribute a lot in the delivery of health care services. This finding is similar to another study findings that stated that the renewed attention to community health workers is thus very welcome, but the scale-up of community health worker programmes runs a high risk of neglecting the necessary quality criteria if it is not aligned with broader health systems strengthening (Hermann et al., 2009).

5.2.3 Level of Knowledge (competency)

The above findings of inadequate training and poorly performed skills and competencies correlated with the general low knowledge level (77.5%) of the CCGMPs (Table 4.5a). This confirmed the fact that there was a deficit in CCGMPs' knowledge which could have resulted in them performing incompetent skills. Similarly, in the year 2009, the South African Health

Systems Trust implemented a community-based growth monitoring intervention project that fits into the Integrated Nutrition Programme focus areas and commissioned an evaluation of this project. Results of the project indicated that their nutrition knowledge varied withonly 46% of the project volunteers and 39% of the caregivers could correctly identify the growth curve of a healthy growing child and there was a high turnover of project volunteers (Lesiapeto, 2009).

Surprisingly, however despite generally having low knowledge level, most ofthe CCGMPs (70%) knew how to correctly interpret the curve of the road-to-health a finding which is significant for them to make correct decision on how to care for the child or to decide if the child needs referral for further management by more qualified health personnel. Encouraging, study findings were on how often GMP sessions were being conducted in which most(90%)correctly indicated that they were carried on a monthly basis in all areas. Furthermore, findings indicated that majority (83%) had knowledge of the correct reason for weighing the under 5 child. These are positive findings and probably indicators that the CCGMPs are providing good care for promoting and monitoring growth of children. Similar findings were highlighted that if careful attention is paid in applying basic principles underlying the promotion of healthy growth in children, as a preventive home based and community activity, that growth monitoring and promotion programs can play a vital role in assuring optimal health, nutrition and wellbeing of the children, even in the most deprived community(Hermann et al., 2009). Upon cross tabulating two variables were on how long ago the CCGMPs were trained and their knowledge levels onhow to correctly record weight on the Under-5card; of the 35% who were trained 10 to 20 years before this study was conducted, only 13% knew how to correctly record the children's weight on the under-5 card, and the Pearson Chi-Square's P-value was 0.00 meaning that the results were statistically significant, and that there was a relationship between these two variables. This finding means that the longer the CCGMPs performed their tasks, the more the knowledge and skill that they acquired was affirmed by UNICEF (Organization and UNICEF, 2008). CCGMPs were expected to know the importance of information on the under-5 card as well as keeping it safe and clean, so that they can educate parents that it is an important record not only for the healthy growth of the child but also for future legal use to obtain a birth certificate, to start school and for legal use when ever need arises (Jani et al., 2008), 65% were knowledgeable.
Despite findings indicating low knowledge levels, inadequacies in training, poor skill performance and incompetency, CCGMPs were still expected to perform all their GMP tasks including that of providing health education to the parents on the importance of ensuring that

the child grows well, gets all the necessary immunisations as well as providing good nutrition, and whenever need arises.

A worrying finding revealed in this study about the knowledge of CCGMPs was that almost half of the respondents (48%) did not know the age and interval at which the vaccine DPT should be given to the children. It is not only national but universal policy that every child must receive the vaccines according to WHO's recommendation of Expanded Program of Immunisation (EPI) (Pegurri et al., 2005). The main worry is that even though the CCGMPs were not allowed to give vaccinations, they were the ones who identified, decided and referred the children to professional health workers to receive various vaccines which were due. The implication of lacking knowledge on when and how to refer the children for vaccination, is that the CCGMPs were most likely wrongly or not referring children for immunisation, when the children were due since they did not know at what age and interval for giving the vaccines. Similarly this concern was stated in another study that lack of knowledge of the program implementers could be one of the major reasons that children were being missed in the EPI schedule and an explanation as to why we still have persistently high child morbidity and mortality rates that occur due to preventable diseases (Pegurri et al., 2005)

5.2.4 Skills and competencies (competency)

Most of the CCGMPs' practical skills were unsatisfactory probably because of the short duration of practicing during training as they did not formally learn most of the skills during training but most of them did so, on their own from colleagues at GMPs sessions and during orientation before child health week. It was observed that some simple skills were correctly practiced as shown that majority (74.0%)were skilled in the skills of preparation for the GMP sessions. Those that did not prepare well for their sessions were observed running around during the GMP sessions looking for equipment and this affected their skills performance and delivery of services. CCGMPs were also observed performing multiple skills during GMP sessions, and so had no time to spend on providing vital services to vulnerable children, like many of the mothers that needed nutritional counseling, were neglected. It was not surprising therefore that majority (64%) of the mothers who were recipients of the services expressed through the one-to-one exit interview that they were not satisfied with the services of the CCGMPs mainly doubting the quality of services. Similar findings of mothers perceiving GMP services as unsatisfactory were discussed in a qualitative study that was conducted in Cote D'ivoire (Coulibaly, 2002).

This study discovered that the weighing technique was wrongly performed as most of them hang the Salter balance at an appropriate height and read the weight when the child is still, but very few of them calibrate the balance before weighing or undress the child as much as possible, two steps that are critical for the quality of the data. The evaluation also showed the gaps regarding the information system, from the lack of CHWs notebooks to summarize the data at the community sector level. Similar finding in another study on the performance of the community health workers registration and classification of weight was very poor. Counseling was also found to be very weak. In general, the weight information in under-two years old if it is registered by CHWs it was not used to classify growth of the child, explain to the mother the situation found, provide counseling and make a commitment with her about what she has to do in this situation. (Curtale et al., 1995).

Upon comparing skills and competencies with the knowledge levels most CCGMPs were limited in recording weights correctly on the children's road-to-health cards as they were not correctly drawing the graphs. Most were also unable to correctly hang the scale when weighing the babies though most of them attempted to correctly conduct the weighing despite the lack of a weighing bag to put in the babies. This indicated a gap in their skill performance and competency, though surprisingly enough, when asked to interpret what the different graphs meant, they were able to correctly interpret them. These findings of gaps existing between the knowledge, skills and competency of CCGMPs, were in line with those of a study conducted on effectiveness of community health workers in the care of persons with diabetes, which indicated that the roles and duties of community health workers in diabetes care were varied, ranging from substantial involvement in patient care to providing instrumental assistance in education sessions taught by other health professionals(Norris et al., 2006). Similarly in Ethiopia, the knowledge and performance of community health workers were found very deficient(Curtale et al., 1995).

Directly observing skills and competencies of the CCGMPs weighing of babies and recording weights on the under-5 cards a crucial skill, revealed that only 2 (4%) correctly weighed the babies, plotted and drew the graph, amoung the ones which where deficient yet very important for growth monitoring. The weighing technique was also poor as some CCGMPs did not appropriate hang the salter balance scale at a height to be able to accurately read the weight when the child was calm. Very few of CCGMPs were calibrating the balance scale or even undressing the children as much as possible before weighing them. These steps are not

just necessary but critical for the accuracy of the reading and recording of the weight taken which determine further steps of child care. Nutritional counselling another vital activity of child growth monitoring was omitted or very poorly conducted. Correct recording of weight on the under 5 card is a key skill that the CCGMPs must perform accurately as this is not just a permanent record for the child to be used throughout their life, but also important to the child's growth promotion as an indication and guidance on immunisation schedule and any treatment when and/or as required. However, it is a source of worry as our study provides evidence that only 35%of respondents knew how to correctly record the child's weight on the under-5 card, while the rest wrongly recorded the babies' weight on the under-5 card.

Similarly in another study, both knowledge and performance of community health workerswere found to be very deficient(Organization and UNICEF, 2008), in which the performance of the community health workers in terms of registration and classification of weight was also very poor. Consequently, in the study by UNCEF, it was concluded that the weight information in under twos if recorded by CHWs was inaccurate and could not be used to classify growth of the child, or to explain to the mother using such records in providing nutritional counselling in order to help her make a commitment on what she has to do in the case of a child with growth faltering(Organization and UNICEF, 2008).

It was surprising but comforting that despite their low knowledge on the children's vaccination schedule, majority of the CCGMPs (72%) were observed correctly referring children for immunisation according to the EPI protocol to the health workers, meaning that somehow, they knew when the vaccines were due for the children. Most of the CCGMPs (78%) correctly gave Vitamin A according to EPI protocol and almost all (92%)were observed deworming the children according to EPI protocol. These findings were in line with findings discovered by the cross sectional survey of this same study which indicated that most CCGMPs had knowledge of the correct EPI protocol for child immunisation. It was even more gratifying to observe that even though counselling & referring of HIV exposed children was fairly a new concept to the CCGMPs and that they all did not receive formal training on how to perform this task, majority(84%)were observed, appropriately counselling& referring HIV exposed children. This demonstrates the fact that despite the inadequate training of CCGMPs, they are indirectly yet significantly contributing in the prevention, treatment and control of diseases that could otherwise be missed without their intervention. Similar conclusion was made in a study conducted in Malawi that a

multipronged approach utilizing CHWs to conduct HIV testing, link HIC into care and provide support to PMTCT mothers can dramatically improve the identification and enrolment into care of HIV-exposed and -infected children(Ahmed et al., 2015).

Although this evaluation study's results also made another important observation that gaps existed regarding the children's health information being collected by CCGMPs which could be valuable for the health information system, as they lack of any form of records at community level, not even notebooks to help them collect, summarize and use the data if collected to plan and make important decision of implementing CCGMP programs at the community level. Their ability in performing GMP tasks with minimal supervision show that despite inadequate training CCGMPs have an in-depth understanding of health in the community, including its social determinants, and are responsible for a wide range of disease prevention and health promotion activities. Respondents during FGD reported that trust-based relationships with communities, an altruistic motivation to serve the community, and sound health knowledge and skills are the most important factors facilitating successful implementation of the CCGMP. By contrast however, high workload and the lack of a support system were mentioned as barriers to effective performance. These findings are supported by similar findings of a study on CHW program in Iran which concluded community based programs are a significant way of providing comprehensive primary health care, in that CHWs provide basic health care but also work with community members and other sectors to address the social determinants of health (Javanparast et al., 2011).

Findings of the FGD also indicated expression of participants on the fact that growth monitoring can potentially provide a platform for the promotion and implementation of community-based growth-monitoring activities, provided that the program had a high coverage. However, lack of infrastructure especially in rural areas often limited the promotion and implementation of community-based child growth monitoring and promotion activities. Similar findings were indicated in a study done in KwaZulu-Natal, South Africa to determine the acceptability of a community-based growth-monitoring programme in terms of child attendance and maternal attitude. The community-based growth monitoring and promotion program had an estimated coverage of 90%, but only 60% of these children were covered adequately in rural areas due to lack of infrastructure and health care facilities. It was concluded that community-based growth monitoring and promotion can therefore provide a suitable platform for the promotion and implementation of community-based nutrition activities, infrastructure for this purpose was improved in rural areas (Faber, 2009).

Inevitably and coupled with many challenges that affect the practice of the CCGMPs was the lack of supervision by qualified health professionals while expecting them to perform competent skills as we are all aware that the government's professional health sector could not meet all the health needs of the people in the community without the volunteers' contribution, especially those needs of children, a vulnerable group. CCGMPs expressed that what was their driving force to make them continue working hard for the children was their needs in the community to help children grow up healthy and better citizens of our country. They indicated that no organisation or sector was really responsible for them in term of supervising, mentoring or motivating them though, some said that they report to a nurse called a community-in-charge who is responsible for them, but as volunteers, they feel neglected and they belong to no government ministry. They allegedly lamented that MoH does not make the volunteers to feel as part of the government, despite making them to perform most of the community based health care activities and contributing significant services on behalf the government. Similar sentiments were expressed in another study which indicated that, community health workers are not a panacea for weak health systems and will need focussed tasks, adequate remuneration, training, supervision, mentorship and the active support from the communities in which they work (Haines, 2007).

