AN EXPLORATION OF THE STRENGTHS AND WEAKNESSES OF THE REFERRAL AND COUNTER-REFERRAL SYSTEM FOR MATERNAL AND NEONATAL HEALTH SERVICES BETWEEN PRIMARY LEVEL HEALTH FACILITIES AND A TERTIARY HOSPITAL IN LUSAKA, ZAMBIA

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KEYWORDS

Maternal and neonatal health

Maternal mortality

Continuum of care

Referrals

Primary level health facility

Tertiary hospital

Urban

District

Zambia

Qualitative research
ABBREVIATIONS

BEmONC  Basic Emergency Obstetric & Neonatal Care

CDC  Centers for Disease Control

CSO  Central Statistical Office

EmOC  Emergency Obstetric Care

EmONC  Emergency Obstetric and Newborn Care

EOC  Emergency Operations Centre

ERES  Excellence in Research Ethics and Science

ERS  Emergency Referring System

GDP  Gross Domestic Product

HIV  Human Immuno-Virus

JHPIEGO  Johns Hopkins Program for International Education on Gynaecology & Obstetrics

LDHMT  Lusaka District Health Management Team

LDHO  Lusaka District Health Office

LMGH  Levy Mwanawasa General Hospital

MAMaZ  Mobilising Access to Maternal Health Services in Zambia
MCDMCH  Ministry of Community Development, Mother & Child Health
The Ministry of Community Development, Mother and Child Health (MCDMCH) was responsible for issues related to maternal and child health at the time data was being collected for this study. Before the publication of this study, this Ministry had ceased to exist – the President of Zambia announced the change towards the end of 2016 – with its responsibilities taken over by the Ministry of Health. However, given that this is a report into investigations of a particular time and situation, I consider it proper to continue to refer to names and conditions as they existed at the time at which the study was being conducted.

MDGs  Millennium Development Goal(s)

MDGI  MDG Acceleration Initiative

MEASURE  Monitoring and Evaluation to Assess and Use Results

MEHS  Mobile & Emergency Health Services

MMR  Maternal Mortality Ratio

MNCH  Maternal, Newborn and Child Health

MNH  Maternal and Neonatal Health

MOH  Ministry of Health

NCDs  Non-Communicable Diseases

NGOs  Non-Governmental Organisations

PHC  Primary Health Care

PHO  Provincial Health Office

REC  Research Ethics Committee
RHCs  Rural Health Centres
SBA   Skilled Birth Attendant
SDGs  Sustainable Development Goals
SMAGs Safe Motherhood Action Groups
SMGL  Saving Mothers Giving Life
SOPH  School of Public Health
UHC   Urban Health Centres or Clinics
UNDP  United Nations Development Programme
UNICEF United Nations Children's Emergency Fund
UNFPA United Nations Population Fund
USAID United States Agency for International Development
UTH   University Teaching Hospital
UWC   University of the Western Cape
WHO   World Health Organisation
ZDHS  Zambia Demographic Health Survey
ZEPRS Zambia Electronic Perinatal Record System
ABSTRACT

Introduction
Despite the progress that Zambia has made in reducing its maternal mortality ratio from 649 to 398 per 100,000 live births between 1996 and 2013/14, the country did not meet the Millennium Development Goal 5a target, of reducing the maternal mortality ratio by 75% (i.e. to a ratio of 162 per 100,000 live births) by the end of 2015. Thus, as is the case with many other countries, considerable challenges still remain in relation to reducing maternal mortality in Zambia.

According to Zambia’s Roadmap for Accelerating Reduction of Maternal, Newborn and Child Mortality (2013-2016), the continuum of care for reproductive and maternal, newborn, and child health includes integrated service delivery for mothers and children across these various time periods, and also across place: within the home, the community, and in health facilities. In this regard, a referral system plays a key role in linking the various levels at which care is provided, and the different types of services offered at these levels.

In the urban district of Lusaka, Zambia, all complicated pregnancy-related cases received by health centres or clinics are referred to either Levy Mwanawasa General Hospital, or the University Teaching Hospital. However, it appears that at present those working at the primary level of care, who make such referrals up to these higher levels of care, receive no feedback on the outcome of their referrals; there are also few counter-referrals to the respective clinics in the district. With limited communication to the primary level of care, and with no formal handover of patients back to the clinics by the tertiary level institutions, it is difficult to ensure that the required continuum of care for the referred mothers and their children, post-delivery, has been established within the district.

This explorative study aimed therefore to identify the strengths and weaknesses of the maternity-related referral system currently operating between primary and tertiary levels of health care in the district, and to consider how the system might be strengthened so as to support a stronger continuum of care with respect to maternal and neonatal health.
Methods

Using a descriptive qualitative research approach, stakeholders involved in the planning, delivery and/or oversight of maternal and neonatal health services in the district were purposively sampled and asked to voluntarily participate in the study. Prior to all the interviews, after being informed about the study, and receiving information sheets to read through, participants were required to give informed consent. Their experiences and opinions regarding referrals and counter-referrals were collected through a series of 23 individual, semi-structured interviews. A Thematic Analysis approach was used to analyse data in this study.

Ethics approval was first obtained from the Senate Research Committee, University of the Western Cape and thereafter from the Excellence in Research Ethics and Science Converge Ethical Review Board in Zambia, before proceeding with the study. Clearance was also obtained from the Ministry of Health, the Lusaka District Health Management Team and the University Teaching Hospital to facilitate entry into the health facilities.

Findings

The study found that, in practice, the referral system for maternity and neonatal health does exist and is generally – but not optimally - functional in the Lusaka District. However, challenges were noted that included the fact that the district’s maternity referral system has not been revised since it was first developed in the 1980s and is not available in a comprehensive set of guidelines or standard operational procedures which explicitly outline the reasons for referral and the related referral steps and mechanisms. In addition, the referral forms currently in use in the district have not been standardised and appear to be inconsistently used by the different facilities. Interviewees reported that there were limitations in terms of the number of, and availability of ambulances, and that there was also an inadequate number of trained midwives. Limitations on the health service’s infrastructure, namely, the physical space that is available, the number of delivery beds, and the limited supply of equipment place an additional burden on the staff working at both the primary and tertiary level.

Conclusion

Overall, the study recommends that further research – possibly in the form of a baseline audit – be conducted so as to develop a more detailed and/or operational assessment of the actual rather than the reported level of functionality of the district’s maternity referral system. Specific recommendations are also proposed for the various stakeholders who are critical role players in
the referral system, namely, the clinics, the University Teaching Hospital, the Lusaka District Health Management Team, the Provincial Health Office, the Ministry of Health and Cooperating Partners.
DECLARATION

I declare that “An exploration of the strengths and weaknesses of the referral and counter-referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia”, is my own work. It has not been submitted for any degree or examination in any university. All the sources that I have used or quoted have been indicated and acknowledged by complete references.

Name: Malala Mwondela

Signed:

Date: January 2017
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My dear husband and friend, Kaumbu! Thank you for being that one constant, for being the pillar I could always count on, for cheering me every step of the way, this is for us.

Tunasakilila chikuma mwata!
To God alone be the Glory!!!
CHAPTER ONE - DESCRIPTION OF THE STUDY

1.1 Introduction

Ending preventable maternal mortality remains one of the world’s most critical challenges (World Health Organisation (WHO), 2015a). Maternal mortality, defined as “the death of a woman whilst pregnant or within 42 days of delivery or termination of pregnancy, from any cause related to, or aggravated by pregnancy or its management, but excluding deaths from incidental or accidental causes” (WHO, 1992, as cited by Say et al. 2014: e323), is also considered an indicator of development, and its reduction has long been a challenge in low-income countries, despite the existence of effective interventions (Zureick-Brown et al., 2013). At present, it is estimated that 830 women die each day, either before, during or after giving birth – with 99% of these largely preventable deaths occurring in low and middle-income countries (WHO, 2015a).

