# Improving Utilization of Antenatal, Skilled Deliveries and Postnatal Care in Zambia

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Zambia

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# Improving Utilization of Antenatal, Skilled Deliveries and Postnatal Care in Zambia

A thesis submitted in partial fulfillment of the requirement for the degree of Master of Public Health

By

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Zambia

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Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

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## ABSTRACT

**Background:** Zambia is one of sub-Sahara African countries with a high MMR estimated at 591/100,000 live birth. The country has high levels of home delivery estimated at 53% with only 47% of deliveries being attended by skilled birth attendants and 61% of the women do not attend PNC. Most of the maternal dearth are due to conditions that can be prevented during perinatal, labor and postnatal periods.

**Objective:** to identify and describe factors influencing utilization of skilled birth attendants during ANC, labor and postpartum period and give recommendations on effective interventions in improving utilization of maternal health services in order to reduce maternal mortality in Zambia

**Methods:** A literature review of peer reviewed gray literature in maternal health was conducted. The Socio-Ecological model was used to analyze and describe factors influencing utilization of the three maternal health services.

**Results:** community context, interpersonal, intrapersonal and institutional factors all influence utilization of ANC, skilled delivery and PNC in Zambia. The major factors found were cultural beliefs, parity, education, past experience, perceived quality of maternal health services, staff attitudes, poverty and shortage of health workers. Interventions such as training of skilled birth attendants, providing health facilities with equipment and drugs, girl child education, community support, conditional cash transfer, and task shifting were found to be effective in improving utilization of maternal health services.

**Conclusion:** Utilization of ANC, skilled delivery and PNC in Zambia is a subject of complex factors that cannot be addressed by one intervention only. Long term and short term intervention should be addressed simultaneously to improve utilization of the three maternal health services.

**Recommendation:** Government through MoH should continue training skilled birth attendants, upgrading and supplying of equipment and drugs at health facilities, girl child education and improving road network. Pilot cash transfer schemes and distribution of misoprostol through SMAGs and scale out EmONC and CEmONC trainings, re-employment of retired skilled birth attendants. Conduct a Research on attitudes of health workers followed with refresher training on desirable attitudes and code of practice.

**Key words:** Maternal mortality in Zambia, utilization of maternal health services, skilled birth attendants, Social ecological model.

**Word count: 13,025**

## ABBREVIATIONS

| | |
|---|---|
| ANC | Antenatal Care |
| BEmONC | Basic Emergency management of Obstetric and Neonatal Care |
| BRAC | Bangladesh Rural Advancement Committee |
| CCT | Conditional Cash Transfer |
| CCTS | Conditional Cash Transfer Scheme |
| CEmOC | Comprehensive Emergency management of Obstetric Care |
| CHAZ | Churches Health Association of Zambia |
| CHW | Community Health Workers |
| C/S | Caesarian Section |
| CSO | Central Statistical Office |
| DEM | Direct Entry Midwifery |
| EmONC | Emergency management of Obstetric and Neonatal Care |
| FANC | Focused Antenatal Care |
| FP | Family Planning |
| HBM | Health Belief Model |
| HEW | Health Extension Officer |
| HIV/AIDS | Human Immunodeficiency Virus/Acquired immunodeficiency syndrome |
| ICPD | International Conference on Population and Development |
| IEC | Information Education and Communication |
| IMNC | Improve Maternal Neonatal and Child survival |
| JHPIEGO | Johns Hopkins Program for International Education in Gynecology and Obstetrics |
| LMIC | Low and Middle Income Countries |
| MAMAZ | Mobilizing Access to Maternal health services in Zambia |
| MCDMC | Ministry of Community Development Mother and Child health |
| MDG | Millennium Development Goals |
| MHV | Maternal Health Vouchers |
| MM | Maternal Mortality |
| MMR | Maternal Mortality Ratio |
| MoH | Ministry of Health |
| NHIS | National Health Insurance Scheme |
| P4P | Performance for Payment |
| PIC | Population Council International |
| PMTCT | Prevention of Mother To Child Transmission of HIV |
| PNC | Postnatal Care |

| | |
|---|---|
| PPH | Postpartum Hemorrhage |
| SEM | Socio Ecological Model |
| SMAGs | Safe Motherhood Action Groups |
| TBAs | Traditional  Birth Attendant |
| UNICEF | United Nations International Children's Emergency Fund |
| UN | United Nations |
| UNDP | United Nations Development Program |
| UNFPA | United Nations Population Funds |
| UTH | University Teaching Hospital |
| NGO | Non-governmental Organization |
| WISN | Workload Indicators of Staff Needs |
| WHO | World Health Organization |
| ZDHS | Zambia Demographic Health Survey |
| ZISSP | Zambia Integrated System Strengthening program |

## GLOSSARY

**Maternal Mortality:** is the death of a woman during pregnant, labor or within 42 days of termination of pregnancy, regardless of gestational age and the site of the pregnancy, due to any complication related to or worsened by the pregnancy or 'its management, but not from accidental or incidental causes (WHO 2004).

**Maternal mortality ratio** (MMR); is the number of maternal death during a given time period per 100,000 live births during the same period (WHO, 2009).

**Maternal mortality rate (MMRate):** the number of maternal deaths in a population divided by the number of women of reproductive age, usually expressed per 1,000 women (WHO, 2009).

**Skilled delivery**: is delivery attended to by doctors, midwives, nurses and clinical officers (CSO 2009).

**Skilled health worker/ Skilled Birth Attendant:** is an accredited health professional such as midwife, doctor or nurse who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postpartum period, and in the identification management and referral or complications in women and newborn (WHO, 2009).

**Total fertility rate**: represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates(CSO 2009).

**Traditional Birth attendant** (TBA): traditional, independent (of the health system), none formally trained and community based providers of care during pregnancy, childbirth and the postpartum period but is not part of skilled health workers category (WHO, 2004).

**Antenatal care** : is the care provided during pregnancy by skilled birth attended attendant (WHO, 2004).

**Postnatal care**: is pre-eminently about the provision of a supportive environment in which a woman, her baby and the wider family can begin their new life together (WHO, 2004).

## INTRODUCTION

Pregnancy is considered as normal, exciting and healthy event (WHO at el 2007). However, about 15% of all pregnant women develop complications that affect their health and the outcome of the pregnancy. Globally, maternal mortality (MM) remains a major public health problem. About 800 women die every day from pregnancy related complications (WHO 2012). In 2013, about 289 000 women died from pregnancy and childbirth related complications worldwide (WHO 2014a). From 1990 to 2013, MM globally reduced by 50% although there are huge disparities between developed and developing countries. WHO (2014a) estimated maternal mortality ratio (MMR) at 230/100,000 live births in developing countries and 16/100,000 live births in developed countries. The life time risk of maternal dearth is 1in 22 and 1in 10,200 in developing and developed countries respectively.

Developing countries still account for 99% of global maternal deaths (WHO 2014a). 56% and 26% of all MM occurred in Sub-Sahara Africa and Southern Asia respectively (WHO 2012). MMR for Sub-Sahara Africa was the highest at 500/100,000 live births, and Southern Asia was 220/100,000 live births in 2010 (WHO 2012). Although developing countries account for 99% of all MM Sub-Sahara Africa account for more than half and Southern Asia account for one third (WHO 2012).

Zambia Demographic Health Survey (ZDHS 2007) reported that MMR was at 591/100,000 live births which is one of the highest in sub-Sahara Africa. Maternal deaths usually occur during labor, delivery and postpartum period WHO (2005). 72% of maternal deaths are due to direct causes such as hemorrhage, sepsis (infections), hypertensive disorders, prolonged or obstructed labor and unsafe abortion (WHO 2014a). The remaining 28% are due to indirect causes which are medical conditions such as anemia, malaria, heart disease and HIV/AIDS. Most of these deaths can be averted by using skilled birth attendant during antenatal care (ANC), delivery and postnatal care (PNC). Studies have shown that countries where 80% of deliveries are assisted by skilled health workers, MMR is below 200/100,000 live births (UNFPA 2004).

Reduction of MM depends on well-proven maternal interventions such as increasing access to emergency management of obstetric care (EmOC), skilled attendance during pregnancy, deliveries and PNC and access to family planning (WHO 2010). According to ZDHS (2007), the main contributing factors to high MMR in Zambia are low skilled deliveries and PNC which are estimated at 47%, and 39% respectively. Skilled delivery is delivery attended to by doctors, midwives, nurses and clinical officers (CSO

2009). The unmet needs of family planning are estimated at 26.9% thus increasing the number of unwanted pregnancy which causes unsafe abortion and increase maternal morbidity and mortality.

The main aim of this study is to identify and describe factors influencing utilization of ANC skilled deliveries and PNC and give recommendation on how to improve utilization of these three maternal services in Zambia.

## CHAPTER ONE: BACK GROUND INFORMATION

This chapter summaries the profile of Zambia. The social culture and economy, health system, reproductive health policy and challenges in health system in response to ANC, skilled delivery and PNC will be discussed respectively

### 1.1 Zambia profile

Zambia is one of sub-Sahara African Countries. The population is estimated at 13,400,000 and fertility rate at 6.2 children born/woman which is high and contributing to the high MM in the country (CSO 2009).

### 1.2 Social culture and economy

There are about 72 tribes living in Zambia. Although some tribes may consider themselves superior, there is sense of unit across all tribes (MoH 2010). intermarriages is common and this has strengthened the relationship among all the tribes. However, some tribes have slightly different cultures beliefs and practice towards pregnancy and complications of pregnant and delivery.

There has been a lot of improvement in Zambia's economy in the recent years (WHO 2013). World Bank declared Zambia as lower middle income country in 2011. However most of Zambian (60%) are still living below poverty line of US$1 per day (UN, 2011). There are also inequalities in the distribution of wealth and socio-economic infrastructure in the country. The current situation favors the urban areas and affects the provision of social services like education, health etc. in rural areas (MoH 2010). Transport and road networks in rural areas are very poor which make it difficult to travel especially during the rainy session.