Consequently, encouraging results from the FGD further indicated that the consistent and regular provision of growth monitoring services in the community proved successful, showing the inherent benefits of growth monitoring, of many healthy children especially in the rural setting. It is evident from this finding that not only the mere contact but the frequency and quality of social interactions between CCGMPs, health workers and mothers are important for positive the outcomes in GMP programs. Similar findings were presented in another study indicating that the role of growth monitoring for maintaining good nutrition and health in the most vulnerable group of the community can be realized only if techniques and understanding are directed consistent and properly implemented in achieving of the specific (short term) and main objectives (Masiye et al., 2010).

5.2.5 Perceptions and Experiences of CCGMPs (context)

This study did not only investigate CCGMPs' training and knowledge levels but also their experiences during practice, perceptions about their training and work, as well as other factors and challenges affecting them. Descriptive research approach was mixed with

phenomenological approach of qualitative case studies to represent the respondents' perceptions and experiences concerning their training and practice and these are paramount to the CCGMP program (Mengshoel, 2012). This mixed approach facilitated the answeringof all the set objectives of the study. As applied in another study on Community Health Assistants (CHAs), qualitative methods were necessary to be applied to this study because it focused on describing and understanding CCGMPs perceptions and experiences about their training and practice which affected them as they provided their services.(Zulu et al., 2014).

A critical finding on the program implementation in terms of HRH was the serious shortage of CCGMPs to provide services to the children in the community as majority (79%) of the CCGMPs indicated that they were only less than 10 of them working in their entire catchment area. In addition about half (47%) indicated that most of the times during GMP sessions there were less than 5 CCGMPs available to work per GMP session. This challenge was similarly expressed in another study that, the fact that only a few volunteers are willing to work leads to further increased workload to the few that were committed to work, leading to "burn out" and eventually high dropout rates of CCGMPs especially that they work only as volunteers with limited sources of income and yet still with many personal and family responsibilities to attend to (Stringer et al., 2013). The problem of shortage of CCGMPs to carry out the GMP activities was further illustrated by the huge ratio that was discovered between the number of children that where being attended to and the number of available CCGMPs that attended to them. More than half (57%) estimated that only 3 to 5 CCGMPs had to attend to 200 - 400 children during GMP sessions. With such high numbers of children to attend to, coupled with many other challenged, one wonders how the CCGMPs cope with their work. it is not surprising that about half (47%) of them indicated that most of the times they were unable to cope with the large numbers of children who come for GMP sessions and so some children were sent back home unattended. Though they expressed that they got very tired and stressed out, they claimed that they managed their work well with few problems since they were used to the pressure of work.

Despite the CCGMP experience of being side-lined and their work and contribution not well recognised by the government, they were aware that professional health workers alone were unable to meet all the health care needs of the people especially the children without their contribution, hence their willingness to continue working as volunteers, as they try to fill in the gaps of HRH shortage. The CCGMPs expressed mutual sentiments on the relevance and

importance of their program to the community because they felt that they had to help in meeting community needs and hence this could explain their commitment to performing their duties. It is not surprising therefore with the above explained enthusiasm of the CCGMPs that despite the numerous challenges that they face, results still show that in most areas, GMP sessions continued to be carried out on a monthly basis as prescribed by MOH. They expressed that what kept them continuing with their work was more of the needs that they identified in the community and not any reward that they could have expected since there was none.

5.2.6 Challenges and gaps (context)

The most serious challenge that was noted from the cross sectional study and needed to be urgently addressed was the lack of a standardised and updated curriculum to specifically train the CCGMPs. During UDO, we also determined the fact that no guidelines of service delivery were available to the CCGMPs as a result they did not follow any standards. Another challenge that was directly affecting the CCGMPs' performance service delivery and needed to be urgently addressed was none availability of weighing scales and bags to use for weighing children at GMP. We confirmed this challenge through UDO as most GMPs did not have properly working weighing scale and that the bags for putting in the baby during weighing were none existent so they had to improvise by using a piece of cloth (chitenge[1]) from the mothers as the bag to hang the baby. This practice was highly risky as most of the babies were slipping out of the improvised piece of cloth. This shortage of supplies was similar as in a study done in Botswana where surgical and medical supplies needed for use for Home-Based care programs were also never provided to the volunteers like, soap to wash hands, cotton wool swabs, gloves, instruments like receivers and all, that is needed in the Home-based care bag (Kang'ethe, 2008).

In order to have a good view and accurate baby's weight, the weighing scale must be securely and well hanged with view at eye level and it must be correctly tested before the as well as at intervals during GMP sessions. This practice was not so impressively performed however as only 68% of the observed CCGMPs hanged the scale correctly at eye level while 32% hanged the weighing scale unsafely with poor view and it was not at eye level. Moreover, only half (52%) of the CCGMPs tested the weighing scale correctly only before the GMP session, and only a few 14% tested the weighing scale before as well as at intervals during the GMP sessions while 8% did not test the weighing scale at all. This negligence could have led to incorrect reading of the children's weight causing a systemic bias of the data being recorded

on the card and consequently could lead to inaccurate data and inappropriate health care interventions for the children. Impressively and although most had no weighing bags and had to improvise with a *chitenge*[1] to use as the weighing bag half50%of the observed CCGMPs attempted to weigh babies correctly.

Another possible source of bias on the data being recorded on the under 5 card was the inaccurate recording of weight on the card that was observed as after weighing the children many of the CCGMPs (42%) did not record the weight themselves; they instead told the baby's weight to mother after weighing, then the mother informed another CCGMP who was responsible for recording in the card, the weight told by the mothers and tallied on the tally sheets. This could have happened as some mothers, especially those with children who are faltering in weight gain or have some form of malnutrition, felt embarrassed of this fact and so may have decided to hide the true weight of the child. Other CCGMPs 28% both plotted and wrote weights on the graphs in the card, which lead to overcrowding the card and obscuring there by making them unable to draw the road-to-health graph. This could affect the recording and consequently the interpretation of the graph. Worse still, others 26% only wrote the actual weights and did not even make any attempts to draw the road-to-health graph in the cards. In this case, it was impossible for anyone to see and interpret how the child is growing. Only 4% were observed plotting and drawing the graph correctly in the children's cards. This undoubtedly increased the chance of recording wrong weight as some mothers may have forgotten the correct weight that they were told by the weighing CCGMP or even intentionally give a different reading to the CCGMP who was recording. These practices can seriously disadvantage the children who may be deprived of receiving the appropriate and much needed health intervention for them to survive. Children's lives can be lost if problems affecting weight gain of the child are not identified early in order to initiate appropriate interventions promptly (Cook and Guinn, 2014).

It was encouraging however to observe that majority (86%)of CCGMPs were providing general health education to targeted groups before GMP sessions. Despite the high ratio between CCGMPs providing services and the number of children that they attended to, a reasonably good number of CCGMPs (44%) were observed appropriately providing nutritional counselling to the mothers. Another important task that the CCGMPs have to perform is entering data on tally sheets then reporting this data to the clinic and it was assuring that most (80%) who were assigned this task were observed correctly doing so. Findings on the ratio of children and CCGMPs in terms of coverage of children also

confirmed that the numbers of children that the CCGMPs attended to was overwhelming leading to their exhaustion and burn-out.

CCGMP were generally over worked and overburdened as seen when sometimes they had to walk many kilometres in order to escort the mother and child to the health centre for referral purposes and for vaccines to be given when they were due and at many different intervals. Similar findings of CHW being overburdened were expressed in another research of Community-Bases interventions in India, a resource limited country like Zambia, in which it was highlighted that duties performed by CHW were more than the lessons that they learn for example they too had not learnt how to deal with children who were HIV exposed from their HIV positive mothers (Maulik and Darmstadt, 2009).

5.2.7 Mothers' satisfaction (contentment)

It was not surprising that majority (64%) of mothers rated the likert scale below 80% meaning that they were unsatisfied with the services that they received, taking into consideration all the identified challenges including work overload experienced by CCGMPs'. This finding confirmed that CCGMPs were not performing according to expectation which was in line with the significant findings of this study by both the cross sectional survey that training was inadequate as well as by the UDO method as they performed their tasks that their skills were incompetent. The consistency in findings using the three different methods applied in this research confirms the importance of triangulation in ensuring the validity and reliability of the results, thereby proving the strength and value of this study's findings.

Surprisingly however, responses from mothers of children with growth faltering who were interviewed during the one-to-one exit interview indicated that most CCGMPs (79%) provided correct and appropriate advice on child nutrition. It was however noted that despite the CCGMPs providing correct nutritional advice to a few mothers, the provision of this service was too scanty to achieve a positive impact on the children as they hardly had time to practice this task due to the overwhelming numbers of children that they served. However, findings of recipients' dissatisfaction were contradicted in a different study in which participants were generally satisfied with their contacts with community health workers. As a result, study results showed patients improvements in their physiological measures for some interventions and positive changes in lifestyle and self-care, despite inadequate training of the community workers in management of a specific condition, diabetes **(**Norrisetal**.,** 2006**)**.

5.2.8 Challenges and Recommendations of Practice

Lack of remuneration, allowance or motivation for the volunteers were some of the major factors that jeopardised CCGMPs' performance in continuing to carry on their work and has led to high turnover. This study would therefore be incomplete if we ignored the aspect of CCGMPs' remunerating and motivating as volunteers. As we are all aware from other literature and studies that with regard to the two above mentioned aspects, this volunteer group is the most neglected group of all the health workers and yet they contribute a lot to the health sector of this nation. (Zulu et al., 2014) It is sad that we discovered in our study that only 20% of the respondents were somehow in a very small way remunerated and/or motivated for the work they did while the majority of them (80%) were not remunerated or motivated at all. This implies that this important community service of volunteers is being ignored by both government authorities and the people that they serve. Similarly in another study conducted within Zambia on the challenges faced by CHAs, in this study as well, the major challenges experienced by CCGMPs during service provision were mainly: lack of recognition from authorities, lack of refresher courses, infrastructure, equipment, medical/surgical supplies, remuneration or any kind of motivation, poor surveillance and supervision, and the over whelming numbers of children that the CCGMPs could hardly cope for them to effectively deliver the GMP services to the children (Zulu et al., 2014).

With numerous challenges identified in this study, it is suggested that together with the government, some influential community organisations should urgently address these challenges and provide support to enable the CCGMPs carry out their work. The Church and/or civil leaders in the community did not support them either though a few leaders sometimes provided them with lunch or a little allowance, an initiative that could further be explored and encouraged as it would provide some motivation to the CCGMPs that is needed to facilitate their function. As we are all aware, technical support from professional health workers is vital to the successful performance of the CCGMPs and it was encouraging that majority(77%) reported that they received technical support from professional health workers from the nearest health centre as they went out for outreach work whenever the community conducted GMP sessions. However, due to shortage of HRH at the health centre, some CCGMPs did not received they much needed technical support and almost all respondents (99.5%) overwhelmingly echoed the need and urgency of health workers' supervision as they

performed their work, to not only monitor them but also to teach them practically while they were on site.

Similar to findings in another study (Mumba Zulu et al., 2015), and surprisingly indeed, results of our study showed that almost all of the CCGMPs (98%) agreed that their program was helpful and useful to the entire community, while 35%responded that it helped by reducing distance and served time for mothers so that they could attend to other needs and chaos since the sessions were conducted nearer to their homes than at the health centres. Others (47%) expressed that it was helpful as it reduced congestion and it made work easier at the health centre and that it improved coverage of children that were monitored and vaccinated thereby improved their health as well. They also confirmed that other services offered at the GMP sessions apart from weighing the children were mainly general Health Education as indicated by 44%of participants and 38% indicated that several other services were offered including Nutrition counseling, vaccinations and referral for further management of sick children.

