

**QUALITY OF CARE RENDERED TO WOMEN WITH
MAJOR OBSTETRIC COMPLICATIONS IN MWANZA
DISTRICT, SOUTHERN MALAWI**



Thesis submitted in partial fulfillment for the award of the Master of
Philosophy Degree in International Community Health

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June 2008

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DEDICATION

This work is dedicated to:

Gilbert Chodzaza, my dear husband for being understanding and supportive during the entire period of study. Darling you really inspired me and encouraged me to forge ahead, you even prayed for me in times of need; you were very far in Malawi but I really felt your support. I really appreciate your encouragement and love which you showed me throughout the period of study, may the good Lord continue to bless you.

My dear children: Gilbert Junior and Chikondi for their understanding during the period of study. You really missed my company, guidance and motherly care, but you persevered, I really thank you for this.

My dear parents: Bikausi and Esilina for their love and support. My father, you were sick during the period of study and missed my services as a daughter and as a nurse, you still gave me chance to go ahead, i don't take that for granted, may the good Lord continue to bless you.

My other family members namely: Grenard, Mc Field, Gladys, Christopher and Nelson you really inspired me to forge ahead, I really thank you for the encouragement and support.

ACKNOWLEDGEMENT

The work involved in attaining a Masters Degree has many challenges which one goes through. As such one requires a lot of support and encouragement to attain such a goal. A lot of people have played particular roles to inspire me attain this degree, therefore;

I wish to extend my sincere and heart felt gratitude to my supervisor, Professor Johanne Sundby. I am aware and appreciative of the untiring assistance, guidance and constructive comments throughout the period of study.

I owe particular thanks to the Norwegian Government (under the NORAD fellowship programme) for the financial assistance throughout the two year period of study; I really appreciate their kind gesture.

My sincere thanks go to my colleague Austrida Gondwe, for being a friend indeed during the period of study. You really inspired me throughout the period of study, may the good Lord richly bless you.

I wish to sincerely thank the District health officer (DHO), Mwanza district hospital, Mrs. H. Kavalo for granting me permission to conduct the study at the hospital, further appreciation goes to the staff of Mwanza hospital who helped me to get the data which I wanted, you were so friendly , receptive and very helpful.

Particular thanks go to the women who suffered obstetric complications and were recruited in this research, you really contributed a lot by accepting to be enrolled into this study. For those who died, may their souls rest in peace.

I wish to thank Lien Diep, the statistician, for helping me with quantitative data analysis.

I wish to thank GOD for providing me with good health and wisdom throughout the period of the study. If it were not for the almighty God's sustenance I would not have achieved this work.

ABSTRACT

Background: Malawi has one of the highest maternal mortality levels in the world. Maternal deaths are to a large extent preventable. Provision of quality emergency obstetric care has been advocated as one of the most important strategies for preventing maternal deaths. In an effort to contribute towards the reduction of maternal mortality in Malawi, it became necessary to conduct a study to assess quality of care which women who suffer major emergency complications receive at Mwanza district hospital. Mwanza is one of the districts which registered the highest number of women dying due to emergency obstetric complications during the nation wide assessment on availability, utilization and quality of emergency obstetric care.

Objectives: To understand the increased obstetric CFR and barriers to provision of efficient obstetric care; the following objectives were set for the study: to assess availability of logistics (essential drugs, staffing, equipment and supplies) for managing obstetric complications, to determine if women who suffer major obstetric complications are managed according to established national management guidelines, to assess providers' perspective on the quality of emergency obstetric provided and identify barriers to provision of effective care.

Methodology: This was a cross sectional descriptive prospective study combining both qualitative and quantitative approaches. The study was conducted for a period of three months. Data was generated through inventory of logistics for management of obstetric complications, non participant observations of management of women with obstetric complications, prospective record reviews of women managed for obstetric complications and in depth interviews with 14 health workers to understand their perspective regarding the quality of care rendered to women who experience obstetric emergency complications.

Results: A total of 42 women who suffered emergency obstetric complications were observed and their records reviewed. Eclampsia/preeclampsia was the most common complication observed accounting for 12 cases, postpartum hemorrhage accounted for 11 cases, obstructed labour 8 cases, ruptured uterus 6 cases and puerperal sepsis 5 cases. Out of the 42 cases, 9 patients died representing a CFR of 21%. There were 799

births during this period. This gives the proportion of major obstetric complications of about 5.3%.

The study further revealed that most of the logistics for managing patients with obstetric complications were available; however some were not used despite being available. For example; patients who suffered eclampsia and severe preeclampsia did not get full course of magnesium sulphate according to protocol.

Generally, women with obstetric complications were not managed according to established management guidelines.

Health workers reported that emergency obstetric care being provided to women is poor. They attributed this to women arriving late at the referral hospital for various reasons and several barriers to provision of quality care.

Conclusion: The study has shown that poor quality of emergency obstetric care is rendered to women with obstetric complications; guidelines are not followed when managing obstetric patients. Logistics for management of patients were available, however they were underutilized. Several health service factors also affected provision of quality obstetric care. Efforts should focus on how quality can be assessed, improved and sustained. To improve management of obstetric complications, there is need to conduct clinical audit and feedback, improve supervision, trainings and refresher courses.

LIST OF ABBREVIATIONS

CFR:	Case Fatality Rate
COMREC:	College of Medicine Research Ethics Committee
DFID:	Department of International Development
EmOC:	Emergency Obstetric Care
FGD:	Focus Group Discussion
MDG:	Millennium Development Goal
MMR:	Maternal Mortality Ratio
PPMN:	Prevention of Maternal Mortality Network
UN:	United Nations
UNDP:	United Nations Development Programme
UNFPA:	United Nations Population Fund
UNICEF:	United Nations Children's Fund
WHO:	World Health Organisation
TA:	Traditional Authority
GDP:	Gross Domestic Product
IMF:	International Monetary Fund
MoH:	Ministry of Health
CHAM:	Christian Hospital Association of Malawi
TBA:	Traditional Birth Attendant
MVA:	Manual Vacuum Aspiration
CDR:	Crude Death Rate
DHS:	Demographic Health Survey
BEmOC:	Basic Emergency Obstetric Care
SPSS:	Statistical Package for Social Science
MgSO ₄ :	Magnesium Sulphate
NORAD:	Norwegian Agency for Development Cooperation
MOU:	Memorandum of understanding.
IV:	Intravenous
MBTS	Malawi Blood Transfusion

DEFINITION OF TERMS

Lifetime risk of maternal mortality: The probability of maternal death faced by an average woman over her entire reproductive life span.

Maternal death: Death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of its duration and site, from any cause related to or aggravated by the pregnancy or its mismanagement, but not from accidental causes.

Maternal mortality ratio: Number of maternal deaths per 100,000 live births, due to complications of, or medical conditions aggravated by pregnancy, childbirth, or postnatal period up to six weeks after delivery.

Emergency obstetric care: package of medical interventions identified by WHO, UNICEF and UNFPA required to treat the major direct obstetrical complications. These services are necessary to save the lives of women who experience obstetric complications. The services are: administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta, removal of retained products of conception, assisted vaginal delivery, surgery and blood transfusions.

Basic EmOC facility: is a health facility which provides the first six signal functions that are necessary to save the lives of women with obstetric complications. The services include: administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta, removal of retained products of conception and assisted vaginal delivery.

Comprehensive EmOC hospital: A hospital facility which provides the eight signal functions that are necessary to save the lives of women with obstetric complications. The services include: administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta, removal of retained products of conception, assisted vaginal delivery, surgery and blood transfusions.

Definitive treatment: is defined by the life-saving procedures of EmOC.

Standards of care: explicit statements that stipulate the desired and/or achievable level of performance against which actual performance is compared.

Skilled attendant: A Skilled birth attendant is defined by the World Health Organization as a person ‘with midwifery skills (for example, doctors, midwives, nurses and medical/surgical assistants) who has been trained to proficiency in the skills necessary to manage normal deliveries and diagnose or refer obstetric complications’.

Obstetric case fatality rate: it is defined as the proportion of women with major obstetric complications who die in a specified facility.

Major obstetric complications: These are direct obstetric complications which include hemorrhage, obstructed labour, puerperal sepsis, preeclampsia/eclampsia, complications of abortion, ruptured uterus and ectopic pregnancy (WHO, UNICEF AND UNFPA).

Primary postpartum hemorrhage: Severe vaginal bleeding of above 500mls within 1 hour of delivery.

Obstructed labour: Secondary arrest of descent of presenting part and cervical dilatation despite strong uterine contractions.

Eclampsia: Generalized convulsions with a diastolic blood pressure of 90 or above after 20 weeks gestation.

Severe Preeclampsia: A blood pressure of 160/110 mm Hg and above, with protein in urine of 2 plus or more after 20 weeks of gestation.

Puerperal sepsis: Infection of the genital tract occurring at anytime between the onset of rupture of membranes or labour and the 42nd day postpartum in which, apart from fever, one or more of the following are present: pelvic pain, abnormal vaginal discharge with foul smell and delay in the rate of reduction of the size of the uterus.

Ruptured uterus: Uterine rupture is associated with clinically significant uterine bleeding; fetal distress; cessation of contractions and expulsion or protrusion of the fetus into the abdominal cavity.

Quality of care: Quality of care refers to provision of care that meets some specified criteria or proper performance according to established management guidelines.

Guidelines: are systematically developed statements to assist practitioner about appropriate care for specific clinical circumstances.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

Pregnancy is not a disease and the birth of a baby is generally a joyful occasion. Today, in most parts of Africa, this event is no longer a cause for joy. It is often associated with pain and grief due to death of the mother. It is estimated that over half a million maternal deaths occur world wide annually due to pregnancy related complications and 99% of these deaths occur in less developed regions (1, 2, 3). Most maternal deaths are to a large extent preventable if the complications are diagnosed and managed effectively and in time.

To the contrary, most often throughout the developing countries and particularly in Sub-Saharan Africa, women suffering from complications of labour and delivery arrive at referral hospitals after surmounting a lot of obstacles, only to die due to lack of prompt quality care. Malawi being one of the countries in this region has not been spared from this scourge. While maternal mortality figures vary widely by source and are highly controversial, the best estimates for Malawi suggest that roughly 9,300 women and girls die each year (4) due to pregnancy related complications. Additionally, another 186,000 women and girls are estimated to suffer from severe morbidities related to childbirth (Ibid).

This study therefore is an attempt to contribute to the reduction of MMR through understanding the quality of care rendered to women with emergency obstetric complications at Mwanza district hospital in Southern Malawi. This is one of the district hospitals which experiences high obstetric case fatality rates (CFR).

This thesis has been divided into 8 chapters. The first chapter is the introduction which explains various aspects of Malawi's country profile in order to shed more light on some of the problems experienced in the country that are related to the study. The second chapter presents the background of the study and rationale followed by chapter three on research objectives and purpose. The fourth chapter is the methodology of the study while chapter five presents the findings of the study followed by chapter six which is the discussion of the findings. The seventh chapter presents methodological

limitations, validity and reliability of the study. The final chapter is the conclusion drawn from the findings, recommendations and call for future research.

1.1 The Malawi country profile

1.1.1 Geography

Malawi is a land locked country south of the equator in Sub-Saharan Africa. It is bordered to the north and northeast by the United Republic of Tanzania; to the east, south and south west by the Peoples Republic of Mozambique and to the west and northwest by the Republic of Zambia. The country is 901 kilometers long and ranges in width from 80 to 161 kilometers. It has a total surface area of 118,484 square kilometers of which about 94,276 square kilometers is land area. The remaining area is composed of Lake Malawi, which is about 475 kilometers long and runs down Malawi's eastern boundary with Mozambique. Malawi has a sub-tropical climate; rainy season starts from November to May and dry season from May to November. The weather is cold and dry from May to August and from September to November the weather becomes hot. Rainfall and temperature vary depending on altitude and proximity to the lake (5, 6).

1.1.2 Population, demographic characteristics and health indicators

The total population for Malawi is 11, 937,934 with females comprising 51% of the total population (Ibid). Out of these, 42.2% of women is said to be in the reproductive age bracket (15-49). Child bearing starts quite early in Malawi; with a mean age at first child birth at 19 years. Malawi has relatively a young population: 19% is aged 15-24 years, i.e. youths and 23% are adolescents (10-19). Recent population projections is at 13, 603,181 (Ibid). The population density is at 105 per square kilometre. Malawi has experienced rapid urbanization from 8% in 1977 to 14.05% in 2000, which has a great impact on its social services including health. Death rate is at 18/1000, birthrate at 42/1000. Life expectancy for males is at 43.4 while for females it is 42.6. Christians comprise 80% of the population, 13% Muslims, other religions 3% and none 4% (Ibid).

Malawi health indices are among the worst in the world, mostly due to preventable causes of morbidity and mortality which constitute the major disease burden. See table 1 for selected health indicators.

Table 1: Health indicators

Health Indicator	Measure
Maternal Mortality Ratio	984/100,000 live births
Antenatal care coverage	98%
Skilled birth attendance	57%
Contraceptive prevalence rate	28%
Infant mortality	76/1000 live births
Under five mortality	133/1000 live births
Immunization coverage	64%
Total fertility rate	6
Adult prevalence rate of HIV	14.2%

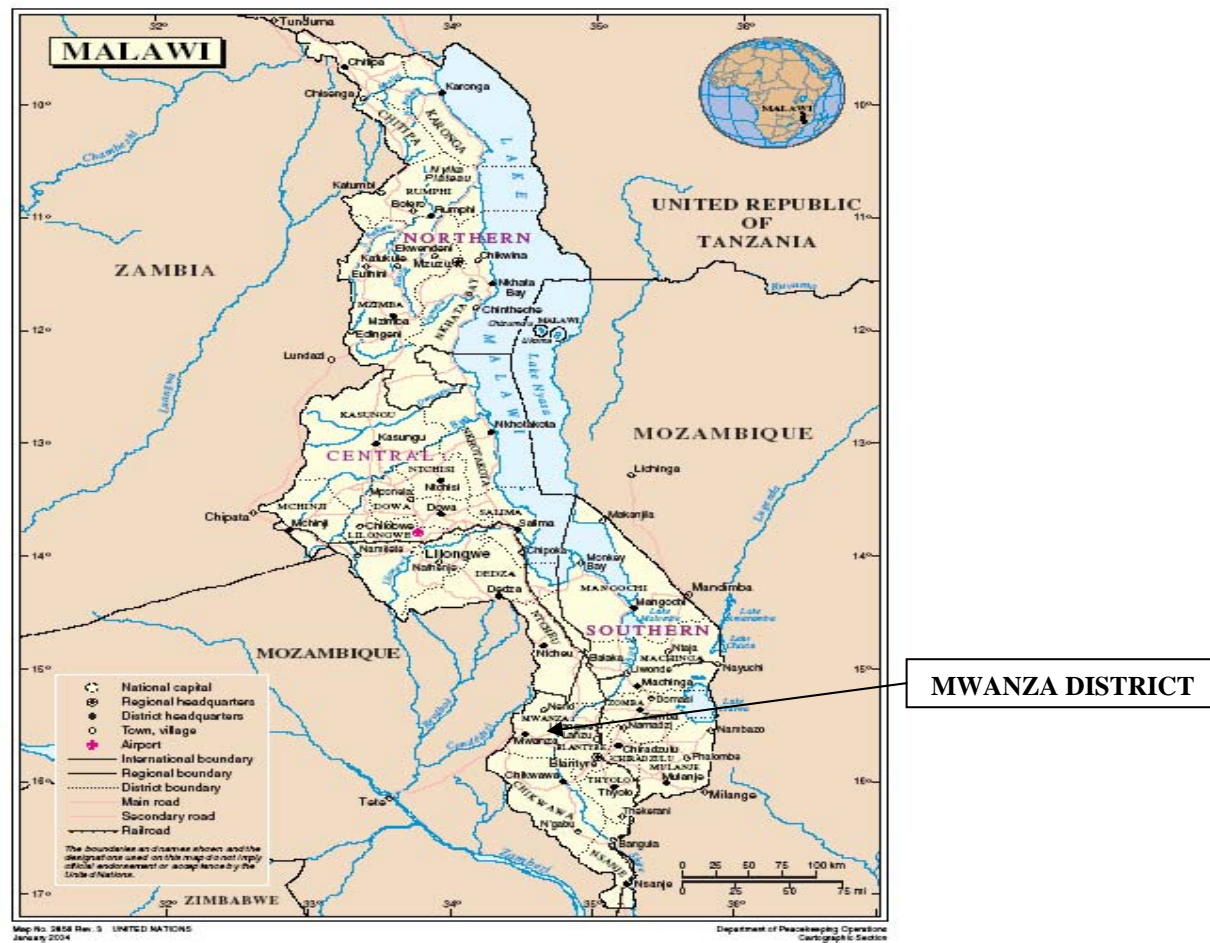
Source: Malawi Demographic Health Survey, 2004

1.1.3: Administration

The country is divided into three administrative regions: the Northern, Central and Southern and further into 28 administrative districts. Six districts are in the Northern Region, nine are in the Central Region and 13 are in the Southern Region. Mwanza district, the study area, is located in the southern region of the country (figure 1).

Administratively the districts are subdivided into traditional authorities (T/As); presided over by chiefs. Each T/A is composed of villages, which are the smallest administrative units and are presided over by village headmen (5).

Figure 1: Map of Malawi



Source: http://www.embassyworld.com/maps/maps_of_malawi.ht

1.1.4 Economy

Malawi is one of the poorest countries in the world and has a predominantly agricultural economy. Farming accounts for 1/3 of the gross domestic product (GDP), the rest comes from economic assistance from the International Monetary Fund (IMF), the World Bank and individual donor nations. Tobacco is the main export earner, accounting for 71% of the export (5).

Eighty five percent of the population lives in the rural areas, mostly in small farm house holds. Sixty five percent of the population is defined as poor, living below US\$ 0.33 per day and unable to meet its daily consumption needs; over half a million of the population is food insecure. The poverty is high because of low productivity, limited and difficult access to land, and poor health status (5, 6).

The profile of poverty in Malawi shows that 65.5% of women are poor as compared with 57.9 of men. Adult literacy rate for women in Malawi is 44% as compared to 72% for men (7).

1.1.5 Health care delivery system

1.1.5.1 Organization

Nearly all health services in Malawi are provided by three main agencies. The Ministry of Health (MoH) provides 60% of the services, the Christian Association of Malawi (CHAM) provides 37%, and Ministry of Local Government provides 1%. There is a small private - for - profit health sector limited to the urban areas and other health services provided by private companies, private practitioners, commercial companies, the army and the police. There are traditional birth attendants¹ (TBA) and traditional healers² whose number and extent of service provision is not known (8).

Health services are provided at three levels: primary, secondary and tertiary. At primary level services are through rural hospitals, health centres, health posts, outreach clinics and community initiatives such as drug revolving funds. District and CHAM hospitals provide secondary level health care services to back up the activities of the primary level while tertiary hospitals provide services similar to those at secondary level, along with a range of specialist surgical and medical interventions. Currently the public health services are free and have a good geographic coverage of health facilities, 80% being within a 5 kilometre radius. However, most Malawians have difficulty accessing these facilities due to poor road networks and poor communication systems (Ibid).

¹ A TBA is a community-based provider of care during pregnancy and childbirth who is not trained to manage high risk conditions. TBAs are part of the birthing process in the rural communities and many women prefer to seek care at the traditional birth attendants unfortunately they have limitations and cannot substitute skilled providers. Basically, they are trained to provide low risk care and refer or high risk and complicated cases in good time.

² Traditional healers are practitioners widely recognized by people in the community who rely on rituals and beliefs in healing the sick.

1.1.5.2 Human resources

The Government of Malawi in general and the MoH in particular are challenged by an acute shortage of skilled personnel. Sixty two percent of all established posts are vacant in the MoH, only 9% of the obstetric-gynecology posts are filled (9). Compounding the problem is the inequitable distribution of available human resources. There is a particularly significant mal-distribution of health personnel, which favors urban areas, and the secondary and tertiary levels of care, at the expense of rural areas where 87% of the population reside. This is due to the unattractive working environment in rural areas, i.e. lack of social amenities, educational facilities and accommodation (8, 9). The distribution of medical officers and registered nurses is in favour of tertiary care facilities with 68% of medical officers and 64% of registered nurses located in tertiary care services (10). Recently, the shortage of health personnel has been exacerbated by high turnover due to various factors including high mortality attributed to HIV/AIDS related illnesses, attrition as a consequence of retirement and resignations, and brain drain of skilled people who depart to industrialized countries, particularly the United Kingdom (of 108 nurses leaving Malawi in 2003, 90 went to the United Kingdom), and there are over a hundred new Malawian health workers registered every year (11). Currently, there are approximately 29 nurses per 100 000 population in Malawi and there are 20 physicians per 100 000 population (Ibid).