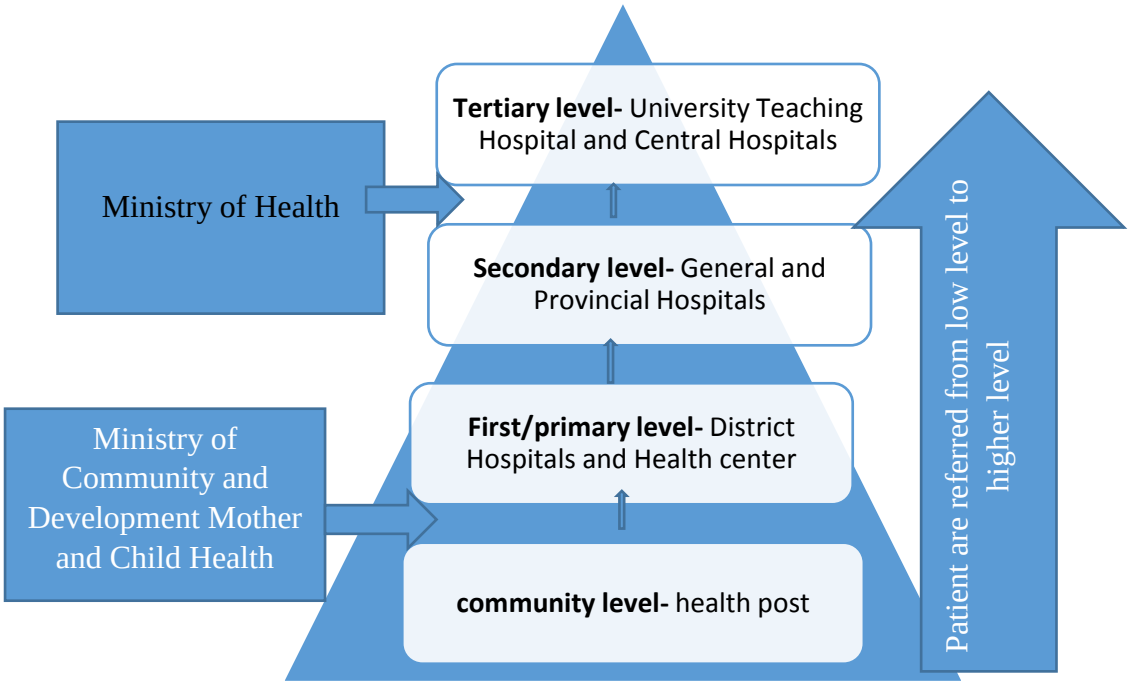
### 1.3 Health system

Government through Ministry of Health (MoH) and Ministry of Community Development Mother and Child Health (MCDMC) are the main providers of health services (MoH 2010). The country has 1489 public health facilities. In addition, there are also 271 private and 122 faith based health facilities (MoH, 2010). MoH and MCDMC coordinate and control all health services in the country.

### 1.4 Levels of health services provision

The health care system in Zambia is classified into three main levels and these are: first, second and tertiary levels.

**Figure 1**: Levels of health system in Zambia.




**The health posts**; usually cater for 500 rural households ± 3500 population and in urban areas 1000 households ± 7000 people. The majority of health posts are run by Community Health workers (CHW). No trained health workers are working at this level.

### 1.4.1 First/primary level

It is comprised of the health post, health centers and district hospitals. These health facilities cater for a population of 10 000 to 250 000 (MoH, 2010). Primary health care services such as treatment of minor conditions, HIV counseling and testing, ANC services, family planning, normal deliveries, emergency management of obstetric care (EmOC) etc. are provided at this level. Both first level health facilities and health posts are controlled by MCDMC

### 1.4.2. Secondary level

Comprise of provincial and general hospitals which provide curative services and comprehensive emergency management of obstetric care (CEmOC) services. The district hospitals refer complicated cases to this level.

### 1.4.3. Tertiary level

Comprises of central and the national University Teaching Hospitals (UTH). Advanced specialist is found at this level. The secondary and tertiary levels are controlled by MoH.

## 1.5 Reproductive health policy in Zambia

The reproductive health policy in Zambia state that "pregnant women should be provided care for prevention, detection and treatment of complications, has access to skilled birth attendants, emergency obstetric care, PNC and family planning (FP)" (MoH 2010). All these services are provided free at most of the public health institutions. However private facilities and public high cost hospitals charge some amount of money for the same services.

According to CSO (2009) 47% of deliveries are attended to by skilled birth attendants which is very low as compared to 94% of women who attend at least one ANC visit even if most of them book after first trimester. The percentage of women attending PNC is also low at 38%.

## 1.6 Challenges in health system in response to ANC, skilled deliveries and PNC

The shortage of health workers in the country is a major problem especially skilled health workers (MoH 2010). Currently the ratio of health workers to population is 1.24 health workers per 1000 population. WHO recommends minimum level of 2.3 health workers per 1,000 population (WHO, 2009). However the current situation in the country is even below the average health workers per 1,000 population of 1.6 for sub-Saharan Africa (WHO, 2009). The gap between the actual number of midwives and required is -2671. The WISN ratio is at 0.48 which is below the recommended WISN ratio of 1 (MoH, 2010).

Due to shortage of midwives, and health workers, in some health facilities especially in remote areas, deliveries are being conducted by non-midwives. The private health facilities are mainly found in urban areas where most of the public health facilities are also found (MOH 2010). This makes the situation in the rural areas to be more challenging than in urban areas. MOH (2010) estimated that 50% of the catchment population in rural areas live outside 5 kilometers of the health facility. The health system has also challenges in transport and communication causing delay in referral of complicated maternal cases in some areas.

Despite all these challenges, MoH has made some achievement in maternal health. The ANC coverage has increased from 93% to 94% of at least one visit and use of modern FP services from 23% to 33% in 2001/02 and 2007

ZDHS respectively (CSO 2009). However there are challenges in achieving the 80% of deliveries conducted by skilled birth attendants as recommended by WHO and also PNC coverage is still low. Although skilled deliveries increased from 43% to 47% and PNC from 23% to 39% in 2001/02 and 2007 ZDHS respectively, it is still too low to meet the 80% coverage. Also unmet needs of FP at 26.9% and MMR estimated at 591/100,000 live births are still high (CSO 2009).

According to WHO (2014a) the Maternal death attributed to each cause is as follows: severe bleeding 27%, pregnancy induced hypertension 14%, infections 11%, obstructed labor 9%, abortions 8%, blood clots/embolism 3% and pre-existing conditions such as anemia, cardiovascular diseases, malaria, HIV etc. 28%. Zambia is not un exception to causes of MM. From the statistic, severe bleeding is the most cause of death.

## CHAPTER TWO: STUDY OVER VIEW

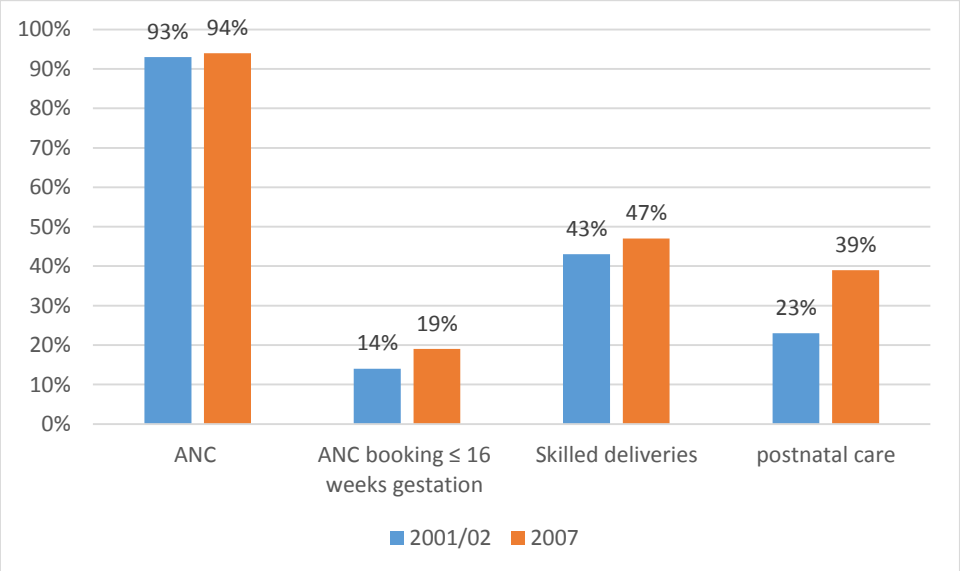
This chapter will discuss the problem statement, justification, objectives, methodology, key words, study limitation and conceptual framework respectively.

### 2.1. Problem statement

Zambia is among sub-Sahara Africa countries with high MMR (CSO 2009). Every day 38 women are dying from pregnancy related complications in Zambia. Although the country is making some progress towards meeting the MDG5A target and MMR has decreased from 591 to 483/100,000 live births from 2007 to 2010 respectively, the progress is not sufficient to meet MMR of 162/100,000 live births by 2015 (WHO 2013).

The Zambian Government is putting in a lot of efforts to improve the maternal health services, but still lagging behind in terms of utilizing of the ANC, skilled delivery and PNC services. Low utilization of these services result into MM from conditions that can be averted through use of the three maternal health services (CSO 2009). Figure 2 shows the ANC attendance, skilled deliveries and PNC for 2001/02 and 2007 demographic health survey. The gap between the women attending at least one ANC and booking ≤16weeks, skilled deliveries and PNC show that utilization of the three maternal health services in the country is low.

Figure 2: Trends in ANC, Skilled deliveries and PNC service utilization (Zambia DHS)




Source: ZDHS 2001/02 and 2007:

Utilization of ANC, skilled delivery and PNC services is determined by many different factors. Studies have shown that factors influencing use of the three maternal health services are interpersonal, intrapersonal, community and institutional factors such as knowledge on the danger signs, educational level, cultural beliefs, parity, gender norms and values, family influence, distance to the health facility, decision making, attitude of health workers, past experience, cost which can be direct or indirect, etcetera (Lule 2005).