This is in line with results of our study were those that were presented in another study which expressed that CHW productivity was determined to a large extent by the conditions under which they worked. Attention to the provision of an enabling work environment for CHWs was essential for achieving high levels of productivity(Jaskiewicz and Tulenko, 2012). They presented a model in which the work environment of CHWs encompasses four essential elements—workload, supportive supervision, supplies and equipment, and respect from the community and the health system—that affect the productivity of CHWs. It was proposed that when CHWs have a manageable workload in terms of a realistic number of tasks and clients, an organized manner of carrying out these tasks, a reasonable geographic distance to cover, the needed supplies and equipment, a supportive supervisor, and respect and acceptance from the community and the health system, they can function more productively and contribute to an effective community-based strategy (Jaskiewicz and Tulenko, 2012)Similarly,another study emphasized that although good coverage has been shown in community-based GMP there are still other important factors that need to be considered for aappropriate implementation of GMP including motivation of community health workers (Mangasaryan et al., 2011).

This study acknowledges the fact that apart from the CCGMPs working under difficult circumstances; they were also deprived of their ‘share’ of the limited resources that could

help improve their performance in terms of skills and competencies. In a similar study conducted recently here in Zambia, findings shoed expression of the difficulties experienced by health care workers as they shared limited financial resources resulted in the other 'professional' group of health care staff labelling the new group of community health workers (CHAs) as belonging to the 'other' (being under Clinton Health Access Initiative) and not part of 'them' as staff working under the MoH (Mumba Zulu et al., 2015).

Our findings also indicate that the CCGMPs generally have limited supervisors from health care professionals and so they can work or stop to work whenever they felt like since they were not answerable to any supervisor. There were also no shelters in the community for the CCGMPs to work from so each time there was a GMP session they had to ask from some kind land owners and then ask for furniture (mainly stools) to organise their working space. The community they work with was rather difficult and so they did not always allow the CCGMPs to use their space for GMP activities, unless there was some kind of payment. There has been lack of stationary for a long time and only tally sheets are given to the volunteers by the health centre staff to record on during GMP activities. There were no books for record keeping, no referral forms, not even a plain paper to write a referral on. As if these problems were not enough, there was no transport what so ever, the volunteers carried all of the requirements for the GMP sessions by their hands and they walk to and from the health centre to collect and take them to the health centre: scales, tally sheets, Vitamin A and deworming tablets to use during the GMP sessions. Even when there was need to refer or escort the child to the clinic for urgent or further management, the family was asked to look for their own transport or indeed the CCGMP had to walk and escort the sick child to the clinic.

The volunteers reported that they were not supplied with any protective clothing, not even an apron to protect their personal clothes as they worked with the children (Australia and Commission, 2002). Even though some NGO had in the past come to their aid and given them some T-shits, aprons and wrapping cloth (chitenges), those were long torn, faded and thrown away and no new ones have ever come by. During rainy season they faced the challenge of getting soaked and walking in mud, dirty water since they had no gumboots, raincoats or umbrellas and indeed no shelters to work from. Lack of identity cards also puts them in an awkward situation as they cannot be identified in the community and therefore they are sometimes not trusted by the mothers. The volunteers could not have over emphasize

on the urgent need for uniform or at least an identification card for identification and protection of the volunteers as stipulate in the code of conduct for volunteers to perform their duties in some developed countries, they must be dressed with some official identification (Australia and Commission 2002). Some mothers who brought their children for GMP sessions tended to be suspicious as to who is handling their baby since the volunteers had no identification what so ever. It was embarrassing to the CCGMPs as they inquired if had undergone any training and if they were competent enough to carry out the GMP activities or handle their babies.

The ratio between the CCGMP and children that they looked after was another over whelming reality which was confirmed during the FGDs. Each GMP session usually had less than five (5) volunteers to work with 300 to 500 children. These numbers may even double during child health week. However and whatever they do, they have to weigh and monitor the growth of each child as well as do the filtering of the children by referring all those that are due for vaccination to the nurse or health worker for further action. Due to the overwhelming numbers of babies to work with, it is impossible to provide Nutrition counselling even if the volunteers notice babies that need this kind of service. This can be frustrating as they do not fulfil all their duties and most of these children end up with severe malnutrition. This could create a huge hindrance to their work and risk to the babies who can slip out of the wrapping cloth while being weighed. Such accidents have happened many times and mothers have expressed such sadness that sometimes they even decide not to bring their babies for weighing any more.

Key informants during the FGD confirmed that no volunteer received any award or reward, only a few words of appraisal from the nurses that they work with. Long ago again some NGOs had rewarded them with bails of second hand clothes (salaula) was given to the most hard working volunteers and that used to motivate them, as they expressed. But such did not happen anymore.In another study on the curriculum for Community-based Health worker, they recommended that different incentives could beofferedto CHW,in addition to training and supervision (Schoeman et al., 2003). Several studies have provided a variety of examples of different incentives that could be provided which included travel stipends to reach clients' homes, IGA training to support CHWs' volunteerism, bicycles to reach far distances, uniforms or badges for identification and community recognition, replenishment of CHBC kit supplies as needed, and recognition of CHWs for their important work. However, the main incentive should be the value of serving their communities to stop preventable diseases and

promote health as long as possible. Our study has confirmed what other stdies established that experience showed that community workers could be effectively motivated to accurately measure, plot, and diagnose growth faltering and yet that they were often undervalued, under supervised, and poorly paid as well as the ratio of trained staff to the target population being so overwhelming (Colton et al., 2006).It is with no doubt therefore that the findings of our study inferably help us to conclude that the poor services of growth monitoring being offered by CCGMPs is as a result of a collection of challenges faced during their training and implementation programs.

To address possible biases that could arise during the research process, the following specific measures were implemented:-

The cross sectional survey in this study could have presented possible limitations leading to the fact that its valid conclusions may not be generalized without caution regarding the association between the determinants of training and it's outcome, as these were measured in their natural occurrence and prospectively, and therefore it may have been difficult to determine whether the training actually lead to the performance of the CCGMPs in terms of knowledge, skills, competencies and attitude as they provided the GMP services or it was due to other factors as well. However, this limitation was mitigated by selecting a large enough sample size, n=400 for the cross sectional survey, which was representative of the population so as to be able to comfortably generalize the findings and to ensure that they were valid (Barlett et al., 2001). Non-response of participants was another possible problem that could have affected the cross-sectional survey if the characteristics of those who were non-responders differed from responders and could result in bias of the measures of outcome. This kind of bias was avoided by the use of a one-to-one scheduled interview data collection method to ensure that all participants responded to the same questions, therefore making these results valid and generalizable (Marsh and Roche, 1997). It was conducted at a specific point in time in order to describe the phenomena in identifying and understanding the determinants of CCGMPs' training, knowledge, skills, and competencies exhibited during service provision. Interviews were only conducted using the same research tool, the scheduled questionnaire asking questions that were phrased, reviewed and pre-tested by several research experts. There was no manipulation of the subjects in this study as the researcher did not administer the training of the CCGMPs but was able to describe the determinants as they had naturally occurred by questioning the subjects. Therefore by using this data collection method in the research process, it was not possible to control for possible

confounders like the level of education of the participants and other demographic factors which could have caused bias or inaccuracy of data collected. Describing the participants' social-demographic and analyzing other factors as they naturally occurred during the training and service provision of the CCGMPs, we were able to explain how these variables were related or not to each other. Even though and despite meticulous checks and balances of conducting a cross sectional survey, possible contributions to bias could still have occurred like recalling past events and inability of some participants to report their responses accurately mainly due to their low educational level, but this was mitigated by the process of triangulation and using other methods of data collection and analysis in the qualitative case studies which made it possible to compare findings which were found to be consistent with the findings of the cross sectional survey. Through triangulation and applications of mixed research method design, validity and reliability of findings of this study were strengthened and therefore not be doubted.

In order to further reduce the possibility of bias the sample size was intentionally calculated proportionately, in order to determine equal representation in the sample. Kanyama compound therefore, being the highest populated compound had the highest number of respondents with 114 (28.5%)representation. For this reason of ensuring proportionate representation, each of the three densely populated compounds in the urban area of Lusaka had slightly more respondents than the two less populated areas in the rural areas of Chirundu. Three (3) of the communities from peri-urban, high density compounds and two (2) rural areas were purposively included as study sites in this research to ensure representativeness in the sample that are expected to have majority of the people to be under privileged in terms of health care services accessibility, necessitating community-based interventions.

The success of this study depended to a large extent on the quality of the carefully chosen data collection methods and triangulation that was employed at several stages. (LoBiondo-Wood et al., 2013). Triangulation was achieved by mixing methods to integrate ideas concepts and context during processes of data collection, analysis, interpretation and discussion of findings. This allowed corroboration of different data collection methods that were used to measure the variables. The mixed method design ensured the application of triangulation in order to further strengthen results of the study by meeting all the research objectives that were set. Three (3) research designs were mixed, comprising of five (5) data

collection methods including document review, cross-sectional survey and qualitative case study with both CCGMPs and Mothers which included three (3) methods; uninterrupted direct observation, in-depth interviews and focus group discussions. In the research design triangulation was applied throughout the research process; from conception of the research proposal, to data collection, analysis, interpretation, presentation and discussion of findings(Mason, 2006).Biases could have been encountered due to drop outs from a study (attrition), as this was longitudinal data collected from a natural occurring situation and without any manipulation. However, this should not be of concern in this study as with community-based programs, it is not the individual that is important, but the community as a whole that is of importance. So participants who dropped out were easily replaced(Akram et al., 2000). Several methods of data collection and analysis were deliberately included in order to mitigate possible bias. Through this principle of triangulation that reduces possibility of bias, the results of this study are rendered significant as they can be safely projected and inferred to larger similar populations. Therefore, notwithstanding the presence of potential biases and limitations, we still believe that these findings are true and valuable in necessitating policy and program reaction.

These challenges can frustrate the CCGMPs as a result they will not be able to fulfill all their duties especially nutritional counseling that requires a lot of time with each child and most of these children end up with severe malnutrition.

5.3 Implications to CCGMP Training and Implementation Program

Addressing the following findings from the study should provide numerous benefits to the training and implementation of the CCGMP program;

Growth promotion programs provide communities with the information to understand and take action to prevent the poor growth of their children and works well to improve efficiency and effectiveness by responding to individual and local problems. In a similar study, it was demonstrated that program experience shows that families will respond to identified growth deficits by improving feeding practices and sustaining change in nutrition behaviours (Haines et al., 2007). This also conquers with experience and data in India and Indonesia indicating that targeting community-based growth promotion programs clearly increases the efficiency and cost-effectiveness of expensive interventions such as food supplementation while limiting implementation cost.

This study established the fact that refresher courses were not being conducted making CCGMPs to lag behind with the necessary knowledge and skills to provide effective services especially with regard to the newly emerging diseases and challenges faced by the community. There also have been numbers and work ratio challenges in implementation of these community-based programs for children especially during child health weeks. When asked about the number of children that they attend to at every GMP session, majority 129 (32.3%) of the CCGMPs estimated that they attended to 300 - 400 children at every session, while 101 (25.3%) estimated that there were 200 - 300 children, 82 (20.5%) estimated 100 - 200 children, 46 (11.5%) estimated less than 100 children and 42 (10.5%) estimated 400 to 500 children at every GMP session. The problem of shortage of CCGMPs to carry out the GMP activities has been illustrated in many research studies with a large ratio between the number of children and the CHW that attend to them(Caulfield et al., 2006). This shortage of HRH especially at community level has been coupled with other priorities for implementing child survival interventions. A number of partners, the major ones being UNCEF, WHO, DFID, USAID have been supporting the Ministry of Health mainly in implementing curative child survival programs like IMCI, excellent support. However this support was being provided at the expense of CCGMPs programs that are intended to promote children's growth and prevent illness as none of the above mentioned reputable organisations supported the training of any cadres of community health workers who provide a large percentage of community-based health promotion programs, like GMP services (Aguayo and Baker, 2005).