1.1.5.3. Costs

The Malawi's public health services are free of charge as stated above, this includes delivery care (8), but in areas that are primarily served by a private health centre, lack of money is said to be a reason for not using health facilities for delivery (12). Private (CHAM) facilities are often judged as better facilities in terms of quality care provision, but unaffordable by pregnant women. Even if public district hospital care is free, there are other costs associated with giving birth. Transportation is sometimes a cost, and women attending a government hospital are expected to bring some essential supplies, for example; razor blade for umbilical cord cutting, a mackintosh³ to deliver upon to avoid spoiling mattresses, plastic basin to use for bathing the baby and the mother, spirit for cord care, sanitary pads and cloths needed at and after delivery.

³ A mackintosh is a light weight waterproof made of rubberized fabric which is spread on the mattress of a laboring woman to prevent spoiling the mattress with fluids and blood during labour and delivery.

1.1.5.4 Referral system

Patients who are considered 'low' risk attend antenatal and delivery care at health centres or TBAs. If there are any complications, they are referred to the secondary facilities. Only a few health centres own ambulances. Most health centres call for ambulances from the referral units to collect patients who need referral. This calls for effective communication system in order to get patients transferred in good time. However sometimes transport is a problem, ambulances are either not available or are poorly managed. Radio communication has now been installed in most health centres to facilitate communication regarding patients with emergency conditions and reduce the waiting time for ambulances to collect patients. A study has been conducted in Southern Malawi to determine effectiveness of radio communication. Results revealed that radio communication reduces delays in referral of patients (13).

1.1.5.5 Emergency Obstetric Services

Since most of maternal deaths cannot be predicted, World Health Organisation (WHO), United Nations Population Fund (UNFPA) and United Nations Children's Fund (UNICEF) recommend that all pregnant women should have access to good quality Emergency Obstetric Care (EMOC) (1). These are services necessary to save the lives of women who experience obstetric complications. They include; removal of retained products of conception, assisted vaginal delivery, administration of parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta, surgery and blood transfusion. Facilities which provide the following medical interventions (known as signal functions) are called basic EmOC facilities: administration of parenteral antibiotics, oxytocic drugs, anticonvulsants as well as manual removal of placenta, removal of retained products of conception and assisted vaginal delivery. Comprehensive EmOC facilities perform all the basic signal functions as well as perform surgery (caesarean sections) and provide blood transfusion (Ibid).

Currently almost all health centres in the country are not basic EmOC facilities and all patients who require comprehensive services are referred to the secondary facilities (9).

CHAPTER TWO: BACKGROUND TO THE STUDY

2.1 Magnitude of the problem

In September 2000, the gathering of Heads of States adopted the United Nations (UN) Millennium Declaration. Reduction of maternal mortality was one of the key development goals of the Millennium declaration (14). The target is to reduce MMR by three quarters between 1990 and 2015; the indicators include MMR and proportion of deliveries with a skilled health provider (Ibid). Reduction of MMR has previously been endorsed as a key development goal from several international conferences.

According to the estimates developed in 2000, maternal deaths are almost equally divided between Africa and Asia, which together accounts for 95% of the total. Only 4 per cent of all maternal deaths occurred in Latin America and the Caribbean, and less than one per cent in the more developed regions of the world (3). The MMR was estimated to be 400 per 100,000 live births globally in 2000. By region, it was highest in Sub-Saharan Africa (940), followed by South Asia (560), the Middle East and North Africa (220), Latin America and the Caribbean (190), and East Asia and the Pacific (110). The lowest levels are found in the industrialized countries which have a maternal mortality ratio of 13 per 100,000 live births (Ibid). In Sub-Saharan Africa women face the risk of dying several times during their lives and the lifetime risk⁴ of maternal death may be as high as 1 in 16, compared with 1 in 3800 in developed countries (2, 3).

For every woman who dies, another 15 to 30 suffer severe morbidities owing to pregnancy (Ibid). The leading causes of this pregnancy - related deaths are the same around the world. It is estimated that 25% of women die due to hemorrhage, 15% due to sepsis, 12% due to hypertensive disorders of pregnancy, 8% due to obstructed labor, 13% due to unsafe abortions and 8% due to other obstetric causes (e.g. ectopic pregnancy) (Ibid). Most of these causes develop during the progression of the pregnancy, during labor and delivery or, during the postpartum period. Evidence shows that approximately 15% of all pregnancies will develop sudden serious

⁴ Life time risk is defined as the probability of maternal death faced by an average woman over her entire reproductive life span.

complications that could lead to death and require life-saving access to quality obstetric services (15).

Most of these complications can be treated or prevented through use of modified clinical obstetric practices. According to WHO, UNFPA and UNICEF, an estimated 80% of deaths from these causes can be avoided using quality EmOC (1). Furthermore it is argued that availability of skilled birth attendant⁵ at all births helps in prevention, early detection and management of obstetric complications (Ibid). The proportion of deliveries attended by a skilled provider is also used as a key measure of progress towards achieving the MDG of improving maternal health (14).

These interventions are known to reduce maternal mortality (MMR) to negligible levels in industrialized settings. For example in Sweden, the MMR is now estimated at 8/100,000 live births (16) from 500,000 live births in the past two decades (16). The sudden and profound decline in maternal mortality was not due to a single factor, but a combination of changes that came into effect during this period. The most important factors that led to the reduction in MMR are: introduction of penicillin, blood transfusion on a large scale, and improved obstetric care in general (Ibid). In developing settings like Bangladesh and Egypt, MMR has been reduced by 50% through increasing access to quality EmOC interventions (17, 18). These are testimonies that signify the superiority of EmOC to all other interventions in the fight to reduce maternal mortality.

By contrast, the MMR levels in most parts of the resource constrained settings have continued to rise instead of declining (3). The Millennium Development Goals (MDGs) progress report indicates that there has been no progress in Sub-Saharan region, where maternal mortality is highest (14). For example in Mozambique and United Republic of Tanzania their maternal mortality rates have been increasing instead of declining, and Malawi is no exception (Ibid).

⁵ A Skilled birth attendant is defined by the World Health Organization as a person ‘with midwifery skills (for example, doctors, midwives and nurses) who has been trained to proficiency in the skills necessary to manage normal deliveries and diagnose or refer obstetric complications’.

Study results to assess the quality of obstetric care in different developing countries have shown that there is generally poor quality of obstetric care provided to women (19, 20, 21, 22, 23). Studies conducted in Malawi have shown general factors that contribute to the poor quality of care, these include: inadequate skilled personnel, equipment, essential drugs and supplies (24, 25, 26). However assessing quality of care rendered to women who experience major obstetrical complications is very relevant as it would help unveil deficient areas related to obstetric care. This could further contribute to a better understanding of what needs to be done. Saving women's lives through provision of quality obstetric care is a moral and ethical issue. Furthermore the right to life and health is a social human right and all women should be guaranteed the right to quality obstetric care.

2.2 Maternal Mortality in Malawi

According to the year 2000 estimates by WHO, UNICEF and UNFPA, Malawi is among the countries with the highest MMR in the world (3). Malawi MMR has increased sharply from 620/100,000 live births in 1992 (27) to 1,120 deaths/100,000 live births in 2000 (28). The 2004 Malawi Demographic Health Survey (DHS) indicate that MMR had declined to 984/100,000 live births (1). This is still unacceptably high and according to the country's progress MDG report; if the recent rate of improvement is maintained, Malawi would have a MMR of about 610 deaths per 100,000 live births by the year 2015 (29). Under the MDG 5 Malawi is expected to have a MMR of about 155/100,000 live births by the year 2015 (Ibid). Unless additional measures are put in place, it is unlikely that the MDG target will be met. Such magnitude of deaths leads to loss of productivity, loss of income and child care which has consequently increased mortality for children (Ibid).

2.3 Malawi's Response

Malawi government together with its development partners: (e.g. WHO, DFID, UNICEF and UNDP), identified the high MMR as a challenge and reduction of MMR is one of its priority interventions. Below are some remarkable initiatives that have been implemented in response to the increased MMR;

- In 1993, Malawi established a national multisectoral safe motherhood taskforce to develop and implement the Malawi safe motherhood initiative program. A funded position of safe motherhood coordinator was also established and filled within the Ministry of health.
- In 1996, safe motherhood program was launched with the goal of halving maternal mortality (and neonatal mortality) by the year 2004 from 620 to 320 per 100, 000 live births. This has not been achieved as MMR continues to rise instead of declining.
- In 1998, in support of safe motherhood program, the government of Malawi with funding and technical assistance from the Department for International Development (DFID) established the safe motherhood project (SMP) in all the 12 districts of the Southern Region of Malawi. The aim was to lower maternal mortality and morbidity through improving access and quality of obstetric services). The impact of the project on the MMR has not been assessed, however, the project has helped sustain a remarkably high rate of institutional deliveries (43%) compared to countries at similar stages of development, and it has quickly halved the proportion of deaths among hospital deliveries. These are critical steps in reducing the high MMR (30).
- Malawi is a signatory to the millennium development goals (MDGs) hence the country is committed to reduce its MMR to contribute to the MDG target of reducing the ratio by 75% by 2015.

Additionally, the government has launched several other initiatives to address increased maternal mortality, these include:

- Developing Obstetric Life Saving Skills trainers' and service providers' manuals facilitating in-service training of health workers in obstetric life saving skills, infection prevention and maternal death audit.
- Updating of curricula for doctors, clinical officers, medical assistants, enrolled and registered nurses and midwives to include safe motherhood issues.
- Providing of communication materials including installation of radio communications and bicycle and motorised ambulances.

- Upgrading hospitals, health centres and maternity units to equip them with standard amenities; and making maternal deaths notifiable and institutionalising routine maternal death reviews (31).

In 2004, the Malawi government embarked on a nation wide assessment on the availability, utilization, and quality of EmOC, the aim of the assessment was to establish why MMR continues to rise instead of declining (26). The assessment findings indicate that the overall percentage of births taking place in EmOC facilities countrywide was 19.3% which is within the recommended minimum indicators of 15% but still fairly low. However there was a variation at district level with only 67% of the Malawi districts meeting the UN recommended level of 15% (ibid). Again it was unclear whether women with complications were using the EmOC facilities. Caesarean Section as a percentage of expected births is an indicator that shows both the functioning of a facility and whether critical lives saving services are being used by women in need of care. It was found that 2.8% of expected births were delivered by caesarean section (Ibid), which is under the recommended minimum of 5% and this may mean that women were not receiving the care they need.

The CFR of all the facilities assessed was 3.4%. The cause specific CFR in all hospitals was highest for ruptured uterus with 35% of women dying. The second highest was postpartum sepsis with a CFR 19%, Hemorrhage 14%, preeclampsia/eclampsia 8% (Ibid). Results further showed that Mwanza district had the highest CFR (13%) among all the districts in the country and caesarean section as a percentage of all births was also very low (2.6%) (Ibid).

2.4 Problem statement

Despite Malawi's initiatives towards reducing maternal mortality ratio, it has still remained unacceptably high. Twenty years of safe motherhood has failed to deliver substantial reduction in the high maternal and perinatal mortality in the country. This has therefore made the government efforts to attain MDGs towards reducing MMR by 75% by 2015 difficult.

Although the means to prevent and handle complications during pregnancy and childbirth have been identified, (e.g. antenatal care, clean and safe delivery ,access to essential obstetric care etc) (32), there remain unmet needs at point of service delivery in terms of quality of care received by women who experience major obstetric complications and the situation is bad in Mwanza district. The national assessment on emergency obstetric care services in Mwanza district showed that out of 109 women with obstetric complications, 13% died and the percentage of caesarean sections was 2.6% (6). The UN claims that CFR should not exceed 1% and caesarean section as a percentage of all births should be within 5-15% (Ibid). These rates signify that the obstetric care rendered to women who experience obstetric complications is substandard but do not explain the specific context behind such rates.

Although there is consensus that provision of timely and quality emergency obstetric care is fundamental to preventing maternal deaths, questions remained to be answered. To answer these questions, a study was conducted to explore further the quality of care rendered to women who experience major obstetric complications in Mwanza district. The methods used were non participatory observations of care processes and record reviews against set objective management guidelines. Inventoried availability of essential drugs, equipment and supplies for management of obstetric cases and in-depth interviews were also conducted with 14 health workers to elicit providers' perspective of the quality of care.

2. 5 Rationale for the study

The Malawi nation wide assessment on the availability, utilization and quality of obstetric care revealed that the CFR for Mwanza district was the highest among all districts in the country. Critical review of the assessment report does not reveal the factors contributing to such a high CFR, and does not tell us how women with emergency obstetric complications are managed and generally handled. Since the report is incomplete on the issues surrounding the increased CFR and does not necessarily link the increased CFR to quality of obstetric care, it became imperative to conduct such a study in order to find out major issues related to management of emergency obstetric complications.

The district under study has been experiencing increased obstetric CFR since two decades ago (6, 33). So far no study has been conducted to establish obstetric management issues contributing to the problem.

National standards and guidelines on the management of women with emergency obstetric complications have been published and widely disseminated throughout the district hospitals and health centres. However, no reports exist on hospital adherence to these standards. Such information is useful because it identifies critical functions that are not performed and could inform quality improvement efforts.

The study on the assessment of obstetric care which was done in Malawi in 2003, assessed management of obstetric cases in comparison to the international standards and not standards adapted to the local level. Furthermore, they only studied management of eclampsia and preeclampsia and not all the major obstetric complications and the assessment was based on review of records only.

The information generated from this study will help to strengthen weak areas and performance gaps in the provision of emergency obstetric care. This knowledge will further help to improve planning, organisation and implementation of obstetric care at Mwanza district hospital.

2.6 Quality of health care

2.6.1 Definitions of quality

The concept of quality is difficult to define and is an abstract term. A number of attempts have been made to formulate a concise and generally applicable definition of the quality of health care. Donabedian has defined high quality care as “that kind of care which is expected to maximize an inclusive measure of patient welfare, after one has taken account of the balance of expected gains and losses that attend the process of care in its all parts”(34). According to the American Institute of Medicine in 1990 Lohr et al.(1992), quality is constituted by the “degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge” (35). This definition emphasizes the professional point of view. Another more generally stated definition holds that

“Quality is the totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs.” Friedman’s definition includes accuracy of diagnosis and the appropriateness and efficacy of treatment rendered (36). The national Association of Quality Assurance Professionals defines quality as “levels of excellence produced and documented in the process of patient care, based on the knowledge available and achievable at a particular facility” (37).

2.6.2 Perspectives on quality of care assessment

As apparent from the multiple definitions, there are several perspectives on the quality of care, at which the care quality may be considered. Describing the determinants and methods to assess quality of care, 28 years ago, Donabedian suggested an approach with three components: structure, process and outcome (34).

The Bruce framework with six fundamental elements of quality of care (choice of methods, provider-client information exchange, provider competence, interpersonal relations, mechanism to encourage continuity, appropriate constellation of services) is one of the tools of assessment with more focus on the interaction of client and service delivery points and less emphasis on the access to the services by woman and families (38).

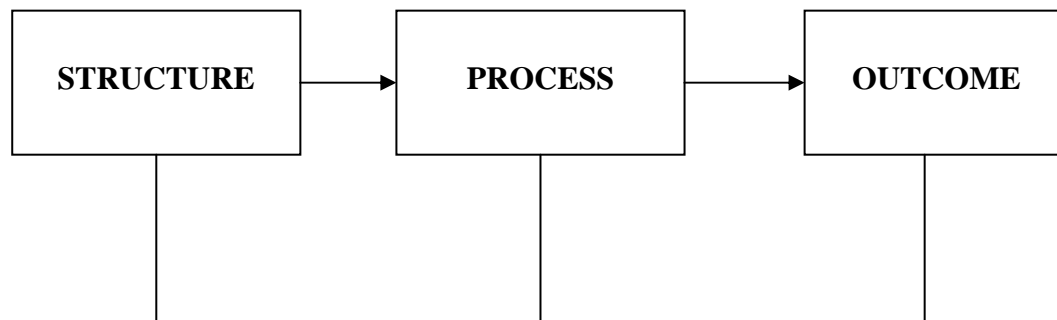
The rapid assessment method for assessing maternal and child health services, including obstetric services, has also been applied by WHO in several countries (39). It covers the availability of staff, supplies, equipment, record reviews, and interviews with staff and focus group discussions at village level.

Specific guidelines for monitoring the availability and use of obstetric services (Maine, et al 1997) that were later adopted by UNICEF/WHO/UNFPA (1) are another example of quality assessment tools.

Various factors will ultimately influence the choice of assessment method such as: study objectives, data to be collected, resources available to give care, levels of health services to be assessed (40).

After reviewing literature on different methods used to assess quality of care, our study adopted the Donabedian Model of Quality because it was deemed the most appropriate taking into consideration the research in question. The model is universal and can be used in almost all settings. Figure 2 shows the Donabedian model of assessing quality of care.

Figure 2: Donabedian model of quality



2.6.3.1 The Concept of ‘Structure’

Structure is considered to encompass the stable features of the providers of reproductive health care, the tools and resources at their disposal, and the physical and organizational settings in which they work. Refers to the conditions under which care is provided, thus, structure includes the human, physical, equipment, administrative structure, staff structure and qualifications. These are resources that are used to provide maternal health care (34).

2.6.3.2 The Concept of ‘Process’

Process is defined as the set of activities that constitute health care: including diagnosis, treatment, rehabilitation and patient education usually carried out by professional personnel. It refers to the actual transaction in which the provider of care makes use of the available structural elements, described above, to manage the technical and personal aspects of health. It covers the means by which patients access care, investigations that are made, diagnoses that are stated, treatment received and

the manner in which they are discharged or referred elsewhere (Ibid). Measuring process of care can make a substantial contribution to the quality of care, because process measures are sensitive to deficiencies in care and are indicators for action (41). Many clinicians consider process to be the most direct and valid measure of quality: i.e., the right things done right at the right time (Ibid).

2.6.3.3 The Concept of 'Outcome'

The outcome means changes (desirable or undesirable) in individuals and populations that can be attributed to health care. In maternal health care it includes two elements: the direct impact of treatment on the current or future health of a woman or her newborn, and the indirect impact on her satisfaction with the services offered and her health-seeking behavior (Ibid). With good quality care there should be an increase in utilization of services and decrease in mortality, quick cure or recovery rate and few deaths recorded annually.

2.6.4 Application of Donabedian Framework to the current study

The study used the Donabedian framework because of the objectives it intended to achieve and the type of data to be collected. According to Donabedian (2003), inferences about quality are said to be impossible unless there is a predetermined relationship among the three approaches, so that structure influences process and process influences outcome, of course in a more complex way than a linear relationship (40). Our study has shown this complexity as mere availability of resources did not influence provision of care.

Under the element of structure, the proposed study has looked at human resources in terms of the numbers and qualification. Secondly, the study assessed material resources such as essential drugs, equipment and supplies and then thirdly, the organizational characteristics such as the organization of medical and midwifery staff, kinds of supervision and performance review, presence of staff trainings, refresher courses and teaching functions.

The process in this study was assessed through observing the characteristics of care provided including: appropriateness, adequacy, coordination and continuity. It

involved the actual transaction of providing emergency obstetric care according to management guidelines.

The outcome assessment was not measured because of limitation of time, as most of the attributes require quite along time to assess. However, informal interviews conducted with a few women who suffered obstetric complications shed some light on the women's satisfaction with care received.

2.7 Standards of care

In monitoring and evaluation of quality of care, it is necessary to establish standards and develop criteria to assess the quality of care. The standards have been described as explicit statements that stipulate the desired and/or achievable level of performance against which actual performance is compared (42). Criteria are variables selected as indicators to determine whether the established standards have been met (Ibid). The current study compared the actual performance of care to patients who experienced major obstetric complications to the established national treatment guidelines and protocols.

2.8 Research gaps

Based on literature reviewed above, it is indicated that research to assess quality of emergency obstetric care based on obstetric standards is limited. Studies conducted have based the assessment of quality of care on maternal deaths reviews (confidential inquires), based on international standards of care and rarely focus on all the major complications. Not much has been done on assessing quality of care by systematically comparing set of criteria against performance. Furthermore studies to elicit information from the providers regarding the care they give and the challenges experienced in the course of providing care are rarely done. Therefore, it was imperative to conduct this study and explore the quality of care rendered to women who suffer emergency obstetric complications in comparison to the national management guidelines, considering the fact that these are the major causes of maternal deaths worldwide.