## 2.2. Justification

Skilled birth attendants during ANC, labor and PNC, is one of the key interventions aimed at reducing maternal deaths (WHO et al 2007). It is a single most critical intervention for reducing MMR because it hastens the emergency management of obstetric and new born care when complication occurs (UNFPA 2009). Studies have shown that midwives working very close to the community/family have great impact in reducing maternal and neonatal mortality. Approximately 15% of all pregnancy will result into complication and cannot be predicated (WHO et al 2007). It is therefore important that all pregnant women should be attended to by skilled birth attendant during prenatal, delivery and postnatal for adequate management and quick referral during complication (UNFPA 2009).

While skilled delivery and PNC hasten the management of complication such as severe bleeding, ANC creates an important opportunity to reach out women for important intervention to improve their health (WHO 2003). It provides an important arena for information education and communication (IEC) to pregnant women on relevant information. IEC on danger signs and symptoms during pregnancy, labor and delivery and also birth preparedness may make women realize the importance of being delivered by a skilled birth attendant and do that in practice (WHO 2003). ANC enables the pregnant woman to start taking iron tablets early and prevent anemia, PMTCT of HIV and maternal morbidity and mortality from pre-existing conditions.

Maternal mortality has impact on the family, community and society economic. The death of mothers and neonates every year creates loss in potential productivity which is estimated at US $15.5 billion (WHO 2005). When a woman dies during child birth, the infant, if alive and other surviving children less than 10years old are 3 to 10 times at risk of dying within two years than children living with their mothers (WHO, 2005). Children without a mother suffer a lot of consequences such as malnutrition, not taken for health services like immunizations or stop school because of lack of financial support (WHO, 2005).

Women who do not receive early management and escape death from pregnancy and delivery related complications may develop serious diseases and disabilities. Some of these are uterine prolapse, fistula, incontinence, infertility and pelvic inflammatory disease (WHO, 2005). All these conditions can be averted or reduced by utilizing skilled birth attendants during all the three maternal health service which improves early diagnosis and management of complications of pregnancy and delivery.

This study is aimed at making contributions to the reduction of MM through identifying and describing factors influencing utilization of ANC, skilled deliveries and PNC and give recommendation on how to improve utilization of these services.

## 2.3. Main objectives

The main objective of this study is to identify and describe factors influencing utilization of skilled birth attendants during ANC, labor and PNC in Zambia.

### 2.3.1 Specific objectives

i. To describe community, interpersonal and individual factors that affect utilization of skilled birth attendants during ANC, delivery and PNC.
ii. To identify and analyze institutional factors associated with women utilizing skilled birth attendants during ANC, labor and PNC
iii. To discuss evidence informed interventions and best practice in utilization of the three maternal health services.
iv. To provide recommendations for improving utilization of ANC, skilled deliveries and PNC in Zambia`

## 2.4. Methodology

The study objective were achieved through literature review of published and unpublished articles describing factors influencing women utilizing skilled birth attendants during ANC, delivery and PNC in Zambia, Sub-Sahara and globally. The review analyzed evidence informed factors associated with the problem of utilization of maternal health services.

### 2.4.1 Search strategy

A phased search strategy was carried out. Document review was done through internet search engine, using pub med and Google Scholar, web sites for WHO, UNDP, UNFPA, MoH reports, ZDHS, medical journals, UNICEF, article, books and reports. The study reviewed studies done in Zambia, sub-Sahara Africa and globally from 2000 to 2014.

About 60 Articles were searched from PubMed and Google Scholar, from which 4 were excluded. The following inclusion criteria were followed:

Primary data, English language, study objective related to factors influencing utilization of ANC, skilled delivery and PNC, qualitative and quantitative data collection methods, LMIC and full text available.

### 2.4.2 Key words:

The combination of the following words was used: Maternal mortality, maternal morbidity, antenatal care, skilled birth attendant, postnatal care, Zambia, home deliveries, health care system, three delay model, health belief model, socio-ecological model, socio-culture factors, interpersonal factors, individual factor, institutional factors, education, age, attitude of health workers, social support, women's group, distance, gender norms and values, age, utilization, institutional deliveries, task shifting, demand-side payments, and conditional cash transfer

### 2.4.3 Limitations;

Only studies published in English and available were analyzed. The result depends on how accurate the studies analyzed were. Due to limited studies done in Zambia, studies done in other countries with similar characteristics with country of study, especially those in sub-Sahara Africa, relating to reproductive health were also considered. The other limitation was more evidence of what works in improving maternal health is coming from Latin America and South Asia.

## 2.5 Conceptual frame work

Conceptual frame work is a theoretical structure of concepts, assumptions, expectations and beliefs that holds together the main issues to be studied (Robson, 2002).

I considered the three delay model which was developed by Thaddeus and Maine in 1994 to be used as conceptual frame work of my thesis. The Three Delays Model specifies the three groups of factors that hinder women and girls to access obstetric care during an emergency (UNFPA 1991). It recognizes the different barriers that affect women not to seek health services from the onset of the complication to the time the woman receives care. I have not used this model because it does not identify factors that influence utilization of ANC labor and PNC in the event that there is no complication.

I also looked at health belief model (HBM) which was developed in 1950s by Hochbaum, Rosenstock and Kegels (Glanz 2002). HBM is a psychological model attempting to explain and predict health behaviors. It focuses on the attitudes and beliefs of individuals in seeking health services. The model has not been used in this study because it does not take into consideration

factors from health institutions that can also influence utilization of ANC, skilled delivery and PNC.

The third model that I considered to use in this study is Socio-Ecological Model (SEM). From the early works of Lewin, Barker and Bronfenbrenner, ecological model of health has its origin in the fields of psychology and human development (National Cancer Institute, 2005). The model explains behavior as the interaction of person and environment. It takes a broader perspective and assesses the individual characteristics and their interplay with interpersonal, community and friends in utilizing health services (National Cancer Institute, 2005). It emphasizes on social and physical environment that influence the behavior of women in utilizing maternal health services.

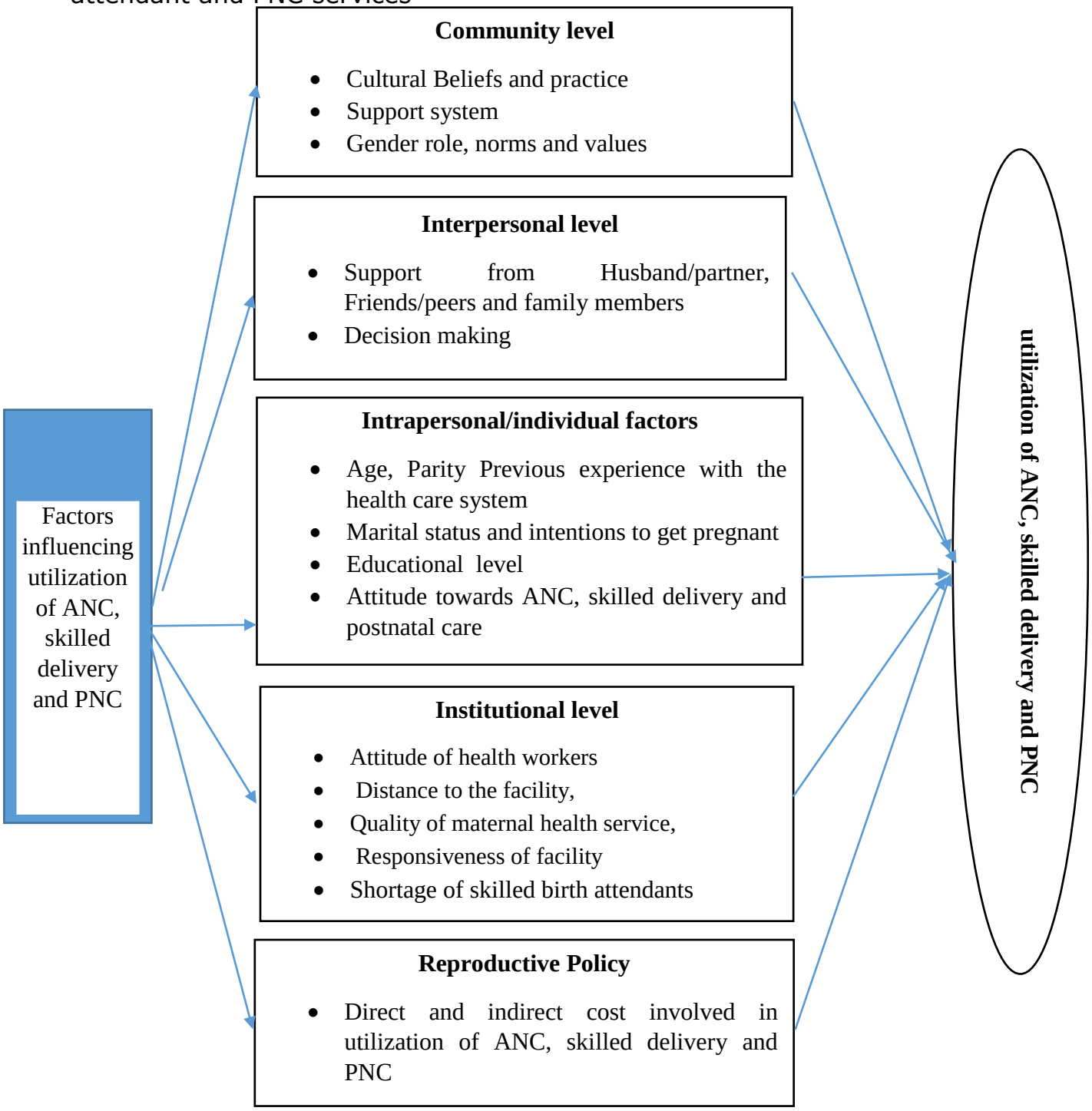
The SEM is a comprehensive public health approach that addresses individual's risk factors, norms, beliefs, social and economic factors that enables or disables the woman to use ANC, skilled delivery and PNC services. The SEM is used in this study because it recognizes the interaction and interdependence of individual relationships, community and societal factors at all level of health problem (National Cancer Institute, 2005). The key concept of the model that helped to identify factors influencing ANC, skilled delivery and PNC is that the behavior of an individual towards improving health and risk reduction is influenced by factors at different level (National Cancer Institute, 2005).