Although the curriculum indicated all the topics that should be covered during CCGMP training, the reduced duration of both theoretical and practical learning periods for almost all the trained CCGMPs is a source of worry. The curriculum should be redesigned to ensure that all topics are adequately covered. Curriculum should be designed in such a way that content, teaching, learning and practicing strategies the needs of the CCGMPs. Consequently this means that comprehensive curriculum reviews are necessary on all aspects of CCGMP training. Emphasis should be placed on how to cost effectively but efficiently provide time within the curriculum, for the CCGMPs practical learning and experience.

Learning Child Growth Monitoring and Promotion (GMP) begins with theoretical components followed by practical sessions. Learning how to monitor and promote the health of the children involves the learners' interaction with the children and their parents in the community during practical GMP sessions. During their practical experience, CCGMPs must

be closely supervised by professional health workers and together, these should form the "communities of practice" for the CCGMPs. Through repeated practice the CCGMPs are expected to gain experience and competencies in performing their duties, so that they can provide quality and satisfactory services. The study has further revealed that most CCGMPs learn their skills while already working in the field from those that started work long ago. This entails that the ones who started earlier and are now teaching others, should also be trained in mentorship by using a well-designed program that will enable the ones joining to formerly learn their skills, since at the moment they are learning most of their practical skills informally. Most participants indicated that they had inadequate practical experience during training because there was not much time allocated for practical by the trainers.

The fact established in this study that the older age group of 41-50 years has the highest number of CCGMPs 137 (34.3%) in this study, while the youngest age group, 15-20 years has the lowest representation 12 (0.5%), should sensitize policy makers, planners and trainers to realize and acknowledge the fact that older people are more willing to work for the good of the community as volunteers compared to the younger generation. Similarly in in developing countries as well, growth status statistics have also become powerful tools for program monitoring and for advocacy with policy makers (Victora et al., 2010). Besides this fact, the older people are settled in these communities and are not normally expected to move to another area making them more reliable to work within the same community. This reduces the rate of volunteer turnover leading to efficiency and sustainability of program implementation.

5.4 *Conclusion*

This study discovered inadequacies of the key players for training and implementation programs of child health monitoring, promotion and survival isa combination ofthree (3) concepts namely: competency, context and contentment. It was however an encouraging finding that despite minimal support in terms of inadequate training lack of motivation and remuneration/reward for the services that they provide, CCGMPs continued to deliver services to the community as volunteers. However, challenges faced by CCGMPs call for combined effort of all the stakeholders involved in ensuring that the programs provide excellent services to yield the best results for the growth monitoring and promotion of our children. Conclusively, this study investigated three aspects that are necessary for training and implementation of community-based programs:

Context: being the interrelated conditions in which training and implementation of CCGMP programs occurred: conditions, inputs, circumstances, environment, setting, curriculum content and delivery. From the systematic document review, three main themes of the CCGMPs' training were developed: Content of the prescribed curriculum, duration spent on training and methods used to train the CCGMPs. Findings revealed strong evidence that the training of CCGMPs was inadequate both in theoretical and practical areas. Theoretically the inadequacy was noted mainly in the curriculum content that was covered, showing only one curriculum that contained four major topics required to be taught and the duration of training. The practical aspect suffered the most with serious inadequacy in duration of practical exposure as some were never allocated time or/and supervision to practice what they learnt theoretically.

Competency refers to combination of observable and measurable knowledge, skills, abilities and personal attributes that contributed to enhanced performance of CCGMP as they provide the services. Due to the inadequacies in the context of CCGMPs' training, they could hardly learn or sharpen their skills and competencies, which were observed in their task performance at GMP sessions during qualitative case studies of uninterrupted direct observation**.**

Contentment included satisfaction of both the CCGMPs themselves with their training and conditions of service as well as the mothers' happiness drawn from CCGMPs services that they received. Mothers as recipients of services on the demand side expressed unhappiness through the one-to-one exit interview and CCGMPs themselves as the suppliers of the service felt dissatisfaction form the training and implementation GMP program as determined from results of the FGD. This could have probably been due to lack of several factors including; inadequate training, lack of equipment/logistics to use, supervision, no refresher courses, no sense of belonging to the government and large numbers of children to attend to with the shortage of HRH.

Therefore, a combination of the three components: context, competency and contentment were coined as the ***"triple C index"*** in this study as essential elements for training and implementation of CCGMP program. Standards in the context of training, practice and evaluation of CCGMPs programme need be established and adhered to. It is important to develop a standard curriculum that will be accredited to relevant regulatory bodies will ensure enforcement of training organisations not compromise either on the curriculum content, time of training or methods used to train CCGMPs.

CHAPTER SIX
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Zambia like all other sub-Saharan countries suffered the negative effects of significant and chronic HRH shortage in its effort to provide Health Care (HC) services to its population. The HRH deficit has been in both the quantity and quality of health care personnel at all levels of health care service provision and Public Health Care (PHC) services have not been spared from this trend. This shortage of HRH has lead not only to high ratios between the health care workers and the public they serve but has also led to compounding problem of unequal distribution reflected in the ratio of populations (Colton et al, 2006). The Declaration of Alma Ata in 1978 was meant to hasten the achievement of "Health for all by the year 2000" (Organization 2003).The only way therefore was to depend heavily on Community Health Workers by improving their effectiveness especially in the success of implementing important child survival strategies as the backbone. Since then, the need to improve the knowledge, skills and expertise of the primary health workers in carrying out health care services especially for activities GMP to be effectively carried out by CCGMPs could never be over emphasised. It is therefore imperative that these community-based child growth monitors and promoters are adequately trained to perform the huge task that they are entrusted with. The declaration having been effected two decades ago, it was therefore imperative for this study to be conducted to evaluate the training program for the CCGMPsand how it affected the implementation of the program in Zambia, by attempting to answer the question: How adequate was the training programme for CCGMPs in Zambia to guarantee their attainment of required skills and competencies and enable them provide quality services in order to improve child survival? It applied a theoretical model that three factors of evaluation: Inputs into program, process of the program and outcomes of the program. The study highlighted both strengths and limitations of the training curricula and implementation program for CCGMPs. The study was necessary because despite all the efforts being implemented by the government to ensure good health and growth for the Zambia children, young child mortality remain unacceptably high at 29.4, 56.4 and 88.5 per 1,000 live births for neonatal, infant and under-five mortality respectively (Disha et al. 2012).

Multiple triangulation was applied in this research at all levels of the research process in order to apply a variety of concepts, so as to apply several concepts of theories and methodologies, to compare data and use wider logic to interpret findings in order to increase

on the strength of the research findings, and so ensure that they are most likely valid and reliable and reduce on any sort of bias (Fiedler et al, 2012)**.** Theory triangulation was applied by the use of multiple perspectives and concepts from three different theories as explained in the theoretical frame work that were applied to design research tools, methods, collect and interpret the data (Gibbert, 2010).Methodological triangulation was achieved during data collection as multiple, five (5) data collection methods were used to address the research problem (Maggs, 2000). The research methods included; cross-sectional survey, document review, uninterrupted direct observation, one-to-one exit interviews and focus group discussion. Data source triangulation was achieved by the use of multiple data sources was in this study by collecting data from documents, the different respondents in this case the CCGMPs and mother/caretakers of children that received the services of the CCGMPs. Investigator triangulation was also implemented in this study by using multiple individuals and experts to review the data collection methods, collect, analyse and interpret the collected data, including research experts, research assistants and data analysis specialists. At findings level, results from the different methods used were compared especially results from the main methods of scheduled interviews which were compared to data collected from focus group discussion. The findings are consistent and uniform and so they are assumed to most probably be reliable. Issues where strong personal feelings and perceptions were to be expressed, specific questions could be a source of bias. In this study, this was mitigated by using both quantitative and several qualitative data collection method from three different sources; one-to-one exit questionnaire with the mothers, uninterrupted direct observation of the CCGMPs and FGD with leaders of CCGMPs (Waltz, et al. 2010).

CCGMPs' inadequate formal training both theoretically and especially practically could without doubt be the leading contributing factor to their poor practical performance. These finding of inadequate training of CCGMPs particularly in their practical experience could be the major cause of their poor acquisition of skills and competencies leading to their poor performance and consequently their failure to contribute positively in effectively improving child survival in Zambia. Similarly, results of a study that was conducted in India, a country also with high levels of poverty just like Zambia, indicated that the quality of training community health workers requires significant time, resources and efforts if they are expected to perform their tasks competently. If their training is not sufficient, the low educational level of community health workers in most community settings imped their capacity to interpret and analyse growth measurement results, identify at-risk children, and

analyse possible causes of growth faltering, then consequently take up appropriate action (Mangasaryan et al, 2011).

Though findings indicate that during theoretical teaching most trainers covered content of the curriculum as recommended, the duration of both theoretical and practical training was too short rendering their training inadequate. The practical aspect suffered most with not only a shorter duration but also lack of supervision and follow up. Weighing methods were inconsistent and the steps of growth monitoring were not followed through. It was observed at almost all of the study sites that nutrition counselling to the mothers of children with growth faltering was lacking. Coupled with inadequate training, CCGMPs in their practice were faced with numerous challenges that need to be address by all stakeholder of health care provision in Zambia, mainly the government through the MOH. Despite all these huddles faced by the CCGMPs something keeps driving them to perform their duties. They seem to feel an inner drive that gives them the zeal to continue serving their communities in improving the children's survival. They give the little that they have but this goes a long, long way to make a difference in the children's lives. Probably that's what drives them; the zeal to make that difference in the community.

6.2 Recommendations

Most important is the need to design a standard and updated curriculum for the training of all CCGMPs, which should be tailored to community needs and should provide guidelines for adequate theoretical and practical training of all CCGMPs in Zambia. Findings of this research have demonstrated that the training duration both theoretically and practically was short resulting to inadequate training of CCGMPs hence there is urgent need a standard curriculum. The government through the concerned ministries and stakeholders needs to recognise the major contribution that this group of community health workers is making in the implementation of health care programs, and should motivate them to perform their tasks in a more appreciated and better manner instead of demoralising their effort and good will.

Recommendations are made in agreement with most of the respondents' suggestions to the government mainly through MOH as well as to all the other stakeholders. A good number of the suggestions and recommendations were made by recipients like 25% suggested mainly one incentive; that the government should pay them a small allowance regularly. Others suggested more than just one incentive as follows; 22% suggested that the government should

pay a small allowance regularly as well as conduct more refresher courses, provide transport, bicycles or money to CCGMPs to facilitate work and provide protective clothing uniform, T shirts, aprons, umbrellas and/or gumboots and 19% made a list of suggestions that the government should provide basic supplies drugs for use by CCGMPs, consider awards to long working CCGMPs or consider their children for employment whenever opportunity arises, pay small allowance regularly, conduct more refresher courses, provide transport, bicycles or money to CCGMPs to facilitate work and provide protective clothing uniform, T-shirts, aprons, umbrellas and/or gumboots. This recommendation is supported by another study which concluded that in low and middle income countries, health workers are essential for the delivery of health interventions and that inadequate health-worker performance is a very widespread problem (Rowe et al, 2005).

This therefore study recommends that it is with urgency for concerned organisations to work together and design a standardised and updated curriculum that will suit both the trainers and the CCGMPs being trained. In the meantime it is advised that all organisations concerned adhere to the standard curriculum in terms of content, methods and duration recommended by the National Food and Nutrition Commission (NFNC 2000) to train CCGMPs. The training organisations need to refrain from compromising on either time or on the curriculum content when training these CCGMPs. It is imperative that a standard, clear and relevant training curriculum should be designed, made available and uniformly implemented by all stake holders to ensure that all CCGMPs that are entrusted with the provision this important community health service, acquire the necessary knowledge, skills and competencies to perform their many tasks that they are expected to. This entails that the MOH must also review and enforce the use of a standard curriculum through a well-designed process of accreditation. Therefore, major recommendation of this study is that the CCGMP training curriculum and program should be extensively reviewed and updated to appropriately address the critical issues of CCGMP implementation program that are missing or are inadequately addressed. This could be in line with achieving the UN's third (3^{rd}) sustainable development goal of "Good Health and well-being by 2020" (People 2009).

