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**Signature:**

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**John Nkhondondianansi Nepiyala**

**Date: 04/18/2016**

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## Abbreviations

**CHAM:** Christian Health Association of Malawi

**DHO:** District Health Officer

**DNO:** District Nursing Officer

**FIGO:** International Federation of Gynecology and Obstetrics

**HSSP:** Health Sector Strategic Plan

**IRB:** Internal Review Board

**MD:** Maternal Death

**MDA:** Maternal Death Audits

**MDHS:** Malawi Demographic and Health Survey

**MDR:** Maternal Death Reviews

**MMR:** Maternal Mortality Ratio

**MOH:** Ministry of Health

**NHSRC:** National Health Sciences Research Committee

**NSO:** National Statistics Office

**SMI:** Safe Motherhood Initiative

**WHO:** World Health Organization

# Evaluation of Maternal Death Audit Activities in Mulanje District in Malawi

By

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An abstract of

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2016

## Abstract

**Evaluation of Maternal Death Audit Activities in Mulanje District in Malawi**

High maternal deaths (MD) is one of the poor health indicators prevalent in developing countries. The underlying causes of the MD are greatly associated with factors that are embedded in the communities and health care delivery system. Studies have touted maternal death audits (MDA) to be one of the strategies to curb the needless loss of maternal life during perinatal period. However, much has not been done to examine the specifics on how health facilities establish and operationalize MDA systems.

The study looks into how prevailing contextual factors influence the conduct of facility based MDA in Mulanje district of Malawi. A total of fifteen (15) in-depth interviews were conducted with MDA committee members from the Mulanje District and the Mulanje Mission hospitals. The study revealed the key issues affecting MDA, namely; no orientation done to persons appointed into the MDA committee, lack of a comprehensive mechanism to disseminate MDA findings to various stakeholders, no monitoring and evaluation system to track progress made on MDA, and no incentives given to MDA committee members.

Results indicate that, as narrated by the study participants, instituting a robust MDA mechanism would ensure that the audits generate credible information that health systems would use to improve maternal health services in order to reduce the high MD. Studies on MDA should, therefore, include a component that examines the specifics on how MDA systems are established as well as conducted in the health facilities.

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**Evaluation of Maternal Deaths Audit Activities in Mulanje District in Rural Malawi.**

# Chapter 1 Introduction

## 1.1 Problem Statement/Need

Child bearing ought to be good news everywhere in the world. However, pregnancy brings mixed feelings, especially in developing countries, because of the alarming numbers of women losing their lives during the perinatal period. Worldwide, women continue dying due to child bearing related causes. On a daily basis, over 800 pregnant women lose their lives. In the year 2013, close to 290,000 of pregnant women died during child birth. Interesting to note, but not surprising, is that over 99% of maternal deaths (MD) occur in the resource poor countries (WHO Statistics, 2014).

Malawi, like many other Sub-Saharan Africa countries, continues to experience high MD. The International Classification of Disease (WHO: ICD-10, 1992), defines MD as the loss of life of a pregnant woman or within a period of six weeks of termination of pregnancy, regardless of the gestation age and location of implantation.

The maternal mortality ratio (MMR) in Malawi stands at 675/100,000 live births (MDHS, 2010). The major causes of the high MD are hemorrhage, pregnancy induced hypertensive disorders, and puerperal sepsis (Say et al., 2014). Low socioeconomic status and difficult access to health facilities, together with cultural factors, are the main drivers of high MD on the part of the demand side of health care. Correspondingly, on the supply side, the health care delivery system, laden with inadequate human and material resources, remains a contributing factor to high MD.

Teenage pregnancy is common in Malawi; one in every five girls under the age of 17 become pregnant (Malawi Population Data Sheet, 2012). Too early pregnancy is a predisposing factor to obstetric complications that often result in MD. Additionally, Malawi has high unmet

need of family planning services, with a total fertility rate at 5.7. Moreover, restrictive laws on abortion create barriers to abortion service utilization. Consequently, women found with unwanted pregnancies end up seeking abortion services from traditional sources, which are often provided under unhygienic conditions that may lead to sepsis. Sepsis is among the top five causes of MDs in Malawi.

Mulanje district is found in the southern region of Malawi. It is one of the rural setting districts with high MDs. The district has a population of over 521,391, of which 128,291 constitute women of child bearing age (Mulanje District Database, 2013-2014). The district has two secondary level health facilities that serve as referral hospitals. The two hospitals are a government district and mission hospital. Maternal death audit (MDA) activities are conducted at the two health facilities. In addition to the two hospitals, the district has 30 primary level health facilities locally called health centers.

Health services at government hospitals are free, while at the mission hospitals, the services are subsidized by the government and a mission hospital service level agreement (SLA). The cost of health services has an impact on access to most public hospitals which often serve more patients than the mission hospitals.

In the fiscal year of July, 2013 to June, 2014, the district recorded over 16 MD (Mulanje District Database, 2013-2014). Importantly, the recorded number of MDs may not provide a true reflection of the total number of MDs occurring in the district. This figure only represents MDs that occurred at health facilities. Many unreported deaths are presumed to occur in hard-to-reach rural areas.

MDs have devastating effects at the household, community, and national levels. The death of a woman has socioeconomic and cultural consequences on society. Women, particularly

in African societies, play a vital role in the household and in communities. A study by Yamin et al., (2013) in Tanzania revealed that the death of a woman in the household had negative socioeconomic and education effects on the orphaned children. There is correlation between prolonged hospitalization due to obstetric complications and health costs, which exerts budgetary pressure on the already resource poor health care delivery system in developing countries (Yamin, Boulanger, Falb, Shuma, & Leaning, 2013). Pregnant women with obstetric complications tend to have longer hospitalization than those with normal pregnancy outcome (Kes et al., 2015). The health care delivery system in Malawi is already resource constrained and high MDs weigh heavily on the system.

## 1.2 Purpose Statement/Goal

There have been efforts on several fronts to address high MDs. At the global level, the development of the Millennium Development Goals (MDGs) is one prominent feature in the fight against unacceptably high MDs. MDG5 specifically addresses the issue of maternal health. In particularly, countries in the developed world have registered significant reduction in MDs by at least 45% over the years (WHO Statistics, 2010). While this global trend looks promising, most African countries still have a long way to make the child bearing event less risky. In 2013, Malawi recorded an MMR of 460/100,000 live births (Safe Motherhood Initiative, 2013). While this figure may indicate a reduction in MDs from the 2010 statistics, it falls far short of the national target to reduce MMR to 155/100,000 live births by the year 2015.

Under the Safe Motherhood Initiative (SMI), Malawi developed a number of strategies to combat the needless loss of life. One of the interventions is the operationalization of MDA activities in all secondary and tertiary level health care facilities. Despite having MDA activities in place, Mulanje district still grapples with maternal loss of life during child bearing.

Several studies have been conducted on MDA activities. Prominently coming out of such studies are issues of direct and indirect causes of high MD, and inadequate human and material resources to support the MDA activities (Sale, et al., 2013). Little, however, is mentioned regarding the process of establishing MDA activities in health facilities. Even when resources are adequately available, if the MDA system is not well modelled, operational challenges exist. Ensuring that MDA activities meet credible standards is a critical component to an effective MDA system (De Brouwere, Zinnen, Delvaux, & Leke, 2014). The goal of this study, therefore, is to evaluate how MDA activities are conducted in the district of Mulanje.

## 1.3 Significance Statement

While MDA cannot be the only way to combat high MDs, it remains the single most important instrument health systems can use to identify areas that need improvement to achieve desired outcomes of child bearing (Kongnyuy, Leigh, & van den Broek, 2008). Therefore, the study intends to examine the establishment of MDA at the health facilities by conducting in-depth interviews with members of MDA committees. These data will help us understand whether the MDA activities in Mulanje district were based on nationally and internationally prescribed standards. It is, therefore, envisaged that the study will generate information on how MDA activities are conducted in the district, revealing areas in which the MDA system is doing well and what areas need improvement. An effective MDA mechanism will be pivotal in informing policy at both the local and national level for improved provision of maternal health services.

Improved maternal health services will ultimately help reduce the needless loss of life and enhance economic productivity in households and communities, as well as potentially reduce health care costs associated with managing prolonged hospitalization due to obstetric complications. Improved maternal health will ultimately reduce the high rate of MDs, which remains one of the poor health indicators in Malawi.

## 1.4 Objectives and Aims of the Study

The object of the study is to evaluate the establishment of MDA system in the Mulanje district in rural Malawi in order to make recommendations for best practices.

The following are the specific aims of the study:

- To examine direct and indirect causes of maternal deaths (MD);
- To describe the organization of MDA activities;
- To determine the mechanism for communicating findings regarding MDA activities;
- To explore the impact of MDA findings on the provision of maternal health care;
- To identify a mechanism in place to monitor progress of MDA activities.
- To describe challenges encountered when conducting MDA.

## 1.5 Study Questions

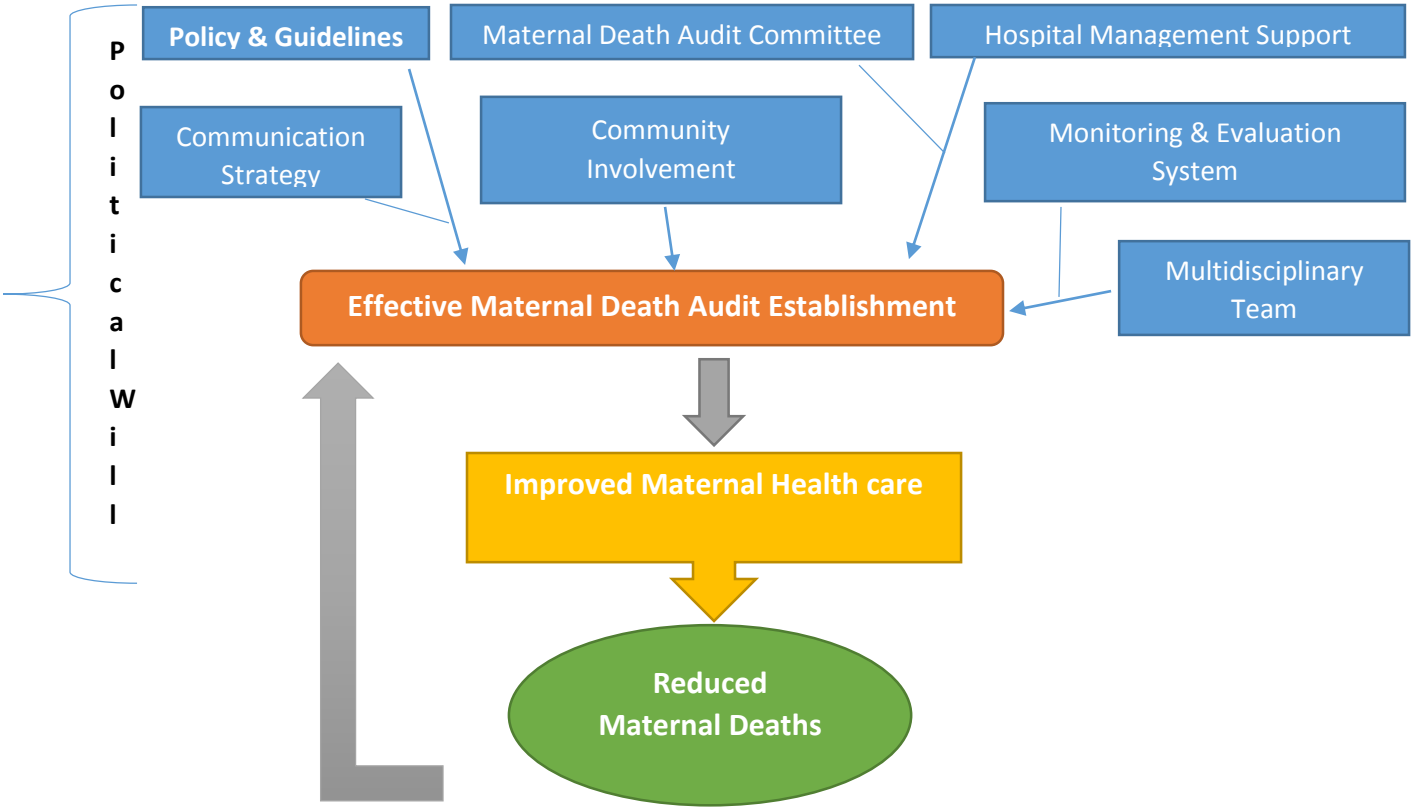
In-depth interviews will be conducted with members of the MDA committees at both the Mulanje district and mission hospitals where MDAs are conducted. The following study questions stem from the aims outlined above. However, it must be mentioned that the interview guide may be modified to responds to emerging issues as data collection progresses.

- What types/approaches of MDA are utilized in the district?
- Which principles and/or guidelines were used to set up the MDA at this facility?
- What tools/documents does the MDA committee use when conducting audits?
- How is the composition of membership in the MDA committee determined at this facility?
- How often are MDA conducted at this facility?
- How are the findings of the MDAs communicated to various stakeholders?
- What mechanism is put in place to track progress on the implementation of MDA activities?