In this study, the five levels of influence for health related behavior identified by McLeroy and others in 1998 will be used. These include: intrapersonal/individual, interpersonal, institutional, community factors and public policy.

- **Intrapersonal/individual factors**:
  These are biological and past experience factors that influence an individual to seek and utilize the three maternal health services (Barbara et al, 2005). In this study I will consider the following individual factors: Age/previous experience/parity, marital status and intentions to get pregnant, educational level and attitude towards ANC, delivery and PNC. More often, individual factors are designed to affect one's social behavior towards utilization of health services. They are important factors but the model recognizes that there are many external factors that influence these individual determinants.

- **Interpersonal level:**
  These are factors or influence from people who are very close to the pregnant woman. They provide primary interactions that represent the association that provide role definition and social identity (Barbara et al, 2005). These are individuals in social roles who are key decision makers and influence or determine the individual's behavior toward utilization of maternal health services. Factors from primary groups such as family and friends i.e. Support from the husband/partners, friends and peers and decision making, that can influence utilization of ANC, skilled delivery and PNC will be considered.
- **Institutional factors**:
  These are factors that can constrain or promote utilization of maternal health services. Institutional factors can have tremendous influence over individual's utilization of health services. In this study the following factors will be considered: attitude of health workers, distance to the facility, and quality of the service and shortage of skilled birth attendants.
- **Community Level**:
  According to Barbara et al 2005, this level includes all individual, business, institution and organization which collectively comprise a large societal fabric. It focuses on the community as a specific entity. In this study, cultural beliefs and practice, gender roles, norms, and values, and social support in the community will be considered as factors that can influence utilization of maternal health services.
- **Public policy**:
  Is defined as the authoritative decision made by a local state or government. It is the broadest level of SEM and can influence all other levels. In this study I will considers factors from reproductive health policy in Zambia. The focus will be more on the cost involved in utilizing maternal health services. Below is the figure of modified SEM.

**Figure 3**: Modified SEM of determinants of utilization of ANC, skilled attendant and PNC services




Adapted from theory at glance (Barbara et al 2005).

## CHAPTER THREE: FACTORS INFLUENCING UTILIZATION ANC, SKILLED DELIVERIES AND PNC

### 3.0. Introduction

This chapter will discuss specific community, interpersonal, individual and institutional factors that influence utilization of ANC, skilled delivery and PNC. The analysis will use the conceptual framework of SEM outline in the previous chapter. Factors that are cross cutting between community, intrapersonal and individual levels will be addressed under one subheading and cross referenced where applicable.

### 3.1. Community context

The following factors will be analyzed under community level: cultural beliefs and practices, social support and gender role, norms and values.

#### 3.1.1. Cultural beliefs and practices

Cultural beliefs and practices have been associated with delays in starting of ANC (Agus et al 2012), utilizing skilled deliveries (Carolan et al 2007) and PNC (Maimbolwa et al 2001). Traditional beliefs play a complex but important role in understanding women's behavior towards utilizing ANC, skilled delivery and PNC (Maghan et al 2014). In situations where a health problem is associated with tradition/cultural beliefs or spiritual in nature, women delay utilizing maternal health service. Cultural and religious beliefs seem to be common beliefs in South Asia and West, East and Southern Africa.

*Pregnancy and delivery is normal not an illness,*

While pregnancy and delivery is normal process of procreation, the complications that occur during pregnancy and delivery are not normal. In rural Indonesia, women believe that pregnancy does not need any special care because it is normal physiology (Agus and Horiuchi 2012). Delivering at home is more acceptable than delivering at the health facility. Similar, studies in Bangladesh and Australia showed that there is no special consideration attached to pregnancy unless there is a complication because pregnancy is seen as a normal event (Carolan et al 2007 and Choudhury et al 2011). Pregnancy and childbirth is described as not an illness and something natural in rural Ghana (Jansen 2006).

*Complication are God's will*

In Ethiopia, pregnancy and childbirth is perceived as normal phenomenon that does not require special attention (Yelan in 2010). Their belief is that, complication during pregnancy and delivery are God's will. They believe that

if a woman dies during delivering, it is God who has allowed it and perceived it as normal. Their intervention, if a woman has a complication is praying to St Mary who has been helping them all the time, instead of taking the woman to the health facility (Yelan 2010).

*Traditional beliefs and practice*

In Zambia, Illness during pregnancy and birth complication were culturally considered as unfortunate event and relied on traditional beliefs and witchcraft to explain the unexpected problem (Maimbolwa et al 2001). Because of believing in witchcraft, some people use both traditional and modern medicine when there is complication during pregnancy.

Furthermore complications such as abortions, fetal death, prolonged labor and neonatal death and retained placenta were attributed to mother's extra marital affairs in Sierra Leone (Herschderfer at el 2010), Tanzania (Magoma et al 2010) and Zambia (Mwewa and Michelo 2010). In Zambia women preferred delivering at home because they want to be treated from "inchila" which is a condition that is believed to cause obstructed labor if the pregnant woman or her husband has had extra marital sexual relations during her pregnancy. In addition to this, her baby also needs to be treatment from "icifutato", which is a condition that is believed that the baby can develop if the father touches it after having sex with another woman. Both conditions require traditional medicine for treatment (Mwewa and Michelo 2010).

The implication is that women delivered secretly at home because they are afraid of prolonged labor if they had had many sexual partners during pregnancy or they may combine both traditional and modern care (Mrisho et al 2007).

In Sierra Leone, eclamptic convulsions are associated with spirit possession which required ritual act of driving out evil demons by faith healers and this causes delay in health seeking (Herschderfer at el 2010). Similarly, in Zambia, eclamptic fits maybe associated with witchcraft and most of the time treatment would be a combination of modern and herbal medicines (Maimbolwa et al 2001).

Also beliefs such as fear that the health service will use "cutting", referring to caesarian section or episiotomy, or many women are dying in the health center/hospital deter women from utilization of health facility in Tanzania (Mrisho et al 2007). Women fear cutting because of long stay and unexpected higher expenses, social stigma because she could not deliver by herself and likely hood of future problems in sexual relationship. Some prefer to deliver at home because they believe that the placenta should be buried

under a food bearing tree to provide food for the baby (Capila 2004), or it can be burnt or thrown in an ocean to ensure that no harm can come to the baby in Tanzania (Mrisho et al 2007).

The situation is similar in Zambia, where relatives can choose to dispose the placenta if they don't want hospital workers to dispose it (Mwewa and Michelo 2010). Some people prefer taking the placenta home and burry it themselves. From my experience, the support person decides who should dispose the placenta after the woman has delivered, the hospital workers, or relatives.

This reflects that cultural beliefs are associated with the women's preference of the place of delivery and utilization of skilled birth attendants for maternal health service. However, in places where services are accessible, of good quality and education is in place, utilization of the three maternal health services increase despite the ongoing traditional beliefs and practice (Maimbolwa et al 2001).

### 3.1.2 Gender roles, norms and values influencing utilization of maternal health services

There are innumerable ways that "cultural norms, gender and sexuality" can affect utilization of ANC, skilled deliveries and postnatal services (Care and International Center for Research on Women 2010). Gender norms and roles are prescribed by the society. In patriarchal societies the role of men as breadwinner in the household influence decision making about utilization of maternal health services (Herschderfer 2010). In Kenya, men perceived themselves to be the final decision makers on the choice of care provider and occasionally forced the wife to comply with their decision (Kwambai et al 2013). More detailed in decision making see under interpersonal factors.

Perceptions on the acceptability of men and women's sexuality influenced women's mobility and use of ANC in India (Care 2010). Pregnant women felt embarrassed about the pregnancy as they thought that everyone in the community would know that they were having sex since women are not expected to express their sexual desires. The implication is that women tended to hide the pregnancy and delayed prenatal care(Care 2010). In addition to the above, a women who keeps working during pregnancy are respected because they are considered to be strong, fit and deliver active babies (Care 2010). The hard work keeps them "fit and active" (Care 2010), and women who delivered on their own were seen to be strong in Tanzania (Mrisho et al 2007).

In Zambia, pregnancy is also associated with tradition norms, values and culture (Scott 2006). A pregnant woman is expected to work because they believe that pregnancy is "not carried in the hands". This make pregnancy woman not to have adequate rest during pregnancy and increase the risk of complications. Also women are not expected to express their sexual desire or talk about it because it is believed that good woman do not talk about sexual matters in public(Gupta 2000). This makes it difficult for women to talk about their pregnancy especially the unmarried women as they would not want people to know that they are having sex. Some women tend to start ANC late or deliver at home to avoid the embarrassment. All these gender roles, norms and values influence pregnant woman to delay in utilizing maternal health service during pregnancy or even when she has a complication.

In most African societies women's place has been inferior to that of the average man. However the role of the woman is changing (UN Population Information Network 2013). In the past women were normally seen as mothers whose main work is to take care of the children and cleaning the house. Since 1994 International Conference on Population and Development (ICPD), intervention has been put in place which promotes women's recognition in society, access to resources, education, employment and promotion of their rights (UN Population Information Network 2013). This is assisting in reducing the influence of gender norms and values in most countries.

### 3.1.3. Support system

Community support mechanism play an important role in improving utilization of maternal health services. They strengthen community participation; improve knowledge on maternal, newborn and child health in the community and identify appropriate solutions to cultural barriers in utilization of ANC, skilled delivery and PNC (Center for Communication Program 2013). This improves women's utilization of reproductive health services. Most of the factors that provide insight in support to pregnant women are derived from evidence on interventions, see chapter four. In this section, I will summarize these and discuss types of support available in Zambia.

The analysis of four studies from Nepal, Bangladesh, India and Malawi showed that women's groups practicing participatory learning produce optimum results to enhance maternal and neonatal survival in low-resource setting (Prost et al 2013). The results showed that where 30% of women or

more participated in women groups, there was 49% and 33% maternal and neonatal mortality reduction (Prost et al 2013).

In Nepal, women's groups disseminated information in all the communities on maternal and new born care, developed confidence of group members and good communication with communities whilst generating strategies to address problems (Morrison 2010). These resulted into improving child survival and reduced neonatal mortality in Nepal. In Bangladesh, 38% of neonatal mortality reduction was attributed to women's group community mobilization (Azad et al 2010). Use of community registers, door-to-door visits by women's group also improved postnatal visits from 2.4% to 27.3%, from 2002 to 2004 respectively in Bangladesh (Uzma et al 2006).