The practical aspect that seems to have suffered the most inadequacy and yet the most important aspect of the CCGMP's training should be strengthened by initiating and increasing the practical training sites for learning on site which will have trained mentors and supervisors on site so that the learners are well mentored and supervised. The standardised

curriculum should be designed in such a way that enough time is allocated to practical practices as well as theory so that the two important aspects of training are integrated into the curriculum. The training institutions must ensure that they use varied teaching strategies that will enable the CCGMPs to learn and consolidate the required competencies. These strategies should include both didactical and experiential learning strategies learning strategies such as role plays, simulations and real situations.

There is need to design programs that will sensitize users of health care services on the importance of fully participating in these community-based health care facilities. These programs should include all partners including local authority and community leaders like teachers, church leaders, headmen and other influential people in the community and not only the mothers. These key community members can help in disseminating the information as long as they are adequately and correctly informed and sensitised themselves before they can do so to the community that they interact with at their different respective levels. The community based child growth monitoring session should be highly supported and promoted in local schools; the teachers should be aware and be able to tell their pupils to convey the message to their parents and guardians about the session as to the purpose, when and where the sessions will be held. Church leaders should also be informed of the community child growth monitoring sessions and be able to announce in Churches. Chiefs should also be informed of the session so that they can promote it to their subjects. Consumer involvement in training and education is to facilitate services that reflect the priorities of the people using them, it must be developed in partnership with service providers; further research is needed to explore the impact of consumer involvement and to track the development of organisational consumer involvement strategies, also systems for supporting consumers need to be established, including training for both consumers and health workers Similarly in another review of literature, evidence showed that consumer involvement in training health workers' enhances skills in the manner prioritised by consumers and so recommended that service consumers as well, should be involved in training of health care workers. (Repper, 2007).

Learning of CCGMPs need to continue through regular and timely refresher courses and especially on new guidelines and concepts with regard to CCGMP program, as these are frequently reviewed and updated but the CCGMPs are not.

The competency of all healthcare providers (especially Community–based) must be regularly monitored and evaluated to ensure provision of safe quality health care that will not only promote health of the children but will also protect the public and maintain credibility of

health care services being provided. Post doctorial follow up should be made in order to complete the process of designing a standard curriculum that will be more effective and sustainable in training and implementation CCGMPs programs. This will make possible the enforcement of a prescribed curriculum at training organisations and avoid compromise either on the curriculum content, duration of training or methods to train CCGMPs.

The Government through the Ministry of Health should consider including these volunteers on their organogram so that they have a sense of belonging, so they do not feel left out of the Health Care System as some indicated that they do not know which government department or ministry they belong to and have no supervisors and so they can work or stop to work whenever they feel like since they don't feel answerable to any supervisor. The government can clear the situation by including the CCGMPs and other Community Health Worker Volunteerism the MOH's organogram so that all are aware that this cadre of workers also falls under the Health care system. The government should address the plight of CCGMPs by addressing their complaints and suggestions. The volunteers are not asking for much. They long to be motivated by helping them to meet some basic requirements that they mentioned like; providing them with refresher courses which were not conducted for the volunteers as a result they relied on the inadequate and sometimes out dated information they learnt during their initial training and yet guideline concerning child growth promotion keep on being reviewed and updated. They felt that the refresher courses were not after all very expensive compared to the importance of them giving the appropriated care to the children. They therefore, could not understand why the ministry did not invest in this capacity building venture which will go a long way to motivate and retrain the CCGMPs as their skills and competencies will improve and so will the quality of care for the children. The CCGMP leaders also requested the government to provide protective clothing, uniforms as well as identity cards. Apart from being their right, volunteers feel that this is extremely important and urgent for them to continue performing their duties safely and diligently.

Volunteers to be considered for employment if/when an opportunity occurs like when employing cleaners. The volunteers are not considered, even the young one instead strangers from outside their communities are being employed at the clinics that they work with. This is demotivating and discouraging to the volunteers. They also expect respect from all the nurses who work with them. And yet the volunteers tally, collect lots of community data, report and indeed work so much on behalf of the nurses.

The CCGMPs were also requesting to be exempted from Hospital user fees and queues especially when they or their children/relatives are sick and they need the services of a big Hospital like the University Teaching Hospital (UTH).

Even if they are not considered for a salary or an allowance, probably just a bag of mealie-meal per month can be considered just so that they can supplement towards feeding their families since they spend so much time doing voluntary work. In order to facilitate better performance of the CCGMPs in their service provision, government should seriously consider provision of cheap transport to the volunteers e.g: Bicycles.

These important aspects of the CCGMPs' training and implementation program should not be left to be addressed only by the NGOs and Faith based organisations as this cadre of health workers are playing an extremely important and vital role on behalf of the government health care system. Government needs to ensure that all organisations that are involved in training the CCGMPs are accredited by law to a regulatory organisation that will enforce the use of standard curriculum and process of training. Time has come to implement and not just to preach that "prevention is better than cure."

6.3 Areas of further research

Post doctorial research to further examine how and why the three components of training and implementation of programs are interrelated as well as who is affected in order to have a clear theoretical definition of this ***"triple C index"***. The three components need to be analysed, conceptualised and synchronized into a theoretical framework that can be applied in identifying gaps of training and implementation of programs. This theory can be applied to evaluate training and implementation of programs in health care systems

Research and consultation is needed to improve the training and implementation programme for CCGMPs so that it becomes formal by exploring areas to develop a standardised, updated, harmonized and improved curriculum and training program for CCGMPs, a process to be conducted in collaboration with all the stakeholders. It is important to answer this question: "Is it feasible to train one of cadre of community health worker and expect them to provide and meet all the necessary health care services in the community?"

Further research can be conducted on how to ensure that all the other factor that affect the training and implementation of the CCGMP program, as outlined in this study like

conducting refresher courses, providing incentives and motivation to CCGMPs are addressed. New and more innovative methods should be included in the training process for example: Photovoice; a process by which people can identify, represent, and enhance their community through a specific photographic technique whose implications for practice can be very valuable (Wang and Burris 1997).

Through further research is necessary to urgently improve the surveillance system so that data for children being monitored by the CCGMP can be captured from the community and be used by responsible government departments and stakeholders in order to plan, improve and implement training and implementation policy and programs for the CCGMPs. Lessons can be learnt, a developing country like Canada on the importance of regular and on-going surveillance where a Paediatric Nutrition Surveillance System was developed and recommended for organized and ongoing collection of anthropometric measurements to follow the growth and nutritional status of children and describe trends in key indicators of their nutritional status (Grummer-Strawn et al, 2010).

Another area of research from this study is to investigate further the determinants of satisfaction of the 'demand' of services, the mothers and who are the recipients of CCGMPs services and explore the possible solutions to ensure that the children receive the best CCGMP services that will prevent illness and promote good health of our children

Our study has clearly stated evidence-based challenges faced by the CCGMPs both during training and especially as they practiced their duties. These challenges should be addressed at program and policy level to enable and ensure the best implementation of the CCGMP program to achieve the set goals and objectives of child survival intervention strategies at health promotion level in communities of Zambia. CCGMPs can then perform at their best if the recommendations made are even half way addressed as they believe that:

"You don't have to be a billionaire to believe you can make a difference. Give your resources to a charity and volunteer in your community, and you will make a great difference."

Germany Kent

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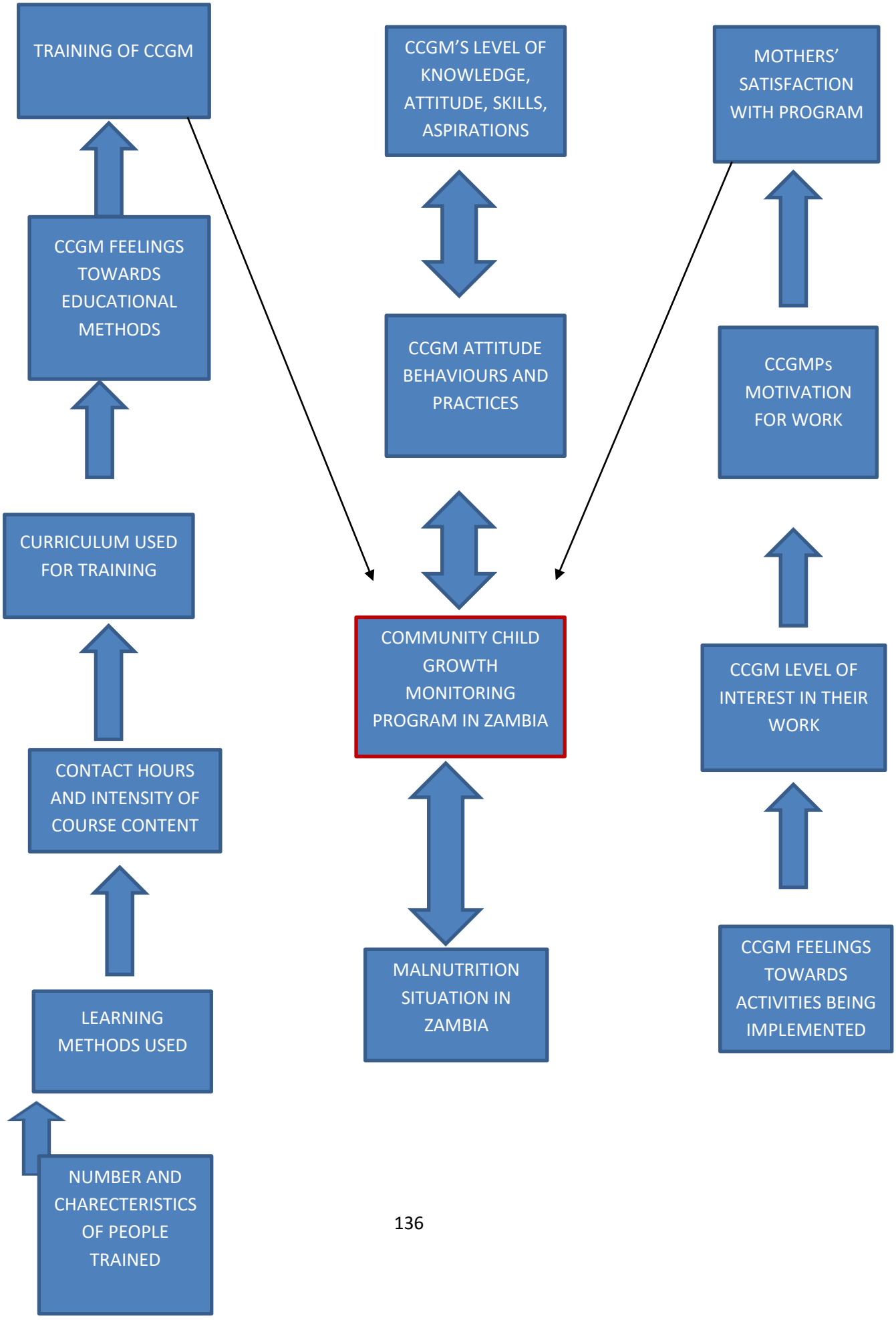
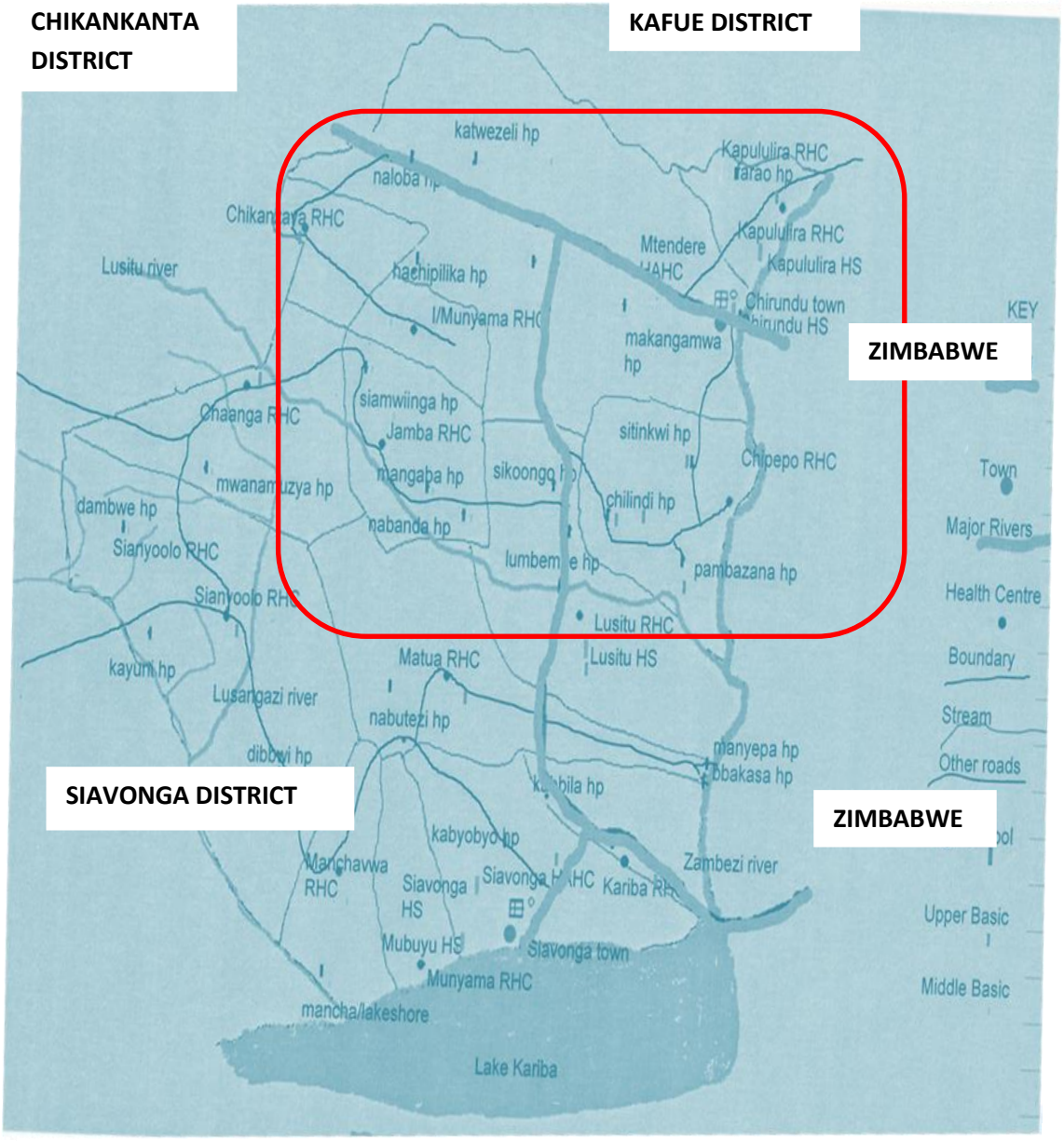
APPENDICES