- What are the common challenges to implementing MDA activities?

## 1.6 The Conceptual Model

In this conceptual model, the concepts in blue rectangles are perceived to be requisite features for effective MDA establishment. The arrows indicate the direction of impact. When these concepts are put in place and operationalized, the result will be improved maternal health care provision. It is envisaged that improved maternal health care would lead to reduced maternal deaths. However, for all of these processes to take place, there is need for unwavering political will.



## Chapter 2: Literature Review

The study will employ qualitative methods of data collection with the aim of understanding the context in which MDAs are conducted, especially in resource poor settings. Equally important, the focus of the study will be to assess how the MDA systems were established at the Mulanje district and mission hospitals. Qualitative methods will be used for interpretive analysis. The in-depth interviews will be conducted with MDA committee members tasked with conducting facility based MDA.

The basic premise of the literature review will be, therefore, to identify the study objectives and the specific aims as reflected in the interview guide questions. Firstly, the literature review will discuss the MD situation at the world, Sub-Saharan Africa, Malawi, and Mulanje district levels. Mulanje district will be the setting of the study. Secondly, the review gives a brief account on the socioeconomic impact of MDs on society. Thirdly, the review will provide an overview of the MDA concept, herein used interchangeably with maternal death reviews (MDR), which is the principal dependent (outcome) variable of the study. Fourthly, the review will delve into the functional definition of the MDR.

The review will further explore types of approaches to conducting MDA, factors affecting MDA activities, and the impact of MDA in combating high MDs. Additionally, the review will shed light on the global frameworks and guidelines used to set up MDA systems. The review will also look into institutional support and challenges facing MDA activities. Finally, the review will give an analysis of the gaps in the establishment of MDR activities and recommendations on how to enhance the operationalization of MDA activities for improved maternal health services.

## 2.1 Maternal Death (MD)

### *2.1.1 Definition of MD*

The International Classification of Disease (WHO: ICD-10, 1992), defines MD as the loss of life of a pregnant woman or within a period of six weeks of termination of pregnancy, regardless of the gestation age and location and whether implantation was intrauterine or otherwise. In this regard, the cause of the loss of life can result from pregnancy related causes or management. However, the definition excludes any causes of loss of life that originate from accidental and/or incidental phenomena. Such a comprehensive definition provides statistical clarity to quantify the MD burden. This is particularly important for determining causality and planning for health interventions, which is the principal idea behind the operationalization of MDA activities, particularly in countries with poor maternal health indicators.

### *2.1.2 Global and Regional Context of MDs*

Globally, women of child bearing age lose their lives due to preventable causes of death during the perinatal period. Every day, over 800 women die due to pregnancy related causes. In 2013, over 289,000 women died during the period around child birth, and over 99% of these deaths occurred in developing countries, most of which lie in Sub-Saharan Africa (WHO Statistics, 2014). Limited human and material resources in the health care delivery system, together with sociocultural factors, are major drivers of the unacceptably high MMR in resource poor countries.

At the turn of the new millennium, the international community developed the eight Millennium Development Goals (MDGs). One of the MDGs, Goal 5, hinges on maternal health. Globally, countries have made progress in reducing numbers of deaths associated with child bearing. The impact of MDGs has led to a reduction in MMR by three-quarters (3/4) between 1990 and 2015, implying that, from the global perspective, maternal mortality has dwindled by 45% (WHO Statistics, 2010).

Although countries have recorded a decline in maternal mortality, the greater part of the progress has been registered in the developed world. Likewise, some countries in Sub-Saharan Africa, North Africa, and South Asia have made headway by halving the levels of maternal mortality since 1990. Furthermore, between 1990 and 2013, global MMR went down by 2.6% every year. Nonetheless, this figure falls far below the annual target decline of 5.5% required for countries to achieve the MDG5 (WHO Statistics, 2010).

### *2.1.3 Malawi National Context of MD*

Malawi is one of the Sub-Saharan countries with a high MMR of 675/100,000 live births (MDHS, 2010). Women living in low socioeconomic, hard-to-reach communities are the most vulnerable groups, as poor accessibility to health services is one of the drivers of high maternal mortalities. The total fertility rate (TFR) in Malawi stands at 5.7 which exerts pressure on the already resource poor health care delivery system. Due to low contraceptive uptake, teen pregnancy, and cultural factors, adolescents are at higher risk of gynecological and obstetric complications and deaths resulting from pregnancy (MDHS, 2010).

The major causes of high MDs in Malawi are obstetric complications, such as hemorrhage, puerperal sepsis, and pregnancy induced hypertensive disorders (Malawi Safe Motherhood Initiative, 2013). Analyses of databases to determine causes of MDs at the global, regional, and sub-regional levels revealed that over 72% of the deaths were due direct causes, while over 27% were due to underlying factors, with the following obstetric complications: hemorrhage (27.1%), hypertensive disorders (14.0%) and sepsis (10.7%) (Say et al., 2014). Obstetric complications are driven by underlying factors that are socioeconomically and culturally determined, underscoring the fact the women residing in impoverished remote settings are at a higher risk of MD than their urban and semi-urban counterparts. It is common in

developing countries to see relatively more well-staffed health facilities in urban areas than in the rural settings. This setup limits rural residents from accessing skilled birth attendants.

The underlying factors that predispose women to MD are wrapped in the 3 Delay model: 1) delay at community level to make a decision to send a pregnant woman with an obstetric complication to nearby health facility; 2) delay in transporting the woman to health facility; and 3) delay within the walls of health facility to initiate emergency care (Vink, de Jonge, Ter Haar, Chizimba, & Stekelenburg, 2013). The MDA system that is able to look into all the delays is likely to generate credible information for improvement of maternal health services.

Malawi has made tremendous efforts to combat high MDs. The MMR was at 984/100,000 live births in 2004, which was subsequently reduced to 675/100,000 live births in 2010. The decline is attributable to the increase in the number of pregnant women delivering at health facilities, from around 57% in 2004 to over 72% in 2010 (Malawi Health Sector Strategic Plan, 2011-2016). The increase of hospital deliveries has been as a result, in part, to the involvement of traditional leaders and males who encourage women to deliver at health facilities. Delivery at a health facility is considered to be safe because that is where skilled birth attendants and a purposely built infrastructure are available. The advantage of having more pregnant women deliver at a health facility is that it makes MDA more effective; any MDs that happen in the hospital will be analyzed, unlike those that occur in the remote areas, which are often unreported.

Apart from showing a commitment to the MDG5, Malawi is a signatory to a number of international conventions that address women health. The notable ratifications are the Convention on the Elimination of All Forms of Discrimination against Women, the Maputo Action Plan, and the Protocol to African Charter on Human and People's Rights on the Rights of

Women in Africa. The Maputo Protocol, Article 14(2) (c), calls for favorable policy and legal frameworks to reduce incidence of unsafe abortion and provide abortion services that are comprehensive within the law (Jackson, Johnson, Gebreselassie, Kangaude, & Mhango, 2011).

Unsafe abortion is one of the leading causes of puerperal sepsis, and is among the top five causes of MDs in Malawi. Due to restrictive state laws on abortion, women of child bearing age who find themselves with an unwanted pregnancy resort to procuring abortion services from clandestine sources that are often unsafe and provided under unhygienic circumstances. Teen pregnancy is another contributor to high MDs. According to Malawi edicts, any person under the age of 18 years is regarded as a child. Often girls as young as 17 years old start bearing children such that one in every five girls fall pregnant at the age 17 (Malawi Population Data Sheet, 2012).

Despite all the efforts within the National Safe Motherhood Initiative framework, Malawi still grapples with high MMR, and is currently at 460/100,000 live births (Safe Motherhood Initiative, 2013). Malawi had set its target to reduce MMR to 155/100,000 live births by 2015. A robust MDA system, therefore, remains an important tool to inform policy and maternal health service provision.

### *2.1.4 Mulanje District Context of MDs*

Mulanje district is located in the Southern region of Malawi. It is a rural setting and a densely populated district. There are two secondary level health facilities in the district; the district and the mission hospitals. Public health facilities provide free services in Malawi, while mission hospitals have a government subsidized user fee under the Malawi government and mission hospital service level agreement (SLA).

Mulanje district had a total population of 521,391 in 2008, with a projected increase to 557,788 in 2014. Over 251,086 people live in hard-to-reach areas (National Statistics Office

data, 2010). Remote areas pose a challenge to the accessibility to health services, including maternal health care. The number of women of child bearing age in the district is estimated at 128,291, of which 27,889 were likely to be exposed to the event of pregnancy in the year 2014. During fiscal year July, 2013 to June 2014, the district recorded a total of 16 MD (Mulanje District Database, 2014). This figure could just be a tip of iceberg, as many MD occur in remote parts of the district and go unreported.

### *2.1.5 Socioeconomic and Health Impacts of MD*

Free public health services have a direct influence on pathways and accessibility to health care, including maternal health care. It is common to find government hospitals more congested with patients than mission hospitals where clients pay a fee. There is a direct correlation between high MDs and cost of health service utilization for the household(Kes et al., 2015). The study done in Kenya by Kes at al., (2015) to estimate the cost of maternal mortality established that the cost of health care for households that had experienced a MD was higher than those household that had a normal pregnancy outcome. The findings of the Kenya study are corroborated in the study done in neighboring Tanzania by Yamin et al., (2013) which found that the death of a mother had widespread negative economic and education effect on her children(Yamin et al., 2013). The study took into consideration the role women play in the households in Tanzania. This, therefore, calls for health systems in countries with high MD to institute robust MDAs, which are proven to be the most effective way to combat maternal mortalities.

Similarly, a study by Kirigia, et al., (2006) on the effects of maternal mortality on Gross Domestic Product (GDP) that was done in the WHO Africa region indicated that MDs are, in themselves, a symptom of underdevelopment. The study therefore, recommends that policy makers include interventions aimed at reducing maternal mortality in their strategic plans. By the same token, a study done in 24 European countries to determine the effects of maternal mortality

on government spending on health care established a strong association between cost and maternal mortality (Maruthappu et al., 2015).

In his workshop notes, Mosley (1998) asserts that while it may seem obvious that maternal mortality has economic consequences on the household, it is not easy to measure those consequences. He argues that maternal mortality is a rare demographic event; thus it is cumbersome to follow a large cohort that experiences MDs over a long period of time, for instance, after a period of five years. The economic reflections of the study findings provide a learning opportunity for Malawi, as they were conducted in settings with a similar context. It also underscores the fact that countries need to channel efforts in establishing MDA systems that will help generate solutions to the high MDs puzzle.

## 2.2 Maternal Death Audits (MDA)

### *2.2.1 Definition of an MDA*

According to World Bank: HPN Notes, (2011), MDA is defined as an in-depth systematic review of maternal loss of life conducted to explain the root cause of such deaths, which might have socioeconomic bearing, with the intention to draw lessons and generate recommendations to avoid recurrence. Such MDA systems ought to base on well-articulated principles and guidelines in order to generate credible recommendations (De Brouwere, Zinnen, Delvaux, & Leke, 2014). An MDA mechanism that is not based on a logical framework not only wastes resources, but also is a source of misinformation.

### *2.2.2 MDA as a Strategy*

To achieve MDG 5, Malawi set a target to reduce the MMR from 675/100,000 live births to 155/100,000 live births by the year 2015. This target had not been met as the unpublished reports now put MMR at 460/100,000 live births (Malawi Presidential Initiative on Safe Motherhood, 2013). One of the strategies to achieve the goal was the institutionalization of MDAs in all secondary level health facilities. MDAs  prove to be an effective tool to help

analyze the underlying causes of high MDs and suggest interventions for improved maternal health (Mathur et al., 2014).

### *2.2.3 Approaches to Conducting MDA*

While it is crucial to describe all of the approaches to MDA, the overriding focus of this study is to assess, from the perspectives of MDA committee members, the establishment of facility based MDA systems and their experiences performing this important function. There are several approaches to conducting MDA, namely: facility based, community based, national committee confidential enquiry, survey of severe morbidity (near miss), and clinical audit. Understanding that MDAs play a critical role in informing policy and maternal health service provision, it is imperative to ensure that the implementation rests on well-defined guidelines (De Brouwere, Zinnen, Delvaux, Nana, & Leke, 2014). The first step in the establishment of an MDA is, therefore, to ensure that there are national and international frameworks to serve as reference materials to maintain standards. Secondly, there must be tools in the form of records to fill in information when analyzing the MDs. Formation of an MDA committee whose composition is multidisciplinary is another cornerstone.

Provision of maternal health services is multidisciplinary in nature, and as such, there is need for personnel from various professional backgrounds in order to create a broad based source of ideas. An MDA committee comprising obstetricians, nurse/midwives, pharmacists, anesthetists, transport officers, and community members stands a better chance of doing a commendable job (World Bank: HNP Notes, 2011) and (De Brouwere, Zinnen, Delvaux, Nana, et al., 2014).