CHAPTER 3: RESEARCH PURPOSE, OBJECTIVES AND THEORETICAL PERSPECTIVE

3.1 Purpose of the study

The purpose of the study was to explore the quality of care that women with obstetric complications receive at Mwanza district hospital in an attempt to establish major issues related to management of emergency obstetric complications.

3.2 Objectives of the study

1. To assess the availability of logistics used to provide obstetric care (essential drugs, equipment and supplies).
2. To assess whether obstetric patients are managed according to established management protocols and guidelines.
3. To assess health workers' (midwives' and clinical officers') views on quality of emergency obstetric care.
4. To explore the challenges health workers experience to provide effective emergency obstetric care.

3.3 Research question

Is the current level of emergency obstetric care services at Mwanza district hospital of sufficient quality to save women's lives?

3.4 Variables

A. Background characteristics

- **Women:** examined age, parity, place of referral.
- **Health workers:** examined age, length of service and qualification.

B. Dependent variable was the level of quality obstetric care which is a categorical dependent variable.

C. Independent variables: Are those variables used to describe or measure the factors that are assumed to cause or at least influence quality of care.

- **Quality of practice;** (actual management of patients with obstetric complications according to specified guidelines) (Appendix 12).
- **Availability of logistics;** essential drugs, equipment and supplies used to provide emergency obstetric care (Appendices; 7, 8, 9, 10).

3.5 Theoretical perspective

Grounded theory was used in this study to investigate the quality of care rendered to women with major obstetric complications at Mwanza district hospital. Grounded theory begins with a research situation and within that situation the task of the researcher is to understand what is happening and how the players manage their roles (44, 45). The aim of the qualitative study was to understand the quality of care rendered to women with major obstetric complications from the health workers' perspective. According to Haig (1995), grounded theory is recommended in qualitative studies because it is generally understood as a problem solving method which deals with the understanding of action from the perspective of a human agent. Interviews are frequently the main source of information that one develops facts from but any data collection methods can be used (46).

In grounded theory, constant comparison is the heart of the process. At first you compare interview (or other data) to interview (or other data), and then theory emerges quickly. When it has begun to emerge you compare data to theory. Interviews from individual health workers were compared and common emerging themes from the narratives were noted.

In the current study the aim was not to generate a theory but grounded theory was rather used to understand the situation and aim at solving the problem.

CHAPTER 4: METHODOLOGY

4.1 Introduction

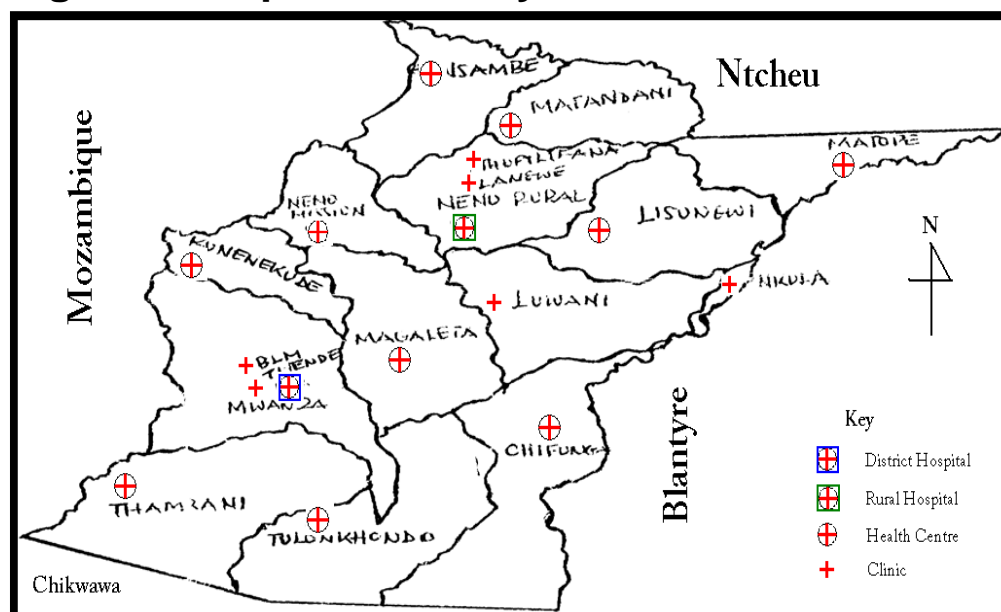
This section provides the study setting, design, study population, sample size and selection, recruitment criteria, data collection procedure, data management and analysis, pretest of data collection instruments, ethical considerations and dissemination of research findings.

4.2 The study setting

The study was carried out at Mwanza district hospital. Mwanza district is located in the Southern Region of the Republic of Malawi; it is bordered by the districts of Neno to the North-East, Chikwawa to the South, and the Peoples' Republic of Mozambique to the North-West (Figure 3). The district is approximately 100 kilometers North of Blantyre City, the country's main commercial and financial city, and about 320 kilometers South of Lilongwe, the capital city of Malawi. The total land area of the district is 826 square kilometers (43).

Mwanza district serves as a referral hospital to 12 health centers and dispensaries within its catchment area. The district hospital receives referrals from health facilities in Chikwawa district. It also receives a considerable number of patients from border villages of Mozambique and referrals from health centres in Mozambique.

Figure 3: Map of the study area



4.2.1 Demographic characteristics and health indicators

The district has a total population of 78,271. The average annual population growth rate is estimated at 1.2 %. Maternal mortality ratio (MMR) is at 984/100,000 live births, Infant mortality is 80/1000 live births, under five mortality 80/1000 live births, crude death rate (CDR) 16/1000 persons, life expectancy for females 46 years and 44 years for males. Contraceptive prevalence rate is 31% (ibid). Compared to national figures, using vital health indicators as indicated in Table 1, the overall health situation in Mwanza is lower than the average for the country. The district's CDR is at the same level with that of the national figure and the under-five mortality rate is higher per thousand children and the MMR is equally higher.

4.2.2 Obstetric care services in Mwanza district

Mwanza district hospital is the only hospital serving the district; it is the referral facility which provides comprehensive obstetric emergency services. These other health centres provide some but not all of the basic EmOC functions, (Ibid). Based on the UN guidelines, for every 500,000 population, there should be, at a minimum, one facility offering comprehensive EmOC and four facilities offering basic services. It shows that Mwanza, with a population 78, 271, has the recommended number of comprehensive EmOC facilities but lacks basic emergency obstetric care. This means that women who develop life threatening complications should be taken to the hospital for prompt and appropriate emergency care. People in the district also avail to medical services from other sources, like traditional healers and TBAs (Ibid).

The hospital conducts around 3,500 deliveries per year. The maternity ward bed capacity is 65.

4.2.3 Selection of the study area

The setting has been chosen because the results of the nationwide assessment on the availability, utilization and quality of obstetric care indicated that the district had the highest obstetric CFR among all the districts in the country (13%) (6). Caesarean section as a percentage of all births was 2.6% which again is very low (Ibid). Therefore conducting such a study in this area would provide useful information regarding management of obstetric complications that will further contribute to a better understanding of what needs to be done

4.3 Study Design

Despite the lack of a generally accepted definition of quality of health care, a number of tools for quality assessment have been developed and disseminated. This study adopted the Donabedian model of quality of care assessment (the structure, process and outcome) (40), because it was deemed the most appropriate when taking the research in question into consideration.

The operational definition of quality in this study assumes that there is quality to the extent that medical practice conforms to generally accepted specified standards. The study examined service delivery through a systematic review of management of obstetric emergency cases in relation to established obstetric management guidelines. This assessment measured the process of care which considers whether what is currently thought to be proper practice is applied.

With the assumption that without adequate structure, good health outcomes will not be achievable, we assessed the structure through the study of the settings in which care takes place and specifically looked at availability of essential drugs, staff, equipment and supplies during the three month period of study. At the same time it was considered important to assess health workers' opinions regarding the quality of care and challenges experienced during care provision. Information generated from the first line providers of emergency obstetric care was considered important to complement what was found from the observed care processes.

The concept of outcome considers whether a person's current and future health status can be attributed to antecedent health care (40). This was difficult to measure due to time limitations; however women's satisfaction with the care received was partially assessed through informal interviews with women who suffered obstetric complications.

Literature review has further shown that most studies in assessment of quality of care in health facilities combine various methodologies to assess quality of care. Therefore a **cross-sectional prospective study design combining both quantitative and qualitative** methods was used to explore major issues affecting management of obstetric patients.

In a thorough discussion about the evaluation of quality of care in maternity services, Hulton et al proposed methods as discussed above as appropriate in this field of study (47). It is important however to realize that the type of phenomenon or variable that the researcher would like to measure largely determines the specific methods chosen. The advantage of using qualitative and quantitative methods in a single research project is that they are complementary, the weakness of a single approach may be overcome and the validity of the findings is enhanced (48). Therefore the use of triangulation of methods has given us more robust results that would not be obtained with either quantitative or qualitative assessments only.

4.3.1 The quantitative aspects of the study

The quantitative study prospectively observed management of women with particular complications compared to established national obstetric management guidelines. The Malawi ministry of health (2004) guidelines served as the source for quality standards and they generally stipulate the particular tasks to be performed under each complication (49). A structured checklist was developed from the management guidelines and used to establish whether or not good practice was followed in specific cases. However, note should be taken that the set of criteria used for management of particular complications did not necessarily prescribe all the elements of management. They rather encompass those practices which are essential other than optional, for which sound research evidence exists and those that are realistic given the capacity of the facility in terms of staffing and resources.

Examination of data from records of care for patients with obstetric complications kept by midwives/clinicians during the period of observation was done to compliment the observations.

To assess the availability of logistics for management of obstetric cases, observation checklists⁶ were designed. These included availability of essential drugs (i.e. uterotonics, antihypertensives, anticonvulsants and antibiotics), basic equipment

⁶ The checklists were adopted from WHO mother baby essential health package (1994) and the integrated management of pregnancy and childbirth (2003) and were adapted for this study.

(i.e. vacuum extractors, MVA kits, Caesarean section kits etc) and essential supplies (i.e. gloves, disinfectants, blood etc) (Appendices;7, 8, 9, 10).

4.3.2 The Qualitative aspects of the study

The qualitative part of this study comprised of in-depth interviews conducted with health care workers who worked in the maternity unit. It was designed to obtain information from the health workers' point of view regarding quality of obstetric care and challenges experienced regarding delivery of such care.

Interviewing is one of the fundamental methods used by qualitative researchers for gathering information (50). The interviews were structured to “obtain descriptions of the lived world of the interviewees with respect to interpretations of the meaning of the described phenomena” (Ibid). Knowing the opinions, for example, of the health workers about the quality of obstetric care is subordinated in a research interview to obtain concrete descriptions from the health workers, how they view the quality, on an individual basis, not as a group perspective and how they react to it. This justifies the usefulness of interviews if one seeks to understand how a person perceives a situation, as opposed to focus groups (Ibid).

Interviews are, as compared to questionnaires, self completing, conversational and interactive in nature. They help the researcher to probe and explain questions which are unclear to the respondent; they encourage cooperation which results in higher response rate and better quality data, follow up of ideas and investigate motives which enable interviewees to elaborate more on the topic (Ibid). However the presence of the interviewer can influence the interviewees' reports of events and may be less complete than information gained through observations. Informants may give responses which they feel the researchers wants to know but do not actually reflect the real life situation. Interviewees may be unwilling or feel uncomfortable to share all the information with the researchers resulting in insufficient information being given (Ibid). This was resolved by clearly explaining the objectives of the study and interviews were held in private offices and interviewees were assured of anonymity.

Informal exit interviews were conducted with 9 women who suffered emergency complications. The purpose was to get the general impression regarding women's satisfaction with the care received. The interviews focused on the following aspects of

care which were considered important to influence patients' satisfaction; information giving regarding continuity of care, interpersonal relationship with providers (issues of respect, kindness and emotional support) and waiting time before examination. The discussions were held outside the hospital premises when the patients were waiting for transport to go home.

4.4 Study Population

Population is the set of measurements corresponding to the entire population about which information is sought (48). The study population comprised of a unit of study, which included all women who suffered one of the five major obstetric complications⁷ treated at Mwanza district hospital during the period of study and all the health workers (midwives' and clinical officers') who worked in the maternity unit at Mwanza district hospital.

4.5 Sample Size and selection

For the quantitative study, non probability sampling was used to identify patients with obstetric complications who were admitted to the hospital during the study period. A convenience non-probability sampling was used because the researcher selected the cases based on their availability for the study other than from the entire population. In other words, the researcher surveyed women who were readily available to participate in the study. Random sampling was not employed because the population used in the study was anticipated to be small considering the fact that 15% of the pregnant women would develop complications (15) and the short time period of study. Although convenience sampling does not have provision for estimating the probability each element has of being included in the study sample (Ibid), it still helped to maximize the number of observed cases within limited time. The sample size was planned to be 40 eligible cases, but managed to get 42 cases and the 2 additional cases were still included in the study because other complications had very few cases. As a result of the issues explained above, the results of the study are very specific to the facility where it was conducted and are not easily transferable to other institutions.

⁷ A list of diagnostic definitions for different obstetric complications which guided the selection of eligible cases was adopted from the national guidelines. (See definition of terms).

Purposive sampling method was utilized to select health workers to be included in the study to explore health workers' views on quality of care. Purposive sampling was chosen because it is derived from the belief that a researcher's knowledge about the population and its elements can be used to hand pick cases to be included in the sample (48). A purposive sample of 14 health workers was interviewed to explore the issues.

4.6 Recruitment criteria

4.6.1 The inclusion criteria

Women

- Those who suffered obstetric complication and were observed during management.
- A woman of any parity and age.

Health workers

- Health workers who were involved in the provision of care to obstetric patients (both who worked on full time basis and those who went on a 24 hour call for management of patients with obstetric complications)

4.6.2 The exclusion criteria

Women

- Women who experienced other obstetrical complications not classified as major complications.
- Those who suffered obstetric complication but were not observed during management.
- Women who were unable to comprehend consenting process
- Women who were unwilling to participate.

Health workers

- Health workers who worked in other departments other than the maternity unit
- Health workers working in the maternity ward but on leave
- Health workers who did not consent.

4.7 Data collection procedures

During the first week of the study, meetings were held with the district health management team and the staff to thoroughly discuss the research objectives, purpose of the study and the planned methodology to collect the data. It was emphasized that the research findings of this study would not be used against any member of staff. Most of the time during this week was spent in the maternity unit to get acquainted with the environment and the staff.

Data collection commenced during the second week and the researcher collected the data alone. Recruiting health workers from the district hospital was not done in order to avoid bias. Furthermore recruiting data collectors outside the district would have been very expensive as data collection period proved to be long as obstetric complicated cases come rarely compared to normal cases. Most researchers consider issues of limitations in getting adequate sample size with observations, need for huge resources to accomplish the study and opt for prospective reviews of records than direct observations. However, considering the nature of the problems which prompted the researcher to conduct the current study, observations remained one of the valid methodological approaches for gleaning an insight into what constituted management of obstetric complications.

Data were collected through non participant-observations of care processes. This method involved actual watching of the health workers at their work places as they attended to patients with major obstetric complications (Appendix 6). Observations were planned to begin when the woman arrived at the hospital with an obstetric complication. Some patients developed complications while already in the hospital, they too were observed. Consent was sought from the health worker to be observed as she/he managed the patient, and for the patients; consent was sought afterwards. The observer spent 8 hours a day (the normal day shift), from Mondays to Fridays, however other observations were made on weekends, evenings and night shifts to note changes in management in regard to time of the day.

Review of patient records whose management was being observed was also done in order to compliment what was observed, and to check if other tasks were done especially those that take some time to be accomplished i.e. continuation of magnesium sulphate treatment 24 hours after delivery and monitoring of patients vital

signs and delivery of eclamptic patients within 12 hours and severe preeclampsia within 24 hours.

During the observations, when there were circumstances whereby care given was poor such that it would affect the well being of the mother or the baby, I would professionally intervene by talking to the concerned midwife, clinician or the hospital matron. (These people were not surprised or embarrassed because such actions were clarified prior to the commencement of the study). It would be deemed unprofessional and ethically unjust to continue observing mismanagements. This happened on 3 occasions; however this did not hinder me to continue with the observations.

Advantages of observations over record reviews

- Routine health information system in most district hospitals in Malawi tends to be weak and underutilized (25, 31), and the quality and selectivity of the data may not meet the needs of thorough evaluations.
- It may not be possible to separate poor record keeping from actual problems in the quality of care especially where decision making processes of care depends partly upon prior record keeping.
- Retrospective review of records is based on the assumption that clinical notes reflect what was actually done in terms of accuracy and completeness; however this assumption is not necessarily true. There is possibility of failure to record procedures carried out and observations made as well as recording of procedures that were not carried out.

Assessment of the availability of logistics for management of obstetric complications was also done prospectively. Using the observation checklist, physical checking of the stocks of drugs and supplies was done on a weekly basis and was done both in the maternity ward and the pharmacy for entire three-month period of study. Inventory of essential equipment like vacuum extractions, caesarean section kits and manual vacuum aspiration kits was checked once.

For the qualitative part, in-depth interviews with health care providers in the maternity unit were conducted to determine providers' perspective on the quality of

care, and to explore challenges experienced in the course of care provision. The interviews were conducted using interview guides which consisted of semi-structured open-ended questions (Appendix 11). Responses from the interviewees would sometimes change the flow and probing was done whenever necessary. Interviews were conducted in a quiet office that had minimal disturbances and privacy was ensured to enable interviewees to feel free to express themselves; they were conducted when the health workers were either off duty or on duty but felt they were free to participate. The health workers were asked to consent before the interview. The guides were prepared in English and most health workers' opted to have the interviews in English except for 5 health workers' who preferred to have the interview in the vernacular in order for them to feel more comfortable to fully express themselves. The average length of each interview was 1 hour. Three interviews were not recorded as requested by the interviewees. For those not recorded, notes were taken with the interviewee's permission. Follow-up interviews were done with three interviewees according to the convenient times of the researcher and the interviewee.

Informal exit interviews were conducted with the women who suffered obstetric complications on discharge. Nine unstructured interviews were conducted in the vernacular to get the general impression of how women viewed the care they received. They were conducted outside the hospital when women were waiting for transport to go home. The discussions lasted twenty to thirty minutes. Consent was sought to conduct the exit interviews.

All types of data were collected concurrently.

4.8 Data management and analysis

As two different types of data were collected, management and analysis were also done separately.

For quantitative data, all data collected through questionnaires on management of obstetric complications were checked everyday for clarity, accuracy and completeness. It was ensured that the right questionnaire was used since there were five different questionnaires addressing management of the five obstetric complications. The questionnaires were pre-coded and data were entered into excel programme and was later transferred into the Software package for Social Sciences

(SPSS) version 14.0 statistical package. The data were not accessible by anyone except the researcher and it was kept in the lockable cabinet.

Data collected to ascertain availability of logistics for management of obstetric complications were checked for clarity and completeness and then entered into excel programme by the researcher and was later transferred into SPSS version 14.0 by a Statistician.

Quantitative data was analyzed both manually and using SPSS 14.0 to make simple descriptive analyses.

4.8.1 Relative Importance of tasks

The tasks that have been outlined in the treatment of each particular complication have relative importance. To show their relative importance, the tasks would have been assigned weights.

The process of weighting involves emphasizing some aspects of a phenomenon or of a set of data – giving them ‘more weight’ in the final effect or result. Some criteria for management of a complication are critical in saving life. Such criteria can be assigned more weight than the others. In our study that has not been done because there is no standard for assigning the weights. However some tasks are definitive in the treatment of a particular complication. If a task that is a definitive treatment⁸ of a particular complication was not performed, then the conclusion of poor management was made.

A score of 1 was assigned for each task performed and 0 for a task not performed. A total score was obtained by summing the scores to determine how many cases accounted for each task performed in each complication.

For the qualitative data, the data collection and analysis process ran concurrently with analytic steps which informed additional data collection. The interviews recorded on a digital recorder were downloaded into a computer and typed. The interviews

⁸ Definitive treatment is defined by the life-saving procedures of emergency obstetric care. These EmOC interventions include; removal of retained products of conception, assisted vaginal delivery, administration of parenteral antibiotics, parenteral oxytocic drugs and parenteral anticonvulsants, manual removal of the placenta, surgery (caesarean sections) and blood transfusions.

conducted in local language were transcribed in full to record the respondents' verbatim account of the perceived quality of care. They were translated into English and typed. All the texts were read several times to capture issues raised. Coding of the data was done sentence by sentence and manually scribbled on the margins to identify emerging themes. All was done by the researcher.