Appendix I : Diagram of variables.



Appendix II:Chirundu District Map.



***Area demarcated by red square shows the boundary for Chirundu District.**

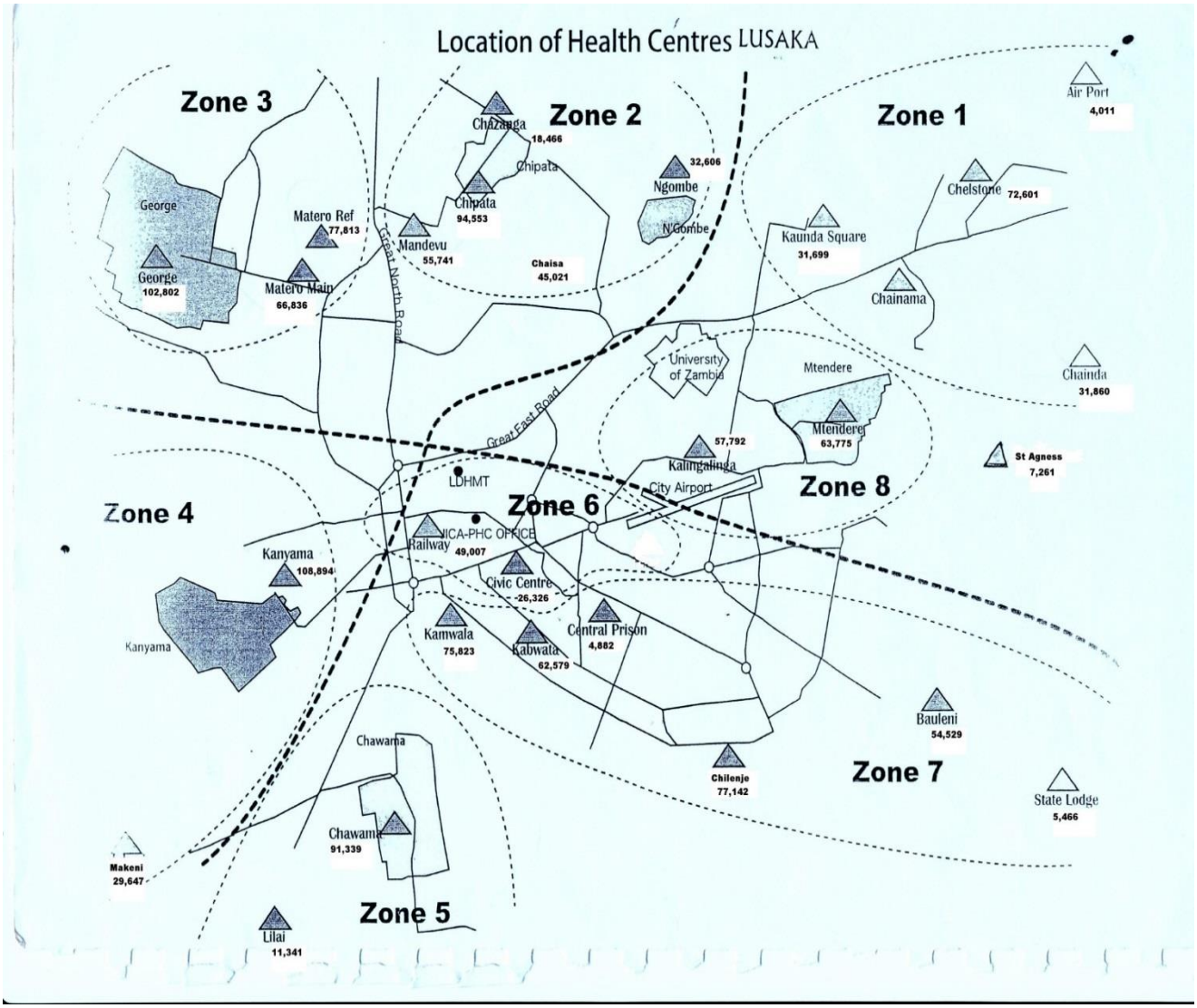
Source: Churundu District Health Office (DHO)

Appendix III: Population Demographics for Chirundu District

HEALTH CENTER FACILITY	TOTAL POP. 2014	<5 (20%)	<1 (4%)	<6 Mon (2%)	12-59 Mon (16%)	6-59 Mon (18%)	WCBA 15-49 Yrs (22%)	EXP PREG (5.4%)	EXP L/ B (4.95)	FEMALES	MALES	DIST FRO DCMO
CHIKANZAYA	3,523	705	141	70	564	634	775	190	174	1,726	1,797	65
IBBWE-MUNYAMA	3,203	641	128	64	514	577	705	173	159	1,569	1,634	70
CHIPEPO	14,734	2,947	589	295	2,357	2,652	3,241	729	729	7,220	7,514	45
LUSITU	10,036	2,007	401	201	1,606	1,806	2.208	542	497	4,918	5,118	45
JAMBA	4,591	918	184	92	735	826	1,010	248	227	2,250	2,341	55
KAPULULIRA	4,271	854	171	85	683	769	940	231	211	2,093	2,178	15
MTENDERE HAC	12,812	2,562	512	256	2,050	2,306	2,819	692	634	6,278	6,534	1.5
DCMO TOTALS	**52,687**	**10,537**	**2,107**	**1,054**	**8,430**	**9,484**	**11,591**	**2,845**	**2,608**	**25,817**	**26,870**	**0**

Source: Churundu District Health Office (DHO)

Appendix IV: Lusaka District Health Map.



Source: Lusaka District Health Office (LDHO)

Appendix V: Population Demographics for Lusaka District

	TOTAL POP 2014	6-11 months (2%)	12-59 months (16%	6-59 months (18%)
AIRPORT	6,241	125	999	1123
BAULENI	84,845	1697	13575	15272
CHAINDA	49,324	986	7892	8878
CHAISA	70,050	1401	11208	12609
CHAWAMA	142,120	2842	22739	25582
CHAZANGA	28,731	575	4597	5172
CHELSTONE	112,965	2259	18074	20334
CHILENJE	104,785	2096	16766	18861
CHIPATA	147,121	2942	23539	26482
CIVIC CENTRE	40,962	819	6554	7373
GEORGE	160,177	3204	25628	28832
KABWATA	97,371	1947	15579	17527
KALINGALINGA	81,637	1633	13062	14695
KAMWALA	117,978	2360	18876	21236
KANYAMA	169,435	3389	27110	30498
KAUNDA SQUARE	49,170	983	7867	8851
LILAYI	17,604	352	2817	3169
MAKENI	46,130	923	7381	8303
MANDEVU	86,731	1735	13877	15612
MATERO MAIN	103,995	2080	16639	18719
MATERO REF.	121,074	2421	19372	21793
MTENDERE	99,234	1985	15877	17862
NG'OMBE	50,733	1015	8117	9132
PRISONS	7,597	152	1215	1367
RAILWAY	76,253	1525	12201	13726
SAINT AGNESS	11,298	226	1808	2034
STATE LODGE	8,505	170	1361	1531
STATE HOUSE	23,531	471	3765	4235
DISTRICT TOTAL	2,115,596	42312	338495	380807

Source: Lusaka District Health Office (LDHO)

Appendix VI: Table of Management of Document Review Process

Design	Sampling method	Data Collection Tool	Inc. Criteria	Data Management	Validity and Reliability
Document Reveiw	Document mapping of those with relevant information	Pre-determined list of information to look for in the documents Manually study each document to extract the data	Documents with relevant information	Manually select documents and extract relevant information on: • Curriculum content • Enrollment requirement • Contact Hours • Training methodology • Competencies expected from CCGMPs • Accreditation and Implementation policies and guidelines • Child survival vital statistics Analyse data using SPSS statistical package	• Relevant, recent literature • Program and research experts will assist to analyse and verify findings

Appendix VII:Table of collection and management of Data for Cross Sectional Survey