In addition to having a representative MDA committee, there must be clearly stipulated terms of reference for the committee to effectively carry out the MDA activities. The absence of clear terms of reference is a recipe for MDA activities that are disorganized and therefore not

able to generate credible information to improve maternal health services (Hussein, Goodburn, Damisoni, Lema, & Graham, 2001); (Lewis, 2014).

Analysis of the causes of MD needs to encompass community factors, the transportation system, and the health facility. The 3 Delay model provides a blueprint for MDA activities to ably excavate the direct and indirect causes of MDs (Combs Thorsen, Sundby, & Malata, 2012). The model expounds the causes that originate from community and health facility factors that would prevent timely interventions to save the life of the pregnant woman.

The first delay points to, among other issues, socioeconomic and cultural factors. It is imperative, therefore, that an MDA system stablish links with communities in order to capture a wide array of issues that surround MDs (Bayley et al., 2015). The second delay is primarily related to transportation problems, which could be due to poor road infrastructure and the unavailability of ambulatory services to ferry the pregnant woman from the community to the hospital. And often also due to the woman requiring husband's permission and resources to travel. Information that MDA would generate from this would be used to collaborate with relevant stakeholders on road infrastructure improvements. The third delay looks at factors within the hospital walls. In this regard, the pregnant woman could be brought to the hospital, but it is a question of how long it takes to receive the initial form of intervention. This is particularly common in resource poor countries where human and material resources are often limited.

This study, therefore, focuses on health facility set up, which entails a detailed investigation of the direct and indirect causes of MDs within a hospital. Conducting MDA in a manner that does not apportion blame to health care providers is critical for eliciting the needed cooperation to achieve the desired outcomes. The overriding purpose of doing an MDA is to

generate recommendations to improve provision of maternal health care and not necessarily fault finding (Lewis, 2014).

### *2.2.4 Factors Affecting MDA Activities*

Countries that have implemented an effective MDA system have registered a decline in MDs. An MDA serves as a tool to analyze the direct and indirect causes of death for systems in order to develop sound policies to improve provision of maternal health services (Sale, et al., 2013). Having good maternal health policies is not an end in its own. MDA committees require technical and material support to effectively carry out their mandate. In addition, they need legal and political will (Pearson, deBernis, & Shoo, 2009).

In the study by van Dillen et al., (2007) to identify the causes and contributing factors to MDs in Zambia, Gambia and the Netherlands, the researchers strongly recommend unwavering political will as a critical component for health facilities to effectively conduct MDA (van Dillen, Stekelenburg, Schutte, Walraven, & van Roosmalen, 2007).

Training of health care providers is one area that would bring about quality MDA (Kongnyuy, Mlava, & van den Broek, 2009). Much as training is mentioned as a key component to conducting meaningful MDA, the study does not specifically mention the MDA committee as a critical entity needing special skills. When recommending the type of preparation the health facility needs to have in order to be successful, it is important to be categorical in what exact preparation each and every sub-set of the system ought to be accorded. MDA committee members who are not equipped with requisite competencies would find it difficult to carry out rigorous procedures associated with MDA.

### *2.2.5 The Impact of MDA in Combating High MDs*

MDA have proven to be an effective weapon in combating high MD. In a study to determine the effectiveness of MDA and provide feedback to stakeholders in three districts in

Malawi, Kongnyuy et al., (2008) found that the MMR declined from 250/100,000 live births in 2005 to 222/100,000 live births in 2006 and to 182/100,000 in 2007. The statistics here candidly indicate the steady decline of MMR following operationalization of MDA, which suggests that the same would happen at national level provided there is a robust MDA system. While the findings mainly reflect the issue of feedback to health care providers, it is not clear if the study examined the exact roles played by the MDA committee. Much as the MDA committee is part of the health care providers, they have an exceptional role in conducting the MDA and, as such, ought to be singled out as regarding what sort of expertise they need to receive to steer the activities of MDA.

The impact of MDA on reduction of MDs is also highlighted in a study done in Thyolo district, which shares a border with Mulanje district (van den Akker et al., 2011). The study established two critical elements required, namely; the audit itself and giving feedback to stakeholders for action. However, the study did not focus on factors within the establishment of an MDA mechanism that would equip the MDA committee to ably play these important roles.

### *2.2.6 The Global Frameworks and Guidelines to Establish an MDA System*

Setting up an MDA committee in health facilities require frameworks and guidelines to serve as guiding tools. The World Health Organization (WHO) provides countries with management tools that range from stipulations on how to institute a MDA committee, how membership should be comprised, the terms of reference, and paperwork that is used in making entries when analyzing data (World Bank: HNP Notes, 2011) ; (De Brouwere, Zinnen, Delvaux, & Leke, 2014). Country ministries of health, therefore, have the duty to make sure such important documents are made available to health facilities (Kongnyuy & van den Broek, 2008); (Clark, 2012). By the same token, it is equally important for respective countries to adapt the WHO guidelines to suit their respective context.

### *2.2.7 Institutional Support to MDA Activities*

The composition of MDA committee members must be multidisciplinary in nature in order to provide synergy in terms of expertise to carry out MDA activities (Berg, 2012). While the diverse membership of the committee is essential, there ought to be readily available support from the health facility's top management. The MDA committee needs office space, financial and material resources to do the job. Above all, since MDA committee members have other roles at the health facility, special incentives for their efforts would provide external motivation to do the job diligently (Belizan, Bergh, Cilliers, Pattinson, & Voce, 2011). The need for support to MDA committee is corroborated in a study done by Say et al., (2014) to analyze and develop global, regional and sub-regional causes of high MDs. The study recommended that adequate funding to MDA activities is critical component for effective MDA (Say et al., 2014).

### *2.2.8 Common Challenges Facing MDA*

Apart from the familiar challenges of limited resources prevalent in developing countries, some limitations are technical in nature. The study by Abouchadi et al., (2013) in Morocco to identify challenges and opportunities in operationalization of MDA systems point out the failure by the MDA committee to make proper documentation and the poor reporting system of the findings as factors that negatively affected the quality of the MDA (Abouchadi, Belghiti Alaoui, Meski, & De Brouwere, 2013).

Poor reporting of the findings cripples the whole system making it impossible to identify areas to which action should be targeted. Since determining the cause of MDs also involves sourcing information from significant others, low literacy levels on the part of the guardians is one challenge. In such situations, it is very difficult for MDA team members to determine the exact cause of death, especially if the underlying cause of the death might have a community

origin (Combs Thorsen, Sundby, Meguid, & Malata, 2014). Knowledge of the exact cause of death is critical because that is where recommendations for improvement hinge.

### *2.2.9 Establishment of an MDA System*

While there are other factors that need consideration in the effort to reduce the high MDs, MDA system remains a critical component in the fight against MD (De Brouwere, Zinnen, Delvaux, Nana, et al., 2014; Vink et al., 2013). MDA activities that are not established on standard principles and guidelines would not generate the needed information for health care improvement. Setting up MDA mechanisms requires high level consideration of what instruments must be available to the team, who needs to be included in the MDA committee, and what sort of preparation the committee members should undergo to acquire the knowledge and skills for conducting MDA.

Establishment of clear terms of reference for the committee members is another area that needs to be considered. There has to be clear timeline for MDA activities, and information about to whom the findings should be communicated and, more importantly, what mode and frequency of communication ought to be followed (De Brouwere, Zinnen, Delvaux, Nana, et al., 2014).

### *2.2.10 Recommendations from the Literature to Enhance Operationalization of MDA*

The literature consulted has brought forward a number of recommendations on what health facilities must do to have more robust and effective MDA activities. Much as the recommendations appear to be relevant to issues of MDA activities, what seems to be unclear is what, specifically, must be directed to MDA committees, which is a critical component in making MDA activities more effective.

Most of the recommendations are general to the entire health care delivery system. Allocation of resources to MDA activities and adequate training to health care providers are major highlights of the recommendations (Kongnyuy et al., 2009). While allocation of resources

to MDA activities seems a straightforward requirement, this is not an obvious phenomenon in many health care delivery settings, particularly in resource poor settings**.** Political will at both the national and local level, coupled with an enabling legal framework, would play a crucial role. Concerted efforts by all stakeholders that entail professional bodies and development partners have a high likelihood of yielding the desired outcomes of MDA (Pearson et al., 2009).

## 2.3 General Impression of the Literature

Most of the literature consulted used quantitative methods of data collection to study MDA activities. The basic premise on which quantitative and qualitative designs differ is that the objective of the former is to quantify and generalize the findings while the latter aims at gaining comprehensive understanding of the contextual factors that explain the motivations behind a behavior(Cypress, 2015).This therefore, limits the methodologically comparative analysis of the studies since this write up is about a study which will purely use in-depth interviews method of data collection whose primary focus  is to understand the experiences of MDA committee members as they conduct MDA.

In their study on facility based MDA in Malawi, Kongnyuy et al., (2008) used a strengths, weaknesses, opportunities, threats (SWOT) analysis at a workshop to explore challenges encountered. Much as the study revealed a substantial number of issues negatively affecting MDA activities, interacting with participants at a workshop may not provide an enabling environment where sensitive issues can be freely verbalized. In-depth interviews, on the contrary, provides a more private environment where participants can reveal a great deal of information.

Similarly, Belizan, et al., (2011), in a study to describe the stages of change in implementation of perinatal audit program in South Africa, involved clinicians in their experience with the implementation and maintenance of a perinatal problem identification

program (PPIP). The study employed qualitative data collection methods through workshop sessions. While the workshop setting approach may mimic a focus group discussion method of data collection, the challenge is that the depth of information given may be minimal. Participants may not feel open to sharing sensitive issues and, again, this approach calls for a great deal of moderation to ensure the session delivers the desired breadth and depth of information.

Armstrong, et al., (2014) in the study to assess the strengths and weaknesses in the implementation of maternal and neonatal deaths in Tanzania, triangulated the methods of data collection by reviewing records and conducting interviews with administrators and hospital staffs. While triangulation broadens the source of information, it is not mentioned whether the MDA committee members were part of the hospital staffs that were interviewed (Armstrong et al., 2014). MDA committee members are a critical component of the hospital system who can give credible information based on their hands-on experience.

Nonetheless, the literature review has provided a great detail of information as to what others have already studied on MDA. This study, will supplement the available information, especially by targeting MDA committee members who play an indispensably unique role as an information generator on how to improve maternal health services.

# Chapter 3: Methods

## 3.1 Ethical Consideration

The study proposal was, as required by the United States laws, submitted to the Emory University Internal Review Board (IRB) for determination. The outline of the study proposal comprised the following sections: title, objectives, specific aims, methods of data collection, and the type of participants. Feedback was received on March 18, 2015. The IRB approval was waived because the study was deemed not meeting the definition(s) of research involving human subjects as set forth in the Emory policies and procedures and federal rules **(Appendix 1).**

The study was conducted in Malawi, and as such, the study proposal was also submitted to the Malawi National Health Sciences Research Committee (NHSRC). This is an umbrella body legally mandated to scrutinize and approve all health related studies in the country. The application to the NHSRC was collectively made, since the study objectives fell under the broader project goal for the five Emory University students who went to Malawi during the period from May to August, 2015 on a maternal mortality project. The NHSRC approved the study on June 11, 2015 after recommending some modifications to the study proposal in order to meet the country's stipulations **(Appendix 2).**

The project proposal was again sent to the Mulanje District Health Office (DHO) and the Mulanje mission hospital for project site approval. Permission to conduct the study at both Mulanje district hospital and the Mulanje mission hospital, which are MDA centers, was granted by the district health officer of Mulanje on May 19, 2015 **(Appendix 3).**

Equally important, because this was a student project, Emory University required a commitment of support from the field supervisor. On February 4, 2015, Dr. Beatrice M. Mwagomba, the Deputy Director of Clinical Services responsible for non-communicable

diseases (NCD) in the Ministry of Health (Malawi), accepted and pledged her availability to mentor the five Emory University students during the entire study period **(Appendix 4).**

Similarly, in line with dictates of ethical conduct, the first section of the interview guide included details on obtaining informed consent from participants. The details included: interviewer self-introduction, the purpose of the study, why the particular participant was chosen, and the emphasis on voluntary participation. In addition, the participants were informed about the study and asked for permission for the interviews to be audio-recorded. An explanation was given to the participant that the recording of the proceedings was to ensure that all verbatim details of the information provided were captured.

By the same token, the participants were assured that the information would not be shared and the transcripts would be de-identified to preserve anonymity and confidentiality (Stamer et al., 2015). Furthermore, the participants were assured that all the study documents would be under lock and key and the computer used for data analysis would have a strong character password.

## 3.2 Research Context

The study was conducted at the two secondary level health facilities in Malawi, Sub-Saharan Africa. The study sites were Mulanje District and the Mulanje Mission hospitals in the Southern region of the country. Mulanje is one of the remote rural districts in Malawi, and is one of the densely populated district with a total population of 521,391. Of this population, 251,086 live in remote areas (National Statistics Office data, 2010).