On a positive note, in 2015, the WHO noted that there had been a 45% decline in the number of maternal deaths worldwide since 1990 (WHO, 2015a). However, despite the significant global progress made to reduce maternal mortality over this 25-year period, many countries did not reach the related Millennium Development Goal (MDG) 5a target of reducing their maternal mortality ratio by 75% between 1990 and 2015. For example, out of a total of 95 countries, only nine countries are considered to have achieved a reduction of 75% or more of their maternal mortality ratio (MMR) during this period – with Zambia not being one of the countries to reach this target (WHO, 2015a).

The successor to the MDGs, the Sustainable Development Goals (SDGs) – and specifically SDG 3 which focuses on health - have called for an acceleration of the previous efforts to reduce the global burden of maternal mortality and established a new target: namely, that by 2030, all countries should reduce their maternal mortality ratio (MMR) by at least two thirds of their 2010 baseline. The average global target for 2030 has been set at an MMR of less than 70/100 000 live births, with a supplementary national target being set that no country should have an MMR greater than 140/100 000 live births (WHO, 2015a).
Despite the fact that MDG 5 has been noted as a major catalyst in reducing the number of maternal deaths (WHO, 2014), the MDGs have also been criticized for promoting a fragmented approach to health planning, paying insufficient attention to development principles such as human rights, equity and gender equality and focusing on national averages rather than eliminating health disparities among vulnerable subgroups (WHO, 2015a). In 2015, in a bid to eliminate wide disparities in maternal mortality and reduce the highest levels of maternal deaths worldwide, the WHO identified a set of strategies aimed at ending preventable maternal mortality. These strategies included addressing inequities in access to and quality of sexual, reproductive, maternal, and newborn health care; ensuring universal coverage of these services; addressing all causes of maternal mortality; and strengthening health systems and ensuring accountability to improve quality of care and equity (WHO, 2015a).

Zambia’s current MMR is 398 / 100 000 live births (Central Statistical Office (CSO), Ministry of Health (MOH) & ICF International, 2014) – a significant decline from the 1996 MMR of 649 and the 2002 MMR of 729 / 100 000 live births, although not sufficient to reach the MDG 5 a target of 162 deaths per 100 000 live births (United Nations Development Programme (UNDP), 2013). Despite the lack of sufficient progress in relation to maternal mortality, other maternal health related indicators in Zambia have been slowly improving over the last two decades. For instance, the percentage of deliveries assisted by a skilled health worker has increased from 50% to 64% from 1992 to 2013/2014 (CSO, MOH & ICF International, 2014) which increase is likely associated with the increasing number of pregnant women who now deliver in a health facility. The latter has increased from 51% in 1992, to 67% in the 2013/2014 period (CSO, MOH & ICF International, 2014).

As in many other countries, challenges remain in relation to reducing maternal mortality in Zambia. The major direct causes of maternal mortality are post-partum haemorrhage (34%), sepsis (13%), obstructed labour (8%), pregnancy hypertensive disorders – eclampsia (5%), and abortion complications (4%). Indirect causes include malaria (11%), HIV (10%) and others (17%) (Ministry of Community Development, Mother and Child Health (MCDMCH) & Ministry of Health (MOH), 2013). Other factors associated with high MMR include poor access to health services due to cultural issues, poor referral systems and transport challenges (MCDMCH & MOH, 2013). Maternal mortality is also associated with gaps in the continuum of care from pre-pregnancy, through to pregnancy, childbirth, and the immediate postnatal period (MCDMCH & MOH, 2013). According to Zambia’s Roadmap for Accelerating...
Reduction of Maternal, Newborn and Child Mortality, 2013-2016, hereafter referred to as the Roadmap, the continuum of care for reproductive and maternal, newborn, and child health (MNCH) includes integrated service delivery for mothers and children across these various time periods and also across place (i.e. within the home, the community and in health facilities) (MCDMCH & MOH, 2013).

Referral systems play a major role in linking the various places (or levels) at which care is provided. As such, a referral system that provides a functional linkage between different levels of care in the health system and between the various service delivery packages or the different types of services helps to ensure that care provided at each time and place contributes to the delivery of appropriate and effective health service (Kerber et al., 2007).

An adequate referral system is also critical in reducing what is referred to as the ‘third delay’ of maternal mortality, namely: a delay in receiving adequate health care (Thaddeus & Maine, 1994).

Early detection of complications and referral to higher levels of care might also substantially reduce the complications of childbirth (including birth asphyxia) – and all of which have been found to contribute up to one-third of neonatal deaths in some developing countries (WHO 1994; Kusiako, 2000 as cited by Murray, Davies, Phiri & Ahmed, 2001: 353).

And, just as a pregnant woman ought to be able to seek, reach and access care without any delays, counter-referral is equally important for ensuring that a continuum of care is offered to the mother and her newborn. Counter-referral is closely linked to one of characteristics of an effective referral system that relates to communication and feedback (Murray et al., 2001), and refers to a process used to redirect a referred client back to the originating unit for follow-up care (Kenya. Ministry of Health, 2014).

As noted in Zambia’s National Health Strategic Plan 2011-2015 (Ministry of Health (MOH), 2011), the patient referral system complements the structure of the health service – starting within the community and at the first level of care (a health post or health centre) and moving up to the third and highest level of care: a tertiary or specialist hospital. Understandably, a two way referral system is ideal: from the lowest to the highest level of care and vice versa (Akande, 2004).
In the global strategies towards ending preventable maternal mortality, it is also acknowledged that in strengthening health systems to address the needs of women and girls, it is important to focus on effective referral systems and to ensure seamless coordination across time, settings and disciplines and between facilities (WHO, 2015a).

Note: As earlier mentioned, the Ministry of Community Development, Mother and Child Health (MCDMCH) ceased to exist after the data for this study was collected and before it was published. Its functions are now the responsibility of the Ministry of Health. At the time of the study, however, the responsible Ministry for Maternal and Child Health issues was the MCDMCH, and this is how respondents at the time referred to it, and that is the name reflected in relevant documents of the time. Therefore, the reference to the MCDMCH as the Ministry dealing with Maternal and Child Health is retained throughout this document to accurately reflect the actual state of play at the time of the study.

1.2 Research Problem

In the district of Lusaka, Zambia, all complicated pregnancy-related cases received by health centres or clinics are referred to either Levy Mwanawasa General Hospital (LMGH) (a level two facility) or the University Teaching Hospital (UTH) (a level three facility). However, it appears that health workers working at the primary level of care and who make such referrals up to the UTH or the LMGH, receive no feedback on the outcome of their referrals and there are few counter-referrals back to the respective clinics in the district (personal communication with Lusaka Province Medical Officer, 2nd June 2015). The limited communication back to the clinics has management implications for the Lusaka district because every week, the 12 clinics with professional midwives in the district are required to provide information to the Lusaka District Management Team (LDHMT) on the maternity cases that they have managed. Their reports to the LDHMT include information on the number of admissions, deliveries, neonatal and maternal deaths and the number of cases that are referred to the UTH and LMGH – with detailed classification of these referrals. The lack of feedback to the clinics from the UTH about their referrals makes it difficult for the LDHMT to do an analysis of whether their referred cases did indeed require referral or could have been managed adequately at a primary health care level.
The LDHMT is therefore concerned that with limited communication back to the primary level of care – and with no formal handover of the patients (by the UTH back to the clinics) – it is difficult to ensure that the required continuum of care for the referred mothers and their children post-delivery has been established (personal communication with the Nursing Care Expert at LDHMT, 23rd June 2015).