Design	Sampling method	Data Collection Tool	Inc. Criteria	Data Management	Validity and Reliability
Cross Sectional Survey	Multi-staged • All Health Posts & Out-reach Posts • Cluster sampling by zones • Simple Random Samplin g of Health Posts & Outreach Posts per zones • All CCGMP s at sampled Health Posts & Outreach Posts per zones	Scheduled questionnaire By One-to-one interview	CCGMPs resident in Lusaka and Chirundu, trained, currently providing Growth Monitoring services	Data collected from CCGMPs • Curriculum content • Contact Hours • Training methodology • Skills being practiced • Implementation policies and guidelines • Cleaned, entered and analysed using SPSS • Association interpreted using statistical tests: Chi Square, t-test, regression or ANOVA • Presentation of quantitative data by tables, cross tabulations and graphs • Qualitative data was managed as explained in the table below for qualitative case study (See table 4)	• Most content adapted from validated WHO tools for KAP studies • Data Collection Tool will be piloted • Check data daily and weekly for accuracy & completene ss

Appendix VIII: Table of collection and management of Data for Uninterrupted Direct Observation

Design	Sampling Method	Data Collection Tool	Inclusion Criteria	Data Management	Validity and Reliability
Uninterrupted Direct Observation	SRS from list of CCGMPs present at selected site	Pre-determined Check list of competencies to be observed	Sampled CCGMPs who were trained, found providing GM services at sampled sites	• Record in writing during observations on each participant using the pre-determined check list • Cleaned, entered and analysed using SPSS • Association interpreted using statistical tests: Chi Square, t-test, regression or ANOVA • Presentation quantitative data by tables, cross tabulations and graphs	Participants will not be aware that they are being observed on skills and competencies to avoid bias

Appendix IX: Table of collection and management of Data of one-to-one exit interviews for mothers

Design	Sampling Methods	Data Collection Tool	Inc. Criteria	Data Management	Validity and Reliability
Qualitative Case Study	Some Mothers &Caretakers who will bring their children for services at the sampled sites All leaders who will be found among the CCGMPs at sampled sites will be the key informants	In- depth exit interviews for Mothers or Caretakers of the children Guided Focus Group Discussion	Caretakers or Mothers of children receiving services from CCGMPs KI will include all leaders of CCGMPs found at sampled sites	• Tape recording and writing down responses • Review narrative, recorded data to be clearly understood • Transcribe and use N-Vivo to analyse collected data to: • Categorise into themes • Determine patterns, connections within/between categories • Attaching meaning to explain significance by focusing analysis to answer the research question	• **FGD** and interview guide will be pre-designed before actual meetings and interviews • During**FGD**bein g in a group, participants will be free to express their true feelings when answering questions and therefore are likely to provide more accurate information

Appendix X: DATA COLLECTION TOOLS

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APPENDIX 1: GUIDE FOR DOCUMENT REVIEW

TOPIC: COMMUNITY-BASED CHILD GROWTH MONITORING AND PROMOTION TRAINING AND IMPLEMENTATION PROGRAM IN ZAMBIA: A SCOPE& CONTEXT EVALUATION

1. Visit Organisations concerned with training of CCGMPs in order to identify relevant documents including:
    a. Ministry of Health
    b. Ministry of Community Development, Maternal and Child Health
    c. National Food and Nutrition Commission of Zambia
    d. Faith-Based Organisations; CHAZ, CCZ, ADL
    e. Non-Governmental Organisations; JICA
    f. Community Medical Offices and some Health centers of study site districts: Lusaka and Chirundu districts
2. Manually select and study documents in order to extract relevant information on the following content:
    a. CCGMPs curriculum content
    b. CCGMPsenrollment requirement
    c. CCGMPstraining contact hours
    d. CCGMPstraining methodology
    e. Competencies expected from CCGMPs after training
    f. Roles expected to be performed by CCGMPs after training
    g. Organisational accreditation and implementation policies and guidelines
    h. Organisational structure that governs the training and functioning of the CCGMPs
    i. How is the CCGMPs' appraisal system?
    j. Child survival vital statistics
    k. What sort of data is collected and how it is used within the CCGMP program
    l. How is the data transferred and up to what level is this data captured and used by the health information management system (HIMS)
3. Analyse and manage data using SPSS statistical packagewith the help of a data specialist

UNIVERSITY OF ZAMBIA
SCHOOL OF NURSING SCIENCES
DEPARTMENT OF PUBLIC HEALTH NURSING
APPENDIX 2: CROSS-SECTIONAL SURVEY QUESTIONNAIRE

TOPIC: COMMUNITY-BASED CHILD GROWTH MONITORING AND PROMOTION TRAINING AND IMPLEMENTATION PROGRAM IN ZAMBIA: A SCOPE& CONTEXT EVALUATION

Place of interview…….

Name of interviewer…….

Duration of interview……

Serial number of respondent…….

INSTRUCTIONS TO INTERVIEWER

1. Introduce yourself to the respondents
2. Explain the purpose of the interview
3. Obtain written consent from the interviewee
4. Pledge confidentiality and all information should be kept confidential
5. Do not write respondents' name on the interview schedule
6. Tick in the box at next to the chosen response, for questions with alternative or write responses in the space provided
7. Do not skip any question
8. Put in writing all responses clearly
9. Express gratitude the respondent at the end of each interview

Section A was designed to elicit information on the respondents' socio-demographic data

Section B consists of questions that will help the researcher determine training curriculum content and teaching methodologies that the CCGMPs have been trained in

Section C consists of questions that will measure the knowledge levels, skills and competencies that the CCGMPs attained during their training

Section D will help the researcher to obtain information on the practice and other factors affecting CCGMPs as they provide services in terms of and quality care services for monitoring and promoting the children's growth and health

INSTRUCTION: Choose the correct answer and write the letter corresponding to it, in the space provided**.**

SECTION A: SOCIAL/DEMOGRAPHIC DATA

1. Gender
   a. Male [ ]
   b. Female [ ]

2. What was your age on the last birthday?

   a. 16-20 [ ]
   b. 21-30 [ ]
   c. 31-40 [ ]
   d. 41-50 [ ]

3. What religious denomination do you belong to?
   a. Roman Catholic [ ]
   b. Protestant [ ]
   c. Pentecostal [ ]

   d. Muslim [ ]
   e. None [ ]

4. What is your highest level of education?

   a. Never been to school [ ]
   b. Primary [ ]
   c. Secondary [ ]
   d. Tertiary [ ]

5. What is your marital status?

   a. Single [ ]
   b. Married [ ]
   c. Widowed [ ]
   d. Divorced [ ]

6. What nationality are you?
   a. Zambian [ ]
   b. Zimbabwean [ ]
   c. Other Nationality – Specify ……. [ ]

7. What is your main source of income?
   a. Small scale farming [ ]
   b. Husband Support [ ]
   c. Children/relatives support [ ]
   d. Own small business [ ]
   e. Other Specify:……. [ ]
   f. None [ ]

8. If answer is none, how do you survive economically?

……

SECTION B: TRAINING CURRICULUM CONTENT AND TEACHING METHODOLOGIES FOR CCGMPS

9. Have you ever been trained in community-based child growth monitoring and promotion?
   a. Yes [ ]
   b. No [ ]

10. If the answer to the above question is yes, when were you trained?
   a. Within the past one year []
   b. Within the past two years [ ]
   c. Within the past three to five years [ ]
   d. More than Five years ago [ ]

11. How long was your theoretical training?
   a. Less than one week [ ]
   b. One week [ ]
   c. Two weeks [ ]
   d. Three weeks [ ]
   e. Four weeks [ ]

12. How long was your practical experience?
   a. Less than one week [ ]
   b. One week [ ]
   c. Two weeks [ ]
   d. Three weeks [ ]
   e. Four weeks [ ]

For Questions 13, 14, 15 and 16 follow the instructions below:
In your own opinion what would you say about your training as a CCGMP?
Rate the statements below using the following scale:
Strongly agree= 5, agree=4, not sure=3, disagree=2, strongly disagree=1.
(Answer all by writing your possible answer in the space provided next to the statement)

13. Measuring and recording a Child's Growth

During your training, lessons on the following wereincluded:

   a. Fill in a card for the child who does not have one
   b. Start a Growth Recordfor a child and select pages to use at a given visit.[ ]
   c. Preparing for weighing children [ ]
   d. Collecting information about sex and age about the child [ ]
   e. Weigh a child younger than 1 year [ ]
   f. Weigh a child younger than 3 years [ ]
   g. Weigh a child 4 to 5 years using standing scale [ ]
   h. Plot the weight on the under-five card and connect dots to draw the child's growth curve on a graph [ ]
   i. Determine a child's weight for age today(has gained enough weight). [ ]
   j. Measure and record length or height. [ ]

k. Determine a child's weight for height today
l. Decide if the child has adequate or inadequate growth. [ ]
m. Recording all other necessary information on the under-five card [ ]
n. Tallying correctly on the appropriate tally sheets [ ]
o. Recognize clinical signs of Marasmus and Kwashiorkor. [ ]

14. Interpreting Growth Indicators

a. Interpret plotted points for growth indicators, and identify normal growth and/or growth problems [ ]
b. Interpret trends on growth charts and identify whether a child is growing normally, has a growth problem, or is at risk of a growth problem [ ]

c. Appropriately referring for the correct vaccination depending on child's age [ ]

15. Counselling on Growth and Feeding (Appropriate Nutritional counseling)
a. Inform a mother about the results of her child's growth assessment. [ ]
b. Give appropriate feeding recommendations for a child's age. [ ]
c. Interview a mother to investigate causes of under-nutrition. [ ]
d. Give advice related to specific causes of under-nutrition. [ ]

e. Interview a mother to investigate causes of overweight. [ ]
f. Give advice related to specific causes of overweight [ ]
g. Appropriate referral for nutritional help if needed [ ]
h. Giving group health education to mothers/caretakers [ ]

16. How to appropriately handle the sick children
a. Appropriately assess the sick children [ ]

b. Appropriately treat the sick children [ ]
c. Appropriately and timely refer the sick children [ ]

17. Which organisation trained you?
a. Mtendere Mission Hospital [ ]

b. The District Health Office (GRZ) [ ]
c. An NGO [ ]
Specify: …….

18. What training methods were used by your facilitators/teachers during training

(Tick only methods that were used)

a. Classroom Lecturing/Teaching [ ]
b. Demonstrations [ ]
c. Slide Shows [ ]
d. Role Plays [ ]
e. Reading [ ]
f. Group discussions [ ]
g. Written Exercise [ ]
h. Receiving individual feedback [ ]

SECTION C:KNOWLEDGE, SKILLS AND COMPETENCIES ATTAINEDBY CCGMPS

(Write only one corresponding letter next to the correct answer, in the spaces provided)

19. What is community-based child growth monitoring and promotion?
    a. Monthly weighing of the under-five children [ ]
    b. Conducting meetings between community-based child growth monitors and promoters, mothers and under-five children [ ]
    c. A regular systematic weighing, monitoring and promoting growth of children that helps to detect malnutrition early in children so that appropriate and timely, nutrition measures can be applied in the community [ ]
    Caring for sick children [ ]
    d. I'm not sure [ ]

20. Before starting each session of community child growth monitoring, the scale should be checked by ……

    a. Weighing any child whose mother has come early [ ]
    b. An object with a known weight e.g. 1kg of sand [ ]
    c. Should assume the scale is in good working condition [ ]

21. What colour is the under five card forMales children
    a. Blue [ ]
    b. Pink [ ]

22. What colour is the under five card for Female children
    a. Blue [ ]

    b. Pink [ ]

23. Before weighing every child, the pointer of the weighing scale should point at ……

    a. Zero [ ]
    b. Between Zero and one [ ]
    c. Slightly at zero [ ]
    d. At the estimated weight of the child about to weighed [ ]

24. Children who are more than two years old should be weighed using……

    a. A weighing bag [ ]
    b. A standing scale with shoes on [ ]
    c. A standing scale without shoes or anything heavy in their pockets. [ ]

25. During cold whether the children:

    a. Should be weighed in Heavy clothes to prevent chilling [ ]
    b. Children's weight should only be estimated [ ]
    c. Should be weighed in Light clothes but taking the weight fast so as not to chill the child. [ ]

d. The session should be postponed [ ]