The district has population of 128,291 women of child bearing age. Of this number, 27,889 are at high risk of becoming pregnant. In fiscal year July, 2013 to June, 2014, the district recorded over 16 health facility based MDs (Mulanje District Hospital Database, 2013-2014). The Malawi total fertility rate (TFR) is at 5.7, one of the highest in the region. Rough terrain and

poor road infrastructure are some of the stumbling blocks to provision of maternal health services. Conducting facility based MDA activities in health facilities is one strategy the government of Malawi has developed to combat high MDs.

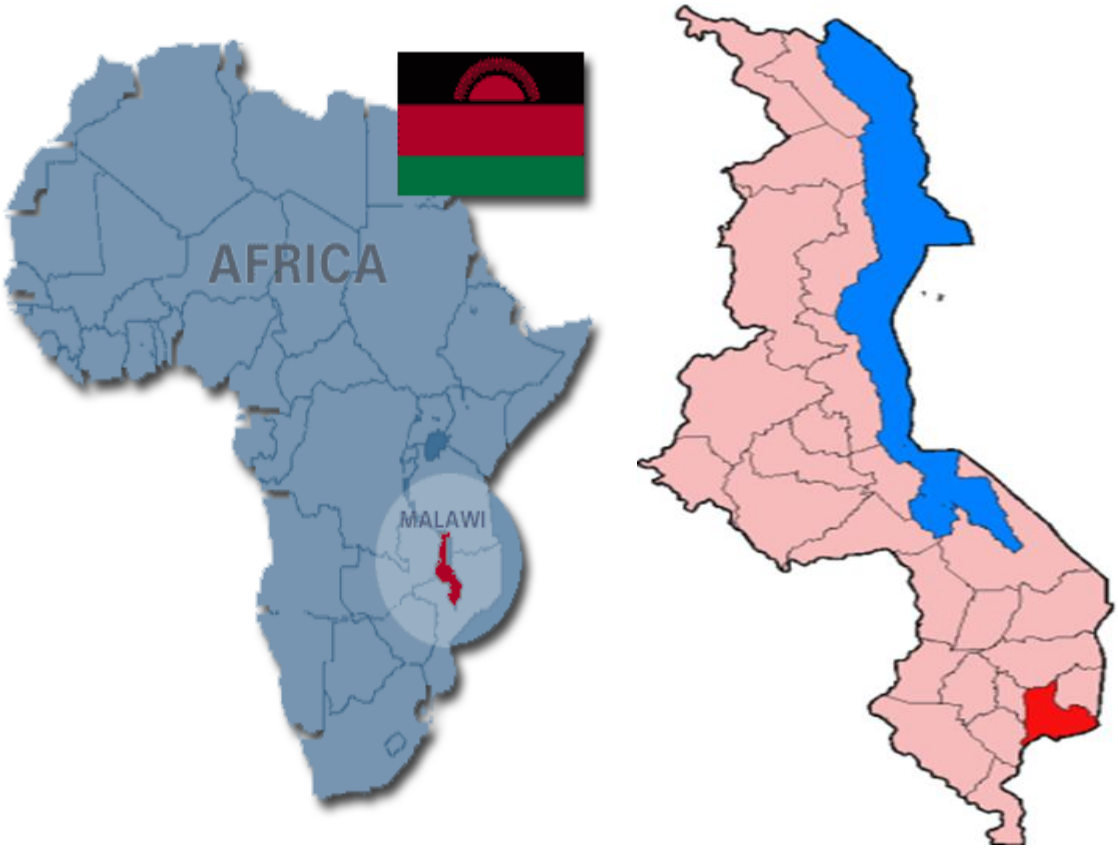



**Figure 1: Maps of Africa (left) depicting Malawi (right) and the location of Mulanje district (red)** (**Source**: https://www.google.com/search?q=map+of+africa+)

Mulanje District Hospital is a referral center at the district level. The district hospital receives referred maternity cases from over 30 health centers dotted all over the district. Of the 30 health facilities, four are under the ownership of the Christian Health Association of Malawi (CHAM). Health services in government health facilities are free; as a result, it is not uncommon to see large numbers of patients in government hospitals. The district and the mission hospitals are the two venues in the district where facility based MDA activities are conducted.


Figure 2: Mulanje D. Hospital

The mission hospital has a catchment area of 72 villages with a population of 74, 785. It is about 8 miles north of the district hospital. It is under the CHAM with over 12 outreach clinics. In fiscal year July, 2012 to June, 2013, the hospital had 2,678 antenatal clients and conducted 2,345 deliveries and 405 caesarean sections (Mulanje Mission Hospital Database, 2012-2013). Services at the CHAM health facilities require a user fee, which patients pay out of pocket. This, in some instances, affects access to health care, especially among low socioeconomic status communities, which constitute over 85% of the population in the district. To offset the effects of user fees, the government of Malawi signed a memorandum of understanding with CHAM health facilities on health care cost subsidy under the service level agreement (SLA). The SLA is the government strategies to improve poor maternal health

indicators. Most CHAM health facilities are located in remote areas and are easily accessed by the rural setting consumers of health care.


Figure 3: Mulanje M. Hospital. Source: (www.mmh.mw)

## 3.3 Study Design

The study used qualitative methods. In-depth interviews were conducted with members of the MDA committee. The study employed a qualitative design to evaluate how MDA activities are conducted in the district. The focus of the study was to identify the successes and limitations in the implementation of the MDA. Additionally, the study sought to provide contextual explanation of how MDA activities are conducted in the district (Hagens, Dobrow, & Chafe, 2009). The design was, therefore, suitable because the main objective of the study was to understand the experience of conducting MDA within the prevailing context (Alvarez Del Arco,

Rodriguez Rieiro, Sanchidrian De Blas, Alejos, & Pla Mestre, 2012). Likewise, the study sought to explore the issues that characterize the establishment of the MDA mechanism.

## 3.4 Study Population

The type of participants was determined a priori. These were participants with requisite experience in MDA who provided answers to study questions. Purposive sampling was done on those members of the hospital who were on the MDA committee. In that regard, the inclusion criterion was members of the MDA committee at Mulanje district and mission hospitals. The exclusion criterion was any health care provider who was not a member of the MDA committee. Health care personnel who were not members of an MDA committee were perceived not to be very familiar with the day-to-day operations of the MDA.

Additionally, members of the MDA committee who had not spent more than one year serving on the committee were not included. The basis for the exclusion was that they might have not accumulated the requisite level of experience, and therefore, were not well placed to articulate issues of MDA. The study sought to generate data that were rich in depth and variation. Thus, participants of diverse professional backgrounds and work positions, and from different hospitals (the government and CHAM) were recruited.

Furthermore, participants were drawn from membership of the MDA committees that comprised nurse/midwives and clinical officers (CO) working in the maternity departments, laboratory technicians, medical doctors, pharmacy technicians, anesthetists, the hospital transport officers, the district Safe Motherhood coordinators and members of the district/ hospital management team. The district and hospital management team members were included after it emerged from the immediate transcription of data that they played a critical in MDA activities.

The district health management team consists of the district health officer and the district nursing officer, who are technically health professionals. At the mission hospital, the medical

director and the hospital matron were interviewed as hospital management team members. The officers in management positons play a central role in making decision on matters affecting provision of health services in the district, including MDA. Each of the various cadres have a specific roles in the provision of maternal health services, and therefore are better placed to positively contribute to the operations of MDA activities (Palinkas et al., 2015).

## 3.5 Data Collection Methods

In-depth interviews with MDA committee members were used to collect data. The method was used to gain a comprehensive understanding of how MDA activities are conducted in the district (Hennink, 2013). To make sure the interview yielded the desired outcomes, a semi-structured interview guide was developed (**Appendix 5).** The interview guide was designed in such way that it had the opening section which contained introductory details and consent information.

To enhance the logical flow of questions, the guide had opening questions which were relatively simple in order to create rapport with the participant. The subsequent section contained key questions that sought to answer the critical issues in the study. The last part of the guide had closing questions so that interaction with the client did not take an abrupt end.

It is important to note that, having predetermined set of questions did not mean the guide was rigid. There was an ongoing revision of the guide to accommodate the emerging issues as the data collection exercise progressed. In addition to the logical design of the interview guide, we made sure that we created good rapport with the participants by always doing self-introduction, demonstrate active listening and being flexible in rescheduling interviews as so wished by the participants.

Again, we made sure that questions were posed in an open ended manner in order to create more room for the interviewee to give a detailed account of the issues. By the same token, probes

were used to enable the participants to give comprehensive narratives of the issues(Peters & Halcomb, 2015). However, much as the interviewees were given open space to share their experiences on MDA activities, efforts were made to direct the proceedings towards addressing only those issues that pertained to the study objectives.

## 3.6 Data Collection Process

This study was part of the larger maternal mortality project in Malawi by five Emory students on practicum. Five study assistants were recruited to assist in the data collection and transcription. The assistants (one male and four female) were chosen because they were Malawian citizens familiar with the cultures and language of the people in the study catchment area, and some of the objectives of the project were related to abortion, a culturally and legally sensitive issue in Malawi. The inclusion of more females was intended to address the possibility that some participants would not feel free to share their experience with a male interviewer.

One of the study assistants was a registered nurse/midwife working at the Mulanje district hospital. Another was a business administration graduate on maternity leave. The remaining three were undergraduate students at the University of Malawi on break. The high caliber of the study assistants made the orientation and training easier; they were able to grasp the concepts with little difficulty. The study assistant for the objective on MDA played the role of interviewer.

Before the data collection tool was piloted, it was pre-tested among the study team members. During the orientation of the field assistants, sessions were held where team members could play the role of interviewer and interviewee using the tool. The data collection tool was thereafter piloted to improve its user friendliness and other logistical considerations. Furthermore, the interview guide was pre-tested through four preliminary interviews at the district hospital and two interviews at the mission hospital. The pre-testing resulted in rearranging of questions and

determining the duration of the interview, and served as practical experience in interacting with participants.

After obtaining approval from the Malawi NHSRC, data collection started on June 15, 2015 and continued to July 24, 2015. Prior to the data collection phase, communications were made with the district health officer (DHO) to make appointments based on participants' availability. The district nursing officer (DNO) and district Safe Motherhood Coordinator helped with production of a list of members of the MDA committee. Furthermore, contacts were made with the individual members regarding the specific time they would be available for the interviews. A tentative schedule was developed for interviews on Mondays, Wednesdays, and Fridays.

The interview scheduling gave us time for reflection on the emerging issues and we revised the interview guide as the interviews progressed(Hennink, 2013). Additionally, the alternating dates offered the opportunity to start the process of immediate transcription, which allowed for fresh reflections on the data collected(Hennink, 2013). However, in some circumstances, a great deal of flexibility was required on our part to maximize the chances of meeting the participants, even when they had indicated that they were available on a weekend or holiday.

For the MDA objective, data collection was done by the male study assistant and this researcher. Understanding that the quality of data was dependent on the interviewers' skills, a two- week training for the study assistants was conducted. The training package included: the goal, the specific objectives of the study, basic information on how to conduct in-depth interviews as a qualitative methods of data collection, ethical issues, probing skills, and all of the methodological details of the study. The training helped to ensure that we created a team with a common understanding on the procedures so we could generated high quality data and credible findings(Hennink, 2013).

Every evening of a data collection day, two hour meetings were conducted for data review. The reviews gave the team the opportunity to follow the iterative process in order to gather rich data. Refinements were made to core topics and questions. For instance, we realized that we needed to include the hospital management team members as participants; the initial plan had not included them. Most of the narratives by the participants mentioned the roles of the management team members in technical and financial support to the MDA activities.

A total of fifteen (15) in-depth interviews were conducted after reaching saturation, at which point no new issues were emerging from the interviews (Walker, 2012). Four of the interviews were with hospital management team members – two from the mission hospital and two from the district hospital.) Two of the interviews were with the two Safe Motherhood coordinators – one from the district hospital and the other one from mission hospital. The remaining interviews were conducted with the regular members of the MDA committee from the two health facilities. The interviews' duration ranged from 26 to 47 minutes, with majority above 35 minutes. On average each interview lasted 36.5 minutes.

## 3.7 Data Analysis

### *3.7.1 Data Preparation*

The study employed a qualitative method of data collection that generated textual data. A total of 15 in-depth interviews were conducted with members of the health care delivery system at the Mulanje District and Mulanje Mission hospitals, which are the two MDA centers in the district. The verbatim transcriptions were prepared in order to capture the stories of how MDA are conducted as narrated by the members of MDA committee. Transcription started immediately after conducting the interviews, and was finalized after all of the interviews were completed. The immediate commencement of transcription was crucial because it gave the opportunity to reflect on issues that were emerging from the interviews. It also provided an entry point to modifying some questions in the interview guide.

Much as the principal focus of the study was thematic and content analysis, the transcription was, to a lesser extent, influenced by linguistic and conversational analysis. In this regard, the transcription attempted to capture the length of pauses and speech feelers, and phraseology, as well as how much emphasis was given to particular words in the narratives. To ensure the transcripts were correct and complete, segments of all the 15 written transcripts were counter-checked by listening to the recorded version of the interviews. Also, to avoid confusion between the interviewers and the participants, the speakers were labelled. All the accounts of the interviewer were labelled "I," while all narration by the participants were marked "P". Furthermore, the identification of the individual interviews was done by assigning numbers. For instance, the first interview was labelled as "1," the second as "2" and so on up to the 15$^{th}$ interview.