All qualitative data was analyzed manually since the magnitude of the data was manageable.

4.9 Pre-test of data collection instruments

Prior to data collection, the data collection instruments (interview guides and the observation checklist) were pre-tested in a comparable setting. Three interviews and three observations were done to ensure that all the important aspects had been covered, to identify problem questions, to suggest improved wording of questions that were not clear, estimate completion time and to familiarize with natural flow of the interview. A few questions were revised in light of the data from the pretest and then a final version of the guide and checklist were formulated. The protocol was given to health authorities for comments, but data collection tools were not given. This was done to avoid influencing health workers to perform according to what the tools stipulated as this could affect the results.

4.10 Dissemination of Research findings

Preliminary findings were presented to the district health management team at Mwanza hospital, however it was emphasised that the official results would follow after a full report was finalised. The researcher plans to disseminate the research findings to the district health management team and the district hospital staff, Ministry of health officials, University of Malawi; College of Medicine and Kamuzu college of Nursing, International Community Health department; University of Oslo Norway. Findings will also be disseminated through writing academic papers, conference presentations both at national and international level. Written reports will be submitted to the above mentioned stakeholders.

4.11 Ethical considerations

4.11.1 Ethical clearance

Medical research involving human subjects is subject to ethical standards that promote respect for all human beings and protect their health and rights (51). The research protocol was cleared with the Department of International Community Health, Institute of General Practice and Community Medicine at the University of Oslo. An application was submitted to the Norwegian International Medical ethical committee to which clearance was sought and given (Appendix 1). The protocol was first reviewed locally at Kamuzu College of Nursing before submission to College of Medicine Research Ethics Committee (COMREC) of Malawi for final approval (Appendix 2). Permission to collect data at the study site was also sought and given from Mwanza District health officer (Appendix 3) and appropriate staff was notified of the ongoing study.

4.11.2 Recruitment of subjects and consent

The study was conducted prospectively; women who suffered major obstetric complications were recruited into the study. Obtaining consent from women with obstetric complication was difficult especially when the patients were in critical condition. Observations were done without consent. However, debriefing was done and consent to use the data was obtained after the patients condition was stable. The patient's views were respected. Data of patients who died was used because important data was collected from observations made on them. This was done considering the fact that the identity of the patients remained anonymous and this was cleared with the ethical clearance both in Norway and Malawi.

Consenting was done in form of writing (Appendix 4). For the illiterate, information was read to them and they were given the chance to make a decision on whether they were to participate or not. The aims and objectives of the study were explained to ensure that participants had a clear understanding of the study before they volunteered to have their data used for the study. The participants were told that participation was voluntary, that no information they gave would be divulged to anyone apart from the principal investigator. They were assured that their participation would have no effect

on the services that they might be receiving, that they could decide to stop the researcher from utilizing their data at anytime.

For the health workers who showed interest participating in the study, they were given the consent form to read the details of the study and their rights to participate (Appendix 5). Consent to be observed managing the women was sought in advance because there was no time for explanations when an emergency occurred and they signed consent forms later after management of the patients.

4.11.3 Confidentiality

Measures to protect the confidentiality of the participants were instituted throughout the project. A data security procedure to protect the identity of individuals was ensured during data collection, analysis and after the completion of the project. The observation checklists and interview guides were kept strictly under the custodian of the researcher. Participants were fully informed on these confidentiality procedures at the outset of the project.

4.11.4 Risks

There were no physical risks associated with observing the women and health workers, however interviewing the women regarding the care they received may have been stressful especially if the interviewee had traumatic experiences. In the event of any signs of distress during the interview, I refrained from further questioning and proceeded only if the respondent desired.

4.11.5 Anticipated benefits

No direct benefits to the participants were anticipated. Nevertheless, the primary benefit expected from the project is indirect. The study generated knowledge which will be used to improve quality of obstetric care in the district. I believed that the risks to the participants were negligible, and the benefits provided justification for the conduct of this study.

4.11.6 Compensation

The participants received a packet of sugar and a tablet of soap as a token of thanks for the inconvenience caused and time spent. This had been made small to avoid inducing the prospective subjects to consent to participate in the research against their judgment (undue inducement).

CHAPTER 5: RESULTS

5. 1 Introduction

This chapter presents the findings of the study. The results will be presented according to the objectives of the study.

5. 2 Characteristics of women with obstetric complications and health workers

5.2.1 Characteristics of women with obstetric complications

During a three months period, the study observed management of 42 mothers with obstetric complications. During this period, there were 799 live births. This gives the proportion of women with obstetric complications of about 5.3%. The average age of the patients was 24 years, ranging from 18 to 44 years. Their mean parity was 2, ranging from 0 to 9. There were 36 patients from within Malawi and 6 were referred from Mozambique. Two patients out of the 6 from Mozambique died. Further characteristics are summarized in table 1 below.

Table 2: Characteristics of women with obstetric complications

Diagnosis	N	%	Deaths
Eclampsia/preeclampsia	12	29	2
PPH	11	26	2
Obstructed labour	8	19	0
Ruptured uterus	6	14	2
Puerperal sepsis	5	12	3
Total	42	100	9

Case fatality rate = **21%**

5. 2.2 Characteristics of health workers

There were 20 health workers observed managing women with obstetric complications: 11 midwives and 9 clinical officers, 5 were clinical interneers. The mean age for all the health workers was 30 years, ranging from 24 to 73 years.

5.3 Management of the five emergency obstetric complications compared to guidelines

An assessment was made of management of women by observing management of 5 obstetric complications compared to national management guidelines. Table 3 summarizes the assessment of practice (quality of care) based on a total of 42 life threatening complications which occurred over a period of 3 months. Observations of management were done using a self prepared checklist and the questions required the observer to record whether some task was done or not.

Table 3: Assessment of quality of care in the management of five obstetric complications

5.3.1. Management of Eclampsia/severe preeclampsia (12 cases)

Criteria	No. of Cases	%
Give magnesium sulphate loading dose according to protocol	8	67
If convulsions recur give 2g (50% solution) IV over 5 minutes	0	0
Continue treatment with magnesium sulphate for 24 hrs after delivery	1	8
Insert catheter	7	59
Monitor intake and output	3	25
Delivery within 12 hours of onset of convulsions	4	33
Give hydralazine if diastolic pressure 110mmhg and above	7	58
Monitor blood pressure ¼ hourly until stable, respirations and tendon reflexes	3	25

5.3.2 Management of Postpartum Hemorrhage (11 cases)

Criteria	No. of Cases	%
Rub up the uterus for a contraction	1	9
Give /repeat oxytocin	3	27
Expel clots	4	36
Empty bladder	6	54
Put up IV line with saline of Ringer's lactate	9	81
Check pulse and blood pressure	3	27
Obtain blood for hemoglobin, grouping and cross matching	9	81

5.3.3 Management of Obstructed Labour (8 cases)

Criteria	No. of Cases	%
Take blood for hemoglobin, grouping and cross matching	8	100
Put intravenous line (Ringer's lactate or saline)	8	100
Insert blood catheter	8	100
Give chloramphenicol 1gm IV 6 hourly until fever free for 48 hours	7	88
Monitor vital signs	2	25
Measure and record accurately fluid intake and urinary output	1	13
Immediately perform caesarean section or vacuum extraction	8	100

5.3.4 Management of Ruptured Uterus (6 cases)

Criteria	No. of Cases	%
Restore blood volume – infuse intravenous fluids	6	100
Cross match 2 pints of blood	5	83
Give intravenous chloramphenicol 1g IV	6	100
Insert urinary catheter	5	83
Immediately perform laparotomy	6	100
Monitor vital signs	2	33

5.3.5 Management of Puerperal sepsis (5 cases)

Criteria	No. of Cases	%
Intravenous antibiotic according to protocol	5	100
Commence intravenous fluids	5	100
Good personal hygiene	2	40
Monitor vital signs	0	0
Evacuation after 4 hours of IV antibiotics	1	20

5.4 Time from prescription of caesarean section to actual performance in obstructed labour and ruptured uterus cases

The time from prescription of surgery to actual performance was fairly long in both conditions. Median was 1 hour 13 minutes for obstructed labour with minimum of 1 hour and maximum time 3 hours 30 minutes. The median for ruptured uterus was 2 hours 05 minutes; minimum was 50 minutes and maximum time 6 hours 90 minutes. This means that acute obstetric surgery was virtually not available.

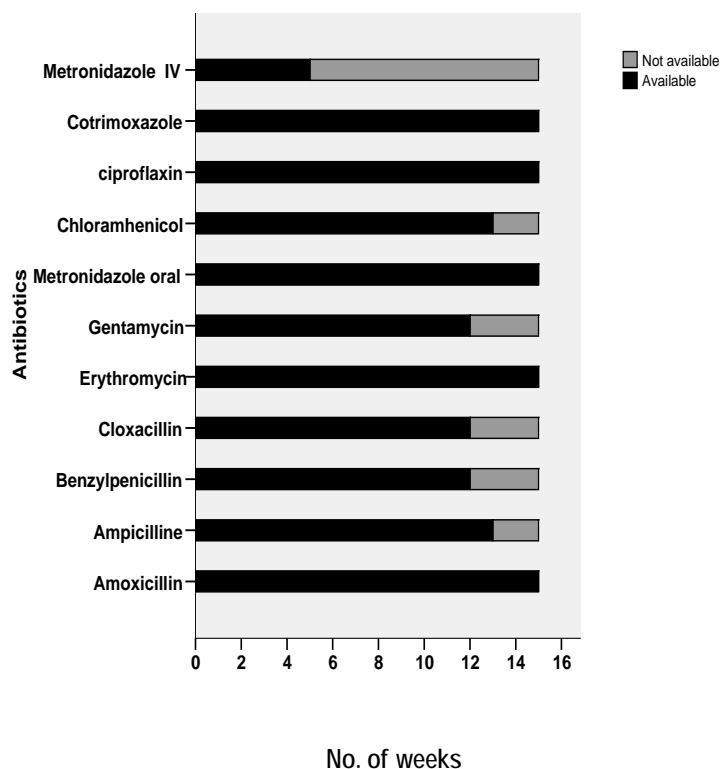
5.5 Availability of essential drugs, equipment, supplies and personnel

The study looked at availability of essential drugs for obstetric care for the period of study (September to December). The essential drugs audited included antibiotics, anticonvulsants, antihypertensives and uterotonics.

5.5.1 Antibiotics

Results on the availability of essential antibiotics for the period of study showed that most essential antibiotics were in stock most of the times (as illustrated in figure 1). However the hospital lacked intravenous metronidazole most of the time, which is one of the important anaerobic antibiotics.

Figure 4: Availability of essential antibiotics for the period of 15 weeks



5. 5. 2 Anticonvulsants

Both diazepam and magnesium sulphate were available through out the period of study. Magnesium sulphate which is the drug of choice for management of convulsions was never out of stock.

5. 5. 3 Antihypertensives

The results have generally shown that the most important antihypertensives were usually in stock. Both injectable and oral hydralazine was available throughout the three month period of study. Nifedipine was also available throughout while aldomet was out of stock for three weeks.

5. 5. 4 Uterotonics

Findings (table: 2) show that ergometrine and syntometrine have been available during half the period of study while oxytocin was always in stock during the 15 week

period of study. Injectable oxytocin is preferred over other uterotonic drugs because it is quickly effective: 2 to 3 minutes after injection; it has minimal side effects, and all women can use it.

Table 4: Availability of Uterotonic drugs for the period of 15 weeks

	Ergometrine	Oxytocin	Syntometrine
No of weeks available	7	15	8
%	47	100	53
Total No. of weeks	15	15	15

5. 5. 5 Intravenous fluids

Findings show that all the intravenous fluids (Dextrose 5%, Normal saline, Ringers Lactate and ½ Strength Darrows) were available throughout the period of study meaning timely resuscitation of women with obstetric emergency complications.

5. 5. 6 Equipment

Findings have shown that the following basic equipment for managing patients with obstetric complications was available in the hospital: 6 caesarean section/laparotomy kits, 2 suction machines, 1 functional vacuum extractor, 2 manual vacuum aspiration kit (MVA), 2 blood pressure machines, 1stethoscope, 2 autoclaves, 20 delivery packs and Intravenous fluid stands.

5. 5. 7 Supplies

5.5.7.1 Infection prevention materials

Infection prevention materials such as soap, sterile gloves, decontamination solutions, chlorine powder, and sharp containers were available in theatre and labour ward throughout the period of study.

5.5.7.2 Laboratory supplies

Laboratory supplies and equipment such as blood bags, syringes, needles, tubings, blood group screening agents and blood storage facilities were available throughout the period of study however there was shortage of blood for two days.

5.5.8 Availability of health personnel

Table 5 shows the numbers of essential staff available at the district hospital and the recommended numbers staffing level at a district hospital.

Table 5: Health Personnel at Mwanza district Hospital

Type of personnel	No. available	Recommended No. at District Hospital
Medical Doctor	1	2
Clinical Officer	12	11
Medical Assistant	12	20
Registered Nurse/Midwife	5	20
Enrolled Nurse/Midwife	21	123
Community Nurse/Midwife	4	20

Source: Mwanza District Hospital (2007)

: Malawi Health Service Commission (2008)

5.6 Results of in-depth interviews with health workers

This section presents results of in-depth interviews conducted with 14 health workers (midwives and clinical officers) who were involved in the management of women with emergency obstetric complications. The aim of the interviews was to elicit information on how they perceived the quality of care rendered to women with emergency obstetric complications and identify factors affecting provision of quality emergency care which are contributing to high CFR.

In the discussions regarding quality of obstetric care, health workers expressed that the **quality of emergency obstetric care provided is generally poor**. They talked a

great deal about the problems experienced as they work in the obstetric unit, and how this has negatively affected their efforts to provide acceptable care. Recurring themes that spontaneously emerged from health workers' expressed opinions reflected components of care that were of importance and which are contributing to the current quality of emergency obstetric care. Two main emerging themes and several sub themes were identified. A list of themes is presented in table (7) below.

Table 6: Emerging themes and sub themes

Themes	Sub themes
1. Women arriving in poor condition	1a. Mozambique referrals
	1.1a. Lack of life saving treatment
	1.2a. Referral letters written in Portuguese
	1.3a. Late referral
	1b. Preference for traditional medicine, TBAs and cultural beliefs
	1c. Lack of transport
	1d. Lack of awareness
2. Inadequate health care delivery system	2a. Shortage of midwives and anesthetists
	2b. Unavailability of clinical officers in maternity ward
	2c. Lack of drugs and other supplies
	2d. Lack of blood
	2e. Lack of trainings, refresher courses and supervision

5.6.1 Women arriving in poor condition

Health workers expressed that women arrive in poor condition due to the following factors: Mozambique referrals, preference for traditional medicine, lack of transport and lack of awareness on the patient's part.

5.6.1.1 Referrals from Mozambique

The government of Malawi through the MoH signed a memorandum of understanding (MOU) with the government of Mozambique on health matters. The aim of this MOU is to improve the delivery of health services along the Malawi and Mozambique borders (52). Most of the health facilities located within the borders serve both Malawians and Mozambicans.

Study results show that patients referred from Mozambique arrive at the hospital in poor condition, a situation which makes provision of care difficult. Health workers expressed concern over the condition in which patients referred from Mozambique arrived. They attributed the problem to the lack of life saving interventions, late referrals, lack of transport and referral letters written in Portuguese.

5.6.1.1.1 Lack of life saving treatment

Ideally, patients referred with emergency conditions from the peripheral units are supposed to get the initial life saving treatment before they are referred to the district hospital. In Malawi health centres, such life saving treatment would include insertion of intravenous infusion, collection of blood samples for grouping and cross matching and initial doses of emergency drugs etc. Health workers expressed concern over the patients who are referred from Mozambican health centres as lacking initial life saving treatment consequently worsening the condition of the patients and causing delays in implementation of care at the hospital.

“Most of the patients arrive in very poor condition especially the ones that are referred from Mozambique. The other problem is that they are referred without any life saving treatment done, for example they come without intravenous infusion, yet in poor condition. We start from zero to resuscitate them and this causes delays as sometimes the veins may have collapsed.”

Health workers compared referral cases from the health centres within the country as being easier to handle compared to the ones from Mozambique. The following quote describes the difference among the patients:

“At least for referrals within Malawi, they come after some initial management has been done, for example insertion of intravenous lines, blood samples may have been taken, bladder catheterization etc. This makes life easier, helps stabilizing the patient’s condition and facilitates quick and proper management as we just continue the management which has already been initiated.”

5.6.1.1.2 Referral letters written in Portuguese

Delays in care were further attributed to language barrier. Health workers in Mozambique are trained in their local language as such they write referral documents in local language. The following quote describes the problems associated with that:

“...their referral letters are written in Portuguese which we cannot read and understand, sometimes they send us the patient’s partograph, but we don’t understand it. Because of this language barrier, we cannot immediately know what the problem is and what has already been done. This generally causes delays to help the patients in good time as we start from a scratch.”

5.6.1.1.3 Late referrals of patients

Patients are kept at the health centre in Mozambique for a longer time, even after it has been realized that the patient has a problem which requires referral. This practice is dangerous as emergency conditions require prompt and appropriate care. A number of reasons have been cited which cause delays in referral. One health worker stated the following:

“When we interview the patients referred from Mozambique, they tell us that they had been there may be for the past two to three days. Sometimes they are required to foot their bills first before they are referred to this place. When the patient has no money then she is held at the health centre. The health worker decides to refer the

patient when the condition has become so severe. Furthermore they have problems with transport and this causes further delays.”

The health workers considered this as a very big problem and wished their management team would offer solutions and felt they should be involved in the process. Another health worker explained the following:

“The issue about Mozambican patients is very crucial and I feel management should seriously look into it so that we get help. Of course our management team went to Mozambique, I understand they were meeting the Mozambican Ministry of Health officials but we do not know what they discussed.”⁹

Others attributed the problem to lack of proper training on the part of the health workers in Mozambique. Another midwife suggested the following:

“The health workers from Mozambique should come and learn how we manage obstetric emergencies otherwise I feel they are not properly trained.”

Other health workers however attributed the problem to long distances from Mozambique to Mwanza. They also expressed that similar problems are experienced for patients from other health centres within the district which are very far and have poor road networks. Furthermore distances from the communities to the nearest health facility pose a very big challenge for patients with obstetric complications to seek care in good time. One of the health workers narrated:

“Most of these women come in bad condition because they come from very far, some come from Mozambique and they stay 2 days before they arrive here at the hospital. Others come from within Malawi and the same problem applies as other health centres within the district are very far from the district hospital and the roads are also

⁹ The district management team went to Mozambique to appreciate the health system and look into the way forward to reduce the problems being experienced. However the health workers expressed concern that they were not contacted for their input as they are the first line providers who really know what is happening with these patients, worse still no report was given to them regarding what was discussed and agreed there. They felt they would contribute towards the solving of the problem.

poor. Patients already have problems to travel from their own homes to the health facility because of distance as well.”

5.6.1.2 Preference for traditional medicine, trust in TBAs and cultural beliefs

In Malawi women also access delivery services from the TBAs apart from the health facilities. TBAs are often a preferred provider because they were found to be kinder than health facility staff (31). They are also closer to their communities and consequently more affordable than accessing formal health services. Many Safe Motherhood interventions in Malawi have focused on increasing demand for facility based services and consequently reducing demand for TBA services; while this has had some effect there are significant constraints to women acting on this decision.

Health workers expressed the concern that women's preference of TBAs care and use of traditional medications are some of the reasons why they come to the hospital in poor condition. Furthermore, cultural factors play a crucial role in the health seeking behavior; the women are directed where and when they should seek health care. Below is a direct quote cited by one of the health workers:

“Most of these patients come from TBAs where they stay for two or more days.... patient was referred from a TBA while convulsing. She came to our hospital on the third day at around 10 pm. She underwent caesarean section and stayed for 2 hours then died.”

Health workers reported that women have their own traditional way of managing different obstetric complications before they seek medical care. Drug preparations may be done by themselves in their homes or may be given at a TBA. Sometimes the drugs are given within the hospital. The following quotes explain what is practiced.

“Due to cultural beliefs, some women who experience severe bleeding are first given traditional medications to arrest the bleeding before they actually come to the hospital. As such they come in a very bad state These patients do really come in bad condition, for example patients with eclampsia usually come while unconscious after trying traditional medicine at home. They come to us after they have failed and they fear losing life.”

Another health worker said:

“Sometimes, traditional concoctions which cause intensive uterine contractions eventually leading to ruptured uterus are given within the hospital; this is because they believe that without such drugs they cannot deliver. There is an old lady within the hospital who distributes such medications to women.”