26. How should the child's weight be recorded on the card after weighing?

a. Tell the mother the weight so that they can inform the next person who is writing to record on the card and tally [ ]
b. Plot the weight with a dot and connect from the previous weight with a line to make a graph [ ]
c. Write weight in the column of the month that the child is weighed [ ]
d. Plot or write the weight in the column or do both. [ ]

27. After taking the weight of a child……
a. Record the weight on the growth chart and call the next person [ ]
b. Say goodbye to the mother/caretaker [ ]
c. Record the weight of a child on the card and give nutritional Information depending on the child's weight in comparison with the previous weight for age [ ]
d. Smile at the baby [ ]

28. Why do you have to weigh all the under five children?

a. Because mothers have to compete [ ]
b. Because they are children [ ]
c. To monitor the growth of the children as well as promote children's health and detect growth faltering before complications occur [ ]
d. It makes us happy [ ]

29. What do the following growth curves mean? (Choose only one (1) answerfor each of the three descriptions below)

a. Ascending:
a. i) Child is gaining weight and growing well [ ]
a. ii) Child is neither gaining nor losing weight and is stunted [ ]
a. iii) Child is losing weight, not growing well and has malnutrition [ ]
b. Descending
b. i) Child is gaining weight and growing well [ ]
b. ii) Child is neither gaining nor losing weight and is stunted [ ]
b. iii) Child is losing weight, not growing well and has malnutrition [ ]
c. Flattened
c. i) Child is gaining weight and growing well [ ]
c. ii) Child is neither gaining nor losing weight and is stunted [ ]
c. iii) Child is losing weight, not growing well and has malnutrition [ ]

30. What action should be taken and what advice should be given to a mother/ caretaker on a child with growth faltering?

a. Talk to the mother/caretaker about the child's growth, health and feeding, then refer To the nearest health center [ ]
b. Keep the under-five card and send the mother with the child home [ ]

c. Tell the mother not to bring the child for growth monitoring the following month. [ ]

d. Tell the mother that they are not doing anything good to the child

31. How often should the children Zero to 36 months old be weighed?

a. Two weekly [ ]
b. Every three months [ ]
c. Monthly [ ]
d. Every six months [ ]

32. At what age do you send the under five children for vaccination against DPT?

a. At six weeks, 10 weeks and at 14 weeks old [ ]
b. At zero to 14 days [ ]
c. At six weeks only [ ]
d. When the mother is ready to bring the child [ ]

33. What do you do to children who are brought when they are sick to the Community-based child growth monitoring point? (Tick all possible answers)

a. Treat them if we can and refer if we cannot treat. [ ]

b. Counsel the mother/caretaker and send them home. [ ]
c. Weigh and record
d. Immediately refer them to the Health care provider or Health centre [ ]

e. Tell them it is not a place for sick children [ ]

34. Of what importance is the information recorded on the under five card?

a. It makes the mother happy [ ]
b. It motivates the community health volunteer [ ]
c. It makes the child to grow well [ ]
d. It helps to assess the health, growth and immunization status of the child [ ]

35. Why should the under five card be kept clean and safe from tearing, getting soaked and burning?

a. When it is dirty it causes diseases to the child [ ]
b. When it is dirty it should no longer be used [ ]
c. It is a legal record of the child's growth and health [ ]
d. It prevents malnutrition [ ]

SECTION D:PRACTICE AND CHALLENGES AFFECTING CCGMPS AS THEY PROVIDE SERVICES

36. For how long have you been a community-based child growth monitor and promoter?

a. Less than one (1) year [ ]
b. Between one to two years [ ]
c. Between two to five years [ ]
d. More than five years [ ]

37. How many community-based child growth monitors and promoters in your area are actively involved in the activities of community child growth monitoring and promotion?
a. One [ ]
b. Two to Five [ ]
c. Six to Ten [ ]
d. More than Ten [ ]

38. What other services do you offer to under-five children apart from weighing them?(Tick only correct answers)

a. Nutrition counseling and general health education [ ]
b. Vaccinations [ ]
c. Referrals to health centers and for other appropriate management [ ]
d. VCT [ ]
e. Postnatal care [ ]
f. Treatment of minor diseases [ ]
g. Nutrition supplementation to malnourished children [ ]

39. How available are the weighing scales and stationery for use during community child growth monitoring sessions?

a. Readily available. [ ]
b. Available sometimes. [ ]
c. Usually not in working condition [ ]
d. Not available [ ]

40. How often do you conduct community child growth monitoring and promotion at each monitoring point in your area?
a. Once a week [ ]
b. Once a month [ ]
c. Once every three months [ ]
d. Once to twice a year [ ]

41. How many community-based child growth monitors and promoters are available to work at each growth monitoring session?
a. One [ ]
b. Two or Three [ ]
c. Four or Five [ ]
d. Five and more [ ]

42. Approximately how many children do you monitor of at every growth monitoring session?
    a. 10 to 20 children [ ]
    b. 20 to 40 children [ ]
    c. 40 to 60 children [ ]
    d. 60 to 100 children [ ]
    e. More than 100 children [ ]

43. How do you manage with your work with what you have answered?
    a. We manage well [ ]
    b. Too much work and we are stressed due to shortage [ ]
    c. We only do what we can manage and some children are sent back without monitoring their weight [ ]
    d. We do not manage [ ]

44. What sort of support or help do you get from the community leaders such as chiefs, councilors, church leaders? (Tick all correct answers)
    a. At least one of them is present with us at most sessions [ ]
    b. They help to organise the community to build shelters for us to conduct the sessions [ ]
    c. They help to inform and sensitise the mothers/caretakers to bring their children to the growth monitoring session [ ]
    d. They help weigh the children [ ]
    e. They help to organise lunch for us [ ]
    f. None [ ]
    g. Any other. Specify ……. [ ]

45. How often do health professionals provide you with technical supervision
    a. At every weighing session [ ]
    b. Sometimes rarely. [ ]
    c. Do not provide any supervision [ ]
    d. Too often [ ]

46. Do you need the supervision from Health professionals?

    Yes [ ]
    No [ ]

47. Do you think community-based child growth monitoring and promotion Programme is helpful or useful?
    a. Yes [ ]
    b. No [ ]

48. IF your answer in Q 40 is YES, how helpful/ useful is the programme?

.....

49. Are you motivated/remunerated in any way or at any time for the work that you do?
    a. Yes
    b. No

50. If Yes how are you motivate and how often (Tick all applicable)
    a. Paid money by Government once in a while

b. Paid money by NGO monthly
c. Given Bicycles or other hand-outs once/rarely
d. Charge the caretakers who bring their children for growth monitoring session
e. Any Other, specify ……

51. What are your suggestions to make the community-based child growth Monitoring and promotion programme helpful or more helpful?

……..

……..

……..

THANK YOU FOR PARTICIPATION

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APPENDIX 3: CHECK LIST FOR UNINTERRUPTED DIRECT OBSERVATION ON KNOELEDGE, SKILLS AND COMPETENCIES OF CCGMPs

TOPIC: COMMUNITY-BASED CHILD GROWTH MONITORING AND PROMOTION TRAINING AND IMPLEMENTATION PROGRAM IN ZAMBIA: A SCOPE& CONTEXT EVALUATION

At every community Growth monitoring point check for the following:

1. Prepares all necessary equipment before starting a growth session [ ]
2. Weighing scale is hanged from a strong support with a dial at eye-level so that it is easy to read and gives accurate weight. [ ]
3. Accurately weighs and record of children's weights [ ]
4. Appropriately provides one-to-one nutrition counselling to mothers/caretakers [ ]
5. Conducts target group health education before the commencement of weighing session [ ]
6. Correctly tested weighing scales before the children are weighed [ ]
7. Correctly refers children for vaccination as per EPI protocol [ ]
8. Gives children vitamin A as per EPI protocol [ ]
9. Deworms children as per EPI protocol [ ]
10. Appropriately counsels and refers HIV exposed children are for PMTCT services [ ]
11. Appropriately counsels and refers HIV positive Children for ART [ ]
12. Correctly enters data on tally sheets [ ]
13. Collected, compiles and uses data to improve service delivery of CCGMPs [ ]

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APPENDIX 4: GUIDE FOR IN-DEPTH ONE-TO-ONE EXIT INTERVEIW ON SATISFACTION OF MOTHERS/CAREGIVERS

Section A: SOCIO-DEMOGRAPHIC DATA OF MOTHERS/CAREGIVERS

1. Gender
   a. Male [ ]
   b. Female [ ]
2. What was your age on the last birthday?
   a. 16-20 [ ]
   b. 21-30 [ ]
   c. 31-40 [ ]
   d. 41-50 [ ]
3. What religious denomination do you belong to?
   a. Roman Catholic []
   b. Protestant [ ]
   c. Pentecostal [ ]
   d. Muslim [ ]
   e. None [ ]
4. What is your highest level of education?
   a. Never been to school [ ]
   b. Primary [ ]
   c. Secondary [ ]
   d. Tertiary [ ]
5. What is your marital status?
   a. Married [ ]
   b. Not Married
6. What nationality are you?
   a. Zambian [ ]
   b. Zimbabwean [ ]

7. What is your main source of income?
    a. Small scale farming [ ]
    b. Husband Support [ ]
    c. Children/relatives support [ ]
    d. Own small business [ ]
    e. Other Specify:……. [ ]
    f. None [ ]

8. If answer is none, how do you survive economically?

Section B: SATISFACTION OF RECIPIENTS OF SERVICES PROVIDED BY CCGMPS

In your own opinion what would you say about the services your child receives from the CCGMPs?

Rate the statements below using the following scale:

Strongly agree= 5, agree=4, not sure=3, disagree=2, strongly disagree=1.

(Indicate respondent's answer by writing the number next to the space provided)

CCGMPs …….

a. Are welcoming and respectful to us [ ]
b. Inform me about the results of my child's growth assessment. [ ]
c. Are very rude and threaten us during service delivery [ ]
d. Give appropriate feeding recommendations my child's age. [ ]
e. Interview us to investigate causes of under-nutrition. [ ]
f. Give relevant advice related to specific causes of under-nutrition. [ ]
g. Interview a mother to investigate causes of overweight. [ ]
h. Give advice related to specific causes of overweight [ ]
i. Generally know their work and are helpful to us [ ]
j. Provide appropriate referral for nutritional help if needed [ ]
k. Appropriately handle sick children by treating or timely referring the sick children[ ]
l. Generally do not know their work, if not careful can make us loose our children [ ]
m. Give group health education to mothers/caretakers [ ]
n. Are just after our money because they make us pay for every services [ ]
o. Are providing a good service to the community as they help our children to be healthier [ ]

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APPENDIX 5: GUIDE FOR FOCUS GROUP DISCUSSION

1. What type of training did you undergo in order to be able to work as CCGMPs?[ ]
2. Do you think that your training was sufficient to perform all the roles that you perform?[ ]
3. If No, What do you think is lacking in your training? [ ]
4. What teaching methodologies were used during your training? [ ]
5. How is the organisational structure that governs the functioning of the CCGMPs? [ ]
6. What type of infra-structure like buildings, furniture are available to facilitate provision of CCGMP services? [ ]
7. How available are logistics to facilitate your work e.g: stationary, transport?[ ]
8. What are your work conditions like motivation, remuneration, supervision? [ ]
9. How is your work load in terms of numbers of CCGMPs to child ratio, hours of service delivery? [ ]
10. How do you cope with large numbers of children to attend to? [ ]
11. What sort of medical/surgical supplies are provided to facilitate your work? [ ]
12. How are you motivated in terms of appraisal, reward or remuneration ? [ ]
13. What safety measures provided as you provide the service in terms of provision and use of protective clothing: coats, aprons, shoes, uniforms? [ ]