All the interviews contained the details as the name of participant, his/her position, professional background, the date on which the interview was conducted, the health facility to

which the particular participant belonged, and the name of the interviewer. These details helped facilitate the core analytic task of comparison. Again, labelling the interviews helped in the identification of the study participants' speech.

To preserve ethical principles of confidentiality, de-identification of the transcripts was done to anonymize the study participants. The names of participants and their places of work were removed, and the spaces were left blank. This was particularly critical because some of the interview narratives contained information that identified the roles of some position holders in the hospital.

The in-depth interviews were conducted in English and no language translation was required. The members of hospital management team and of the MDA committees were health care professionals conversant with the English language. In Malawi, English is the official language and, more importantly, the language of instruction in the education system.

### *3.7.2 MEMO Writing*

Data analysis was conducted using the **MAXQDA** computer package. The initial step was to write MEMOs. The MEMOs were used throughout the three major cycles of study – the design, ethnographic and analytic cycles. The MEMOs formed entry points into the issues in the data and played a significant role in following the very iterative nature of a qualitative study. Furthermore, the MEMOs helped to delve into the data and uncover specific information. They enabled us to closely interact with the narratives in order to develop ideas embedded in the participants' narratives.

It was through the MEMOs that reflection was made on reflexivity, new ideas, probes, and questions that emerged from the data. Crucially, the MEMOs helped to expose the issues that needed to be explored further as we travelled back and forth among the qualitative research cycles. The MEMOs promoted a motivation to read the data, which was central to comparing

and reviewing core issues across the data. During the data collection phase, the MEMOs helped to identify issues and participants' statements and how issues were linked. In the early analysis phase, the MEMOs helped in the synthesis of the interviews and code development, while during the later stages of analysis, the MEMOs provided a blue print to trace the trajectory of the entire process (Hennink, 2013)

### *3.7.3 Code Development*

Hennink et al., (2013) defines code as a word used to denote matters, themes, concepts, and views that are integral in the data. Codes are critical in the process of data analysis, as they point to the range of issues that emerge in the data. Codes also help to have a better understanding of the reasons why particular participants raised issues. Additionally, codes serve as signals to identify where important issues can easily be traced in the complex data.

It is typical with in-depth interview qualitative methods to generate large volumes of texture data that would otherwise be difficult to handle without the help of codes. The 15 in-depth interviews lasted a total of 479 minutes and covered accumulative total of 128 pages. Navigating these pages would prove burdensome; as a result, few interviews were carefully selected(Hennink, 2013). A representative total of three interviews from the Mulanje mission hospital and six interviews from the Mulanje district hospitals were coded. The Mulanje mission hospital interviews comprised those done with one management team member, the hospital Safe Motherhood coordinator, and the ordinary members of the MDA committee. For the Mulanje district hospital, there were interviews with two members of the hospital management team, three members of the MDA committee, and the district Safe Motherhood coordinator. In addition to these categories of participants, there was consideration of professional backgrounds, which comprised midwives and medical doctors **(Appendix 7).**

A total of 28 codes were developed, which was determined by saturation (**Appendix 6**). Code development normally stops when no new issues emerge from the data (Glaser and Strauss, 1967 as cited in Hennink et al., (2013). The codes were in two categories: the deductive codes (13), which were derived from the conceptual framework after literature review, and the inductive codes (15), which emerged from the interview generated data.

### *3.7.4 Making a Code Book*

To keep track of both the deductive and inductive codes, a hard copy code book was created containing the list of the codes, including the types and functional definition of the codes. Throughout all the qualitative cycles – the design, ethnographic and analytic cycles – we continued, through **MAXQDA**, to refine and merge some of the codes identified to convey the same meaning**.**

### *3.7.5 Coding Data*

**MAXQDA** was used for coding the data set. For the purposes of analysis, the text segments of the nine interviews were coded to easily locate particular sections of the text that were of interest. The selected nine interviews were read several times. As the process of active reading continued, sections of data were annotated to pinpoint topical issues that would be turned into codes.

The MEMOs were used to aid identification of topical issues embedded in the narratives. Some issues became codes after noting the frequency at which the participants mentioned them in the narratives. Incentives, trainings, and inductions were typical examples of such issues. Other codes were determined as they addressed some specific questions of the study; yet some codes represented larger concepts that emerged from the study as a whole. In some instances, corresponding questions that elicited responses from participants were also coded. This helped to provide a clear context in which the participant spoke about an issue. For example, monetary

incentives were not considered strongly by the hospital management team as compared to regular members.

Coding had the advantage of reducing the amount of effort that would otherwise be needed to locate specific sections of text that generated interest. Some coding required considerably larger paragraphs than others, where one line text was enough to provide an effective description of the issue at hand.

### *3.7.6 The Approach to Data Analysis*

The study used a thematic approach to data analysis with the intention to isolate, scrutinize, and take note of the themes within the textual data. To a lesser extent, Grounded theory was used to provide the rigorous research procedural steps to achieve a scientific process. The process of data analysis embraced both the deductive and inductive elements of the study. Some codes were derived from the study questions formulated during the design cycle, while other codes emerged from the ethnographic and analytic cycles.

The code book served as a reference tool for searching for codes from the text segments. A number of search strategies was used to identify issues from a text segment. Data search by codes and topic were primarily employed for the core analytic task of description. In the same way, search by sub-groups was used for comparisons among participant subgroups, such as by professional background, place of work, and official positions in the hospital. During the conceptualization phase, in which we wanted to have a bigger picture from the narratives, analytic search was applied.

In order to make the process of textual data analysis less tedious, a plan for data analysis was devised. The plan entailed making a determination of the overriding purpose of the study. The study's principal focus was to examine how MDA activities are conducted in the district. To be able to assess the MDA establishment, two fundamental questions were born in mind: 1) does

the system follow international and local guidelines on setting up and conducting MDA activities? And 2) what mechanisms are put in place to ensure the sustainability of an effective and efficient MDA system?

In general, the goal of the study was to explore how Mulanje district runs its MDA activities, which determined the level of analysis that was required. In this regard, the core analytic tasks of description and comparison were predominantly used. However, this does not mean other higher level core analytic tasks were not in effect. The study, to some extent, used categorization and conceptualization to derive the major concepts that emanated from the codes.

An attempt was made to do an in-depth analysis of the textual data. Particular codes and topics were examined using thick description, which involved searching for the depth, breadth, context, and nuance of a particular code or topic of interest from the textual data. The core analytic task of comparison helped to provide the basis of the data analysis stage. With description, we were able to understand the contexts and the motivation behind the participants' accounts. For instance, it came out strongly from the MDA committee members that they needed special incentives to do a good job on an MDA. They felt that MDA was an extra responsibility that deserved special recognition from the hospital management. Another inductive code which featured highly in the narratives was the lack of orientation/induction when members of an MDA committee are appointed. Participants mentioned that it was not easy to perform at the high standards in the context where a proper orientation to the activities of MDA is not provided.

The core analytic task of comparison helped a great a deal in detecting patterns in the data. Through comparison, it become clear how some codes were described differently by participants from the Mission hospital compared to participants from the District hospital, which is government owned. For example, participants from the Mission hospital viewed training on

MDA activities as an incentive, while participants from the District hospital placed much emphasis on monetary incentives. Again, there were variations on how members of a hospital management team viewed some issues as compared to the regular members of the MDA committee. While members of the hospital management team attributed the short comings in the way MDA activities are conducted to inadequate resources, regular members of MDA committee continued to mention inadequate hospital management support from both material and technical point of views.

The core analytic task of categorization was essential when it came to putting together codes that seemed to belong to the broader category. This helped to approach the data with a more effective precision, while maintaining the diversity of the issues as put forward by the participants. In this regard, major themes that encompassed codes were developed: motivation, decision making, knowledge and skills, support structure, and challenges were the major concepts that emerged after grouping various codes.

| No | Inductive Codes | Concepts |
|---|---|---|
| **1** | Position of influence, multi-disciplinary team | Decision making |
| **2** | Office space, allowances, lunch/snacks, training | Motivation |
| **3** | Community, task shifting | Support structure |
| **4** | Learning, induction, training | Knowledge and skills |
| **5** | Funding, MDA forms, role strain, staff transfers | Challenges |

**Major concepts developed from codes**

As we tried to view the data as a complex whole, the core analytic task of conceptualization was used. The aim was to understand what the data were telling about the

overall issue of conducting MDA in Mulanje district. The data strongly pointed to the fact that the MDA system in the district had so many areas that needed improvement. A system that plays a role of an information generating source to improve maternal health services deserved the attention from all stakeholders for it to be more efficient and effective.

# Chapter 4: Study Findings

## 4.1 Facilities do not induct MDA committee members when appointed to serve in the MDR committee

Induction is a process that helps an individual drafted into a line of duty to become familiar with the details of the job expectations. It enhances performances; however, it came out from the participants that when an individual has been appointed into an MDA committee, there is no attempt by hospital management to make the appointed members undergo induction process.

> ***P 14: "There's no any form of induction which these members receive. They are only oriented to the reporting tools, yeah and they should know that this is may be a direct cause, this one is an indirect cause but there's no actual course which these members receive to make them efficient no…"***

Participant 14 works in the anesthesiology department and is a member of the MDA committee. He has worked at the hospital for ten (10) years. The narrative attests to the finding that members of the MDA committee are given no special induction to prepare them for MDA activities. His point is corroborated by participant 10, who is the Safe Motherhood coordinator and a member of the MDA committee at the mission hospital.

> ***P 10: "I'm not really sure who was trained and present team members like myself may be the other ones have not attended the training like I don't know the matron and the rest of other members …"***

Participant 10 has 25 years' experience working as community health nurse at various health facilities in Malawi. She has been with the mission hospital for four (4) years. However, participant 1 from the same hospital, who has worked in the maternity department, indicated that some orientation to MDA is sometimes provided, but not on regular basis. Again, it was seen from the responses that there could be confusion between MDA orientation and the orientation on maternity ward chores.

> ***P 1: "Ok when I just came in the ward they oriented me on all the areas of the ward, the things that I'm supposed to do as the manager and they told me the procedure that they do for the maternal death audit..."***

### 4.2 MDA committee members are not given incentives for conducing MDA activities

There was a general consensus among participants from both the district and the mission hospitals that MDA is an added responsibility because it does not appear in their immediate job description.

> ***P 6: "…Yeah but we just conduct it maybe after some time we see them maybe giving us an allowance yeah especially from the SSDI yeah which has been supporting the programs mmh…."***

Participant 6 was a member of an MDA committee at the district hospital. At the time of interview, she was working as the supervisor of the maternal and child health department. She noted the types of incentives that the facility provides to MDA committee members. However, she indicated that the facility does not provide the same incentives as it used to happen in the past.

The participants seemed to have varied interpretation of incentives. Participants from the government hospital attached their definition of incentive to monetary rewards and other material forms, while those from the mission viewed the skills gained doing MDA as incentives. The variations could be a difference in institutional philosophical values; government facilities are secular, while mission hospitals do charitable work.

The other source of variation in the definition of incentive was from those with official positions at a particular hospital. For instance, for participants who were members of a hospital management team, the view of incentives was wider that of regular members. The hospital management team members' view on incentives was shared by participant who held the position of Safe Motherhood coordinator at the mission hospital. The issue of incentives encompassed both exposure to MDA skills and material rewards for management team

members, while the same was limited to monetary rewards for regular members.

### 4.3 Multi-disciplinary committee membership of MDA

Maternal health services are provided by health care providers of diverse professional backgrounds. It is important, therefore, to consider inclusion of MDA committee members that represent such diversity to achieve effective MDA activities (FIGO: MDR Guidelines, 2013). Much as there is need for diverse membership in the MDA committee, FIGO MDR Guidelines (2013) stipulate that membership should be between 15 and 20 for effective functioning. Although the mission hospital did not have a regular MDA committee, people who participated in the MDA were from various professional backgrounds and departments at the hospital, as reflected in the narrative by participant 10 from the mission hospital:

> ***P 10: "Yeah what we have looked at as a team, we looked at uh maternity side one or two members should come from there because they are the people the uh mostly the attend to these clients and we also have somebody from postnatal and also someone from female ward because sometimes a death, a maternal death can happen at the female ward side and as myself as community health nurse. I'm there as a community representative, or as working under primary health care unit…"***

The district hospital had a relatively better defined MDA committee, whose membership represented the hospital management team, the Safe Motherhood coordinator, and the anesthesiology, pharmacy, laboratory, and maternity departments. The composition of the MDA committee is reflected in the response by participant 12 who was the district Safe Motherhood coordinator.