Upon discharge from UTH, patients are given a discharge slip for presentation at their local clinic for post-natal care. If a woman does not present at the local clinic, or should she die at UTH, the clinics have no way of knowing what happened to the patient they referred. Ensuring that more effective communication mechanisms, including feedback and counter-referral, are established within the referral system between the UTH and the primary level health care facilities in the Lusaka district would, it is believed, serve to strengthen the continuum of care for maternal and neonatal health services that is provided to citizens in the Lusaka district.

1.3 Study Purpose

In view of the challenges described above, and articulated by LDHMT representatives, this study sought to highlight the strengths and challenges of the referral and counter-referral systems operating in relation to maternal and neonatal health services in the district of Lusaka, Zambia. Using a qualitative research approach, the study sought to explore the experiences and opinions of stakeholders directly involved in providing maternity and neonatal health services in the district, with a view to making recommendations for improving the related referral systems in Lusaka district and, hopefully, in other districts in Zambia as well.

1.4 Study Setting

Zambia is a landlocked country in Sub-Saharan Africa bordered by eight countries including Zimbabwe, Malawi, Tanzania and Botswana. Lusaka province is one of the 10 provinces of Zambia, and the city of Lusaka is the capital of Zambia. Economically, Zambia is a middle-income country that has had an average annual Gross Domestic Product (GDP) growth rate of 6.2% for the last few years. Despite this level of growth, Zambia’s poverty levels remain high, with serious implications for the health status of many (MOH & MCDMCH, 2015). At the time of the study, from 2015 into 2016, the country was faced with a depreciating currency, a fall in copper prices and other commodities, high energy deficiencies and an increasing debt burden.
Zambia’s population has also been growing rapidly, from 9.9 million people in 2000 to 13.1 million in 2010 (CSO, MOH & ICF International, 2014). The rapid population growth has placed an increasing burden on the health sector, which is constrained by inadequate infrastructure and medical equipment, shortages of essential health workers, challenges in the supply and storage of pharmaceuticals and other medical supplies, and inadequate transport (MOH & MCDMCH, 2015). Zambia’s high disease burden is characterized by high prevalence and impact of communicable diseases such as HIV and malaria; high maternal, neonatal and child morbidity and mortality, as well as a growing burden of non-communicable diseases (NCDs) like diabetes and cancer (MOH & MCDMCH, 2015).

The study was conducted in Lusaka District, which is in Lusaka Province. The district covers an area of about 360 square kilometres and is home to 79% of the population of Lusaka province (CSO, 2011). It is one of the eight districts of Lusaka province, which include Kafue, Chongwe, Rufunsa, Chilanga, Luangwa, Shibuyanji and Chirundu districts. For purposes of health service delivery, Lusaka district has been divided into eight zones with each zone having a large health centre. Lusaka district has 23 health centres and two referral hospitals namely Levy Mwanawasa General Hospital and the University Teaching Hospital (UTH) – the latter also being a national referral hospital. All 23 health centres provide antenatal care, although only twelve of them are midwife-led clinics and conduct deliveries. The LDHMT provides supervision to these clinics through regular visits and audits of the clinic services.

1.5 Outline of the Report

This study is presented in six chapters: the chapter that follows, Chapter 2, presents the literature review, and describes maternal and neonatal referral systems in Zambia, Africa and globally. The literature review highlights what is considered to be an effective referral system for maternal and neonatal health, as well as some of the commonly identified challenges of referral systems in practice. The research design and methodology used in this study are described in Chapter 3, with the results then described in Chapter 4. A discussion of the findings then follows in Chapter 5, and highlights the major findings with reference to the literature reviewed and the report concludes, in Chapter 6, with a set of recommendations for improving the referral system for maternal and neonatal health in the Lusaka district.
CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

“It is widely accepted that substantial reductions in maternal mortality and severe morbidity are impossible to achieve without an effective referral system for complicated cases” (Murray et al., 2001: 353). It has also been suggested that referral and transport strategies, alongside other interventions, could contribute to as much as an 80% reduction in maternal mortality (Goldie et al., 2010 as cited by Hussein, Kanguru, Astin & Munjanja, 2012. Inefficient referral systems for obstetric emergencies have been cited as one of the key health system weaknesses that are linked to high maternal mortality (Austin et al., 2015). Further, a systematic review of maternal health initiatives by Nyamtema, Urassa and Van Roosmalen (2011) found that those programs that most successfully reduced maternal mortality and had remarkable emergency obstetric care indicators had functioning maternal health care systems with systems of referral for obstetric complications, among other things.

This chapter reviews the literature on maternity referral systems and provides working definitions of referral systems; it also locates referral systems within the health system and highlights the conceptual framework for reducing delays in accessing emergency obstetric care. The review also brings out the characteristics of an effective maternity referral system and draws on findings regarding challenges within maternity referral systems and recommendations for improvement. It is important to observe that maternity and neonatal referral systems are not two separate systems but one referral system. In this study, maternity referral systems, which are more explicitly discussed in literature, will be understood to include neonatal referral.

2.2 Defining a Referral and Counter-Referral System in the Health Context

A referral within a health system can be defined as a process by which a health worker, operating at one level of the health system and not having sufficient resources (such as drugs, equipment, skills etc) to manage a clinical condition, seeks the assistance of a better or differently resourced facility at the same or higher level to assist in, or take over, the management of a client’s case (WHO, 2015b). As Ajwang (2013: 713) suggests, unlike self-
referral, which “refers to the decision and choice of a patient to seek treatment on his or her own accord”, formal or institutional referrals (the subject of this study) are concerned with the official movement of a patient or client to a different healthcare facility or provider to seek further treatment.

Referral of patients from basic to more sophisticated levels of care is considered to be an integral part of allopathic health systems (WHO & UNICEF, 1978 as cited by Murray et al., 2001). Referral systems are also an essential component of district health systems (Jahn & De Brouwere, 2001), upon which the realisation of primary health care is critically dependent (WHO, 1998).

A counter-referral on the other hand refers to a process used to redirect a referred client back to the originating unit for follow-up care to receive the required care for that which they were referred up the system in the first place (Kenya. Ministry of Health, 2014). MEASURE Evaluation (2013: 27) also suggests that counter-referrals provide “critical information to the originating unit or service providers on the client’s follow-up care needs and also improve the continuity of care, and measure linkages in service delivery”. Specifically, with regard to the latter, counter-referrals provide an opportunity to assess how effective the linkages are between facilities with regard to service delivery. If counter-referrals are low, it could be that health workers are not making counter-referrals or that patients are not complying with counter-referral advice and there is need for an enquiry into why this is so.

The figure below demonstrates the flow of the referral system from the initiating facility to the receiving facility and back to the initiating facility with supervision and capacity building being simultaneously provided at both facilities.
As illustrated above, an initiating facility assesses patients based on an agreed protocol and provides necessary care. Once the decision is made to refer, the facility then follows the referral practicalities. This includes the use of standardized referral forms that should specify care given and reasons for referral, filling in the referral register and informing the client of the reason for referral. The receiving facility will begin a thorough assessment of a referred patient based on the referral case and manage the case. Once the receiving facility has concluded the case, they must provide feedback to the initiating facility. This communication not only assures proper patient care and follow up, but also provides continuing education to the initiating facility and its staff (WHO, 2015b). The receiving facility can also provide feedback on the appropriateness of the referral with regard to timing, speed and the information sent. With regard to supervision and capacity building, the facility managers should monitor referrals on a monthly basis, with a focus, among other things, on the appropriateness of referrals and whether feedback is being received and acted upon by the initiating facility. This information can be shared at meetings with hospital and clinic staff in order to identify areas for improvement. Lastly, informed by...
experience and to meet the goals of the health system overall, the referral system must be open to revisions (WHO, 2015b).