Similarly, Participatory women's group and quality improvement at health centers reduced neonatal mortality by 22% in Malawi (Colbourn et al 2013). In Ethiopia, monthly visits by the extension workers (HEW) to community influenced utilization of contraceptive, ANC visits and immunizations (Afework et al 2004). However, there was no association between health extension worker visit and skilled deliveries or health facility delivery (Afework et al 2004). This is because in Ethiopia, BEmONC and CEmONC services are not readily available and pregnant women, especially elderly, prefer to be delivered by TBA because HEWs are often young girls (Afework et al 2004).

This was a bit different from the findings of the study done in Tanzania, which showed that use of community volunteers promoting access and utilization of obstetric care, improve utilization of ANC in the first trimester, skilled delivery and PNC within the first three days after delivery (Mushi et al 2010). Skilled deliveries improved because the skilled health workers started delivering even in the community.

In Zambia, the use of safe motherhood action groups (SMAGs) improved women's knowledge on ANC, obstetric danger signs, and use of emergency transport (Ensor et al 2014). Zambia started training SMAGs in 2003 after abolishing the use of TBAs for delivering women as they proved not to be effective in reducing maternal mortality. The SMAGs are trained not to deliver but to escort woman to the health facility during labor (Ensor et al 2014). Some SMAGs are given a token of appreciation from the women they assisted which can either be money or food stuffs.

The above findings show that support from community groups and lay health workers or CHWs (which can be TBAs, SMAGs, HEW) influences utilization of ANC, skilled delivery and PNC. In Zambia support from the community to

pregnant women is through SMAGs and TBs who escort them to the health facility. They also assist the pregnant women to prepare for their birth and mobilizing transport during an emergency to go the hospital. This is done in conjunction with the family members to the pregnant woman.

## 3.2. Interpersonal level

These are factors that affect pregnant women to seek health services due to influence from people who are close to her.

### 3.2.1. Support from Husband/partner, Friends/peers and family

This play an important role in influencing pregnant woman utilizing skilled birth attendant during pregnancy, delivery and PNC. This can either be in a positive or negative influence. In Ghana studies have shown that husband influences his wife to utilize skilled birth attendants by providing money for transport (Hill et al 2008) while grandmothers play a role of giving advice, guidance, and advocacy on how pregnant women/mothers and their infants are expected to behave and be treated (Moyer et al 2012).

In Ethiopia, pregnant women living with educated family members are 11 times more likely to deliver at the health facility compared to women who had no educated family member (Yelan 2010). It was also reported that woman who had a husband had 30% higher chance of delivering at health facility than woman without a husband. All divorce mothers (100%) and 90% of single women gave birth at home (Yelan 2010). This could have been due to the fact that divorced and single women had no one to encourage them to deliver at the health facility and also lack of money since husband is believed to be the provider. The role of husband and family members varies greatly in influencing health seeking behavior of a pregnant woman.

### 3.2.2. Decision making

Decision making to seek and utilize health services is often influenced by many actors and some of these are elderly women, husbands to the pregnant woman, family members or influential persons in the community (Meghan et al 2014). Getting permission or approval from these actors may delay or hinder utilization of ANC, skilled delivery and PNC because some of them may have conflicting ideas or interest. For example, in Vietnam, the husband may want his wife to deliver at the health facility while the parents-in-laws may also want her to deliver at a different place (Duong et al 2004).

In Ethiopia, pregnant women ask for permission from their husbands, mothers, mother-in-law or grandmothers for utilizing biomedical care during pregnancy, delivery and PNC (Yelan 2010). The study also sited male dominance and lack of women empowerment as some of the reasons for

women delaying in utilization of ANC, skilled delivery and PNC services (Yelan 2010). The role of elderly women especially in rural areas is important in giving advice as to when and where the woman in labor should seek medical care in Gambia (Cham et al 2005).

In Zambia, 66% of women have the autonomy to decide where and when to use ANC, skilled delivery and PNC (Breen 2011). However, this autonomy may be influenced by availability of money and support from her husband. From my experience, the elderly women especially the mother to the pregnant women plays a major role in deciding the place of delivery. Women who are pregnant for the first time, usually deliver at their mother's place even if they are married so that their mothers can take care of them during labor and postnatal period. For the subsequent pregnancies, the mother in law or her husband decides when and where she should seek ANC, skilled delivery and PNC. Therefore, birth preparedness include the assessment of the decision making process and timely planning of where pregnant women should go to reduce low utilization of the three maternal health services.

## 3.3. Intrapersonal/individual factors

### 3.3.1. Age, parity and previous experience

Age, parity and previous experience all seem to influence utilization of ANC, skilled delivery and PNC. Most women determine their level of risk for complication during pregnant or delivery on their previous pregnancy outcome and these may affect utilization of skilled birth attendant either in a positive or negative way (Meghan 2014). However, literature reports various findings about the age and parity of women affecting utilization of maternal health services.

The 2011 Ethiopian DHS analysis reported that age was not associated with utilization of ANC, skilled delivery and PNC while parity was found to be affecting the use of the three maternal health services (Terekegan 2011). Primiparas regardless of their age were more likely to use skilled delivery and PNC services than women with high parity because they were afraid of pregnancy complications and have no experience. Age may seem to be a factor because most primi gravida are younger women than women of higher parity. In Zambia the situation may be different due to the fact that majority of primi gradas may be teenagers and having unwanted pregnancy with less knowledge on birth preparedness and low education (Maimbolwa et al 2003). The Primi gravidas are less likely to utilize the three maternal health services in Zambia.

Multigravidas with previous experience, in Nepal, are less likely to use skilled birth attendants during delivery especially those aged 35years and above (Baral et al 2010). The age is associated with low utilization because women of high parity may also be of older age. Furthermore, in Bangladesh multigravida woman are more likely to start ANC late, not to utilize skilled deliveries and PNC because of previous experience and inadequate funds (Chakraborty 2013). In Kenya, women of high parity are less likely to seek and make four recommended number of ANC visits, assuming that they are experienced (Fotso 2008). The situation is similar in Zambia, women who have high parity have attendance of starting ANC late just like in Bangladesh (Banda 2012). This could be due to the previous experience that woman had at the health facility or other limitations such as inadequate resources for transport, baby layette and food expenses.

Furthermore, Terekegan (2011) also revealed that Women who have had delivery before have previous experience and have self-confidence to deliver at home were not motivated to use a health professional in Ethiopia. Similarly, in Zambia, women who have had successful home delivery are 85% less likely to deliver at the facility (Hazemba and Siziya 2008). This is said to be influenced by the previous experience of successful home delivery, inadequate resources due to growing family and having no one to remain with the older children at home.

### 3.3.2. Marital status and Intentions to get pregnant

Pregnancy is most often considered as a result of marital relationship. Women who become pregnant outside wedlock may be stigmatized and this can disempower them to utilize skilled birth attendant in time (Meghan et al 2014).

In Vietnam and Tanzania, single women preferred home delivery to hospital delivery in order to avoid embarrassment and discrimination at the health facility and also due to lack of financial and social support from their partners and parents (Duong 2004 and Mrisho 2007). Starting ANC late and having inadequate knowledge on danger signs in pregnancy were common among women who had unwanted pregnancy in Australia (Trinh and Rubin 2006) and Zambia (Banda 2012 and Maimbolwa 2003).

### 3.3.3. Educational level

Education is consistently associated with improved health seeking behaviors(Thomas et al 1997). Educated women are believed to have high knowledge on the benefits of preventive health care and awareness of health services and also open and responsive to new health related information services (Thomas et al 1997). Education empowers women to interact with

formal services from health facilities and gives them the confidence and willingness to make decision on when and where to seek health services (Thomas et al 1997). It is also believe that education have positive effect on balance of power within the household decision making.

In Ethiopia mothers with secondary education and above were 12 times more likely to deliver in health facility compared to women with primary or no education (Teferra et al 2012, Yelan in 2010 and Worku at el 2012). This is similar with Zambian situation where women who have less than 5 years in school are 63% more likely to delivery at home than women who have had 5 years or more in schooling (Mwewa and Michello 2010). Also women with higher level of education and formal employment were 6 times more likely to utilize skilled birth attendant when seeking maternal health services (Stekelemburg 2004). This could be due to the fact that educated women are more likely to live in areas with better health service, have adequate income and can make decision on where to seek health.

### 3.3.4. Attitude towards ANC, delivery and PNC

Some women consider ANC as a way of ensuring normal pregnancy and safe delivery and also to prepare them for home delivery (Meghan 2014). ANC is believed to reduce the risk of complication during delivery by some women and this may assist in explaining why ANC coverage is much higher than health facility deliveries in some countries.

In Tanzania women consider facility delivery or skilled delivery if there are signs of having a complication during delivery (Magoma et al 2010). Delivery is considered to be done at home unless there is a complication. This was contrary to the situation in Ethiopia where mothers who had ANC visit during the last pregnancy were 4 times more likely to deliver at the health facility than those who did not have ANC visit during pregnancy (Yelan 2010 and Teferra et al 2012). ANC attendance is associated with health facility delivery because of the information on danger signs and also importance of skilled deliveries. However, women who have low knowledge on danger signs and importance of skilled delivery usually have home delivery.

Similarly, in Zambia, ANC and high knowledge were associated with high use of health facility for delivery especially in remote areas (Ensor et al 2013). This is because the pregnant women gain knowledge and develop a habit to use health facility during ANC attendance.

## 3.4. Institutional level

### 3.4.1 Attitude of health workers

Attitude of health workers can positively or negatively affect utilization of skilled deliveries during ANC, delivery and PNC. Women who experienced negative interactions at health facility and perceive quality of service provided below desired standard are less likely to utilize facility for the three maternal services (Meghan 2014).