> ***P 12: "….So basically uh like the district hospital um we have the ward sister in-charges the clinical officers, the management team members, and the transport officer and including the pharmacy because a woman can also die due to lack of drugs and laboratory technicians. So basically these are the people that included in the hmm the team that's uh for the facility death reviews yeah and for the community uh we include all the influential leaders. …."***

## 4.4 There is no regular MDA committee at the Mulanje mission hospital

Although there was recorded evidence that the Mission hospital conducted MDA, participants indicated that there were no regular MDA committee members. The FIGO: MDA Guidelines (2013) stipulate that any facility that is a center for MDA activities must have a committee that will be charged with the responsibility of coordinating the activities.

> ***P 6: "Uh different departments like uh the nursing department, the clinical, maybe the laboratory and other support staff um there's a uh they are asked to provide representatives when the audit committee that's what happens..."***

In the response by participant 6 from the mission hospital there is only a mention of departments from which members can be drawn to take part in the MDA. The narrative reveals little evidence of set up in which members have clear terms of reference, a typical hallmark of a well established committee.

## 4.5 MDA activities are conducted on a regular basis.

Participants from both the district and the mission hospitals indicated that MDA is supposed to take place within 72 hours after an MD has occurred, as reflected in the narrative by participant 12.

> ***P 12: "..Even before the death has been sent to the mortuary then the safe-motherhood coordinator is informed about the death and um then we do fax the MDA form 1 to the zone. If it fails then we call them, and this is followed by maternal death review within 72 hours if it's not a weekend or a public holiday so we make sure we audit within 72 hours. (clears throat)..."***

However, the other interviews indicate that this is not the case at the facilities due to limited resources. The drawback of postponing an MDA is that there could be a loss of sources of information. After MDA committee has conducted a review, it has to prepare for a session.

> ***P 6: "It's normally conducted-at first we were doing it monthly or when the death has occurred mmhuh] within 2 weeks..."***

### 4.6 MDA committee administrative meetings have no schedule and are rarely conducted

There are basically two types of meetings that a MDA committee has to conduct after a MDR: a meeting of members of the MDA committees and another meeting with the general stakeholders to disseminate the findings the committee has made (FIGO: MDA Guidelines, 2013). The meeting of committee members essentially focuses on keeping the team on top of issues, while the meeting with the other players in the provision of maternal health services is for sharing the findings for possible action. From the participant's narratives from both the district and the mission hospitals, it appears that administrative meetings are a rare occurrence.

> ***P 12: "They meet monthly and when need arises yeah but basically it's uh on monthly basis"***

The response from participant 12, one of the two safe Motherhood coordinators in the district, denoted some level of uncertainty as to whether the MDA committee has a regular schedule for administrative meetings. There must be a regular schedule for MDA committee meetings in order for the MDA activities to stay on course.

> ***P 8: "Ah No, I've never seen that happening"***

Participant 8 from the mission hospital was very candid in her response about the facility not conducting MDA committee administrative meetings.

### 4.7 Monitoring and evaluation mechanisms for MDA activities are not in place

MDA ought to be an undertaking that has to continuously be evaluated (FIGO: MDR Guidelines, 2013). Factors that have been identified as underlying causes of maternal deaths should be the starting point for generating solutions. There must be a system that is able to track challenges, identify solutions, implement the modified or new intervention, and measure the impact of interventions in the fight against high maternal deaths.

> ***P 10: "Uh for that one, we don't have a special track we don't have a special one. It's only what we do in analyzing and reporting yeah."***

This was the response by participant No: 10 from Mulanje mission hospital when asked about the existence of any mechanism to track progress and impact of MDA activities at the hospital. The unavailability of a monitoring mechanism was corroborated in the response by participant No. 11 from Mulanje district hospital. Although he mentioned that the facility looks at the trend in the number of maternal deaths in the district that in itself does not replace the need to have an established mechanism to track the activities of MDA.

> ***P 11: "Ok, yeah we have such a setup. We have reviews and the number actually for the***
>
> ***district number of maternal deaths plus number of maternal deaths audited it's an It's an indicator…"***

The same account on the unavailability of a mechanism to monitor the performance of MDA activities is captured in the narrative by participant 9 from the mission hospital.

> ***P 9: "No I don't think there's any mechanism that is put in place to see that uh those things are done. I know now and again, previously we used to have we had a reproductive as I said reproductive health standards team…"***

## 4.8 MDA findings are not comprehensively disseminated to various stakeholders

MDAs are meaningless if the findings are not effectively shared with various stakeholders who do take part in the provision of maternal health services. Stakeholders range from health care providers, development partners, and communities and facility management. Each of these people have a unique role to play in the effort to reduce high maternal deaths. The MDA committee, therefore, has a huge task in ensuring that the findings are disseminated in a manner that elicits enthusiasm from the stakeholders.

The FIGO: MDR Guidelines (2013) state that two cases per a two hour session have to be presented to stakeholders to enable stakeholders to actively participate in the session. In settings

where MDs are high, sessions can be organized monthly or more frequently. It came out clearly from the participant narratives that the primary mode of disseminating the findings is through quarterly and annual review meetings. While this mode would be less costly, the chance of having optimum participation from the various stakeholders is minimal.

Morning reports were also mentioned to be another outlet for disseminating MDR findings. Again, morning reports are not specifically designed to MDA findings dissemination. This, therefore, has the potential of not drawing the active participation from attendees. The FIGO: MDR Guidelines (2013) have specific stipulations on how findings from MDA should be disseminated. MDR sessions ought to be conducted in a manner that creates an atmosphere where participants have to learn something from the discussion in order to avoid similar causes of maternal death in future (FIGO: MDR Guidelines,2013). Participant 12 from the District hospital mentioned of the schedules when the dissemination of findings do take place in the district.

> ***P 12: "Ok we have stakeholders review meeting. It's when they know about what is happening in the Mulanje district. That's annually. Previously we were doing it bi-annually because of funding so it's every year but apart from that on quarterly basis we do conduct stakeholders forum so during the forum we also present on the status of maternal deaths so it's like annually for the maternal death review committee it's when they present to the stake holders but for management members, you present every quarter to the stakeholders…"***

Participant 11 from the same facility had a slightly different version on how the dissemination of MDA findings are done. This gives the impression of uncertainty as to what extent does the district abide by the FIGO: MDR guidelines which health facilities are required to adopt or adapt.

> ***P 11: "Yeah so uh the feedback has to be given of course based on the cause uh if the cause or the primary cause was in the community then obviously the community has to be given feedback so in that case the team has to travel back to the community and give verbal feedback alright if it's within the institution uh then again the uh for***

***example at ward level they would have to give feedback verbally to the to the people in the ward and discuss ways of improving that…"***

Participant 13 from the mission hospital had an interesting response about how the MDA findings are disseminated. She has been at the facility for two years working in the labor ward. She sounded unsure as to how the findings are disseminated to various stakeholders. Her response may attest to the finding that members of MDA committee are not inducted to the MDA activities when they are appointed to serve on the committee.

***P 13: "Ok we just report, like for me I cannot answer much on that one uh when we have done the audit we have the form over to the chairperson or the matron who report to the stakeholders but for me I cannot answer much I don't know how they do it yeah..."***

## 4.9 MDA activities in the district face common challenges

The study sought to explore the challenges the district is facing in conducing MDA. The motivation behind this was not only to know the challenges but also to identify what the facilities are doing about the challenges so that there is a sustainable and vibrant MDA system. What appeared prominently in this regard are the inadequate human and material resources. The issue of human resource was compounded by staff transfers to other districts, creating a situation where the MDA committee members lack experience because new members have to continuously be drafted in.

Regarding material resources, it was learned that committees were not able to frequently conduct meetings as scheduled because of resource limitations. Additionally, facility management were not able to provide incentives and supplies as it used to happen in previous years when district health offices used to receive adequate funding from the ministry of health.

***P 13: "One challenge in terms of commitment because these are not permanent members just***
***basically waiting to do maternal death audits so that's one challenge to be able to do the***

***audits as soon as the death occurs it's a big challenge. We have to pressure people to make sure that it has happened as such, and as I said another issue is that these maternal deaths audit they do take quite a uh lot of time right so maybe you have sometimes members sitting in the audit over lunch time so ideally they are supposed to be paid lunch hour or provided with uh food over lunch so that's an area where the hospital faces challenge cause we are quite restrained in terms of resources yeah."***

Participant 13 is from the district hospital and is a member of the senior management team. It is possible that his views were largely influenced by his managerial position.

## 4.10 Use of National and Facility MDA guidelines

While the MDA activities in Mulanje district met several challenges, it was promising to hear from the participants from both the district and mission hospitals that there is availability of special forms used to make entries of maternal death findings. The Ministry of Health, through the Zonal Health office, ensures that the district has the up-to-date version of the forms.

***P 12: "...In the maternal death audit form 2 there are women's detail like uh the demographics so uh and also the details about admission whether this woman was referred, details about that and also there's um part that talks about the neonatal if the baby has been born, talks the delivery whether it has taken place or not, the condition of the woman the time she was being admitted in the facility, whether stable or maybe in critical…"***

Participant 12 is one of the focal persons in the district. She gave an account on the type of forms the MDA committee uses when analyzing a maternal death. A similar account on the availability of special forms used for MDA was given by a participant from the mission who said:

***P 10: "Mulanje Mission hospital usually we use the clinical based because when we have a maternal death in the hospital we have a form, we call it form 1 which we fill within the 3 days and that form is sent to the safe-motherhood coordinator for the district and then what we write there we indicate the date of the death, the cause and the age, the name and where that client was coming from. And that form for us it's a first form, for us just to inform the district that we have experienced a maternal death at our hospital…"***

## 4.11 Summary of the Findings

The findings of this study are based on the narratives of the MDA committee members. Key issues revolve around the lack of induction provided to committee members on MDA activities. Lack of material and monetary incentives are reported to be demotivating factors on the part of audit committee members. Again, frequent staff transfers to other hospitals strongly count against the existence of an established and experienced team. The issue of the lack of a monitoring and evaluation system to assess the impact of the audit process and quickly identify areas that would need improvement also featured highly in the narratives. Likewise, dissemination of audit finding is not robust, as the main avenue used is the hospital morning report sessions. However, the multidisciplinary MDA team composition and the availability of MDA forms were identified as strengths in the system.

## Chapter 5: Discussion

The analysis of the major findings of the study makes reference to the stipulations contained in the FIGO: MDR Guidelines (2013). The guidelines give a detailed account of how MDR should be conducted in order to generate credible information that would assist systems to develop evidence based interventions to reduce high maternal deaths. The narratives of the participants provide a contextually determined picture of how MDA are conducted in the district of Mulanje.

The principal focus of the study is to delve into how the MDR system is set up, which comprises the people drafted into the committee, resource allocation for the MDA activities, and the processes, as well as an assessment of how the information generated from the reviews is used to improve maternal health service provision.

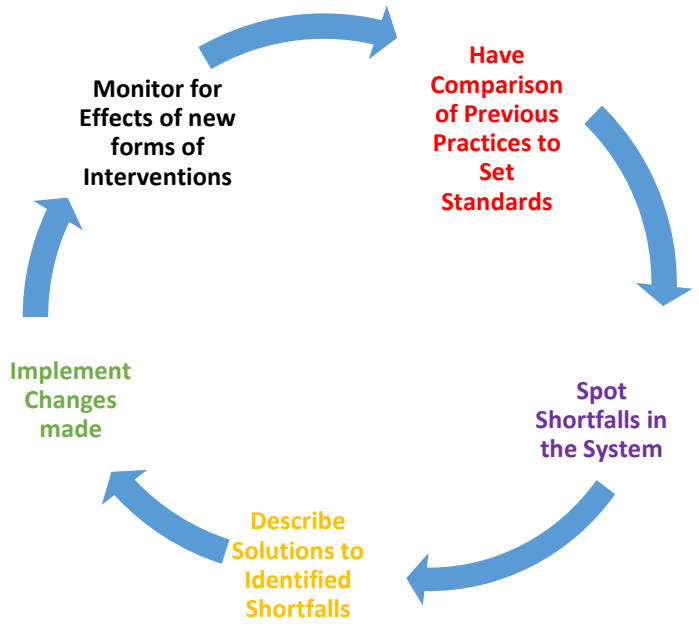
- Lack of induction/orientation and refresher training of MDA committee members featured highly in the participant narratives. An MDA activity is a complex and critical process. As such, members need to be made aware of the roles they are expected to perform. Again, MDA activities are dynamic in nature which calls for continuous training so that members are equipped with the requisite competencies and kept abreast of emerging issues.
- There was a general consensus among participants on the need to provide incentives to MDA committee members. It came out clearly that members view MDA activities as a commitment outside their immediate job description. As a result, members expected the facility to recognize them in a special way. The form of recognition, however, varied between participants from the mission and district hospitals. Variations were also seen between those who held managerial positions and regular members of MDA committees. The former viewed training and provision of resources such as stationery and office space

as incentives. This view was not widely shared by the regular members, whose primary focus was on monetary incentives. The monetary form of incentive was more prominent with participants from the district hospital than those from the mission hospital.