A formal or institutional referral system as described above operates between the different levels of a health service, each of which requires different but complementary skills (WHO, 2004). An effective referral system ensures a close working relationship between all levels of the health system so as to ensure that people receive the most appropriate level of care in a timely fashion and closest to their home.

Ideally, a referral system has a two way flow process or pathway for a patient: from the community all the way to the national referral hospital and back. In terms of health service delivery, like many other countries, Zambia has a tiered health system beginning at the community level (with health centres and health posts) and ending at the 4th level of services. Specifically, this includes community level services, health centres and health posts, 1st, 2nd, 3rd and 4th level services. The referral system, aimed at providing a continuum of care, and an opportunity for citizens to access the levels of health services they need, follows the same hierarchy.
The third level hospitals, also called Specialist or Tertiary Hospitals, are the highest referral hospitals in Zambia, with sub-specializations in internal medicine, surgery, paediatrics, obstetrics, gynaecology, intensive care, psychiatry, training and research. All complicated cases not attended to at second level hospitals are referred to third level hospitals. Second level hospitals, also referred to as Provincial or General Hospitals, are found at provincial level. These hospitals also act as referrals for the first level institutions and provide internal medicine, general surgery, paediatrics, obstetrics and gynaecology, dental, psychiatry and intensive care services. They also provide technical back up and training functions for the lower level facilities. First level, or District Hospitals, are found at the district level and provide medical, surgical, obstetric and diagnostic services and all clinical services in support of primary health centre referrals (MOH, 2013).

Zambia has two types of health centres: urban health centres or clinics (UHC), intended to serve a catchment population of between 30,000 to 50,000 people, and Rural Health Centres (RHCs) which serve a population of 10,000 people. Health Posts are the lowest levels of care and are
built in communities faraway from health centres. At this level, the services provided are basic first aid rather than any curative care (MOH, 2013).

In the Zambian context, Primary Health Care (PHC) refers to health services provided at the community, health post, health centre and the first level hospitals at district level services. PHC services are linked to, supported and supplemented by second level and tertiary level hospital services, through the referral system designed to facilitate continuum of care and organized access to all the levels of care, as needed (MOH & MCDMCH, 2015: 22). In relation to maternal health, deliveries are ordinarily conducted at health centres and first level hospitals, with cases referred up in the event of a complication.

There are three referral systems in Zambia, established to provide for referral of patients from lower to higher-level health facilities (MOH & MCDMCH, 2015):

- The intra-PHC facilities referral system which facilitates referral of patients from one PHC facility to another;
- The hospital referral system which allows for complicated cases received by PHC facilities to be referred to the 2nd Level (general) hospitals and/or 3rd level (tertiary) hospitals – based on the need, and
- The referral system for the treatment of complicated cases requiring expert treatment not available in Zambia but provided in other countries. This is illustrated as the 4th level of service in Figure 2.

### 2.3 Referral Systems Embedded within a Health System

As can be seen from the WHO (2015b) illustration in Figure 1, in order for a referral system to function effectively, there are key health system components on which it is dependent. Whilst acknowledging the importance of transport and communication, which often dominate the debate on referral systems, Kowalewski et al. 2000 (cited in Jahn & De Brouwer, 2001) note that there is a need to acknowledge the role of all the components of a health system – and not only focus on logistical issues such as these.

WHO (2007) suggests that a health system consists of all organisations, people and actions whose primary intent is to promote, restore and maintain health. While health systems have multiple goals, WHO has defined the overall health system outcomes or goals as “improving
health and health equity, in ways that are responsive, financially fair, and make the best, or most efficient use of available resources” (WHO, 2007: 2). Achieving greater access to, and coverage of effective health interventions while ensuring quality and safety, is an intermediate goal of a health system (WHO, 2007).

The WHO health systems framework describes health systems in terms of six “building blocks” – each with a particular function, and all contributing to the goals described above.

<table>
<thead>
<tr>
<th>Building Block</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Delivery</td>
<td>Focuses on how inputs and services are managed and organized to ensure access, quality, safety and continuity of care across health conditions, locations and time.</td>
</tr>
<tr>
<td>Health Workforce</td>
<td>Refers to the health service providers, health management and support workers. These are people engaged in actions whose primary purpose is to improve health.</td>
</tr>
<tr>
<td>Health Information System</td>
<td>Important to provide a basis upon which decision makers can act in order to improve health outcomes.</td>
</tr>
<tr>
<td>Medical Products, Vaccines &amp; Technologies</td>
<td>A health system must ensure quality, safety, efficacy, cost-effectiveness.</td>
</tr>
<tr>
<td>Health Financing</td>
<td>Good health financing makes it possible to finance services, the health workforce, health information and medical products.</td>
</tr>
<tr>
<td>Leadership and Governance</td>
<td>Leadership and governance involves overseeing and guiding the whole health system.</td>
</tr>
</tbody>
</table>

Figure 2.3. Summary of Health System Building Blocks
Source: Adapted from WHO (2007)
Whilst referral systems are one of the components within the health service delivery block, they rely on all of the other ‘building blocks’ to function. For example, and with specific regard to maternity referral systems: in order to ensure access to emergency obstetric care services, referrals rely on adequate and competent midwives (the health workforce) who are equipped with the appropriate medical products and technology. The availability and quality of both of these types of health resources are in turn dependent on the availability of good leadership and governance that ensures the necessary financing is secured and used in the most efficient way possible. Thus, as Munjanja, Magure and Kandawasvika (2012: 149) note, “underlying the success of any referral intervention, is its reliance on an efficiently functioning health system”.

2.4 **Maternity Referral Systems and Emergency Obstetric Care**

“The importance of effective and timely referrals in an obstetric emergency is related to the unpredictability of pregnancy complications and their potential to progress rapidly to become severe and life threatening” (Afari, 2015: 13). It is because of this that emergency obstetric care has been called ‘the keystone in the arch of safe motherhood’ (Fortney, 2001, as cited by Knight, Self & Kennedy, 2013). Referrals in pregnancy and childbirth can be categorized into institutional or self-referral; antenatal, delivery or postnatal referral, and emergency or elective referral (Jahn & De Brouwere, 2001). As has been noted earlier, the focus of this study is on institutional referrals – and specifically, emergency referrals in the context of maternal and neonatal health services.

Within the context of pregnancy, institutional referrals were initially based on the strategy of risk screening in antenatal care where women at high risk of obstetric complications were referred for specialized antenatal and delivery care at a higher level. The effectiveness of this approach was later criticized due to, amongst other things, the lack of sensitivity and specificity of available screening tools, as well as low adherence to referral advice by patients (Murray & Pearson, 2006). In addition, a large proportion of serious complications occur among women with no recognizable risk factors at all (Pacagnella et al., 2012). Currently, Safe Motherhood strategies emphasise early identification of obstetric complications and immediate referral to appropriate care rather than simply doing risk screening for women at high risk of obstetric complications (Murray & Pearson, 2006). Delays in the identification and the referral of obstetric complications can have severe or fatal consequences for women.
2.5 *The Third Delay in the “Three Delays Model”*

In 1994, Thaddeus and Maine (1994) introduced the “Three Delays Model” to promote understanding of the interval between the onset of an obstetric complication and its outcome. They noted that 75% of maternal deaths were due to direct obstetric causes, and that the majority of these deaths could have been prevented with timely medical intervention. A delay in seeking or accessing the required care emerged as the most pertinent factor contributing to maternal deaths. The “Three Delays Model” sought to elaborate what may contribute to these delays and how, in preventing them, deaths among women with obstetric complications could be prevented (Thaddeus & Maine, 1994). The delays as identified by Thaddeus and Maine are:

- Firstly, the delay in deciding to seek care by the woman and/or her family;
- Secondly, the delay in reaching an adequate health care facility; and
- Thirdly, the delay in receiving adequate care at the facility.