In Tanzania, it was found that improvements in providers' attitude towards pregnant women, availability of drugs and medical equipment improved women's preference to utilize health facility for delivery by two-fold, from 43% to 88% (Magoma et al 2010). These findings were similar with the study done by Mrisho et al in 2007 which sited use of abusive language and lack of income as hindering utilization of health facility delivery in Tanzania. Furthermore, older women find it difficult to access maternal services when there is young and male health worker at the health facility in Tanzania (Mrisho et al in 2007).

This is similar to Vietnam where abusive language and harassments by health workers were known to be a barrier in accessing and utilization of ANC, skilled delivery and postnatal services (Duong et al 2004). Bad attitude of health workers such as the use of unacceptable language, poor reception, long waiting time, poor assistance, and ill-treatment during labor and delivery were some of the complaints cited by women for not using skilled birth attendants in Zanzibar (Mwaisongo and Njau 2008).

The situation is not different in Cambodia and Bukina Faso where women shunning public health facilities due to bad attitudes of health workers. Women prefer going to private clinics to public facilities because health workers are polite and friendly in Cambodia (Ith et al. 2012). In Bukina Faso, women deliver at home due to unfriendly staff at health facilities (Some et al. 2011).

Although there is no study done in Zambia on altitude of health workers contributing to low utilization of skilled deliveries and PNC, there have been some complaints of use of abusive language by some health workers to mothers seeking health service. From my experience, some complaints against health workers have been raised by community members and sorted out administratively. However I would recommend that a study should be done to come up with evidence informed information on attitude of health worker in Zambia.

### 3.4.2. Distance to the facility,

Geographical distance to a health facility influences woman's utilization of safe motherhood services. Women who live in areas where health services do not exist at the community level may take a number of hours to reach a facility (Meghan 2014). This can make pregnant women living far away from the health facility resort to use of unskilled birth attendant at home especially in areas where transport is not readily available and road net is poor (Herschderfer 2010).

In Zambia studies have shown that distance has an effect on utilization of skilled delivery. Women who live far away from the health facility may deliver on the way to the hospital because of the distance and lack of appropriate transport (Mwewa and Michello 2010). Staying within 5kiliometer radius to the health facility providing skilled deliveries and PNC services gives a woman 61% chance of delivering at health facility than those who live more than 5 kilometers away from the health facility (Mwewa and Michello 2010). Distance and level of provision at the closest ANC facility were associated with quality of ANC given to pregnant women in rural Zambia (Kyei et al2012). However, there was no association between distance and timing of first ANC.

### 3.4.3. Quality of maternal health service

Quality of care is one of the most important factors affecting women using skilled birth attendants. This can be influenced by shortage of skilled personnel, health worker attitudes, availability of drugs, equipment and other supplies (Herschderfer 2010 and Pearson and Shoo, 2005).

In sub-Sahara Africa, quality of care seems to influence utilization of maternal health services. Women bypassed the nearby clinic and go to distant or private clinics regardless of the charges, in rural Tanzania, because of quality of health services provided and availability of referral services (Kruk et al. (2009). The public and nearby health facilities were perceived as not providing quality services.

In Ethiopia the presence of all six function maternal services at health facilities improve the utilization of skilled maternal services. The health facilities that have all the six function obstetric care services, skilled attendant improved two times as compared to the facilities which did not have all the six function obstetric care (Worku et al. 2012). The six functioning obstetric care service included availability of essential services for the normal obstetric situations such as ANC, Normal delivery, PNC, FP services and EmONC, CEmONC, and good referral system for management of

obstetric complications. The availability of these services reflected a better performance of the health facility. (Worku et al 2012).

However, this is contrary to the situation in Zambia where Stekelenburg et al found no association between the perceived quality of maternal services and the utilization (Stekelenburg et al 2004). This could have been due to the fact that the study was done in the remote area of Zambia where women may have had little knowledge on quality ANC, delivery and PNC. Also, they may have only one health facility within their area. From my experience, women prefer using private facilities to public health facilities because of perceived quality of care and reduced waiting time.

### 3.4.4. Shortage of skilled health attendants and infrastructure

Inadequate skilled health workers and infrastructure in the facility contribute to low utilization of ANC, skilled deliveries, and PNC services. Shortage of trained staff led to increased work to lower-level providers and force women to utilize TBAs (Meghan et al 2014). In Sierra Leone, inadequacy in skills of health workers and shortage of equipment were among the barriers to utilization of maternal health services (Oyerinde et al 2012).

The situation is similar in Zambia, as I said in the introduction that the country has critical shortage of health workers especially midwives. One of the reasons why women are being delivered by TBA at home is due to shortage of skilled birth attendants (Stekelenburg et al 2004). Some health facility have no midwife. Maternal health services are provided by general nurses or other health professionals who are present at the facility.

### 3.4.5. Responsiveness of facility

Health facility delivery exposures some women to un familiar procedures such as unusual delivery position, intrusive vaginal examinations and delivering without support person. Health workers were sometimes perceived to be doing too many extraordinary vaginal examinations, which women found irritating and inhuman (Meghan et al 2014). While other women desired to deliver at home because they could control their own delivery position and be with support person throughout labor.

In Tanzania women appreciated emotional support and continuity of care provided by TBAs and relatives to the care provided at the health facility (Magoma et al 2010). Women appreciated massage during labor and freedom to delivery in position of their own choice, which was allowed by TBAs. The situation in Tanzania is similar to the situation in Nigeria where women appreciated to be attended by TBAs during pregnancy, labor and

PNC, even if TBAs did not have adequate knowledge on maternal health because of emotional support the TBAs provided to the women (Ebuehi and Akintuijoye, 2012).

Furthermore, not allowing relatives or a support person during labor and woman to deliver in her desired position were some of the barriers for not using health facility for delivery in Ethiopia (Bedford et al 2012) women like delivering in the kneeling position while the health facility delivered women in recumbent position which was considered by the women as highly problematic. Apart from the position and the support person, women also disliked internal examination done at the health facility (Bedford et al 2012). Therefore changing the hospital environment to accommodate the needs of the mother is one of the strategies to encourage facility delivery. Other strategies to address the beliefs such as placenta burial as I said above on cultural belief include providing hospitals with running water and allowing relatives to dispose the placenta after the woman has delivered (Afework et al 2004).

## 3.5. Reproductive policy

### 3.5.1. Direct and indirect cost involved in utilization of ANC, skilled delivery and PNC service.

Although the policy states that maternal health services are free in Zambia, it does not mean that it is free in practice. There are a lot of indirect costs involved that deter women from utilizing ANC, skilled birth attendant and PNC. Some of these are transport cost and service cost when the complication requires referral to a higher level. In Tanzania lack of transport money was one of the major factor for home delivery (Mrisho et al 2007). Women preferred delivering at home because they did not have money to pay for transport and also to avoid the cost of hospital bed, payment for the delivery supplies and food (Mrisho et al 2007). Lack of availability of reliable transport was also another factor.

Similar in Ethiopia, women who have at least two sources of income (farming and trading) were 64% higher in use of skilled maternal health services than women who had one source of income (Worku 2012). Because these women could a afford to pay for transport and other costs involved in utilizing maternal health services. In Serra Leone, women are being delivered by TBAs to avoid the cost and transport inconvenience (Oyerinde et al 2012).

In Zambia, although majority (96%) of women preferred to deliver at the hospital only 54% did so because of long distance to the nearby health facility, lack of transport and uneven distribution of health facilities (Stekelenburg et al 2004). Transport cost hindered women to utilize health facility for delivery especially in rural areas where transport is not readily available and a bit expensive for the poor women (Mwewa and Michello 2010). Furthermore, women delivered at home because they were ashamed that they could not buy a single clothing or baby layette during the whole pregnancy time (Mwewa and Michello 2010). Due to poverty, women find it difficult to prepare adequately for the birth of the baby or save some money for emergency.

The country has inadequate ambulances or transport system for referral as I said in the introduction. Each district has one or two ambulances which is used for referral from health centers to the district hospital or higher level. The transport from the community to the health facility is arranged by the family members or women themselves. Interventions such as conditional cash transfer which provides transport money to health facility may increase access and utilization of maternal health services (Lagarde et al. 2007)

## CHAPTER FOUR: EVIDENCE FOR EFFECTIVE INTERVENTIONS FOR UTILIZATION OF ANC, SKILLED DELIVERIES AND POSTNATAL CARE SERVICES

Utilization of essential obstetric care services such as ANC, skilled delivery and PNC largely contributes to the reduction of maternal and neonatal mortality and morbidity. Evidence have shown that effective clinical intervention can save lives of many women during pregnancy, labor and postpartum period (UNFPA 2014 ). This chapter will discuss the evidence informed effective interventions for utilization of maternal health services. These will include the following interventions: promoting attendant by skilled birth providers, removal of financial barrier to clients, community based intervention package and promoting intersectoral collaboration

### 4.1. Promoting attendance by skilled birth providers

The World Health Organization recommends use of skilled birth attendants during pregnancy, delivery and postnatal period to reduce maternal mortality (WHO 2004). Skilled attendance at all the three stages of pregnancy is considered as the single most effective intervention that can reduce 87% of maternal mortality (UNFPA 2014). Skilled attendance includes skilled birth attendants and supportive environment that is required for health workers to work competently. It also involves access to CEmONC services in case of a more complicated maternal case (Pathmanathan 2003). Studies from Malaysia, Sri Lanka and Egypt show that skilled birth attendants working in or very close to the community can reduce maternal mortality drastically. Looking closely into these studies, you notice that they were carried out over a period of time and included a lot other interventions.

In Sri Lanka, the government made available competent professional Midwives and supervisory nurse-midwives in all the rural areas, supplying them with appropriate drugs and equipment, linking them to back-up services and improved communication and transportation (Pathmanathan 2003). The outcome was that as the number of skilled delivery increased, from 32% to 86%, MMR reduced from 1,607 to 50deaths/100,000 live births from 1940 to 1995 respectively in Sri Lanka (Pathmanathan 2003). The decreased of MMR was observed even when the skilled deliveries were still low but increasing. The quality of work improved due to availability of drugs and equipment in the hospitals.

Furthermore, in Malaysia, technical competence acquired by midwives, good supervision and working conditions, social security and tractable workload reduced MMR from 520 to 20deaths/100,000 live births from 1952-1995

respectively (Pathmanathan 2003). Simultaneously the health facility delivery increased and clients were empowered to expect quality service at health facilities. Quality of maternal health services improved through investigating and addressing the cause of maternal death (Pathmanathan 2003).