- Understanding that the nature of MDA activities requires concerted effort; it was impressive to note from the participants' narratives that the membership of the MDR committees was diverse. This was common to both the mission and the district hospital. The committees comprised members from diverse professional backgrounds as well as health facility departments. The challenge, however, which was more evident at the mission hospital, was that the committee did not have a definite outline in the sense that there was no permanent members; anyone at any time could be chosen for the committee from a department. Other challenges with committee membership was the issue of staff transfers to other districts for various reasons beyond the control of the district management.
- The FIGO MDR Guidelines (2013) require two sets of ongoing MDR meeting sessions at health facilities. The first is the administrative meeting for MDR committee members and the second should be the meeting between the MDR committee and various stakeholders. It was quite evident from the participant narrative that this is rarely followed. The issue of inadequate resources was one major reason for the status quo. While the inadequate resources could have a direct bearing, leadership issues in organizing the activities seem be the other dominant factor.
- Monitoring and evaluation of activities helps to improve performance and effectiveness. MDA activities are dynamic in nature and call for a vibrant system in place to be able to assess if the activities are bringing about desired changes in the system. From the

participant narratives from both the mission and district hospital, there was no deliberate mechanism in place to track progress. It would, therefore, be cumbersome for the district to measure progress and identify bottlenecks. Most participants indicated in their narratives that the trend in maternal deaths was, in itself, an indicator to measure the effectiveness of the MDR activities. While this assertion may seem true at first glance, a trend in maternal deaths is too general and broad to be used as an effective yardstick to assess the impact of the MDR.

**The Sequence for an Effective MDA activities:**




**(Adapted from: FIGO: MDR Guidelines, 2013)**

- Coming up with MDA findings is one step, and effectively disseminating the findings to various stakeholders is another. It is not useful for findings to be undisclosed to the people who play significant roles in the provision of maternal health services. Participants' narratives revealed the most common approach to disseminating audit

findings is through the hospital morning report handovers. While this could be cost-effective, it does not provide a conducive environment and time for a thorough audit session. Also, as hospital morning reports are conducted in the morning, it would be a daunting challenge for non-hospital based stakeholders to take part.

- Not uncommon in resource poor settings, the issue of inadequate resources featured highly from the participants narratives. It came out that major factors militating against smooth MDA activities were predominantly related to inadequate resources in both the mission and government facility.
- The readily availability of guidelines, especially the special forms for conducting an MDR, was one of the encouraging findings. The participants almost unanimously reported the availability of forms on which entries are made during MDA exercise. The forms are crucial because they provide a simplified guiding tool on how members should conduct an MDA.

# Chapter 6: Study Limitations

## 6.1 Time factor

The study was initially planned for early May, 2015 to late July, 2015. However, the timeline had to be adjusted due to the long process of granting approval by the Malawi NHSRC. This development significantly reduced the study period. Conducting a qualitative study is iterative in nature. Verbatim transcription started immediately data collection began; immediate transcription helps to reflect on emerging issues that help to refine the interview guide and identify additional individuals who should be included as participants. The shortening of study period limited changes, which had a negative impact on the volume and quality of data.

## 6.2 Qualitative research methodology

Although qualitative research was thoroughly covered during classroom work, field experience plays a huge role in developing expertise. Using qualitative methods for the first time brings with it novice approaches to issues that affect the quality of work. It is normal for expertise to develop over time.

## 6.3 Generalizability of findings

Much as Mulanje district shares similar contextual factors with other districts in Malawi in terms of health care delivery structure, the study used qualitative methods that more favorably respond to a specific context, thus, limiting the generalization of the study findings. Similar studies have to be conducted on a larger scale, such as at the zonal health office level, which covers five or more districts, and using mixed methods would be a better approach in order to confidently generalize the findings.

## 6.4 Mixed methods

Some issues were noted during the study process that would be better analyzed if mixed methods were applied. Using the qualitative research methodology only, therefore, limited the comprehensiveness and scope of the study.

## Chapter 7: Recommendations

- Training of MDA committee members is intermittent. While this might be difficult to address due to limited resources, health facility management needs to develop plans to spearhead ongoing induction and training sessions to new members drafted into the committee so that they become conversant with their roles on the committee. Again, MDA issues are dynamic, and committee members need training so that their knowledge and skills in conducting MDA are up-to-date.
- Supervision is a management function that seeks to identify strengths and limitations in the system in order to make improvements. The hospital management team members therefore, need to play active supportive and supervisory role to ensure that MDA committees are active and maintain records of their meetings.
- MDA committees need to develop a communication strategy to enable full participation of stakeholders. Relying heavily on hospital morning reports to disseminate findings may not be adequate and may potentially lead to superficial reporting of findings.
- It was evident from the narratives that inadequate human and material resources stifle MDA activities. It is suggested that a plan is developed for ongoing induction so there is a steady pool of health workers who can be appointed to the MDA committee at any given time in order to offset the effects staff transfers.
- As the hospital was going through the period of trimmed government budget support, it would be imperative for the hospital to develop specific budget votes for MDA activities, especially given that the country is grappling with poor maternal health indicators. By the same token, the health facility, especially the district hospital management, needs to form more links with developmental partners interested in maternal health to mobilize additional resources other than government funding.

- Another striking finding about the MDR was that the district does not have a monitoring and evaluation mechanism to track progress. Without such a system, it would be difficult for the district to identify limitations within the system and develop interventions for improvement. Creating such a system would make the MDA more efficient and effective.

## Chapter 8: Conclusion

Mulanje district, like many districts in Malawi, has a high rate of maternal deaths. Malawi has not been able to achieve its target of reducing MMR from 675/100,000 live births in 2010 to 155/100,000 live births by the year 2015. This points to the underperformance toward achievement of MDG 5. MDA are, therefore, key to efforts to fight high maternity deaths, especially in resource poor settings. Effective MDAs have the capacity to expose underlying factors responsible for the needless deaths of women during the perinatal period. This therefore, calls for the need to ensure that gold standard guidelines that are context specific are followed for a robust MDA system.

As evidenced by the literature reviewed, most studies on MDAs have used quantitative methods. While quantitative research methods have the advantage of measuring and quantifying problems, it is equally important to complement this approach by using qualitative research methods in order to be able to understand why and how contextual factors influence processes. This study calls for a mixed methods approach in order to measure and quantify the factors, while at the same time being able to understand how the specific contexts can either improve or negatively impact the quality of MDAs.

# Chapter 9: Appendices

## Appendix 1

### *9.1 Emory IRB Approval letter*

EMORY UNIVERSITY | Institutional Review Board

March 18, 2015

John Nepiyala
Emory University

**RE: Determination: No IRB Review Required**
**Title: An evaluation of maternal deaths audit program to reduce maternal deaths in Mulanje district in rural Malawi**

Dear Mr. Nepiyala:

Thank you for requesting a determination from our office about the above-referenced project. Based on our review of the materials you provided, we have determined that it does not require IRB review because it does not meet the definition(s) of "research" involving "human subjects" as set forth in Emory policies and procedures and federal rules, if applicable. Specifically, in this project, you will conduct in-depth interviews for the key members of the maternal death audit committee to analyze the availability of documents used to conduct maternal death audits in comparison with the guidelines and approaches stipulated by WHO.

Please note that this determination does not mean that you cannot publish the results. If you have questions about this issue, please contact me.

This determination could be affected by substantive changes in the study design, subject populations, or identifiability of data. If the project changes in any substantive way, please contact our office for clarification.

Thank you for consulting the IRB.

Sincerely,

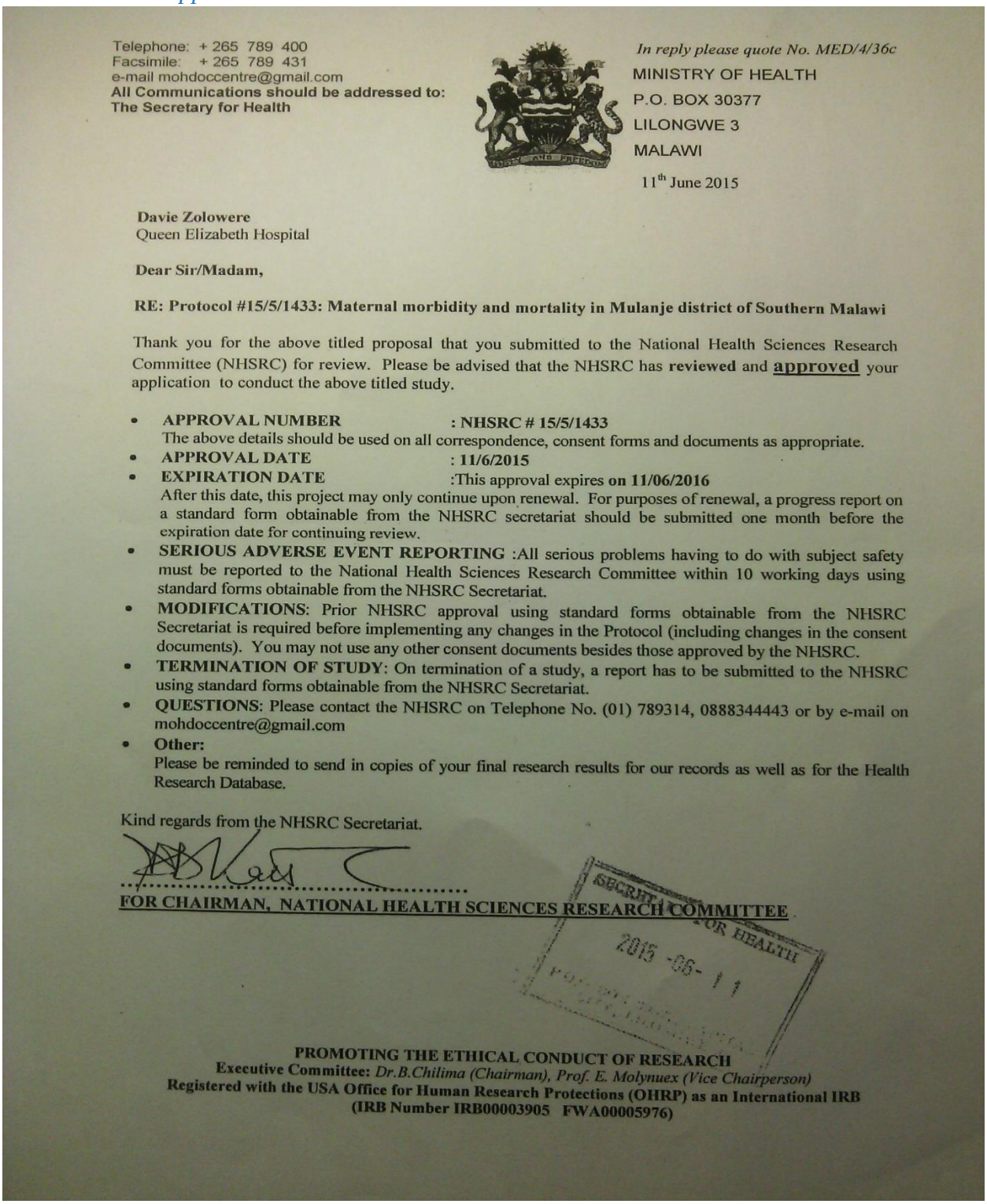
Will Smith, BA
Research Protocol Analyst

Emory University
1599 Clifton Road, 5th Floor - Atlanta, Georgia 30322
Tel: 404.712.0720 - Fax: 404.727.1358 - Email: irb@emory.edu - Web: http://www.irb.emory.edu
*An equal opportunity, affirmative action university*

***Appendix 1: Emory IRB Approval letter***

Appendix 2

## *9.2 NHSRC Approval letter*



Telephone: + 265 789 400
Facsimile: + 265 789 431
e-mail mohdoccentre@gmail.com
**All Communications should be addressed to:**
**The Secretary for Health**

*In reply please quote No. MED/4/36c*
MINISTRY OF HEALTH
P.O. BOX 30377
LILONGWE 3
MALAWI

11th June 2015

**Davie Zolowere**
Queen Elizabeth Hospital

**Dear Sir/Madam,**

**RE: Protocol #15/5/1433: Maternal morbidity and mortality in Mulanje district of Southern Malawi**

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** your application to conduct the above titled study.

- **APPROVAL NUMBER** : **NHSRC # 15/5/1433**
  The above details should be used on all correspondence, consent forms and documents as appropriate.
- **APPROVAL DATE** : **11/6/2015**
- **EXPIRATION DATE** :This approval expires **on 11/06/2016**
  After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING** :All serious problems having to do with subject safety must be reported to the National Health Sciences Research Committee within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using standard forms obtainable from the NHSRC Secretariat is required before implementing any changes in the Protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on Telephone No. (01) 789314, 0888344443 or by e-mail on mohdoccentre@gmail.com
- **Other:**
  Please be reminded to send in copies of your final research results for our records as well as for the Health Research Database.

Kind regards from the NHSRC Secretariat.