The first delay is mainly influenced by socio-economic and cultural factors, the second delay by the accessibility of the health services and the third delay relates mainly to the quality of care, or health system issues. These three delays are sequential and inter-related and as such, most maternal deaths are not due to a single delay, although any one of the delays could be fatal (Thaddeus & Maine, 1994). The “Three Delays Model” is widely used as a conceptual framework for analyzing the barriers that delay or prevent women from receiving appropriate care after the onset of an obstetric complication. While acknowledging the inter-relatedness of the delays, this study focuses on the third delay.

As noted earlier, the third delay refers to the delays that occur once a woman reaches a health facility and does not receive adequate care or sufficient treatment for an obstetric emergency. This is often the case in resource-poor settings where the technology and services to deal with obstetric emergencies may be absent or inadequate. This third delay could also explain why, despite relatively good accessibility of obstetric referral facilities, many cities in developing countries have a high maternal mortality rate (Jahn & De Brouwere, 2001). As Nawal (2008) suggests, in many instances where women are able to reach facilities, omissions in treatment, and/or incorrect treatment and a lack of supplies contribute to maternal mortality.

A systematic review of the third delay by Knight, Self and Kennedy (2013) found that many health facilities in developing countries were under-resourced and unable to cope effectively
with serious obstetric complications. The study identified inadequate training and skills mix, staff shortages, drug procurement/logistics problems, lack of equipment and low staff motivation as the most commonly cited barriers to women receiving timely and appropriate obstetric care. The study reviewed 43 studies, with 30 of the studies set in Africa. Other factors found to contribute to the third delay in this review included inadequate clinical guidelines or poor policy environment and poor facility infrastructure. With regard to referral-related factors specifically, the authors found that the inability or unwillingness of providers to refer cases, as well as sub-standard communication between facilities also contributed to the third delay. Though referral-related factors were not the most commonly cited barriers to receiving timely and appropriate obstetric care, the finding that they are a factor in relation to the third delay is consistent with Thaddeus and Maine (1994), who suggest that delays in receiving adequate care (the third delay) are related to the adequacy of the referral system.

Other studies have shown that inadequate management structures and poor links between the primary, secondary and tertiary referral systems also cause delays in reaching an appropriate level of care (Munjana, Magure & Kandawasvika, 2012: 140). The poor management of primary-level facilities has also been noted as an important contributing factor to delays in referral to a higher level of care (Onwudiegwu et al., 2001 as cited by Cavallaro & Marchant, 2012).

Cavallaro and Marchant (2012) also consider referrals as being a contributor to the third delay because the decision to refer and the availability of ambulances directly depend on health system performance. They note that delays have also been reported between the prescription and purchase of drugs or blood for transfusion and between a call for, and the subsequent arrival of, an ambulance (Cavallaro & Marchant, 2012: 5).

This study will align with the classification of referrals as part of the third delay as defined by Thaddeus and Maine (1994) in order to appropriately locate them within the health system.
2.6 Impact of Referral Systems on Maternal Health and Pregnancy Outcomes

A limited number of studies have been able to demonstrate the link between referrals and pregnancy outcomes. This is not surprising given that one of the challenges of research related to referrals within the health system is the absence of a standard definition of the third delay. In a critical review of 69 publications on the third delay, which included 53 studies from the Sub-Saharan African region, Cavallaro and Marchant (2012) found over forty different definitions of the third delay; this included a clear lack of consensus on the time measures that define the third delay. The variety of definitions of the third delay brings into question the robustness and comparability of the results of the studies reviewed and raises the need for a standard definition of the delay in order to provide for monitoring across programmes and countries. As such, Cavallaro and Marchant’s review concluded that further research was required to standardize the definition of the third delay, develop tools for monitoring the performance of facilities with regard to the duration and causes of such delays and gather more evidence of the effect of such a delay on birth outcomes.

With that said, Cavallaro and Marchant (2012) found two case control studies in India and Nigeria where there was strong evidence of longer referral intervals among maternal deaths than among survivors of complications, and among intra partum still births than live births. Further, a prospective cohort study in Nigeria found that maternal deaths spent more days in a primary facility before referral than women who were alive. This suggests that an earlier referral from the primary facility could have averted some maternal deaths. Overall, the review by Cavallaro and Marchant (2012) identified substantial time-to-care delays before surgery, blood transfusions and referral to higher-level facilities. The review also found indications that emergency obstetric care referral systems, which were considered cornerstones of health systems’ responsiveness to obstetric emergencies, were widely dysfunctional (Cavallaro & Marchant, 2012). Delays in referrals were also linked to lack of emergency obstetric care skills.

A study conducted at a university hospital in Nigeria confirmed that, among other things, delays related to health service failures included delays in the referral process (Okonofua et al., 1992, as cited in Hulton, Stones & Matthews, 2008). The study also found that structural and process deficiencies between facilities leading to delayed referral contributed to women arriving at the higher level of care in severe clinical condition. Another study in Nigeria found that poor
referral procedures presented a significant challenge to accessing emergency obstetric care (Okafor & Rizutto, 1994 as cited by Hulton et al., 2008).

Omo-Aghoja, Aisien, Akuse, Bergstrom and Okonofua (2010) also highlighted the significant impact of delayed referrals on the third delay, and therefore on maternal mortality or maternal health outcomes in Nigeria. The study found that in terms of associated causes of maternal mortality in a Nigerian Teaching Hospital, the third delay had the highest contribution (61.9%), largely due to delayed referral. The study was done at University of Benin Teaching Hospital where maternity records from 1st January 2005 to 31st December 2007 were reviewed to determine trends in the maternal mortality ratio in the hospital, medical causes of death and the contribution of the three delays to maternal deaths.

It is apparent from the foregoing literature that referrals as a health system issue fall within the third delay and that referral delays and other health system delays make a significant contribution to maternal health outcomes. It therefore follows that ensuring a functional referral system for maternal and neonatal health is a critical factor in reducing the third delay and ensuring access to emergency obstetric care.

### 2.7 The Characteristics of an Effective Maternity and Neonatal Referral System

In attempting to reduce referral system delays to accessing emergency obstetric care, it is important to establish the characteristics of an effective maternity and neonatal referral system. Hussein et al., (2012), in their systematic review of the effectiveness of emergency obstetric referral interventions in developing country settings, suggested that maternal and neonatal deaths could be prevented if functional referral systems were in place to ensure that pregnant women with complications reached appropriate health services. This is supported by Nyamtema, Urassa and Van Roosmalen, (2011) who, in their systematic review of maternal health interventions in resource limited countries, found that those programmes that most successfully reduced maternal mortality had well-functioning maternal health care systems with systems of referral for obstetric complications.

According to WHO (2015b: 1), a good referral system within the health sector can help to ensure that:
- Clients receive optimal care at the appropriate level and that is not unnecessarily costly;
- Hospital facilities are used optimally and cost-effectively;
- Clients who most need specialist services can access them in a timely way; and
- Primary level health services are well utilized and their reputation is enhanced.