Also results from Egypt, show that the government working with NGO trained 1,300 doctors and nurses in essential obstetric care protocol. The country improved quality of care and reduced maternal mortality from 174 to 84/100,000live births from 1992 to 2000 respectively (Gipson et al 2005). The country also improved the working environment in 25 hospitals through renovating and supplying required equipment.

Ghana has also increased the number of skilled health workers graduating every year since 2009 and increased the funding for existing free maternal health services and midwifery training programs (Republic of Ghana, 2009). According to WHO (2012a) report, Ghana has reduced its MMR by 44% since 1990 to 2010 and currently MMR is at 350/100,000 live births.

In Zambia, the government working with NGOs trained more than 500 health workers in EmONC, working in remote and hard to reach health facilities in few districts ( Saving mothers giving life 2013). The districts are also recruiting skilled birth attendants to improve staffing levels, "equipment, supplies, commodities and drugs required to improve quality" EmONC services are made available in health facilities. A number of health facilities were upgraded to CEmONC health facilities (Saving mothers giving life 2013). The results have shown that institutional MMR in the facilities where these interventions have been implemented, has reduced by 35% in Zambia.

MOH working with the general nursing council has also increased the number of midwifery schools, introduced direct midwifery training (DEM) and accelerated Midwifery training (Zambia News Feature 2010). These are long term measures aimed at improving skilled birth attendance in the country.

### 4.1.1.Task shifting:

Task shifting is one of the intervention recommended by WHO to optimize health workers role to improve access, utilization and quality of care in key maternal health service (WHO 2012b). Malawi, Tanzania and Ethiopia have implemented task shifting among health workers (Dawson et al 2014). In Malawi, clinical officers are trained to conduct caesarian section (C/S). The results showed that there was not much difference in the postoperative out comes between the operation done by the doctor and clinical officer (Chilopora *et al.* 2007).

Tanzania trained Assistant medical officers to do C/S. The results showed that the case fatality rate for women who had C/S were close to UN expected 1% at the health facility run by Assistant medical officer (Pereira *et al.* 2011). The case fatality rate were more than double at another government hospital. The systematic review that was done by Dawson et al (2014) showed that task shifting can lead to increased service provision, equivalent health professional performance across cadres and patient outcomes in the provision of EmONC and is cost effective. However there are also challenges in task shifting such as poor quality of work, low skills, and resistance (Dawson et al 2014). In Zambia, clinical officers are being trained to do caesarian sections. However no study has been done to assess the outcome.

WHO also recommends task shifting to lay health workers. Task such as health promotion, provision of supplements to pregnant women and initial treatment of puerperal sepsis can be provided by lay health worker (WHO 2012b). The available evidence although insufficient, has shown that distribution of misoprostol through the community health workers is effective in prevention of PPH (Hundley et al 2013). Bleeding is the top most leading cause of maternal dearth (WHO 2014b) and distribution of oral misoprostol through front line health workers or lay health workers could contribute greatly to reduction in MM in LMIC (Hundley et al 2013).

In Zambia, distribution of misoprostol through ANC was piloted in few districts. SMAGs and TBAs were being used to educate community members and building support in the pilot districts (MOH 2008). Misoprostol has been proved to be effective. The government has shown commitment to roll out distribution of misoprostol throughout the country through ANC. However, the use of SMAGs and TBAs to distribute misoprostol may be more effective especially that some women may not attend ANC and deliver at home (Family Care International, 2012).

### 4.1.2. Results Based Payments (RBB) and Performance based financing (PBP)

Performance based financing is when the health worker is given financial incentives for improvements in utilization and quality of service in specific indicators (Basinga et al 2011). In 2005, the government of Rwanda implemented payment for performance (P4P) scheme program. The government defined indicators in maternal and child health services. The health workers were paid financial incentive if the selected indicators improved in utilization and quality of service (Basinga et al 2011). P4P scheme resulted into increase in utilization of health facility delivery but had no effect on ANC visits and PNC. This could have been due to the slightly

increase in the amount of money allocated to facility deliveries (Basinga et al 2011.

The Zambian government working with NGOs piloted RBP in few rural districts. The districts implemented a number of demand side incentives such as baby layette, a gift to TBA for every five women delivering at health facility, food to ANC women and mother's waiting shelter (MoH 2011). Supply side technic was the best performing health center was give funds for the results. The results showed that institutional and skilled deliveries increased from 55% to 85% in implementing districts (MoH 2011). The disadvantage of RBF is that the interventions with the most incentives are prioritised at the costs of other services.

### 4.2. Removing Financial Barriers for Clients

Removing of financial barrier to maternal care is an important intervention to increase access and utilization of ANC, skilled delivery and postnatal care. This could be done through cash transfer, short term payment to cater for the cost of transport when accessing the health facility or free maternal health services.

#### 4.2.1 Conditional cash transfer Scheme (CCTS)

CCTS has shown increased utilization of health services and preventive behaviors (Largarde et al 2007). The review from 6 CCT programs showed that CCT is effective in increasing use of health services. India started Janani Suraksha Yojan which is a safe motherhood scheme in 2005 and is the largest cash transfer scheme for maternal health care in the world (Jehan 2012). Women were given cash incentive for institutional and home skilled delivery, transport costs, free institutional delivery and ambulance services. The results showed 10% increase in ANC, 43% increase in institutional delivery and 2.4 per 1000 live birth neonatal mortality reduction (Jehan 2012). CCT can be useful in LMIC where most of the women are poor and cannot access and utilize maternal health services due to lack of money. The disadvantage of CCT is corruption and also delayed payments in some cases

In Zambia CCTS has been piloted in some districts for poverty reduction (Scheuring 2008). The results showed improvement in households wealth and increased commitment in investment activity and two folds the amounts invested . Government working with NGOs has shown commitment to pilot CCTS on utilization of maternal health services in rural areas (Saving lives Birth 2012). The CCT in Zambia is aimed at reducing financial barriers in accessing and utilizing maternal health services and increase institutional deliveries by 50% (Saving lives Birth 2012).

### 4.2.2. Demand-side financing:

Bangladesh implemented demand-side financing through introduction of maternal health vouchers (MHV) (Ahmed and Khan 2011). The women under MHVs were given vouchers for 3 ANC checkup, delivering at health facility or home skilled delivery, one PNC checkup, management of complication and transport costs for accessing maternal services. The results showed increase in utilization of skilled birth attendants, facility delivery and PNC among the poor women (Ahmed and Khan 2011). MHV showed no improvement in management of complication. The disadvantages of demand side financing are that families may claim for reimbursement for services not rendered and may create increase in unnecessary care (Jehan et al 2012).

### 4.2.3. Scheme giving short term payment to cater for the cost of transport when accessing the health facility:

These are programs focused and targeted at reducing financial barrier on accessing and utilizing specific maternal services by pregnant women (Murray et al 2012). Safe Delivery Incentive program in Nepal is one of the programs that demonstrated this scheme. Nepal started the Safe Delivery Incentive program in 2005 (Powell-Jackson et al 2009). The scheme pays women the transport cost if they deliver at health facility or by skilled birth attendant. The results of the program showed that deliveries in public health facilities increased by 4.2% and the probability of women being delivered by skilled birth attendant increased by 2.3 with much higher percentage (5.3%) in villages with women's groups (Powell-Jackson et al 2009).

Simultaneous, the government of Nepal established maternity waiting homes, EmONC, BEmONC and CEmONC facilities, and also has a long term investment in training staff, which improved staffing in the country, facility and community based intervention (Karkee et al 2013). This helped to improve the quality of maternal health services. Nepal is one of the developing countries making headways in achieving MDG5A. The country has increased skilled deliveries to 44% from 9% and MMR reduced from 539 to 170/100,000 live births from 1996 to 2013 (Bhandari and Dangal 2012). There are challenges in using maternity waiting homes and some of these are lack of food for women who come to wait for delivery and having no one to look after the other children who remain at home (Karkee et al 2013).

### 4.2.4. Providing free maternal services:

In Malaysia, maternal health services are provided free or costing less than US$0.30 per visit in order to enable everyone to access and utilize the service during pregnancy, childbirth and postnatal (Pathmanathan 2003). This is similar with Sri Lanka where all maternal health services are provided

free. The percentages of women from low and higher income groups using facility delivery was almost the same, 70% and 80%, respectively in Sri Lanka (Pathmanathan 2003) . These interventions were implemented simultaneously with the skilled birth attendant intervention in Sri Lanka and Malaysia and the results are as described above.

In Zambia maternal health services are provided free from all public health facilities as discussed in chapter three. However, many countries have free maternal health services but these often do not include transport to health facility or free referral services. In addition free services are by itself not sufficient as availability of skilled birth attendants and well equipped and resourced facilities are required

### 4.3. Community-based intervention packages for improving utilization of ANC, skilled delivery and PNC

Improving quality of maternal health service at facility level is necessary but not sufficient to increase utilization of maternal health services among the poor (Quayyum et al 2013). Many community based interventions were found to be effective in improving utilization of ANC, skilled delivery and PNC (WHO 2012b). For community based intervention to improve utilization and access of services, community empowerment, participation and ownership is required.

WHO recommended working in collaboration with the community in order to improve access and utilization of maternal services(WHO 2012b). In communities where a high proportion of deliveries occur outside facilities, a bridge connecting the family, community, and referral facilities is required. Many countries such as Bangladesh, Malaysia, Mali and Ethiopia have used this strategy effectively and improved utilization of ANC, skilled delivery and PNC.

In Bangladesh, an NGO called Bangladesh Rural Advancement Committee (BRAC) developed Improved maternal, neonatal and child survival (IMNC) program in one of the rural part of the country. BRAC trained CHW, selected from the community (Quayyum et al 2013). Each CHW was in-charge of 150 households to identify all pregnant women and provide them with maternal health services and information at home and in the community. CHWs also accompany the woman referred to the health facility and were given financial support to pay for transport and buy medicines (Quayyum et al 2013). The project started in 2008 and in 2010, results showed high increase in the utilization of ANC and PNC which could have been due to door-to-door free service provided by BRAC. Other output were increased home delivery by

skilled birth attendant and increase in caesarian section in public health facilities (Quayyum et al 2013).