5.6.1.3 Lack of transport

When women seek care from the health centres or TBAs and develop obstetric complications while there, they are required to be transferred to the referral hospital. Transport is sometimes not readily available to ferry patients to the hospital¹⁰ and patients may have to wait for sometime before they are transferred for appropriate care. This unavailability of transport causes delays and in the process the patients' condition becomes poor. Health workers mentioned problems associated with transport as contributing to arrival of women with obstetric emergency complications in poor condition at the hospital. One health worker said:

“The health centre may have a patient to be referred to the district hospital and may request for transport but the ambulance may have gone somewhere else as such there is no vehicle to collect the patient in good time and the condition worsens in due course.”

Another health worker explained as quoted below:

“Sometimes the patients reach the district hospital in bad condition because when the health centre staff or TBA call for an ambulance, sometimes it has gone somewhere else may be to collect another patient. By the time the ambulance gets to the particular health centre, the condition may have worsened..... This situation also becomes difficult for us to manage the patients well, as the condition may be difficult to reverse.”

All the health centres in the district have radio communication installed in an attempt to facilitate the referral of emergencies but shortage of ambulances or sometimes lack

¹⁰ Ideally, the referral hospital has a number of ambulances which collect patients from the referral centres to the district hospital for better management. However there is no ambulance on standby incase the one on duty has gone to a different direction as a result this causes delays to pick up patients who require emergency care.

of prioritization for emergency cases contributes to delayed referrals. However immediate transportation of emergency cases is very crucial as they cannot wait for care.

5.6.1.4 Lack of awareness

Failure to recognise danger signs¹¹ appears to be a function of low literacy and low knowledge levels. A lack of knowledge of danger signs is manifested in the current study. Health workers reported about patients who do not perceive complications such as convulsions and bleeding as dangerous. They are seen as part of the normal delivery process and as a result, they seek care from the traditional healers and TBAs. Below are some direct quotes from the health workers:

“Other women do not like to go for hospital deliveries as such they attempt home delivery, when they have failed to make it at home that’s when they decide to go to the health facility. It is such type of people who come in poor condition since they have been pushing at home. All this happens because the women are not aware of the danger signs of pregnancy, a convulsion may not be taken as a serious condition and severe bleeding as normal for a newly delivered mother.”

One of the health workers explained:

“They come in poor condition because of problems with transport however they also lack awareness on the importance of going to hospital early. Furthermore our women do not know some of the danger signs of pregnancy and when they develop, they do not seek medical care in good time.”

Other health workers attributed the problem to lack of education leading to poor understanding of issues. Some women are told about their condition at the antenatal clinic but they still don’t do what they are told. Another health worker explained:

¹¹ Danger signs of pregnancy are serious signs and symptoms which women may develop during pregnancy, labour and delivery and postpartum. When experienced, they require immediate medical attention. Examples of danger signs may include: bleeding during pregnancy or severe bleeding after delivery, convulsion etc.

“I feel lack of education is also contributing; the women are not literate to understand issues. I feel this has nothing to do with shortage of staff, but our women are illiterate and have problems to comprehend issues.”

5.6.2 Inadequate health care delivery system

Health workers mentioned health service factors which act as barriers to provision of quality obstetric care. These included the following; shortage of staff (especially midwives and anesthetists), lack of adequate essential drugs and supplies, unavailability of clinicians in the maternity unit, lack of blood, lack of transport to collect theatre staff during odd hours, lack of refresher courses, inservice trainings and supervision.

5.6.2.1 Shortage of staff

There is a critical shortage of human resources in Malawi, particularly in the health sector. The vacancy rate at the MoH is the highest at 75%. The vacancy rates are particularly high for skills that are most needed (26) (see table 5). Almost all health workers expressed shortage of staff particularly the cadre of midwives and anesthetists as affecting efficiency and quality of obstetric emergency care. The following health workers' accounts depicted the negative effects of shortage of staff:

“Other problems which we experience are shortages of staff, for example you may be alone working in the labour ward as a midwife, as such when an emergency case arrives it requires the midwives attention while there are normal deliveries in the labour ward which she/he needs to attend to as well, this becomes a difficult situation especially when you are alone.”

The Ministry of health introduced the locum system¹² with an aim of improving the shortages of staff. However the health workers describe this as not very effective as the same midwives are the ones who rotate in the normal shifts and locum shifts. As a

¹² This is a system introduced by the ministry of health whereby the health workers work on part time basis when they are off duty and they get paid for the number extra shifts worked.

result they do not have time to rest and they get tired such that they do not provide efficient care.

“We have severe shortage of staff, clinicians are better off, but the problem is severe on the midwives side. They are too few such that the number does not tally with the workload at the hospital. We should thank government for introducing the locum system; however the solution is not very helpful as the nurses who work on locum are the same ones on normal duty. For example a midwife may work day and night shift with an aim of helping the midwife on normal night duty shift. She may continue working because she knows she will get money but the fact is that she is tired as she has already worked the whole day and this leads to provision of poor quality of care.”

Availability of anesthesia for 24 hours is important for provision of emergency obstetric care; however health workers cited the severe shortage of anesthetists as affecting the effectiveness and quality of care given to patients with obstetric emergencies. The following quote describe how bad the situation is:

“One big problem we have at this hospital is that we have one anesthetist. It’s very difficult for one person to be on duty for 24 hours thereby working for the whole year without an off duty. It also becomes a problem when they have their own personal problems. Sometimes he gets sick or else he has his own pressing needs and he has to get out of the station yet he is the only person on duty around the clock. Sometimes there is nobody to administer anesthesia in theatre, though we do have the orthopedic clinician who helps in administration of anesthesia, it is a big problem.”

5.6.2.2 Lack of drugs and other supplies

Drugs and other medical supplies are ordered from Central Medical Stores and when they are out of stock at the medical stores, it becomes difficult for the district hospitals to access drugs and other medical supplies. However they can obtain permission from the MoH to buy from other private pharmacies¹³.

¹³ Hospitals in the country are mandated to ask for permission from the Ministry of Health (MOH) to buy drugs from private pharmacies which are not in stock at the Central Medical Stores (CMS). However this would call for adequate monitoring of the stocks both in local pharmacy and at the CMS so that requests can be made in good time to ensure availability of the essential drugs all the time.

Health workers mentioned that other resources (i.e. gloves, catheters, reagents for albumin test and cotton wool) and drugs (i.e. Intravenous (IV) metronidazole and chloramphenicol) are usually out of stock. However almost all the health workers acknowledged the fact that they usually have enough stocks of essential drugs except for the two antibiotics mentioned above which are usually out of stock. This information corresponds with what the researcher observed that most of the essential drugs were in stock for the three months period she was in the district and the two antibiotics were not available for a certain period of time. Health workers expressions of inadequate resources are cited in the following quotes:

“Most of the time we do not have antibiotics available in our facility for example at the moment we do not have IV metronidazole which is a very important antibiotic for patients who have anaerobe infections. However for the rest of the essential drugs, I must admit we usually have them in stock. There are times when we do not have sutures, catheters, and gloves in stock and these problems make our job difficult.”

Another health worker said:

“Usually drugs are out of stock, these include metronidazole, chloramphenicol and ergometrine as such we have problems to treat emergency obstetric complications, and these are usually IV drugs. Though this is happening, MoH gave us permission to procure drugs from private pharmacies but this is not initiated by our management.”

5.6.2.3 Unavailability of clinical officers in maternity ward

Almost all the midwives expressed concern over unavailability of clinical officers¹⁴ in the maternity unit as contributing to delays in provision of timely care leading to poor quality of care. In Malawi, health practitioners that are covering the maternity units for 24 hours are enrolled midwives, midwife technicians and clinical officers. This level of midwives is not allowed to perform many signal functions such as vacuum

¹⁴ Clinical officers are middle level clinicians who can perform all the comprehensive EmOC signal functions at a hospital. They are the main cadre of clinicians manning the obstetric units in the country.

extraction, manual removal of placenta and MVA. Clinical officers can perform all of the comprehensive EmOC signal functions. Almost all the midwives expressed concern over unavailability¹⁵ of clinical officers in the maternity unit as contributing to delays in provision of timely care leading to poor quality of care. They also mentioned that it is difficult to get hold of any other clinician who is not allocated to the maternity unit to review an emergency case. This could be a sign of lack of team work which is required in management of emergency obstetric complications. Below are some concerns expressed by the midwives:

“The most common problem which we experience in the maternity ward is when we receive a woman with an emergency obstetric complication. We call any clinician to review the patient because it is an emergency but he would tell us that he is not responsible for the maternity ward. When a clinician refuses to review a patient it becomes difficult especially when the one responsible for the maternity ward has gone away. Sometimes you may find the one responsible for the maternity ward but still may tell you that he may not be able to come because he is busy with something else”.

Midwives further suggested the possibility of having clinicians in the maternity unit:

“A patient may arrive and find a midwife who is always available at the hospital, but the issue is to find a colleague to assist you in decision making (a clinician). These people usually wait to be called when there is an emergency; they are not in the maternity ward full time. These are some of the reasons the patient may not have adequate treatment in good time. If it were arranged that the clinician should always be available in the labour ward, then we could avoid some of the problems we usually experience. We do have a clinician specific for maternity ward but when the ward is quite he is assigned other duties”.

Usually, the clinical officers go to the maternity unit either to do a ward round in the morning or when they have been called by the midwives to review the patient. They

¹⁵ The maternity unit has a specific clinical officer allocated to the unit; however they are not always in the maternity ward. Most of the times they are out and when a patient with an emergency condition comes, the midwife has to call them through telephone to come and review the patient and this causes delays in the management of emergency obstetric cases. Furthermore it is difficult to get hold of any other available clinician to review the patient with an emergency complication as they are not responsible for the maternity ward.

rarely unveil themselves in the maternity ward even when one is responsible for the ward.

Similar to the above mentioned complaints expressed by the midwives are concerns from all health workers which cause delay for emergency obstetric patients to get immediate care. Almost all health workers complained that most patients with emergency obstetric complications do not get care immediately because the theatre team and laboratory technician on call stay at home during odd hours and most of them have their houses outside the hospital premises¹⁶. This calls for the use of a hospital vehicle to collect the team from home¹⁷. There is no policy to have the staff on call at the hospital during odd hours. This may call for changes in the duty roster to consider shift system other than call system in order to ensure effective emergency preparedness.

The following are some of the health workers complaints regarding delay in delivery of emergency care:

“The problem is that we stay away from the hospital and all the theatre staff stay outside the hospital premises as such patients wait for care. If a woman is bleeding, she keeps on losing blood while theatre staff is being collected. Sometimes the ambulance on duty may have gone out to the health centres to pick patients and this may be a problem. We have been discussing that we need an ambulance to be on standby but it is never implemented.”

Another health worker said:

“After a patient with an obstetric emergency condition has been reviewed by a clinician, a caesarean section may be ordered however the staff to do this procedure

¹⁶ The hospital has staff houses within its premises which are occupied by both medical and non medical staff. Other medical staff are accommodated outside the hospital as such when they are on call during odd hours; there is need for a vehicle to collect them to attend to the emergency call.

¹⁷ Ideally there is one ambulance which is on duty during odd hours; it is the same ambulance which goes to the health centres to collect patients when there is a call. However it is also the same ambulance which is supposed to collect the theatre team to perform an operation, there is no other vehicle on standby.

is not available at the hospital during odd hours; they are supposed to be collected from their homes to theatre. For all the theatre team members to be reached it may take sometime and it's only when all the necessary staff arrive when the procedure is started and this really causes the delays."

Another said:

"Most of the staff on call i.e. clinicians, laboratory technicians, pharmacy technicians and all other theatre staff are called from home when there is an emergency case during odd hours, and to get everybody available in good time can be a problem and this causes delays for patients to receive care in good time. Usually the problem is that we have one vehicle on call and when it has gone out, we have none on standby and this causes delays for emergency care management."

Health workers further reported problems with drivers on duty during odd hours. They usually go on private errands without informing the midwife in charge of maternity ward.

"Another big problem is drivers. Though we complain that we have one ambulance only, it is sometimes abused by drivers on duty. The driver may go away with the ambulance on private trip without the knowledge of the one in charge of maternity. It is only when you want the vehicle when you discover that the driver has gone out."

5.6.2.4. Lack of blood

Health workers expressed concern over lack of adequate blood in the blood bank as a factor contributing to poor emergency obstetric care. More than half of the health workers expressed concern over unavailability of blood. Below are some of the concerns raised by the health workers:

".....I would give an example when a woman needs blood transfusion, there are times when the lab has completely no pint of blood and yet the patient is in dire need of blood. For such patients to receive blood you need somebody to donate. When we have urgent cases we cannot operate on them because they really need blood. For some patients it really becomes a dilemma as some are in a very critical condition."

The reasons that would make women to wait for such important care include lack of blood in the blood bank. This may require us to look for donors and this may cause delays in giving the patient blood in good time.”

Health workers attributed the problem of lack of blood to the new system whereby district and central hospitals are getting blood from the Malawi Blood Transfusion Services (MBTS). The MBTS has been adopted by the MoH as a well organized system of transfusion services for the country whose aim is to ensure reduction of HIV/AIDS and other transmissible diseases by blood, prevent morbidity and mortality due to loss of blood and blood products (53). However, the system is not able to cope with the current demand of blood in the district and health workers are not satisfied with the system as it affects availability of blood. The issue is further complicated as hospitals are no longer allowed to bleed donors in the districts.

“We collect blood from MBTS every Wednesday in Blantyre. When things are bad as it was last week whereby we were given 10 pints and yet we transfused more than 10 patients, we phoned the MBTS about our situation and they told us to go and collect some more pints and we got 15 pints. The MBTS protocol requires us not to ask for donors and yet they do not provide us with enough blood. The lab assistants still ask the donors to donate to ensure availability of blood in the blood bank.”

5.6.2.4. Lack of trainings, refresher courses and supervision

Health workers expressed concern over lack of inservice trainings, refresher courses in obstetric care and lack of supervision for the previous six to twelve months. Most of them mentioned that they attended training in obstetric life saving skills (LSS)¹⁸ many years ago. Most of them depend more on the knowledge they got from school and they might have forgotten some of the things and most importantly a lot of new management issues in obstetrics are emerging which they need to be well versed with. The health workers expressions with dissatisfaction due to lack of trainings and refresher courses are expressed in the following quote:

¹⁸ LSS are a series of trainings that were conducted in the country for both midwives and clinicians to equip them with obstetric life saving skills, the trainings were run for a period of two weeks, one week for theory and the other week was for practicing the learned skills.

“Since I qualified, I have attended obstetrics LSS training and post abortion care. These are the trainings which I can remember but I know there are a lot of trainings which are going on, and for LSS it’s long time ago when I got that training. I cannot remember what we were taught, I need a refresher course. For the post abortion care training it’s about eight months ago. Generally, the knowledge I have is the one which I gained from school, so I know midwifery from school. The other thing is that I like reading and I know most of the things through reading, that’s how I upgrade my knowledge.”

Another said

“I have attended a single training in safe motherhood since I qualified, that is Obstetrics LSS training but it was long time ago. I haven’t attended any refresher course in the past six to twelve months.”

Supervision is important as it helps to maintain and improve provider competence and confidence to perform life saving obstetric care. Furthermore, it monitors performance and ensure safety and quality obstetric care services. The problem of lack of trainings is compounded by lack of supervision. All health workers interviewed expressed concern over lack of supervision. The following quote depicts the situation regarding supervision:

“I feel there is no supervision at this hospital because when we are working in the labour ward, we work alone and we manage the wards ourselves. It is only when we experience a problem that we seek assistance from the sister on call but we cannot say that there is somebody who supervises us. When we are knocking off, we just give each other handover to fellow midwives but I feel we are not supervised.”

Other health workers stated that recently qualified personnel are not supervised on the assumption that they have current knowledge from school and are competent. This could be a true observation but lack of supervision was a common problem among all the staff. Furthermore a newly qualified staff would need to be mentored to perform satisfactorily. One health worker narrated the following.

“Supervision itself is a problem because whenever am in the ward, people think because I have just come from school then I know most of the things, that I don’t need to be supervised and that I can manage the ward. In true sense, I think experience matters and on supervision itself I don’t think anybody has ever supervised me and nobody has ever come to me to ask if at all I have any problems on this or that condition. I just do it the way our lecturers taught us at school and as we were doing during practical. When I encounter a problem I just summon a clinician who can assist me.”

5.7 Informal interview with District Health Officer

An informal interview was conducted with the DHO¹⁹ to shed more light on the issues regarding management of emergency obstetric patients. She reported that she also attributes the problem of high case fatality rate to the problems associated with Mozambican referrals as explained above. She further explained that the district health management team made a trip to Mozambique to appreciate the problems they have and map out the way forward. She stated that the people in Mozambique were displaced due to war. This resulted in people staying very far from health facilities. Because of this situation, they depend on home deliveries. They seek medical help when they experience major problems.

Secondly, there is shortage of personnel especially in the rural health centres such that the staff placed there are not well qualified. The qualified ones prefer to work in urban health facilities. During the meeting, they agreed that the administrators in Mozambique should come to Malawi to appreciate how rural services are run.

She however explained that as a district, they are planning to sensitize the T/A²⁰s on community education, importance of antenatal care and hospital deliveries. They wish to organize a trip to Dedza district to visit one of the T/As where people stopped dying maternal deaths because of community sensitization.

¹⁹ Doctors have been assigned as DHOs in district hospitals, but Mwanza district hospital has a registered nurse midwife who is operating as acting DHO at the moment.

²⁰ These are administrative subdivisions of the districts in Malawi, composed of villages which presided over by chiefs.

She also acknowledged the problem of unavailability of clinicians in the maternity ward as true and attributed the problem to the current breed of clinicians: that they are difficult to handle compared to the ones trained long time ago.

5.8 Informal interviews with women

It was not planned to conduct interviews with women who experienced major obstetrical complications to solicit their views regarding the quality of care they received. However it was considered important to know their views and compare with the rest of the findings; but the work involved to consider all sources of data was considered huge compared to the time allocated for the study. With the researcher's professional background, interaction with patients became inevitable. Discussions (informal interviews) were held with nine women at discharge on some issues regarding the care they had received. The interviews focused on the following aspects of care which were deemed important to influence patients' satisfaction: information giving regarding continuity of care, interpersonal relationship with providers (issues of respect, kindness and emotional support) and waiting time before examination. The patients were able to make quite complex judgments of the quality of care received despite that the interviews were informal and unstructured.

5.8.1 Interpersonal relationship

When asked how the patients felt about the care they had received, most of them specified health workers' rudeness, use of abusive language and lack of support as contributing to poor quality of care. The following accounts were expressed by the patients:

"...I was asked the number of children I have and I told the nurse that I have six children. She asked me why I am having many children and further asked if they are for sell, I felt this was rudeness because human beings are not sold."

Another patient said:

"The nurse called me an idiot; I feel they should treat us as fellow human beings"

Some women preferred male providers as being good providers compared to female providers. They described male providers as being helpful while the female cadres are very talkative and non respectful. One patient cited the following:

“The male ‘doctors’ (meaning the clinical officers and male midwives) are better and they help us compared to the women, they talk a lot and they are rude.”

5.8.2 Lack of information

The ability of the health providers to communicate relevant amount and quality information to the patients is very vital and influences patient’s satisfaction with the care they received. Many women who were interviewed reported that they were not fully informed about their condition. They did not get enough information at discharge regarding possible problems to anticipate, what they should do at home if their condition gets worse and there was no clinical follow up.

5.8.3 Time

Most women narrated that they did not wait for a long time before they were examined on admission, but they complained that decisions to help them deliver in good time were delayed even when the health workers realized the woman was in danger.

“I was delayed to go to theatre for an operation, and my mother had to come and shout at the ‘doctors’ and that was the time I was taken to theatre for the operation. I feel I was badly treated and they did not mind whether I would lose my baby or even my own life.”

CHAPTER 6: DISCUSSION

6.1 Introduction

The aim of the study was to assess the quality of care rendered to women with major obstetric complications. Although it is difficult to generalize the results obtained from this study because of the small sample, short assessment period and largely qualitative methodology, the results still give an insight into the quality of care which women with obstetric complications receive.

Results from the quantitative data have helped to explain the availability of the enabling factors for management of obstetric patients, i.e. essential drugs, equipment and supplies. The study has further tried to measure the extent to which care in 42 emergency obstetric cases met the established national management guidelines and protocols. The qualitative piece of the study has tried to shed light on the general handling of emergency cases and the contributing factors to the poor quality of care. Triangulation of methods is important as data from different sources has been used to elaborate and illuminate the research in question (54).