With regard to maternity referral systems in particular, Murray et al. (2001), in considering tools that might be useful in monitoring the effectiveness of a district maternity referral system in Lusaka, suggest some requirements of an effective referral system. These are: an adequately resourced referral centre; communications and feedback systems; designated transport; agreed setting-specific protocols for the identification of complications; personnel trained in their use; teamwork between referral levels; a unified records system; and mechanisms to ensure that patients do not bypass a level of the referral system.

In a later study, Murray and Pearson (2006) suggested that active collaboration between referral levels and across sectors, the capacity to monitor effectiveness and policy support, are also important to ensure an effective referral system. Government support was noted to be the final and underpinning requisite for a well-functioning maternity referral system, and that skillful engagement of political processes was therefore necessary to achieve effective systemic change and prioritization of maternal health rights within policy and national resource allocation (Murray & Pearson, 2006).

It is important to note however, that there are challenges embedded in developing blueprints for referral systems. Giovine and Ostrowski (2010) state that some of the challenges of developing a blueprint for maternity referral systems included the multi-sectoral dimension of referrals, as well as the variations across context. In terms of the multi-sectoral dimension, it was noted that while referral is largely a health system issue, emergency referrals are dependent on infrastructure and public works, transportation and information and communication technologies, among other things. As a consequence, establishing effective emergency referral systems is often “everybody’s problem, and nobody’s problem” (Giovine & Ostrowski, 2010: 3). There is therefore a need for ministries of health, who own the biggest share of emergency referrals, to leverage multi-sectoral collaboration (Giovine & Ostrowski, 2010). In terms of variation across context, in developing a referral system, the authors suggest that there is a need to take into account geography, terrain, population density, seasonality, human resource deficits, and public infrastructure conditions, among other things. Thus, given the various elements of an effective referral system, Giovine and Ostrowski (2010) suggest that, rather than
developing a *one size fits all* approach, there is need to develop locally appropriate referral strategies.

Below are two case studies, compiled from the sources cited in the text, that highlight the contribution of communications and feedback systems, designated transport, specific protocols – amongst other things – that serve to support the reduction of maternal mortality.

**Grenada Study**
A study in Grenada, titled “Delivering Women-Centered maternity care with limited resources” (Laukaran, Bhattacharyya & Winikof, 1994 as cited by Gupta, Mavalankar & Trivedi, 2009), demonstrated that a well-functioning referral system made a good maternity care system possible. The study found that in Grenada at the time, virtually all deliveries were attended to by a skilled midwife, and there were clear protocols for managing complications. There was also effective communication between the primary and secondary care levels, an efficient emergency transport system and referral back to the primary facility as soon as possible (Gupta, Mavalankar & Trivedi, 2009: 8).

**Saving Mothers Giving Life (SMGL) in Uganda and Zambia**
The SMGL approach in Uganda and Zambia uses a district health systems strengthening approach to overcome the three delays that prevent pregnant women from receiving life-saving care during pregnancy and, in the event of an obstetric complication, emergency care within two hours. The latter has been achieved through, among other things, ensuring that lower level facilities provide obstetric care and referral facilities are adequately equipped to provide comprehensive emergency obstetric care. The MMR fell by 30% in target districts of Uganda and 35% in target facilities in Uganda and Zambia over a period of one year (Saving Mothers Giving Life (SMGL), 2014). Between June 2012 and December 2014, the MMR in target facilities in Zambia fell by 54% and 45% in Uganda SMGL (CDC, 2015). Based on experience in Uganda and Zambia, the model recommends a protocol-driven, integrated communication/transportation referral system. This, combined with other interventions such as ensuring availability of skilled birth attendants, availability of necessary infrastructure and equipment, community outreach and strengthening of the health management information system, contributed to reducing the maternity mortality ratio in the two countries.
2.8 Challenges in Maternal and Neonatal Referral Systems

Literature focusing on the assessment of maternal and neonatal referral systems in various settings suggests that such systems face a number of challenges. Cavallaro and Marchant (2012) did a critical review of literature on the third delay, so as to establish the responsiveness of emergency obstetric care systems in low- and middle-income countries. Of the 69 studies reviewed, 53 were conducted in Sub-Saharan Africa. Two of the studies were based in primary level facilities, five in district hospitals and twenty two covered multiple facility levels. The three most cited barriers to the provision of obstetric care were shortage of treatment materials, surgery facilities and qualified staff. The review also suggested that there were indications that emergency obstetric care referral systems, which are considered cornerstones in health systems’ responsiveness to obstetric emergencies, were largely dysfunctional (Cavallaro & Marchant, 2012). Similarly, Murray and Pearson (2006), in their review of maternity referral systems in developing countries, found that referral systems for maternity were often less than optimal (Murray & Pearson, 2006).

2.8.1 Health System Challenges

The literature suggests that, in many countries, many of the challenges associated with maternity and neonatal referral systems are applicable to the general patient referral systems. As a matter of fact, maternity and neonatal referral systems rely on the general patient referral system, as they often both use the same resources. It has also been observed that obstetric emergencies form a considerable proportion of all emergencies in the referral system (Jahn & De Brouwere, 2001). Studies highlighting challenges in general patient referral systems are therefore also useful in understanding maternity referral systems in particular.

In Zambia, there have been various references to a weak referral system within the public health service. For example, the National Health Strategic Plan 2011-2015 (MOH, 2011) notes that hospital referral systems are not working in Zambia, largely due to insufficient human resource capacity at the lower levels, a shortage of health workers and an erratic supply of essential drugs and medical supplies among other things. Improving hospital referral systems is one of the priority interventions under service delivery in the country’s National Health Strategic Plan 2011-2015, with a target of increasing access to quality and advanced referral medical care services in order to ensure efficient and effective continuity of care. However, in 2014, the
midterm review of the current National Health Strategic Plan stated that the referral system was an old and established concept that was still poorly functioning while noting renewed attention to restructuring and strengthening the referral system for effective continuum of care under the Directorate of Mobile and Emergency Health Services (MEHS) (MOH & MCDMCH, 2015). The Roadmap for Accelerating Reduction of Maternal, Newborn and Child Mortality, 2013-2016 also refers to the challenges of a weak referral systems and the absence of emergency systems in reducing maternal and neonatal mortality. Improving referral systems to ensure equitable access to MNCH services is one of the key strategies in the Roadmap (MCDMCH & MOH, 2013).

The review now highlights some of the findings of studies on maternity referral systems as well as on general patient referral systems.

**The Inappropriate Use of Referral Hospitals**

In 1999, Murray et al. (2001) conducted a study to provide data for the baseline monitoring and evaluation of five different aspects of the maternity referral system in Lusaka, Zambia. The study was based on the requirements of an effective referral system as suggested by Murray et al. (2001) and was intended to demonstrate how a combination of tools could be used to monitor the effectiveness of district maternity referral systems through a review of pregnancy related referrals in Lusaka. The bulk of the data was from the review of routinely collected health service data including statistical monthly returns from health facilities, health facility registers, and reviews of medical notes and partographs. The study looked at the distribution of births across levels of facilities; the use of EOC level facilities by women with complications; inappropriate use of the Comprehensive EOC level facility; progress towards reduction of maternal mortality at referral facility level and perinatal outcomes at peripheral facility level (Murray et al., 2001: 355).