.....
**FOR CHAIRMAN, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE**

SECRETARY FOR HEALTH
2015 -06- 11

**PROMOTING THE ETHICAL CONDUCT OF RESEARCH**
**Executive Committee:** *Dr.B.Chilima (Chairman), Prof. E. Molynuex (Vice Chairperson)*
**Registered with the USA Office for Human Research Protections (OHRP) as an International IRB**
**(IRB Number IRB00003905 FWA00005976)**

*Appendix 2 NHSRC Approval letter*

Appendix 3

*9.3 RField Supervisor Pledge of Support letter*


**All Communications should be addressed to: The Secretary for Health**

MINISTRY OF HEALTH
P.O. BOX 30377
LILONGWE 3
MALAWI
**Telephone: + 265 1 789 400**
Facsimile: + 265 1 789 431

4Th February 2015

*In reply please quote RefNo…* **Ref No. CD/21**

Prof Roger W.Rochat, MD.
Director, Graduate Studies
Department of Hubert Department of Global Health
Rollins School of Public Health
1518 Clifton Road NE, Room 7005
Atlanta, GA 30322,
USA.

January, 22, 2015

Dear Prof Rochat,

**LETTER OF SUPPORT FOR MALAWI GLOBAL HEALTH INITIATIVE TEAM AS A FIELD SUPERVISOR**

I write to express my support and acceptance to be the field supervisor for the team of Emory students coming to Malawi for a practicum on maternal morbidity and mortality in Mulanje district.

Despite registering significant improvement in the maternal mortality ratio over the past 20 years, Malawi continues to have one of the high rates of maternal mortality in the world. This is therefore, an important project and has my full support as one of public health specialists in our nation.

Apart from giving a practical expertise to the students involved, this project is helpful for Malawi considering that it would support the district health office to identify some challenges they have and thereby initiate solution identification. Furthermore, the findings would also be informative to the ministry of health in its policy and intervention determination.

Yours sincerely,

Dr. Beatrice Mwagomba
**Deputy Director of Clinical Services (NCDs)**
**FOR: SECRETARTY FOR HEALTH**

*Dr Beatrice L.Matanje-Mwagomba: MBBS (MW), Msc Epid.&Biostats. (Wits, RSA)*
*Head of Non-Communicable Diseases & Mental Health*
*Clinical Services Department*
*Ministry of Health*
*P/Box 30377*
*Lilongwe 3*
*MALAWI*

Appendix 4

## *9.4 Mulanje District Hospital Approval Letter*

**Telephone:** + 265 01 466 211
**Facsimile:** + 265 01 466 295
E-mail:mulanjedistricthospital@ymail.com
**All Communications should be addressed to:**

*In reply please quote No.* .....

**MULANJE DISTRICT HOSPITAL**
P.O. Box 227
Mulanje
**MALAWI**

10th January, 2015

Prof Roger W.Rochat, MD
Director, Graduate Studies
Department of Hubert Department of Global Health
Rollins School of Public Health
1518 Clifton Road NE, Room 7005
Atlanta, GA 30322,
USA.

Dear Sir,

**MATERNAL MORBIDITY AND MORTALITY IN MULANJE DISTRICT, SOUTHERN MALAWI**

On behalf of Mulanje district health office, I write to express our support and acknowledge the above mentioned project. We are very happy to be associated with the Emory university students coming for this project and we would offer the support we are able to.

We will offer the team a working space where they would be staying during working time and the team will be free to visit any health facilities and areas within the district under the jurisdiction of the district health officer.

I am informed that the specific objectives of the project are:

1. To understand the current practice on maternal death review and decisions taken to avert repeated scenarios
2. To describe experiences of women accessing post-abortion complications treatment
3. To describe the perceptions of health care workers towards post abortion care services
4. To find out community perceptions towards unintended pregnancies
5. Does the time of the school calendar year affect rates of unintended pregnancies in Mulanje district?

If any more information is required please contact the undersigned.

Yours,

Dr Khuliend Kabwere
**DISTRICT HEALTH OFFICER**

DISTRICT HEALTH OFFICER
MULANJE DISTRICT HOSPITAL
2 6 JAN
P.O. BOX 227
MULANJE

## Appendix 5: Code Book

### *9.5 Code Book*

**Code Book**

| No | Code | Type of Code | Definition |
|---|---|---|---|
| 1 | Induction | Inductive | Any form of initial preparation given to MDR committee members |
| 2 | Incentives | Inductive | Anything provided to the MDR committee members for motivation |
| 3 | Task shifting | Inductive | Delegating of responsibility, skills to a lower cadre |
| 4 | Community | Inductive | Group of people in area served by a health facility |
| 5 | Learning | Inductive | Knowledge gained and put in practice |
| 6 | Position of Influence | Inductive | Decision maker either at hospital or community level |
| 7 | Office space | Inductive | Venue where MDR should be conducted and records kept |
| 8 | Lunch/snacks | Inductive | Meals provided to MDR committee member when doing the job |
| 9 | Monetary allowance | Inductive | Moneys given to MDR committee members stipend |
| 10 | Funding | Inductive | Financial support to MDR activities |
| 11 | MDA forms | Inductive | Paper work used when analyzing a maternal death |
| 12 | Role strain | Inductive | Divided attention experienced by MDR committee in doing MDR and their routine job at the facility |
| 13 | Staff transfers | Inductive | Movement of health professionals from one facility to another within or outside the district |
| 14 | Training | Inductive/ Deductive | Form of preparation given to MDR committee members to do the job |
| 15 | Multidisciplinary team | Inductive | MDR membership composition derived from people of various professional backgrounds and departments |
| 16 | MDA committee | Deductive | Health personnel drafted into the MDR committee. |
| 17 | Institutional support | Deductive | Technical, financial or material given to MDR committee from the facility management |
| 18 | MDR meetings | Deductive | MDR meeting to analyze a maternal death or disseminate the findings of a MDR |
| 19 | Monitoring and Evaluation | Deductive | System put in place to track progress on MDR |
| 20 | Recommendations | Deductive | Suggestions to improve provision of maternal health services emanating from the MDR |
| 21 | Stakeholders | Deductive | All involved in maternal health interventions |
| 22 | Suggestions | Deductive | Proposed different approaches to maternal health interventions |
| 23 | Community involvement | Deductive | Talking the consumers of health care on board in coming up with maternal health service interventions |
| 24 | Progress | Deductive | Desirable changes registered due to MDR |
| 25 | Dissemination of findings | Deductive | Sharing of MDR findings with various stakeholders |
| 26 | MDA Guidelines | Deductive | Tools used to ensure MDR are conducted as recommended |

| | | | |
|---|---|---|---|
| 27 | Three delay model | Deductive | An approach to determine the underlying causes of high maternal deaths |
| 28 | Causes of maternal deaths | Deductive | Obstetrical of medical causes of maternal deaths |

**Deductive and Inductive codes developed**

## Appendix 6: In-depth Interview Guide

### *9.6 The Initial Version of the In-depth Interview Guide*

**Maternal Death Audit Review**

**IN-DEPTH INTERVIEW GUIDE**

**a) Research Question:**

An Evaluation of Maternal Death Audits in Mulanje District in Rural Malawi

**b) Study Population:**

Key people in the District/Hospital Health Management Team members, Maternal Death Audit Committee members, safe motherhood coordinators, antenatal ward, maternity ward in-charge and Healthcare Providers in Maternity Ward

**c) Introduction**

Good morning! My name is John, Master of Public Health (Global Health) student at Emory University, Rollins School of Public Health in Atlanta Georgia, United States of America. We are here in Mulanje District as a group of five students on maternal mortality project. My focus is evaluating the maternal death audits conducted in the district. This is with the aim to understand how the maternal death audits are conducted. The evaluation will generate a report on the strengths and limitations as to how the maternal death audits are conducted and come up with recommendations for action.

I am here to talk to you and other key people in the healthcare delivery system in Mulanje because we feel by doing so we can have an in-depth understanding on how facility based maternal death audits are conducted in Mulanje district and how that informs provision of maternal health services to reduce high maternal deaths.

Let me mention that your participation in this interview is entirely voluntary and you should feel free not to respond to any question which makes you feel uncomfortable or to ask where it is not clear.

I would like to tape record our discussion, if this is okay, because I will not be able to capture each and every detail of the discussion as fast as we speak and I do not want to miss some of the important details that will come out of the discussion.

This discussion is completely confidential, no other persons not associated with this research will have access to materials and information which you have shared with me. The documents that we have used in this research will bear no names of participants. Do you have any questions on this? Do I have permission to tape record the discussion?

I have a number of topics I would like us to talk about but please feel free to bring up any other issues that you feel relevant. There are no right or wrong answers, and we are interested in personal opinion on the experiences as one of key people in maternal health services here. So please feel comfortable to share what you honestly feel is important.

Do you agree to take part in the interview?

Yes _____ No_____

Interviewer: _____

Interviewee: _____

Date: _____

Shall we begin?

**d) Brief Personal Background**

1. Tell me a bit of your personal background?

   (Probe: Name, Professional qualification, Work experience as health practitioner and your position at this health facility?)

2. How long have you been working at this health facility?

**e) Maternal Death Audit Framework**

3. How is a maternal death defined at this facility?
4. What type/approaches of maternity death audit is utilized in the district?

   (Probe: Facility based, Community based, confidential enquiries into the maternal death, Survey of severe morbidity (near misses) and clinical audits)

5. Which principles and/or guidelines were used to set up the maternal death audits at this facility?

   (Probe: WHO guidelines, National and facility guidelines)

6. How does the maternal death audit committee utilize the Three Delay model to outline the underlying causes of maternal deaths to carry out maternal death audits?

**f) Maternal Death Audit Activities**

7. What can you say about the existence of maternal death audit committee at this facility?
8. What tools/documents does the maternal death audit committee use when conducting audits?

   (Probe: Terms of reference, maternal death records, minutes of meetings, meeting schedules, attendance registers)

9. How is the composition of membership in the maternal death audit committee determined at this facility?

(Probe: Professional qualification, work experience, title/position, passion on maternal health, community representatives)

10. How often are maternal death audits conducted at this facility?
    (Probe: Immediately after death occurs, routinely done, randomly done)
11. What forms of institutional support do members of the maternal death audit committees receive for the maternal death audit activities?

(Probe: Induction/training, monetary incentives, office space, stationery, supervision, bench-marking, information sources e.g. textbooks, electronic)

12. How often does the maternal death audit committee meet?

(Probe: When maternal death occurs, routinely meets, randomly meets)

13. How do the findings of maternal death audits communicated to various stakeholders?

(Probe: Morning reports, posters in the wards, weekly or monthly or annual reports, publications.)

14. Who are the key stakeholders that do receive the reports?

(Probe: Ministry of health, District Executive Committee, Hospital management, Healthcare providers, development partners, community members)

15. What is the mechanism put in place to track progress on the implementation of maternal death audit activities?

(Probe: Monitoring and evaluation system, supervision?

**g) Community involvement**

16. How is the community involved in the activities of maternal death audits?
17. What is the experience like working with communities in maternal death audit activities?

**h) Progress made on maternal health in the district**

18. How would you describe the occurrence of maternal deaths in the district over the past five years?
19. What are the land mark maternal health interventions the district has so far implemented based on maternal deaths audit findings and recommendations?
20. What are the common challenges faced during the implementation of maternal death audit activities
    (Probe: Human and material resources, role strain on committee members, lack of special training to committee members on maternal deaths audit, management support)

**i) Closing questions**

21. What would you suggest/recommend are the ways on how to improve conduct of maternal death audits?

22. Is there anything that perhaps we have not covered in our discussion and you would want to add?
23. Do you have questions on what we have discussed?

**Thank you very much for your time and here are my contact details should there be need for further communication**

**(404) 717 6501**

**jnkhondo@gmail.com OR john.nepiyala@emory.edu**

## Appendix 7: Interviews that were included for analysis

| Interview | Inclusion criteria | Participant attributes |
|---|---|---|
| 1 | • MDA committee member | • Pharmacy technician<br>• From district hospital<br>• 5 year work experience at the hospital<br>• Detailed interview |
| 6 | • MDA committee member | • Registered diploma nurse/midwife<br>• Maternal and Child Health department ward in-charge<br>• 22 year work experience at the hospital<br>• From the district hospital<br>• Detailed interview |
| 8 | • MDA committee member | • Registered nurse/midwife<br>• From the district hospital<br>• Detailed interview<br>• Ward in-charge of female ward |
| 9 | • MDA committee member | • Clinical Officer(Physician assistant)<br>• From the Mission hospital<br>• 25 years' work experience<br>• Detailed interview |
| 10 | • MDA committee member | • Nurse/midwife technician<br>• Detailed interview<br>• From the Mission hospital<br>• Hospital safe motherhood coordinator<br>• 25 year work experience |
| 11 | • MDA committee member- Ex-officio | • Medical officer<br>• District health management team member<br>• From the district hospital<br>• District health officer |
| 12 | • MDA committee member- Ex-officio | • Registered nurse/midwife<br>• District safe motherhood coordinator<br>• Detailed interview<br>• District health management team member<br>• 7 years' work experience at the district hospital |
| 13 | • MDA committee member | • Registered nurse/midwife<br>• From the Mission hospital<br>• Detailed interview |
| 14 | • MDA committee member | • Anesthesiology technician<br>• From the district hospital<br>• 10 years' work experience at the hospital |

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