The study shows that emergency obstetric complications occur in a considerable number of women managed in this obstetric unit. Out of the 799 deliveries, there were 42 severe emergency obstetric cases which occurred, representing 5.3% of the total deliveries. Out of the 42 cases, 12 cases suffered eclampsia/severe preeclampsia, 11 cases suffered postpartum hemorrhage, obstructed labour accounted for 8 cases, and ruptured uterus accounted for 6 cases while puerperal sepsis accounted for 5 cases. Similar to these findings, other studies (55, 56), have shown that hypertensive disorders and hemorrhage are the leading emergency complications encountered.

Overwhelming and chilling results have been revealed: the quality of care is generally poor: women are not managed according to the established obstetric guidelines and protocols, and the obstetric CFR is absolutely high (21%). The health workers perceived that the quality of emergency obstetric care is poor and contributing factors have been identified: study results show that the three delays have not been addressed

yet (9, 31) and are still contributing to poor quality of care leading to high CFR. Our findings are consistent with those from other studies (57, 58, 59, 60).

This chapter presents a discussion of the findings of the study, focusing on major issues that emerged. The following issues will be discussed: availability of obstetric guidelines not guarantee of their use, availability of essential drugs, equipment and supplies, management of obstetric complications, obstetric CFR, contributing factors to poor quality of care and increased CFR, women's perception of care, strengths of the study and summary.

6.2 Availability of obstetric management guidelines not guarantee of their use

Through direct observation of the processes of care, the results reflect a wide gap between the established standards and current level of knowledge and practice; and such inadequacies show incompetence at basic preventive and life saving procedures.

The government of Malawi, through the safe motherhood project in the Southern region, developed obstetric protocols and guidelines which are meant for health workers to use in diagnosing and managing obstetric complications (49). However, as revealed in the findings above, there is evidence that health workers do not use guidelines despite being available. Such a practice shows that established practice guidelines, although useful as one component in quality assurance programme, do not by themselves appear to change professional behavior. The dangerous thing though is that failure to meet standards of care leads to low quality of care, too often with poor outcomes.

Similar to the results of the current study, other studies provide evidence that quality of facility based maternal services is poor and does not meet the standard criteria (57, 58, 60, 61, 62, 63, 64). Inappropriate management of complications and untimely care in hospitals, even for life threatening complications has also been reported before (19, 65).

However, Dumont A et al (2005), in their study confirmed the importance of using guidelines. They conducted a study to establish the impact of guidelines implementation in a community hospital in Senegal. Results of the study revealed that adherence to guidelines increased morbidity diagnoses, marked increase in obstetric interventions especially transfusions and caesarean deliveries and CFR decreased by 53% (63). Similarly, Kaye (2000) attributed poor quality of care to absence of standard management guidelines (21).

The current study has shown that availability cannot be translated into use. Therefore to ensure maximum use; guidelines should be well communicated, their use should be verified, there should be deliberate policy to enforce use of protocols, compliance should be well monitored and followed by positive or negative reinforcement (acknowledge correct performance, correct poor performance) (64, 66).

The results may not be quite strange in this regard as health workers complained that they are never supervised in any way despite the fact that supervision is critical to maintaining quality of care. They also complained that meetings regarding patient management are never conducted.

Supervision, including case audits, has to be implemented as priority interventions at the district hospital to ensure appropriate management of obstetric cases.

6.3 Availability of essential drugs, equipment and supplies

Availability of adequate essential drugs, equipment and supplies is one of the most crucial indicators of a health facility's effectiveness and a prerequisite for providing quality emergency obstetric care. Although facilities would be staffed with competent staff, they cannot effectively manage patients with obstetric complications without adequate essential drugs, equipment and supplies.

Findings from the current study generally show that there is no critical shortage of essential drugs, equipment and supplies. Although there were a few antibiotics which were out of stock for some period, i.e. metronidazole, the rest of the antibiotics were fairly available for the three month period. It was reassuring however to record sufficient amounts of essential drugs, equipment and supplies during the 3 months

period even though such stocks are not fully used to manage patients with obstetric complication.

A study conducted by Kaye (2000), provides similar evidence that midwives were providing poor quality obstetric care despite adequate equipment, essential supplies and drugs. The main factors though responsible for the poor quality of care were inadequate pre-service and in-service training, lack of technical supervision and absence of treatment guidelines (21).

Contrary to our findings, studies conducted in Malawi and elsewhere (21, 22, 23, 24, 25, 26,) have shown that poor quality of obstetric care was provided due to health systems failures manifesting itself through operational difficulties such as shortage of essential drugs, lack of equipment and supplies.

In view of the above evidence, one would argue that all the necessary structure are quite important to influence the quality of obstetric care provision, none exists in isolation. Therefore, health managers should ensure availability of appropriate structures for management, promote and monitor use through supervision and provide necessary feedback.

6.4 Management of emergency obstetric complications

The study results generally show that women with obstetric complications were not well managed. Management of almost all the complications was never based on the set criteria.

6.4.1 Management of severe preeclampsia/eclampsia

Preeclampsia/eclampsia was the most common complication observed: out of 42 complications observed, 12 patients suffered eclampsia/preeclampsia. Specifically, eclampsia accounted for 9 cases and the remaining 3 were severe preeclampsia. From the observations done, eclampsia/severe preeclampsia were one of the badly managed complications. Magnesium sulphate which is the definitive treatment for eclampsia and severe preeclampsia was not given to patients according to protocol. Eight patients (2/3) received loading dose of MgSO₄ and none of them received a repeat

dose following recurrence of fits. Furthermore, there was no continuation of the drug for all the patients up to 24 hours following delivery as it is stipulated in the management guidelines.

MgSO₄ is now accepted as the gold standard treatment of seizure related complications of eclampsia and preeclampsia (67). Severe preeclampsia has to be treated with MgSO₄ to prevent progression to eclampsia. Lack of administration and incomplete doses of MgSO₄ may lead to continuous fits and progression to eclampsia in case of severe preeclampsia (Ibid). The study has shown contrary practices to the guidelines for management and current evidence on the efficiency of MgSO₄. However, study results on the availability of essential drugs indicated that MgSO₄ was in stock throughout the period of study.

During an informal interview with the person in charge of the maternity unit, he highlighted that staff are not comfortable to administer MgSO₄ for fear of its side effects²¹. The situation is compounded by the non availability of calcium gluconate which is the antidote²² for MgSO₄ toxicity. Such practices reveal issues of lack of support, supervision, training and staff meetings where such perceptions could be discussed. D'Ambruso L et al (2007) reported similar findings where midwives could not administer MgSO₄ to patients with eclampsia and preeclampsia despite the drug being in stock (68).

The problem of lack of patient monitoring is also manifested because the drug is discontinued even before the side effects manifest. Findings show that vital signs for patients with eclampsia and severe preeclampsia are not monitored: only ¼ of patients had their vital signs (blood pressure, respirations and tendon reflexes) checked. Checking of respirations and tendon reflexes is important to rule out side effects because magnesium sulphate causes respiratory depression and hypoflexia²³ (67).

²¹ Hyporeflexia and respiratory depression are the major side effects of MgSO₄. Consequently patients who are commenced on MgSO₄ regime are supposed to be checked their respiratory rate and patella reflexes to monitor magnesium sulphate toxicity.

²² An antidote is medicine used to prevent or treat the harmful effects of another medicine.

²³ Hypoflexia is a diminished reflex response.

Patients' fluid intake and urinary output was not assessed frequently, only ¼ of the patients had fluid balance charts and catheter bags are drained by guardians. Inadequate urinary output would warrant discontinuation of MgSO₄. These problems could be attributed to shortages of staff, however utilizing other cadres to maintain standard care for patients who really deserve high standard care is important. Throughout the study period, there were student midwives who were doing their high risk clinical allocation. These are the patients they would have been assigned to care, in the process being helped to learn how to manage such patients. Furthermore, the ward has patients' attendants who are well trained in monitoring patients' vital signs, maintaining patients' intake and output charts yet they are not adequately utilized to ensure quality of care to patients.

Cases with eclampsia and severe preeclampsia were nursed in an environment where there was a radio which was put on a higher volume, and yet such cases need to be nursed in a quiet environment to prevent further stimulation. Similar findings were found in a study conducted in DRC where there were no different levels of care given to different needs of women with or without complications. An observation was made on care of two women diagnosed with eclampsia; neither of them was afforded privacy, dim lights or quiet environment as prescribed by the norms. One woman had received MgSO₄ and was unresponsive to verbal stimuli, there was no evidence of her vital signs being monitored for MgSO₄ toxicity, nor did the observers note availability of calcium gluconate to reverse the side effects in case they develop (19).

Only ½ of the patients were considered to be delivered within 12 hours of onset of convulsions contrary to the guidelines. Some of them delivered spontaneously without being considered on the mode of delivery. Others were kept beyond 12 hours on the understanding that they were firstly being stabilized. None of the patients who experienced severe preeclampsia was considered to be delivered within 24 hours.

Antihypertensive therapy is essential. It is generally agreed that severe hypertension must be controlled to protect the mother from cerebral hemorrhage (56). Hydralazine is the drug of choice for treating high blood pressure. More than half (7/12) received hydralazine to reduce the high blood pressure. Almost all the patients had their systolic blood pressure beyond 110mmhg which is the cutoff point for eligibility to

receive hydralazine. However, care must be taken to ensure that blood pressure does not decrease too rapidly or too much, as this is potentially dangerous for the fetus (Ibid). This was difficult as blood pressure was rarely assessed in patients who suffered eclampsia and severe preeclampsia.

The level of care accorded to this condition has to be high; these are life threatening conditions that baseline EmOC providers must be able to diagnose and treat promptly and adequately in order to save women's lives.

6.4.2 Management of PPH

PPH ranked second among the obstetric complications observed; out of the 42 patients observed, 11 suffered PPH. It is one of the major causes of maternal mortality in which women are dying needlessly for want of common skills that every midwife and practitioner should possess. Whether or not a patient dies from PPH depends largely on the access to timely and competent obstetric care. Study results revealed that many tasks for patients who suffered PPH were not performed to standard and was one of the poorly managed complications. The following shows how tasks were infrequently performed: 1/12 of the patients had uterine massage to stimulate a contraction, 1/4 had a repeat dose of oxytocin, 1/3 had clots expelled and 1/4 had vital signs checked. However, bladder emptying, obtaining blood for grouping and cross matching and commencing intravenous lines were done in more than 1/2 of the cases.

It was further observed that management of patients who suffered PPH was not done according to priority. All the criteria for management are important but, the order in which they are implemented matters. First things have to be done first otherwise patient's life can be lost even though the activities being implemented are within the management criteria.

Most of the patients did not get repeat doses of oxytocin as stipulated in the guidelines despite the availability of the drug. Oxytocin is the definitive treatment for PPH. Uterotonic drug oxytocin has proved to be very effective in reducing the incidence of PPH and prolonged third stage of labour; it further helps in contracting the uterus and prevents further bleeding (69, 70, 71, 72). Non administration of the drug therefore could be attributed to problems to do with attitude and lack of use of knowledge. In

view of the above findings, there is need to reinforce management according to guidelines in order to effectively manage PPH which is claiming a lot of women's lives.

6.4.3 Management of obstructed labour and ruptured uterus

Study results revealed that both obstructed labour and ruptured uterus cases had most of the tasks performed frequently. Almost all the patients who suffered ruptured uterus had all the tasks performed according to set criteria. For obstructed labour, the first four tasks (taking blood samples, insertion of intravenous fluids, bladder catheter and intravenous chloramphenicol) were exceptionally done well (88-100%). Poor scores were recorded in vital signs monitoring, only a ¼ had their vital signs checked and 1/8 had recording of intake and output. However, most of these tasks are the normal tasks which are accomplished when a patient is going for any operative procedure. Definitive treatment for obstructed labour and ruptured uterus is timely delivery; however this was not the case with most of the patients. The interval between the decision to perform caesarean section and the time to delivery is an important indicator of quality of care in obstetrics²⁴.

In the current study, the median time from prescription of caesarean section to actual performance for patients with obstructed labour was 1 hour 13 minutes, minimum was 1 hour and maximum was 3 hours and 30 minutes. For ruptured uterus, median was 2 hours 05 minutes, minimum time was 50 minutes and maximum was 6 hours 30 minutes. Main reasons for the delays were lack of transport to collect clinical officer and lab technician on call, and lack of blood to transfuse the patient during the operation. Similar findings were reported in a related study whereby the decision to delivery time were extremely long (median 4.8 hours & 2.8 hours), this was largely determined by the time needed to obtain a complete surgical kit; either because the family had to pay for it or it lacked some essential components (65, 73, 74).

²⁴ It was however difficult to define timeliness in this case as the current protocols do not indicate specific time for delivery/surgery. In industrialized countries it has been suggested that this time should not be more than 30 minutes (65).

Study results further show incidences of delays in diagnosis and management even when the patient's condition was critical (Appendix 13). This happened for reasons quite different from the usual problems such as lack of drugs, supplies, staffing etc. Missed diagnoses occurred when patients were not monitored at all. The partograph²⁵ was attached to the patient's file but progress of labour was not always charted nor were management decisions based on the partograph. Evidence suggests that use of partograph helps in diagnosing problems early and improves maternal and neonatal outcomes (75, 76, 77, 78). Incorrect diagnoses also occurred as some women would have been diagnosed with Cephalo-pelvic disproportion on admission, given their presenting symptoms but it took some more hours to make diagnosis because symptoms were missed. Cases of uterine rupture occurred due to untreated obstructed labour occurring within the hospital. (Appendix 13)

The above mentioned scenarios led to the conclusion of poor management for the patients who suffered ruptured uterus and obstructed labour because there was no timely diagnosis and definitive treatment for these obstetric complications. Timely diagnosis and treatment is very critical in these cases to save the lives of both the baby and the mother.

6.4.4 Management of puerperal sepsis

Study results have shown that sepsis was the least observed among the emergency obstetric complications, out of 42 cases observed, 5 suffered puerperal sepsis. However it constituted a significant threat to the survival of the affected patients, because out of the 5 patients, 3 died representing a cause specific case fatality rate of 60%. The least number of cases observed could be due to hygienic environment in which these patients were delivered because they were all institutional deliveries. Furthermore, patients get prophylactic antibiotics when undergoing an operation which is continued even after the procedure.

All the patients who were diagnosed with sepsis were put on appropriate intravenous antibiotics which are the definitive treatment for puerperal sepsis. The high cause

²⁵ A partograph is a graphical record of progress during labor. Progress is measured by cervical dilation against time in hours. As well the partograph provides a record of the important conditions of the mother and fetus that may arise during the process of labor. The partograph was developed and extensively tested by the World Health Organization.

specific case fatality rate may be attributed to late diagnoses as most women whether high risk or low risk are not accorded postpartum care. Early diagnosis of puerperal sepsis is known to improve outcomes; therefore immediate postpartum care is very important to identify problems such as fever, smelly discharge and uterine sub involution. One basic clinical practice which helps in diagnosis of puerperal sepsis quickly is the measurement of temperature in postnatal women. This is not done as evidenced in the study that none of the patients had their temperatures checked. A similar study in Ghana indicated that temperature was only recorded in 12.5% of all deliveries (79).

In our study, obstetric patients are not monitored after delivery. Examination is only done after they have complained of having fever. This time, the health worker performs a thorough examination and makes a diagnosis of puerperal sepsis. This causes delays in initiating treatment. At least cases that are prone to develop sepsis (i.e. patients who had PPH, patients who had prelabour rupture of membranes), should have been on the look out during the first postpartum days.

6.5 Obstetric Case Fatality Rates

The obstetric case fatality rate is the proportion of complicated cases which result in death (1). It provides an indication as to whether women who come in with obstetric complications have chances of survival or not. The CFR was 21% (out of 42 women who suffered obstetric complications 9 died); this is absolutely high as the UN recommends that at least an obstetric CFR should be less than 1% (Ibid). It is argued that CFR reflects hospital performance to a large extent, but it may also reflect the condition in which women arrive at the hospital or the number of complicated cases seen (24). It is further argued that CFR may worsen if patients arriving at the hospital are in more serious condition (Ibid). However, in our study the increase in CFR has occurred simultaneously with the poor management of obstetric patients as shown above. The cause specific CFR was highest for puerperal sepsis (60%), followed by ruptured uterus (33%), PPH (18%) and eclampsia/preeclampsia (17%).

These findings are consistent with what was found in 1998. One of the district hospitals in Malawi had a CFR of 26.5%. This was nearly twice as much as other

hospitals; however this high CFR was attributed to under-recording of obstetric emergencies. This still led to the conclusion that the quality of care was exceptionally bad (34). The district health management team of this particular hospital further attributed this to a large number of late referrals with particularly severe complications from neighboring Mozambique where there are few health services (Ibid).

Conversely, there are no issues of under-recording of obstetric emergencies with the current study because the study was done prospectively and the researcher was available most of the time making observations on management of all emergency obstetric cases and all the deaths associated with them.

Similarly, in the current study, the health workers and the district health officer have attributed the problem to late referrals from Mozambique who come with severe complications. However the results have shown that out of the 42 patients with obstetric complications that were observed, 6 patients were referred from Mozambique and among the patients who died, 1 came from Mozambique. Such findings explain that the Mozambican issue is merely contributing to the problems which already exist. The Mozambique referrals should not be used as scapegoat.

Such high CFR suggests that management of these cases has to be improved and delays in diagnosis and initiating treatment must be reduced if we are to achieve the millennium development goal number 5.

6.6 Contributing factors to poor quality of care and increased CFR

This study has revealed that poor quality of care is rendered to women who suffer emergency obstetric complications. Health worker interviews conducted identified obstacles to the provision and utilization of high quality, timely obstetric care.

The findings relate to the three delays model²⁶ proposed by Thaddeus and Maine (1994) (80). We will discuss our findings according to this model.

²⁶ The three phases delay is a conceptual framework which identifies obstacles to the provision and utilization of high quality, timely obstetric care. These are delay in deciding to seek care, delay in reaching a facility and delay in receiving appropriate treatment at the health facility.

6.6.1 Delay in decision to seek care

The factors that affect the decision to seek care are those discussed as barriers or constraints to the utilization of services. According to Maine, the delay in decision to seek care may be on the part of the woman herself or her family (Ibid). It is usually as a result of many interlinked factors. The factors identified under this phase in this study are; distance, cultural and traditional beliefs, lack of awareness of pregnancy complications and use of TBAs.

6.6.1.1 Distance from health facility

The accessibility of services plays a dual role in the health seeking process. On one hand, it influences peoples' decision-making while on the other hand, it determines time spent in reaching a facility after decision is made.

Long distances from the health facility have been identified as preventing women with complications from seeking care in good time. It also affects the women's condition as they arrive late contributing to poor outcome.

Patients are referred from Mozambique and other health facilities within Malawi which are very far from the referral hospital. The further away a woman lives, the more the difficult it is for her to travel to the health facility and the longer the time it takes to reach the appropriate facility.

In Malawi, 80% of the population lives within 5km of a formal health facility (8), but access is worse in rural areas due to poor road networks (81). While this is not too far for women to travel for antenatal care (evidenced by the high percentage uptake) it may be too far for a woman in or close to labour to travel, particularly when services are not perceived to be of high quality. Other authors (12, 31, 82, 83), have also shown that geographical and financial accessibility to obstetric services are the main contributing factors to delays in decision to seek care at the health facility.

Such hindrances for use of health services calls for community supported maternity waiting homes nearby hospitals which can solve this problem to some extent. In view of the above problems, the Malawi MoH is in the process of training some peripheral personnel in specific life-saving procedures; however this has to be enhanced (81). There is need for further discussions with the government of Mozambique on workable strategies regarding early referrals.

6.6.1.2 Cultural and traditional beliefs

Culture influences the decision to seek care and the type of care (whether traditional or modern) that will be sought. This depends on the cause to which the illness is attributed to by patients and their families. Often women intentionally delay in recognizing the medical paradigm of problems in order to deal with the complications indigenously. For example, in most of the districts in the Southern Region of Malawi, there are beliefs that obstructed labour is associated with infidelity and this results in some women being kept in prolonged labour at home until there is a 'confession' of infidelity. The current study reported that women believe in the practice of consuming local herbs, which contain oxytocin derivatives that stimulate strong uterine contractions leading to uterine rupture and severe internal bleeding. The traditional practices may reduce safety and effectiveness of maternal health care. Such findings were previously reported as being common in Southern Malawi (84). The health care authorities need to have a mechanism to deal with such practices both at hospital and community level. Massive community mobilization on importance of hospital delivery have to be done, and the traditional leaders have to be fully involved as they would easily influence their subjects on what needs to be done.