In terms of use of the UTH, the study found that 72% of the referrals were made during pregnancy and that a high proportion of women (16.1%) were referred for labour without any complications. Further, less than one third of the referrals to UTH fit into the category of complicated cases as defined by the United Nations at the time. This suggests that some of the patients referred to UTH could have been attended to at the lower level facilities.
Inadequate Transport and Poor Communication Infrastructure

A study (Chirwa, 2011) was conducted in Kafue District, one of the districts in Lusaka province, to investigate the determinants, levels and patterns of maternal death. The study highlighted the lack of ambulance or transport support and the late arrival of patients with complications at the health centres as the barriers in the referral system (Chirwa, 2011). Austin et al. (2015) also identified lack of dedicated transportation and communication infrastructure as well as overcrowding at the referral hospital as barriers to obstetric care in Addis Ababa, Ethiopia. In Assin North, Ghana, in addition to poor referral transport systems and individual and socio-cultural factors, a study found that poor mobile network connectivity contributed to weakening of the referral system for emergency obstetric care (Afari, 2015).

Poor Communication, Feedback and Counter-Referrals from Referral Hospitals

The poor communication between health centres and referral hospitals, as well as the lack of feedback from the referral hospitals, are linked to some extent to the absence of adequate communication infrastructure. Atkinson et al. (1999) conducted a study in Zambia that found that, specifically at the level of the health centres, there was a lack of information on the diagnosis and the reasons for the referral of the patient. Many of those referred to UTH were not given a referral letter, and there was no linkage from UTH back to the health centre. The study mentioned earlier by Chirwa (2011) also observed poor communication between the health centre and the district hospital in Kafue District.

In 2014, a baseline facility assessment of 11 selected target districts in Copperbelt and Lusaka Provinces noted that routine feedback on the outcome of the patients who had been referred was received by only 41% of the referring facilities (MCDMCH, 2014). More recently, the study by Afari (2015) in Assin North, Ghana, also found that lack of standard systems for follow up and feedback weakened the referral process for emergency obstetric care.

With particular regard to the process of counter-referrals from referral facilities to primary health care facilities, Project NOVA, a USAID-funded project in Armenia explored existing MCH referral practices and pathways in rural Armenia to reveal gaps in the continuum of service delivery. Health care workers who participated in a focus group discussion noted, among other things, that the counter-referral system was non-functional. Counter-referral forms
were often missing, which made it difficult to follow up on a client’s treatment administered at the referral facility (United States Agency for International Development (USAID), 2009).

In seeking to address poor communication and record keeping in the referral systems in the Solomon Islands, Negin, Martin, Farrell and Dalipanda (2012) suggested that strengthening information systems could allow some elements of the referral system to be conducted electronically, thus simplifying communication and record-keeping and potentially reducing unnecessary referrals. In Zambia, an electronic patient referral system was piloted through the Zambia Electronic Perinatal Record System (ZEPRS) between 2004 and 2006 in Lusaka. The system was designed so that the two-way communication between the clinics in Lusaka and UTH would be complete. When staff members at the clinics referred patients to UTH, they entered the patient information into the system. Through the system, they were able to track the arrival, care and outcomes of their patients. This completed the feedback loop. Staff at both the clinics and UTH could generate reports from the system, including the reasons for referrals and outcomes. AT UTH, staff could see at anytime the patients that were being referred and prepare the necessary equipment and services to receive them. It is documented that one of the major challenges in the usage of the electronic system was that the UTH staff sometimes lacked the time to fill out the referral information (Darcy et al., 2010).

**Limited Capacity for Management of Obstetric Emergencies**

In 2005, a study was conducted to understand the factors contributing to an increase in obstetric referrals from Mpulungu Urban Clinic to Mbala Hospital, in the northern part of Zambia. The study used a descriptive cross sectional retrospective study design and reviewed data from Mpulungu Urban Clinic labour ward of 289 women with obstetric complications from 2002 to the first quarter of 2005. All the 11 nurses and midwives who conducted deliveries at this clinic were selected to participate in the study. The study found that a major factor for the referrals to Mbala Hospital was inadequate knowledge of the management of women in labour as well as ineffective use of the partograph when available. Among other things, the study recommended staff development, training on the use of the partograph and regular meetings with the District Health Management Team (Banda, 2005).

In 2014, in 11 selected targeted districts in the Copperbelt and Lusaka provinces in Zambia, the “Accelerating Progress towards Maternal, Neonatal and Child Morbidity and Mortality
Reduction in Zambia” (also referred to as the MDG Acceleration Initiative, or MDGI) did a baseline facility assessment as a prelude to the program which aims to improve the availability and quality of maternal, neonatal and child health and nutrition services. Using a mixture of purposive and random selection, 117 health facilities were assessed, which is nearly 50% of all eligible facilities in the target districts. In Lusaka, a total of 16 facilities were sampled. A cross-sectional comprehensive health facility and health worker survey was conducted to identify needs and gaps in public sector health facilities in 11 study districts in close collaboration with MCDMCH and MOH. The baseline assessment found that most of the facilities surveyed did not provide optimal maternal, newborn, or child health services and that the personnel had not received the required training to provide these services. There were also major deficiencies in supervision (MCDMCH, 2014).

A study by Simba, Mbembati, Museru and Lema (2008) in Tanzania, though referring to a general health referral system, also highlighted the significant contribution of lack of expertise and equipment at lower level facilities to inappropriate use of referral hospitals.

In Ethiopia, Austin et al. (2015) identified the lack of systematic pre-service and in-service training in basic emergency obstetric and neonatal care (BEmONC) and lack of supportive supervision as well as health system weaknesses as barriers to the provision of quality emergency obstetric care. The study looked at the barriers to providing quality emergency obstetric care in Addis Ababa in Ethiopia, with a focus on healthcare providers’ perspectives on training, referrals and supervision. This was a mixed methods study that included qualitative analyses and a quantitative survey covering 80% of providers of maternal health services in the same referral network. This was an urban referral network with a hospital and seven health centres. The report also noted that implementing regular supportive supervision visits that addressed the functioning of the emergency obstetric referral network could contribute to improving quality of care.

The study mentioned earlier, Afari (2015), used a comparable approach. The study was conducted in Assin North Municipal Assembly, a rural district in Ghana, to investigate baseline referral systems with a focus on describing barriers and solutions based on health care worker perspectives. This study was a mixed methods study that included a review of health facility registers and semi-structured interviews. One district hospital, six health centres and four health posts were included in the study. Eighteen health care workers at the different levels were
interviewed. This study also noted gaps in the ability of staff to recognize danger signs, stabilize patients, hand over to receiving staff and inequalities in the standards of care provided. Overall, the most commonly noted gaps in the study were recognizing danger signs, alerting receiving units, accompanying critically ill patients, documenting referral cases and giving and obtaining feedback on referred cases (Afari, 2015).

Apart from limited training and the absence of supportive supervision, the shortage of midwives has a bearing on the capacity to manage obstetric emergencies. In the MDGI baseline assessment (MCDMCH, 2014), a 44% shortage of midwives at UTH was documented.

**Poor Infrastructure in Health Centres and Referral Hospitals**

The MDGI baseline assessment (MCDMCH, 2014) mentioned earlier found that in terms of infrastructure for the provision of maternity services, seven of the 117 facilities, including the UTH and Kanyama, Chipata and Mutendere clinics (also covered in this study), did not have enough delivery beds, and that pregnant women delivered on the floor. Inadequate infrastructure and equipment to deal with obstetric emergencies were also found by Chirwa (2011).

**Absence or Limited Use of Referral Protocols**

In the MDGI assessment above, it was found that in terms of referral protocols, 70% of the facilities had formal written protocols for referring patients but that only 46% would notify the receiving facility of the referral. Banda (2005) observed that there were no labour ward protocols, including referral criteria, in Mpulungu Urban Clinic in Northern Zambia.