Similar results were seen in Malaysia where TBAs were encouraged not to deliver at home but to go with mothers to the hospital, and to be there throughout delivery to attend to commonly practiced rituals, and provided care to the mother and the baby (Rizzuto and Rashid, 2002). This resulted into improvement in facility delivery and reduced MM as stated above. Health workers were also trained on how to work with and value the role of TBAs in maternal and child health services (Rizzuto and Rashid, 2002). The TBAs were getting an allowance during training and refresher courses and also were given payment in kind from women who were assisted. Reduction of MM was due to increased utilization of ANC and skilled delivery, improved hygiene during delivery and prompt management of obstetric complications (Prost et al 2013)

The MoH in Zambia, working together with NGOs introduced SMAGs in 2003 (UNFPA 2011). The country is training (SMAGs) in some selected districts in order to reduce the delay from the community and reaching the health facility (Ensor at el 2014). SMAG are Mobilizing the community to generate demand for facility deliveries, ANC and PNC while emphasizing birth planning, and encouraging HIV testing and treatment and uptake of FP services (Saving Mothers giving life 2013). Women who start ANC in the first trimester, have at least four ANC visits and deliver at the health facility are given baby starting pack which include 2 napkins, soap, Vaseline and chitenge material, to encourage other women to do the same.

*Transports*

The government of Mali working with NGOs improved referral system by improving the communication and transport system. Mali government trained TBA to recognize danger signs during pregnant, labor and postnatal periods and plan for transportation of a woman with danger signs (Grieco and Turner, 2005).

The Zambian government in collaboration with NGOs is strengthening linkages between communities and facilities through a 24/7 integrated communications and transportation system that helps pregnant women access childbirth facilities in a timely manner (Saving Mothers giving life 2013). The country has bought ambulances for few districts and also improved communication system through use of radio communication and cell phones in those districts.

## 4.4. Promoting multisectoral participation – women education;

The determinants of maternal mortality are complex, affecting many sectors and require multi-sectorial approach to address them. Policies and strategies that promote cross-sector investments in women's education, roads, power and telecommunication are necessary in improving access and utilization of maternal health services (Lule at al 2005).

Women's education is recognized as one of the interventions that are positively associated with improved maternal health and reduce maternal mortality as shown in the previous chapter. This has also been demonstrated in Malaysia, Sri Lanka and China.

Malaysia, invested in clinics, rural schools and road network (Koblinsky et al 1999) while Sri Lanka invested in equitable social sector development in all district which included free primary and secondary education, free health care and subsidized food in order to promote girl child education ( Pathmanathan et al., 2003).

The government of Zambia is promoting girl child education and adult education especially among women. Girls who become pregnant are allowed to continue education. Primary education in government schools is free in order to allow every child to have basic education (Mumba 2002) The enrollment of girls and retentions are being encouraged and promoted in all schools.

## 4.5. Conclusion

There are long term and short term interventions to improve maternal mortality. Zambia need to implement both long term and short term intervention simultaneously in order to improve utilization of maternal health services. Interventions such as training of skilled birth attendants, provision of equipment and drugs to health facilities are important for improving availability of skilled birth attendants and working environment but are achieved over a period of time. Short term interventions such as task shifting some health services to available health workers and re-employing the retired skilled personnel could help to prevent shortage of skilled birth attendants. Tasks such as caesarian section can be done by clinical officers and this gives time for the doctors to concentrate on major operations. Distribution of misoprostol can be done by SMAGs who may have a little longer time to teach the pregnant woman on the drug. Other interventions such as girl child education, improving road network require collaborating with other ministries to improve them. Free maternal health services is also a strategy that need to be complemented by other strategies as there are a lot of indirect costs involved in utilization of maternal health services. Short

term intervention such as conditional cash transfer, maternity health vouchers, scheme giving short payment and maternity waiting homes could improve access to transport money, birth preparedness and utilization of the services.

## CHAPTER FIVE: DISCUSSIONS AND RECOMMENDATION

Improving utilization of ANC, skilled delivery and PNC is among many challenges in health services delivery in Zambia due to the complex of factors influencing the use of these services. The low utilization of these services is contributing to high MM in the country.

This chapter will discuss findings from the study. Analysis of the of the findings will be based on the SEM. The evidence from interventions analyzed in chapter four will be used to discuss feasible measures that can be adopted in Zambia to improve the utilization of the maternal health services. The conclusions are included in the discussion and recommendations are made at the end.

### 5.1. Discussion/Conclusion

The findings from community context show that in Zambia cultural beliefs influence utilization of maternal health services. Beliefs such as considering abortions, fetal death, prolonged labor, retained placenta and eclamptic fits being caused by mother's extra marital affairs or witchcraft contribute to low utilization of maternal health service. Other factors influencing utilization of these services are gender roles, norms and values. Changing cultural beliefs, gender norms and values, are important to improve utilization of maternal services. Women's groups play an important role in this, through community education and programs that provide more than health information.

Women's support groups can provide information on the importance of ANC, skilled delivery and PNC services and information on how best harmful traditional beliefs can be addressed in the community. Zambia can build on women's support groups interventions that are already existing in some communities such as SMAGs, TBAs and other lay health workers. The program of SMAGs can be scaled up in the country based on the resources available and lessons learnt from implementing districts. However, community participation programs require long term and consistent investment and this needs government commitment and coordination for sustainability (Preston et al 2010).

Findings on interpersonal and intrapersonal factors show that more than half of the women in Zambia have autonomy in decision making. However women who have no income and are not educated, decisions for health seeking are made by either the husbands, grandmothers or their parents and this reduce use of maternal health services. In addition, majority of the women prefer to have home delivery because of lack of transport money,

inadequate preparations for birth due to high poverty level, distance to the health facility and previous experience.

From the study analysis, intervention such as condition cash transfers have shown to reduce poverty in households in Zambia. This would enable women have adequate money for transport and birth preparedness. Since the govern has already shown commitment, CCT can be piloted in few district. Depending on the results from pilot district CCT can be rollout to other districts. Other programs like providing incentives to women who have at least 4 ANC visits, skilled delivery should be rolled out in country. However sustainability of such programs and lessons learned from pilot districts should be considered.

Education for girls and women is also important for them to have good jobs that will enable them have good income. Girl child education has been proved to be effective in improving utilization of maternal health services. The Zambian government is making efforts to improve girl child education by encouraging them to continue education even when they become pregnant. Women are being encouraged and supported to take up challenging and income earning jobs and this should continue.

Study findings also show that institutional factors such as shortage of skilled birth attendants perceived quality of care, attitude of health workers, and responsiveness of health facilities influence utilization of ANC, skilled delivery and PNC in Zambia.

The government of Zambia is aware of the critical shortage of midwives and is making efforts to improve the situation through introduction of new midwifery programs such as direct entry midwifery and accelerated program of midwifery. However the infrastructure in most of the training schools is inadequate to accommodate the increased number of enrolled students and the new programs introduced. The intervention of improving skilled birth attendants through training is achieved over time and requires a lot of investments.

Task shifting some of the services that can be performed by available staff could be beneficial to the country. The training of clinical officers in performing operations such as C/S and health workers in EmONC, CEmONC and re-employing retired skilled birth attendants should continue as they have proved to reduce MM. Other task shifting such as distribution of oral misoprostol to pregnant women through TBAs or SMAGs may be effective in prevention of hemorrhages and prevent MM. This does not require a lot of money and can be achieved within a short period of time. Furthermore,

provision of equipment and drugs to health facilities to improve the quality of care should also continue.

The finding show that there is insufficient evidence on the attitude of health workers in Zambia influencing utilization of maternal health services. However, complaints have been raised by the community over attitude of health workers. Evidence from research would help to prove the complaints raised by the community and also to provide evidence informed information.

Utilization of ANC, skilled delivery and PNC in Zambia is a subject of complex factors from community context, intrapersonal, individual and institutional levels. Both long term and short term, community and institutional intervention need to be implemented Simultaneous to improve utilization of maternal health services. Short term interventions such as task shifting, piloting conditional cash transfer, scheme giving short term payments and provision of incentives to women who deliver at health facility can rolled out to improve utilization. At institutional level, training of health workers in EmONC and CEmONC in order for women to be provided with quality services. Long term interventions such as training of skilled birth attendants, providing facilities with equipment and drugs, girl child education and improving road network should be implemented as well. Theses have proved to be effective and usually complement with short term interventions.

### 5.2. Recommendations:

Addressing factors influencing maternal health services is not only advocated for reducing maternal mortality but it is also a center of social and economic development. For the purpose of improving utilization of ANC, skilled delivery and PNC in Zambia, the following recommendation have been made:

- In areas where availability of skilled birth attendants and upgraded facilities, are there, community based interventions aimed at improving birth preparedness should be implemented by Zambian government through MCDMC, to allow women have access and utilize maternal health services. These including community support to overcome transport problems, piloting cash transfer schemes and maternity waiting homes. Mechanisms should be put in place to provide pregnant women with food at maternity waiting homes as this has proved to be barrier in using this homes.
- Other interventions include rolling out the program of distribution of misoprostol through SMAGs or during ANC and reflection on how to overcome traditional beliefs and practices that hinder timely utilisation of maternal health services. SMAGs should be trained on how and

when to give pregnant woman misoprostol and it's side effects before starting to distribute misoprostol.

- The government through MoH should continue long term interventions such as training of skilled birth attendant, upgrading and supplying of equipment and drugs at health facilities to improve quality of services at health facilities. This should be complemented with re-employment of retired skilled birth attendants and in-service training of health workers in EmONC and CEmONC which are short term interventions.
- Intervention such as girl child education and improving road network should also be continued by the Zambian government, through Ministry of education and Local government, for they are effective in utilization of maternal services.
- There is no data on community perceptions of health workers attitudes in Zambia but complaints about this were heard. Research into attitudes of health workers followed with refresher training on desirable attitudes and code of practice by MoH would help. Primary data in qualitative research can be done.

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