6.6.1.3 Lack of awareness of pregnancy complications

Failure to recognise danger signs appears to be a function of low literacy and low knowledge levels. Lack of knowledge of danger signs is manifested in the current study. Health workers reported about patients who do not perceive complications such as convulsions and bleeding as dangerous. They are seen as part of the normal delivery process and as a result, they seek care from the traditional healers and the TBAs. The higher the level of education that someone has, the more the likely they are to recognise danger signs. This may be related to the person's level of knowledge comprehension which is said to be higher for the educated than those with lower or no education (28).

Other studies have shown that women's perceptions and interpretations of danger signs have been found to be other barriers apart from cost and distance (85).

In view of the above problem, the Malawi Safe Motherhood Project developed posters depicting danger signs and made them accessible to people with low or no literacy. The project also developed radio messages to reach out to communities.

These strategies seem not to have substantial impact to the communities. However continued intensive community mobilizations on pregnancy danger signs have to be continued.

6.6.1.4 Use of TBAs

The use of TBAs, whether trained or not, has also been associated with delay in seeking care at a health facility. In the current study, health workers reported of incidents in which patients were held at the TBAs' place even after developing complications. Internationally, TBAs have been known to delay or even deliberately discourage women with complications from going to hospital (86) and in Malawi, stories compiled for radio broadcasts on "why women are dying" relate a story on how a young woman was prevented by her TBA from accessing a facility when labour was clearly obstructed (87).

Considering the above mentioned problems, Safe motherhood interventions in Malawi are now focussing on increasing demand for facility based services and consequently reducing demand for TBA services (88). Although plans to stop the use of TBAs are underway, there is need to replace them with safe alternatives because other women will still not be able to deliver at hospitals.

6.6.2 Delays in reaching an appropriate obstetric facility

6.6.2.1 Lack of transport

Health workers mentioned issues of unavailability of transport which delayed patients from reaching appropriate care. This usually occurred when the nearest facility is a peripheral facility which is not equipped to treat emergency complications (i.e. health centre, TBA). In a related study, Cham (2005) found that among 32 cases autopsied, 27 had delayed to reach the appropriate obstetric facility due to lack of transport and prolonged transportation (89). There is need to formulate a policy to strengthen the transport system in order to ensure that once a decision has been made by health personnel, the patients get referred immediately other than depending on relatives to organize transport. Mwanza district health officer should liaise with the Mozambican

government on the provision of an ambulance to their health facility in order to ensure referrals arrive in good time.

6.6.3 Delay in receiving adequate treatment after reaching the health facility

Even when women have overcome the delays outlined above and reach the health facility, they are still unable to access a high quality of care. Thus, merely reaching the health facility is not sufficient. Even where a Comprehensive EmOC facility is reached, the CFR are still alarmingly high. Women die needlessly at the hospital itself for a variety of reasons. Previous studies identified the following factors as contributing to delays in receiving care; shortage of drugs, supplies and equipment, inadequate skills and numbers of health personnel (19, 22, 24, 60). The most common factors observed by the researcher and cited by the health workers as contributing to delays in receiving appropriate care in the current study included the following; inadequate staffing, late or wrong diagnoses, unavailability of clinicians in the maternity unit, unavailability of a vehicle to collect staff on call, lack of blood, lack of refresher courses, inservice trainings and supervision, lack of patient monitoring and lack of access to postnatal care.

6.6.3.1 Inadequate staffing

Health workers mentioned shortage of staff as contributing to poor quality of care. Analysis of the capacity to address obstetric emergencies effectively, inventories of the number of physicians, nurses and midwives and clinical officers revealed inadequate health personnel. Critical shortages were seen in the midwives during the study period. On day to day staffing patterns, usually there were one to two midwives on duty. This type of shortage leads to overwork which further reduces staff morale and reduces the ability to provide quality and timely obstetric care. Similarly, reports in the country indicate that the shortage is particularly acute for midwives and doctors (26) (See table 5).

Apart from the absolute shortage of staff, the majority of enrolled midwives have limited skills and knowledge base. Some midwives do not feel competent in dealing with complications like manual removal of placenta, management of obstructed

labour, management of eclampsia, PPH (90, 91). This critically affects the quality of care rendered to the women which often results in loss of life.

During the study period, there were times that the labour ward would have 2 or 3 midwives on duty and there were a number of students during the whole period of study. Surprisingly, the routine care which was given when there was acute shortage of staff was the same as the care given when there was more than one midwife on duty. There was lack of routine care such as lack of patient monitoring and lack of postnatal care. Such observations create serious doubts if improving the number of staff would translate into quality of obstetric care. Furthermore, there is an issue of service against workshops. Staff are allowed to attend workshops to upgrade their knowledge but it seems the workshop are too numerous and are not well coordinated. Patient care should be and is the core business of a hospital. There were times when staff was sent for workshops while there was nobody to cover the ward. Usually the ward in charge of the maternity unit was most of the time off duty or out for workshops and as a result, the junior staff worked without direction. The state registered midwife who was vested with the responsibility to be in charge of the maternity unit was not qualified as he had not yet taken his licensure examinations. He was not registered and was practicing illegally. Such observations would explain problems of staffing organisation, deployment and lack of staff shift routines.

6.6.3.2 Late or wrong diagnosis

Delays in diagnosis and treatment were often noted; there were delays even when the patient's condition was critical. Incidences of late and wrong diagnoses in cases of obstructed labour and ruptured uterus were associated with non use of labour graph, failure to interpret it and lack of patient monitoring. Other studies have shown lack of use of partograph (59, 60, 61).

The reasons for such delays were not related to the commonly cited reasons such as lack of drugs, supplies and equipment etc. Few health workers reported about wrong or late diagnosis however, through the observations, it was established that critical decisions were delayed and frequently wrong decisions were made (Appendix 13). This could be related to providers' poor attitude, inadequate knowledge resulting from

insufficient inservice trainings and refresher courses and non adherence to the obstetric guidelines. These guidelines also contain diagnostic criteria of all the major obstetric complications. In a similar study such findings have been reported (20).

6.6.3.3 Unavailability of clinicians in the maternity unit

Unavailability of clinicians in the maternity unit has contributed to delays in emergency care as they have to be called²⁷ to review emergency cases. Almost all the midwives interviewed raised concern over this issue. Since emergencies cannot be predicted, it is important to have coverage for 24 hours. Physical presence of clinicians who are able to perform all the EmOC functions is very vital, as calling them through their cell phones has proved to delay initiation of care. Similar practices have been reported where physicians who are well trained to handle obstetric cases were rarely available leaving unskilled nurses to attend to labour and diagnose complications as they arose (19, 74, 92).

Since clinical officers can perform all the EmOC functions, it is an important cadre which has to be motivated to be available in the maternity ward to ensure availability of EmOC all the time.

6.6.3.4 Unavailability of transport to collect staff on call

Health workers have reported lack of transport to collect staff on call during odd hours as grossly contributing to delays in provision of critical care. Two patients died with obstetric complications because there was no transport to collect the senior clinician to perform a hysterectomy and a laboratory technician to cross match blood. These are testimonies of the problem. These are avoidable delays as the hospital has a good fleet of functional vehicles²⁸. Similar results were reported in Rwanda where the doctor could not be contacted because the phone was not working and no car was available to collect the doctor (74).

²⁷ Usually when clinicians are on duty, they do not physically stay in their respective wards, they are out doing other duties. When an emergency case arrives that's when the midwife communicates to them about the emergency case through telephone.

²⁸ Such reports prompted the researcher to find out the number of vehicles available for use. It was found that the district has 6 functional ambulances; 3 based at the district hospital and three were based at health centres, one ambulance per health centre. Furthermore there were 5 functional utility vehicles based at the district hospital which could be used.

There is need to have a vehicle on standby to cater for any emergency calls when the ambulance on duty has gone out on different errands.. Furthermore, the DHO should discuss with her staff to consider having clinicians and the other theatre staff on call at the hospital during odd hours. This means allocating rooms where they would rest during the night while waiting for emergency cases. She should also consider allocating houses that are within the hospital premises to staff who go on emergency calls.. The drivers on call should function under the in charge of the maternity ward during odd hours. It was reported that drivers on duty could miss while there was an emergency call. Such drivers need to be disciplined or even fired as they do not comply with the rules and contribute to delays in provision of emergency care.

6.6.3.5 Lack of blood

Staff acknowledged that lack of blood contributed to poor quality of care and high CFR. The problem was attributed to the current system of getting blood from MBTS which is not coping with the current demand of blood transfusion in district hospitals. Two patients lost their lives because they could not access blood transfusion during the period of study. The government should agree with MBTS to still allow the district hospitals get blood from donors to supplement their supply which has proved to be insufficient. Furthermore ensuring adequate reagents for cross matching blood samples in the laboratory is very important. Similar findings were found in different studies where women who were supposed to receive blood did not get it because it was not available; (22, 80).

6.6.3.6 Lack of training/supervision

Continuous obstetrical inservice trainings and refresher courses of the various professionals followed by adequate supervision plays an important role in the improvement of the quality of services provided. It is through this that individual's scientific knowledge, and consequently institutional capacity is strengthened and updated (93). The current study has reported lack of trainings, refresher courses and supervision for the health workers. They said that merely having management guidelines is not enough as they do not have time to refer to them in times of emergency. This could partially explain the limited knowledge and practice in the

management of emergency obstetric complications. Similar findings were found in other studies (19, 21).

Both the midwives and clinical officers reported lack of supervision. Most clinicians who work in the maternity unit are on internship and require more supervision as they are still learning. . Lack of supervision was also observed for student midwives. Their tutors did not come frequently to supervise and the qualified midwives who also lacked supervision had no motivation to supervise the students. This scenario predicts the type of cadre which is being produced. The country is investing in reducing the maternal mortality and yet the future midwives and clinicians who form the core providers of EmOC in the country may not be adequately prepared to handle emergency obstetric complications due to poor training.

Currently there are no laid down policy guidelines to guide the technical supervision of Clinical Officers and Doctors and to ensure adherence to standards of practice and also update/improve their performance (25). But the MoH needs to enhance the development of such policies to ensure quality obstetric care.

Other studies have shown that the main motivating factors for health workers are appreciation of their efforts by their superiors. Whereas the performance of the health care system depends ultimately on knowledge, skills, supervision and motivation of the people responsible for providing care, the motivation has been identified as a key factor (94). Fathalla (2003) argues that if motivation is zero then performance will also be zero whatever the level of knowledge and skills of the provider is (Ibid).

6.6.3.7 Lack of quality post natal care

Despite the fact that majority of maternal deaths occur in the fragile immediate post natal period (95, 86), the current study has shown that postnatal care is rarely done on high risk patients. Lack of postpartum care for both mother and baby has been reported before in other studies (57, 58, 60).

Literature confirms that complications are likely to develop during the first few days in postpartum and that the postnatal period is critical for maternal survival (Ibid). This has been demonstrated in our study as 3 out of 5 patients who suffered puerperal sepsis died due to late diagnoses and not necessarily due to lack of antibiotics.

Contrary to the current findings, Kebalepile (2001), in her study to assess quality of postpartum care provided by midwives in Botswana, found that midwives had good knowledge and practice in the management of immediate post partum period (96).

The issue of lack of postpartum care is long overdue in Malawi (97, 98).

These incidences call for channeling of resources towards prevention and appropriate management of all the obstetric complications. Provision of care should be at a standard that results in the best possible outcome with available resources. The problem of lack of postnatal care calls for a serious undertaking to ensure that such services are made available to the women.

6.7 Women's perception of quality of care

Smith et al (2005), acknowledges that patients who are treated humanely are more likely to be satisfied with health care processes they receive than those whose treatment has been less humane (99). Quality perceptions by users have a great impact on whether services will continue to be utilized or not. Poor-quality care can reduce women's confidence in the available health facilities thus leading to their under-utilization of the service or availing to the system as a last option.

The informal interviews with women who experienced emergency obstetric complications focused on 3 aspects of care that are deemed to influence satisfaction with care. These include interpersonal relationships, information giving and timeliness of care. These aspects of care show a commitment to respecting patient's dignity and autonomy.

This study has revealed that inhumane treatment leads to complaints and dissatisfaction with care. The women's testimonies on poor quality of care and lack of humanness are congruent with those found in other studies (19, 21, 100).

6.8 Strengths of the study

The current study has systematically assessed care in comparison to the established national standards and has provided unique insights into what is happening regarding handling of emergency obstetric cases. This study can serve as a starting point to conduct other studies with larger sample sizes to look at the issue nationally in order to set national strategies to help combat the escalating MMR in the country.

The methodology of non participant observation for a period of three months in the field has uniquely contributed to a lot of insights regarding quality of care which may not be identified through review of records only.

Health worker interviews regarding the current problem has further helped identify context specific problems which needs to be addressed to reverse the situation.

The researcher was technically an instrument for data collection. This has helped to enhance the reliability of the results because she has a strong clinical background and was well acquainted with the study objectives.

6.9 Summary

The study has shown that management of patients with obstetric complications is generally poor in our facility and it is not based on current evidence. There is an increased CFR for obstetric complications and several other factors have been uncovered which are contributing to the current problem.

The study utilized the structure, process and outcome model; with more emphasis on the structure and process. The author of the model indicates that the influencing relationship among the 3 components is a probability and not a certainty (42) and the current study has confirmed that. Availability of essential drugs did not translate into adequate patient treatment.

CHAPTER 7: METHODOLOGICAL LIMITATIONS, VALIDITY, RELIABILITY

7.1 Methodological limitations

The observational/cross-sectional study design was appropriate to assess the quality of emergency obstetric care in everyday practice because it gives a more realistic picture on the nature of activities without disturbing the actors. However, observational studies of health workers are said to have response bias; the participants in research, instead of acting naturally, try to please the researcher. The health worker may treat the women more courteously than usual and try to make all necessary examinations carefully. This potential bias was minimized by explaining that the results of the observations would not be used against them and that the data would be treated as group data. Secondly, the observations started during the second week of the study to allow for improved contact between the researcher and the health workers to reduce health worker anxiety.

Though we do not know the extent to which the observations influenced the health workers' responses, we have no reason to believe that it altered the conclusion of the study with regard to the process attributes of quality, given the inadequate performance by the health workers observed, and casualties happening also during the study period.

The problems associated with the use of routine data are their incompleteness, inaccuracy in respect to diagnoses of the obstetric complications and continuation of management of obstetric cases. This was an obstacle to facts finding. However, combining observation of management and review of records helped to come up with concrete data.

The study has a number of limitations that may affect generalizing the findings and replication. Quality of emergency obstetric care has been examined in one hospital, lacked randomization and for a very small sample; hence findings may not represent management in all referral hospitals in Malawi.

The study merely assessed whether an action was performed and not whether it was performed correctly; this may also be an important aspect of care to look into. The checklist should have included elements of how the procedure was done.

Cross sectional studies have a problem in the random variation of the variables studied. In Malawian health facilities, availability of drugs and supplies depends on what is available at the Central medical stores during that month. The study may fall on atypical days when the facilities have a shortage or when the stocks are well stocked. In our study, the facility had essential supplies and drugs during the months of study.

The researcher collected the data alone. Having a strong clinical background may have introduced some error by observing some issues outside the research objectives which may have influenced the results.

Observations are more complete but they present the inherent difficulty of obtaining a sufficient large sample of emergency obstetric complications within the specified time.

The study was limited to clinical care and as a result could not deal with community issues. Interviewing health workers provided some insight into community issues but this was not enough.

We did not come up with average performance indicators by indicating the number of cases fulfilling the criteria. The reason for not calculating an average index was that the relative importance of each individual task is not known and even the validity of an average score of aggregate tasks is uncertain.

7.2 Validity

According to Polit and Hungler (2001), validity refers to the degree to which an instrument measures what it is supposed to measure. An instrument can be reliable, without being valid, but it has to be accurate and consistent (48).

With regard to my clinical background, I was technically the instrument for data collection and prone to being tired and overwhelmed by the observations and miss data. To overcome problems of missing data during observations, I conducted record reviews of the patients under observation to complement the observations with what was documented. Generally, making observations was not overwhelming and tiresome at any point because emergency cases were a rare occurrence. This helped me to make more concise observation when an emergency occurred.

In this study, a validation test was not done but I was in the field and collected the data alone and managed to check consistencies between interviews and observations.

Triangulation of methods was used to enhance validity. We used both quantitative and qualitative approaches to collect the data.

Follow up interviews with the health workers were done. For the women however, I repeated their answers back to them when they said it and also gave them chance to reword or restate their meanings during the interviews. This enhanced the validity of the results by ensuring that what was concluded about the results was really true.

7.2.1 External validity

External validity involves the degree to which the study results can be generalized to the entire population or other settings and be able to produce unbiased results for the target population. For the current study, the sample size was small and statistically unrepresentative and lacks randomization, but it produced results that can be applied to the study site. Furthermore, the results could still be applicable to other settings which are experiencing the same problems as the causes may not be far from what was found in the current study. However, there is need to conduct a study with a larger and representative sample.

7.2.2 Internal validity

The researcher's background as a midwife and a midwifery tutor at the nursing college may have both positive and negative influences over the results. Most people

knew me and may have altered their behaviors to perform according to expectations which may provide invalid results.

7.3 Reliability

Reliability concerns the extent to which the instrument yields the same results on repeated trials. Ideally there should be a good deal of consistency in the results of a quality instrument gathered at different times.

In the current study a pretest was done to check the reliability of the instrument and inconsistencies were corrected. Reliability was further improved by personal involvement in collecting both qualitative and quantitative data. The researcher's strong clinical background, good acquaintance with the study objectives, ensured that what was being observed and responses from the interviews were addressing the study objectives.

CHAPTER 8: CONCLUSION, RECOMMENDATIONS AND CALL FOR FUTURE RESEARCH

8.1 Conclusion

The results of assessment of quality of obstetric care in Mwanza district have shown that lack of quality emergency obstetric care is at the root of continuing high CFR which is at 21%. This is consistent with what Fortney said: Fortney (2000), stated that “the arch of safe motherhood is build with many stones, among them prenatal care, nutrition, education, transport etc. But the arch will fall down, meaning that mothers will die without prompt and adequate treatment when they suffer life threatening complications during pregnancy, delivery and the puerperium” (15).

The study has shown that women who suffer emergency obstetric complications are not managed according to the established national guidelines. There is lack of supportive supervision of service providers - both midwifery and clinical staff, lack of trainings and refresher courses in obstetric care, delays in provision of emergency obstetric care and other health service factors have been shown to contribute to delivery of poor care.. The study revealed the availability of essential drugs, supplies and equipment which did not automatically translate into provision of essential care.

The district health management team with support from the Ministry of health should ensure that delivery of structure and process of emergency obstetric care should be of acceptable standards to save women’s lives.

8.2 Recommendations

Based on the results of the study, the following specific recommendations have been made to help improve the quality of care in Mwanza district which will further help to reduce the unnecessary deaths of women.

8.2.1 Conduct Life saving skills training courses

The district should embark on a life saving skills training course to refresh all the health workers in the management of obstetric emergencies. This should be followed up by a well organized form of supervision.

8.2.2 Clinical Audit and Feedback

The district through MoH should undertake clinical audit and feedback to improve the quality of management of life threatening complications. All the staff in the maternity unit should be involved in the audit and should appreciate its value in daily practice. There should be a non-accusing atmosphere. The MoH needs to develop a policy on audit as an integral part of health facility practice and adopt it as a tool to improve the quality of care and monitor performance of the health system.

8.2.3 Staff Training and Motivation

There is evidence that the human resource capacity to drive maternal health agenda is constrained, however appropriate staff deployment, motivation, supervision and training of the available staff is very vital to equip them to contain the problems.

8.2.4 Maternal Health to be prioritized

The delivery of health services in Malawi has been devolved to the districts (101). This means that the district level has more control over service provision than the past. Therefore, the district health management team should make maternal health a district priority and focus should be on improving quality of maternal care in order to reduce the maternal morbidity and mortality.

8.2.5 Staff on call to stay at hospital during odd hours

The district health management team should consider providing accommodation, food and other necessary things to have staff on call stay at the hospital during odd hours. This will prevent unnecessary delays in the management of women with obstetric complications.

8.2.6 Dialogue with Mozambique government

The district health management team should continue dialogue with the Mozambique government to ensure that obstetric patients from Mozambique are referred in time.

8.2.7 Communicate management guidelines

Management guidelines should be communicated and all providers should be trained in their implementation. This should be followed by adequate and effective supportive supervision. The management should promote active learning opportunities (i.e. case discussions, hands on practice sessions etc).

8.2.8 Monitor stock levels of essential drugs

The district pharmacy technician should continuously monitor stocks of essential drugs and make timely orders or requests to order from the ministry to ensure continuous availability of essential drugs. However the district matron should ensure that the essential drugs and supplies which are in stock should be used for intended purpose. Drugs like MgSO₄ and Oxytocin are crucial for maternal survival.

8.2.9 Community mobilization

The district should embark on an intensive community awareness campaign regarding importance of hospital delivery, timely reporting to hospital and danger signs of labour, pregnancy and postpartum. Community level transport mechanisms need to be devised based on an assessment of what is acceptable to those communities (for example, in some communities bicycle ambulances are welcomed and used to transport pregnant women, in others they are shunned for cultural reasons).

8.2.10 Hospitals to solicit blood from donors

The MBTS has been adopted by the MoH as a well organized system of transfusion services for the country whose aim is to ensure reduction of HIV/AIDS and other transmissible diseases by blood, prevent morbidity and mortality due to loss of blood and blood products. However the system is not able to cope with the current demand of blood in the districts, therefore there is need to explore new avenues of recruiting donors to ensure adequate blood supply in all hospitals. Furthermore the hospitals should still be given mandate to continue bleeding donors as previously done to supplement blood from the MBTS.

8.3 Call for future research

Further research is required to;

- Assess the feasibility and effectiveness of using a criterion-based clinical audit measure to improve quality of care; with the focus on management of the five life threatening obstetric complications.
- Assess women's perspectives on quality of obstetric care.
- Establish health workers competency to perform life saving procedures.
- Establish the factors which promote or hinder use of management guidelines.

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APPENDICES

Appendix 1: Norway Regional Committee for Medical Research Ethics Approval Letter



UNIVERSITETET I OSLO
DET MEDISINSKE FAKULTET

Professor Johanne Sundby,
Institutt for allmenn- og samfunnsmedisin
Universitetet i Oslo

Regional Committee for Medical Research Ethics
Southern Norway, Section A
PO Box 1130 Blindern
NO-0318 Oslo

Date: 1 April 2008
Your ref.:
Our ref.: S-07248a

Phone: 228 44 666
Fax: 228 44 661
E-mail: reg-2@medisin.uio.no
Homepage: www.etikk.uio.no

S-07248a Assessment of quality of care rendered to women with major obstetric complications in Mwanza district, Malawi [2,2007,1450]
Project Manager: Professor Johanne Sundby, Department of International Health, University of Oslo
M. Phil. Student Elizabeth Chodzaza

We refer to your letter received 18 March 2008.

The committee accepts the explanatory response.

The committee has no comments on the revised information letter with declaration of consent.

The committee gives its approval to the implementation of the project.

Best wishes for the project!

Yours sincerely

Kristian Hagestad
Chief County Medical Officer, Spec. of Public Health
Chairperson

Jørgen Hardang
Secretary

Copy to: M. Phil. Student Elizabeth Chodzaza, Olav M. Troviksvei 60, H0307, 0864 Oslo

Appendix 2: College of Medicine Research Ethics committee Approval Letter



UNIVERSITY OF MALAWI

Principal

Prof. R.L. Broadhead, MBBS, FRCP, FRCPC, DGH

Our Ref.: P.08/07/580

College of Medicine

Private Bag 360

Chichiri

Blantyre 3

Malawi

Telephone: 01 874 811/01 874 377

Fax: 01 874 700/01 874 749

Telex: 43744

3rd September, 2007

Mrs E. Chodzaza

KCN

P O Box 415

BLANTYRE

Dear Mrs Chodzaza,

RE: P.08/07/580 – To assess quality of care rendered to women with obstetric complications in Mwanza district, Malawi

I write to inform you that COMREC reviewed your proposal which you submitted at its meeting of 29th August, 2007. I am pleased to inform you that your proposal was approved.

As you proceed with the implementation of your study I would like you to take note that all requirements by the college are followed as indicated on the attached page.

Please note that the ICH guideline 3.2.1 had been followed during the voting process.

Sincerely,

Prof E. Borgstein
CHAIRMAN - COMREC

EB/tck

Appendix 3: Mwanza District Health Officer Letter of Permission to conduct the study

From: The District Health Officer,
Mwanza District Hospital,
P.O. Box 80,
Mwanza
Malawi



To: Mrs E. Chodzaza
Kamuzu College of Nursing
P/Bag 415
Blantyre
Malawi

**RE: PERMISSION TO CONDUCT A STUDY ON QUALITY OF CARE
RENDERED TO WOMEN WITH OBSTRETRIC COMPLICATIONS.**

Dear Madam,

I wish to acknowledge receipt of your request to conduct a study at our District hospital on the above mentioned topic.

I would like to let you know that you have been granted permission to conduct the study as we know it will also help us identify issues which need to be improved on management of obstetric cases.

Yours,


H. Kavalu
District Health Officer

Appendix 4: Patients informed consent

My name is Elizabeth Chodzaza, a Malawian Nurse/ Midwife currently pursuing a Master of Philosophy in International Community Health at the University of Oslo, Norway.

To fulfill my academic requirements for the award of my degree, I am expected to conduct a study in my home country. The research topic is: To assess the quality of care rendered to women who experience major obstetric complications in Mwanza district. The purpose is to explore the quality of care women with obstetric complications receive in Mwanza district in an attempt to establish major issues related to the management of emergency obstetric complications which can help improve care.

I have done non participatory observations of care provided to you. I wish to ask for your permission if I can utilize data obtained during the observations.

All information collected about your care shall be kept safe and will only be accessible by the principle investigator. Your information will be identified numerically and not by name.

You may not directly benefit from the study, but the results will help to improve obstetric care at the hospital. You will get a packet of sugar and a tablet of soap as a token of thanks for your participation.

This study has been sponsored by NORAD fellowship program

Subject's agreement

I have read the information above or have it read to me and have understood everything.

I hereby give full consent by signing this form to participate in the study, and allow the researcher to use data obtained during non participatory observation while the midwife or clinical officer attended to me.

I agree to participate in the study

I do not agree to participate in the study

Signature or mark of the research subject

Date _____

Signature of person obtaining consent

Date _____

Appendix 5: Midwives and clinical officers informed consent

I hereby give my consent by signing this form to participate in the study to be observed while I provide care to women who experience major obstetric complications and interviewed by the researcher at my place of work. I understand that I will be part of the research study that focuses on the quality of care midwives and clinical officers provide to patients with emergency obstetric complications at Mwanza district hospital.

I understand that I will be interviewed at my place of work, and that I shall be asked questions about the services provided to such women.

I have been informed that participation is voluntary and that I can discontinue participation any time if I so wish. I understand that the study results will be shared and used as group data, and will benefit both patients and health workers in the improvement of health care.

The person to be contacted is Elizabeth Chodzaza, Kamuzu College of Nursing, P. O Box 415, Blantyre, Malawi. Tel- 00265(0)8333891, Home- 00265(0)1846302

E-Mail address: echodzaza@yahoo.co.uk Fax: 00265-(0)1675341

The study will be supported by NORAD.

Respondent's Signature _____

Researcher's Signature _____

Date _____

Date _____

Appendix 6: Observation checklist for management of women with obstetric complications

A. Education and demographic factors of health workers

1. District

2. Sex of respondent

Male	<input type="checkbox"/>	1
Female	<input type="checkbox"/>	2

3. Age (Years)

4. Length of service

0-5 yrs	<input type="checkbox"/>	1
6-10 yrs	<input type="checkbox"/>	2
11-15 yrs	<input type="checkbox"/>	3
16yrs or above	<input type="checkbox"/>	4

5. Qualifications

RNM	<input type="checkbox"/>	1
N/MT/ENM	<input type="checkbox"/>	2
C/O	<input type="checkbox"/>	3

B. Demographic characteristics of women with obstetric complications

1 Age (years)

2. Parity

C. Management of obstructed labour

- Take blood for hemoglobin , grouping and cross match
 - Put intravenous line (Ringers lactate or saline)
 - Insert bladder catheter
 - Give chloramphenicol 1gm IV every 6 hourly until fever free for 48 hrs
 - Monitor vital signs
 - Measure and record accurately fluid intake and urinary output
 - Deliver immediately by caesarean section or vacuum extraction
-

D. Management of Puerperal sepsis

- Give intravenous antibiotics according to protocol
 - Commence intravenous fluids
 - Evacuate remaining products of conception after 4 hours commencing intravenous antibiotics
 - Good personal hygiene
 - Monitor vital signs
-

E. Management of ruptured uterus

- Restore blood volume – infuse intravenous fluids
- Crossmatch 2 pints of blood
- Give intravenous chloramphenicol 1g IV
- Insert urinary catheter
- Immediately perform laparotomy
- Monitor vital signs

F. Management of severe preeclampsia/eclampsia

- Give magnesium sulphate loading dose according to protocol
 - If convulsions recur after give 2g (50% solution) IV over 5 minutes
 - Continue treatment with magnesium sulphate for 24 hours after delivery
 - Insert catheter
 - Monitor intake and output
 - Delivery must occur within 12 hours of the onset of convulsions
 - Give hydralazine 5mg IV slowly every 2 minutes until diagnostic is 100mm Hg
 - Monitor blood pressure $\frac{1}{4}$ hourly, respirations and tendon reflexes
-

G. Management of primary postpartum hemorrhage

- Rub up a contraction
 - Give or repeat oxytocin
 - Expel clots
 - Empty bladder
 - Put up IV line with saline or Ringer's lactate
 - Check pulse and blood prssure
 - Obtain blood for hemoglobin, grouping and cross matching
-

Appendix 7: Checklist for availability of essential drugs, equipment, medical and blood supplies

(Tick where appropriate)

Weeks

	Available	Not available	1	2	3	4	5	6	7	8	9
A. Essential drugs											
1. Antibiotics											
Amoxicillin											
Ampicilline											
Benzyl penicillin											
Cloxacillin											
Erythromycin											
Gentamycin											
Metronidazole oral											
ciproflaxin											
Metronidazole IV											
Cotrimoxazole											
2. Anticonvulsants											
Magnesium Sulphate											
Diazepam											
3. Intravenous fluids											
Dextrose 5%											
Normal saline											
Ringer's Lactate											
½ Strength darrows											
4. Antihypertensive drugs											
Hydralazine oral											
Hydralazine injectable											
Aldomet (oral)											
Nifedipine (oral)											

5. Uterotonics																			
Ergometrine (injectable)																			
Oxytocin (injectable)																			
Syntometrine (injectable)																			
6. Disinfectants/antiseptics																			
Chlorhexidine (solution)																			
Iodine solution																			
Surgical spirit																			
Chlorine																			
Black disinfectant																			
Soap																			
7. Blood supplies																			
Blood bags																			
Blood																			
Blood Storage facilities																			
8. Human resource																			
Doctors																			
Nurse/Midwives																			
Clinical Officers																			
Anaesthetist																			
Laboratory Technician																			

Appendix: 8 Checklist for availability of basic equipment

Basic Equipment for all Levels of Care		
	Available	Not available
Sphygmomanometer		
Stethoscope		
Instrument sterilizer (autoclave)		
Non toothed (plain thumb forceps (stainless steel)		
Dressing forceps (stainless steel		
Cheatele forceps (stainless steel		
Kidney basins (stainless steel		
Sponge bowls (stainless steel)		
Clinical oral thermometer (dual Celsius/Fahrenheit scale)		
Syringes and needles		
Suture needles and suture material		
IV stand		
Foley's Catheters		
Urinary bags		
Adult ventilator bag and mask		
Surgical gloves		
Scissors		
Rubbish Bins		
Sharps disposal containers		
Vacuum extractor		

Appendix: 9 Availability of Laparotomy/Caesarean Section Set

Basic Equipment		
	Available	Not available
Obstetric Laparotomy/Caesarean Section set		
Stainless steel instrument tray with cover		
Towel clips		
Sponge forceps, 22.5 cm		
Straight artery forceps, straight, 22.5 cm		
Mosquito forceps, 12.5 cm		
Tissue forceps, 19 cm		
Uterine Tenaculum forceps, 28 cm		
Needle holder, straight, 17.5 cm		
Surgical knife handle/No. 3		
Surgical knife handle/No. 4		
Surgical knife blades		
Triangler point suture needles/7.3 cm/size 6		
Round Bodied needles/No. 12/size 6		
Abdominal retractor/size 3		
Abdominal retractors/double ended (Richardson)		
Curved operating scissors/blunt pointed (mayo)/17 cm		
Straight operating scissors/blunt pointed (mayo) /17 cm		
Scissors, straight 23 cm		
Suction nozzle		
Suction tube, 22.5 cm, 23 french gauge		
Intestinal clamps, curved (dry), 22.5 cm		
Dressing (non-toothed tissue) forceps/15 cm		
Dressing non-toothed tissue) forceps/25 cm		

Appendix 10: Availability of Basic Equipment for Uterine Evacuation

Basic Equipment		
	Available	Not available
Vaginal Speculum (sims)		
Sponge (ring) forceps or uterine packing forceps		
Long Dressing forceps		
Uterine dilators sizes 13 – 27 (French)		
Sharp uterine curettes, size 0 and 00		
Blunt uterine curettes, size 0 and 00		
Malleable metal uterine sound		
Vacuum syringes (single or double valve)		
Silicon lubricant		
Adaptors		
Flexible cannulae, 4-12 mm		

Appendix 11: Interview guide for midwives and clinical officers

I am a nurse/midwife, pursuing Master of Philosophy in International Community Health at the University of Oslo, Norway. I am doing a study on quality of care rendered to women with obstetric complications at Mwanza district hospital. I hope you will help me by answering the following questions. The only way to find out is to ask you as a provider of such services, your honest and correct responses will be important as they will be used to make improvements in the quality of care we provide to our women. I promise that I shall not reveal to anyone what you will tell me, nor link it to you. Your responses will be analyzed and treated as group data.

Provider's background information

Hospital.....	Place of interview.....
Date of interview.....	Interviewee code.....
Age of provider.....	Sex.....
Years of service.....	Qualification.....
Start time.....	End time.....

A. Analysis of the Problem

1. What are the common major emergency obstetric complications that you see at this facility?
2. Can you explain in what condition women arrive?
(Probe for reasons for those who arrive in poor condition).

B. Barriers at the Facilities

1. What actions are taken at this facility to treat women who come in with an emergency obstetric complication? (Probe: admission criteria, timeliness of emergency management).
2. What problems do providers face in providing emergency care? (Drugs, supplies, personnel, equipment).
3. What are some of the reasons a woman may have to wait for such care?

4. Can you explain the staffing patterns on a 24 hour basis (Midwives/clinical officers/anesthetists)?
5. Are drugs for treating emergency obstetric complications available? (Antibiotics, oxytocic, anticonvulsants and antihypertensives)
6. Explain the logistics for accessing drugs for treating emergency conditions on a 24 hour basis.
7. Is blood available on a 24-hour basis? Can you explain the logistics for getting blood to transfuse a patient?
8. In your own opinion, can you explain how you perceive the quality of care which is given to patients with obstetric complications at this hospital?

C. Training and supervision

1. What type of trainings have you attended in obstetrics since you qualified? Any refresher courses in the previous 6 to 12 months (probe into the nature of refresher courses)
2. In situations where the emergency condition is beyond your control, can you explain how you handle such situations?
3. Can you tell me the type of supervision you get from your supervisors? (Probe: who supervises you, nature of supervision, satisfaction)?
4. How do you feel working as a midwife /clinical officer in this maternity unit?
5. Additional comments.....

Appendix 12: Variables

Quality of practice (actual management of patients with obstetric complications)

Management of postpartum hemorrhage

- Rub up the uterus for a contraction
- Administration of oxytocic
- Bladder emptying
- Administration of iv fluids
- Performing controlled cord traction

Management of severe preeclampsia and eclampsia

- Administration of magnesium sulphate
- Blood pressure check and patient condition every 15 minutes
- Delivery within 12 hours of onset of convulsions
- Administration of antihypertensive
- Administration of oxygen

Management of rupture uterus

- Administration of intravenous fluids (Normal saline/Ringers lactate)
- Cross matching pints of blood
- Administration of prophylactic antibiotics
- Emergency laparotomy

Management of puerperal sepsis

- Administration of antibiotics
- Intravenous fluids
- Perform an evacuation of retained products of conception

Management of Obstructed labour

- Administration of intravenous fluids
- Administration of preoperative antibiotics
- Perform Caesarean section or vacuum extraction.

Appendix 13: Case studies

Case 1: Ruptured uterus

Mrs. X, 24 years old, gravida 2 para1 an ordinary house wife with no formal education was referred from Zobwe health centre (a health centre in Mozambique) to Mwanza district hospital. Reason for referral was prolonged first stage of labour. She arrived at the hospital at 1.00PM, following assessment the following were the findings: On abdominal examination: the pregnancy was term, she was having 3 moderate uterine contractions in every 10 minutes, fetal heart rate was positive and cervical dilatation was 8 centimeters. According to the assessment findings, the patient was in active phase labour however the progress of labour was not monitored. (A labour graph was attached to her records but it was not used), fetal and maternal conditions were not monitored; progress of labour was never assessed including all other assessments that are supposed to be done when a woman is in labour. The other most important thing to take note of is the fact that the patient had been referred from a health centre to the referral unit because a problem had been identified; as such she needed close monitoring, thorough assessment to rule out problems and institution of appropriate care. At 8.50 PM the midwife who reported for night duty decided to review the patient because she had noticed that the patient looked very weak and was in pain. On examination: descent of the fetal head was 1/5, there was no fetal heart heard, and the contractions had decreased from moderate to mild and the cervical dilatation was 10 centimeters. After the assessment the patient was diagnosed as having prolonged second stage of labour. The plan was that the patient should be reviewed by the clinician. The patient was diagnosed as having prolonged second stage of labour and yet the midwife did not even know when the cervix became fully dilated. However this case was an obvious ruptured uterus which the midwife failed to diagnose: (the decline in contractions, the cessation of the fetal heart and the maternal distress should have alerted the midwife to suspect a ruptured uterus). Further more there is much the midwife could have done to resuscitate the patient even before the arrival of the clinician who was reportedly busy in the operating theatre. The clinician came at 10:30PM (1 hour 40 minutes later) and made a diagnosis of ruptured uterus. The plan was to prepare the patient for urgent laparotomy, give prophylactic antibiotics, IV ringers lactate, urgent grouping and cross matching. Laparotomy was done at 1.00am and a fresh still born baby was extracted weighing 4 kilograms. The operation was done after 12 hours of active labour following her admission to the labour ward, had it been that the woman was properly assessed even on admission, at least a big fundus should have been identified as this woman had given birth to a very large baby, she had already been

referred with history of having a prolonged first stage of labour, which means some signs of a Cephalo-pelvic disproportion were already there, to make things worse such a high risk patient, her labour progress was never monitored, fetal and maternal conditions were never checked, Assessment of the size of the pelvis is one important parameter to help rule out Cephalo-pelvic disproportion, these would also have helped in diagnosis in case of any deviations.

Case 2: Obstructed labour

A 20 year old gravida 1 para 0 was admitted in the labour ward from home at 7.45 PM, in November. She came in with complaints of labour pains; she was examined and had a term fundus, fetal heart rate: 136beats per minute, 2 moderate contractions in ten minutes and was in early active phase of labour, and then the patient was admitted to the labour ward. During the next examination, the findings were severe caput and moulding of the fetal head, cervix was fully dilated, and descent of the fetal head was not assessed. Patient had strong uterine contractions for over 8 hours without any progress in descent and cervical dilatation, however all this went unnoticed by the health workers. The state registered midwife attempted vacuum extraction twice but never succeeded. All the signs the patient presented with were signs of obstructed labour but were never diagnosed as such, to the extent of attempting vacuum extraction possibly with a high head which warranted an immediate caesarean section. Further more the criteria for midwives vacuum extraction was never considered as the guidelines stipulate that if there is severe caput and severe moulding regardless of the descent of the fetal head, the midwife should never attempt a vacuum extraction and such it should be a doctor's vacuum extraction. The patient was left to lie on her side to await spontaneous delivery of the baby, 5 hours later at 2.00 PM the clinician was informed about the patient and he came and reviewed the patient and ordered immediate caesarean section. This was another worst scenario as the patient was left to lie on her side following a failed vacuum extraction. Guidelines also clearly stipulate that failed vacuum extraction is an indication for emergency caesarean section, but the patient was left to lie on her side as she awaits spontaneous delivery which failed to take effect all this time.

The patient was prepared for emergency caesarean section and unfortunately she delivered a fresh still born baby. I intervened by asking if the patient could be taken for caesarean section immediately and I was told that she will be reviewed by the clinician.