Studies from other countries also highlight the challenge of limited availability or use of referral protocols. For instance, in 2009, in Gujarat, India, Gupta, Mavalankar and Trivedi (2009) undertook a management study to analyse the referral policies, guidelines and problems with the system and implementation. The study used a desk review, interviews with key informants and field trips to collect data. The study found no systematic referral from lower to higher facilities and there was no follow up by the referring facilities. There was also no system to follow up adherence to referrals, and clients were referred without referral slips. The study recommended that the state needed to strengthen the referral system, including the development of referral protocols, referral cards and non-monetary incentives for following the referral chain.
The study further recommended that referral protocols and planning for referrals should be part of all EmOC (Emergency Obstetric Care) and skilled birth attendant (SBA) training (Gupta, Mavalankar & Trivedi, 2009).

**Overuse and Inappropriate Use of National Referral Hospitals**

In 1996, Atkinson et al. (1999) conducted a study that explored, amongst other things, the functioning of the referral system in Lusaka. Data was collected through surveys in the community, at three of the larger urban health centres (namely Chipata, Chawama and Chilenje) and at the UTH. The study found that UTH was not functioning as a national referral hospital but more as a district hospital as most of the in-patients were Lusaka residents and many of the patients had conditions that could have been treated at the lower levels. Further, the referral procedures were not working well on a number of counts and the links between hospital and urban health centres were found to be very weak.

The findings in this study are comparable to the findings of a study by Blas and Limbambala (2001) that focused on the challenges faced by hospitals in relation to health sector reforms between 1996 and 1998 using the case of Zambia. The study found that 89.8% of the in-patients at UTH were from within Lusaka province and that 87.5% of the in-patients were from one district, within the province, namely the Lusaka district. It was concluded that the UTH could not therefore be regarded as a national referral hospital and that its lower-level type operation had important implications for the country’s stepped referral system as a whole (Blas & Limbambala, 2001).

While the two studies mentioned above were both published over a decade ago, their findings in relation to the functioning of UTH as a national referral hospital remain valid. In 2015, MOH observed that in Lusaka District, the pyramid-based referral structure was nonexistent and that in most instances, patients that should have been attended to at a level one hospital were referred directly to UTH, thereby compromising the continuum of care (MOH, 2015).

Similar findings were observed in a study in Zimbabwe (Sanders, Kravitz, Lewin & McKee, 1998) focusing on whether the hospital referral system in Zimbabwe was working efficiently or not. It was concluded that the national referral hospital was attending to a similar mix of patient issues / problems as the district hospital but at a cost that was six times higher. The study
recommended the strengthening of the intermediate facilities including district hospitals to address this challenge (Sanders et al., 1998). A similar recommendation was made by Simba et al. (2008), that efforts to improve referral systems in low-income countries would require that the primary and secondary level hospitals services be strengthened in order to limit inappropriate use of national referral hospitals. This recommendation followed a study conducted in Tanzania to examine the referral patterns of patients received at a national referral hospital to inform the process of strengthening the referral-system. The study highlighted the significant contribution of lack of expertise and equipment at lower level facilities to self-referral, bypassing of the referral-system and ultimately the inappropriate use of national referral hospitals.

The issue of the high cost of overuse of the referral hospital was also found in a study conducted in the Solomon Islands (Negin et al., 2012). This study was done to generate evidence to improve referral practice effectiveness and efficiency following the development of patient referral guidelines. This research highlighted the need for greater policy attention to referrals from a number of different perspectives: equity of access, quality of care and cost. The study suggested that beyond human resource needs, there was need to strengthen the infrastructure and supplies of periphery facilities.

### 2.8.2 Socio-Cultural Barriers

In addition to health system challenges, there are barriers that are socio-cultural in nature. A study in Niger sought to understand the constraints to referral that related to the interaction between nurses and patients. This was in recognition of the fact that referral decisions were not just a matter of technical or organisational considerations but also involved emotions, stress and anxiety on the side of both the health care providers and the patients (Bossyns & Van Lerberghe, 2004). Information was gathered in two rural districts in Niger using semi-structured interviews, focus group discussions with patients and relatives of patients, as well as interviews with referred patients. The study concluded that while the failure of referral systems in sub-Saharan rural Africa was often attributed to transport and financing challenges, the patient-nurse relationship was often characterized by authoritarian attitudes on the part of nurses and passivity on the part of patients. This had the effect of undermining the referral system. In this study, nurses seemed to have adopted the strategy of only proposing a referral to save face when no other solution could be envisaged. This, combined with the reluctance of patients to be referred
due to transport and related costs, made the referral pattern ineffective. The study recommended that there was need to invest in district hospitals to make referrals visibly worthwhile and invest in the human resource at the first level of contact.

The study by Afari (2015) also found individual and socio-cultural factors as a barrier to referrals. The effect of nurse-patient relationships is not widely researched and is an area that may require further investigation.

It is interesting to note that the challenges are common in many of the settings highlighted and that there are often multiple elements that contribute to the poor functioning of referral systems and ultimately to poor maternal health outcomes. Efforts to address the challenges to the referral systems for maternal and neonatal health, must therefore address all the problematic elements to yield the desired results. Targeting multiple referral challenges concurrently to address referral processes holds better promise for reducing maternal mortality (Afari, 2015).

In reviewing studies done on general health referral systems in Zambia and elsewhere, comparable challenges were observed.

2.9 Gaps in Research on Maternity Referral Systems

According to Murray and Pearson (2006), at the time of their study of current knowledge and future research needs in maternal mortality in developing countries, maternity referral systems had been under-documented, under-researched and under-theorized. Further, even though maternity referral systems were viewed as critical in reducing maternal mortality and ensuring postpartum care, there were gaps in terms of research and monitoring of the effectiveness of these referral systems. Earlier, Bossyns and Van Lerberghe (2004) indicated that, despite the limitations of documentation on maternal referral systems, particularly within a district setting, studies on maternal mortality often suggested that the failure of districts to reduce maternal mortality was associated with their inadequate referral systems. Since these two studies, the number of studies on maternity referral systems has been increasing. However, gaps in literature still exist.

Murray and Pearson (2006) suggest the following as some of the information gaps that must be addressed. There is a need for better understanding of the ways in which the maternity referral
set-up impacts upon the poorest and most socially excluded; a far better understanding is needed of the consequences of the proliferation of non-government sector maternity care provision for a meaningful referral system and the related need for coordination of these services; and there is need for further clinical studies and reviews concerning how maternity referral systems impact upon neonatal health and survival in developing countries, as well as the programmatic implications (Murray & Pearson, 2006: 2212).

A study by Hussein et al. (2012) recommended that while continuing to invest in implementing referral interventions, these must be rigorously monitored and evaluated. Further, future research should seek to understand how interventions work and why, using methods that provide understanding of causal pathways and mechanisms of action including theory of change, logic chains and contribution analysis (Hussein et al., 2012: 10). Such work could generate knowledge on how referral interventions work and provide transferable and cumulative lessons from research that takes into account contexts and result in improved learning across research, policy and practice (Hussein et al., 2011).

The literature reviewed provides a conceptual framework for developing and assessing maternity referral systems, notes the limited research on maternity referrals systems, highlights the challenges of referral systems and suggests some strategies for improving these systems. Apart from the gaps in literature identified by Murray and Pearson (2006), there is a gap in terms of research to demonstrate the interdependence of the requirements of an effective referral system as espoused by Murray et al. (2001). This is a gap that this study will attempt to address.

With specific regard to Zambia, there has not been a recent study to explore referral and counter referral systems for maternal and neonatal health. This study was therefore an attempt to highlight what is working in the referral system, what is not working and to identify suggestions for improving the system. The study also sought to demonstrate the interdependence of the requirements of an effective referral system as espoused by Murray et al. (2001), with a particular focus on the role of communication and feedback.
CHAPTER THREE - RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This chapter introduces the methodology used to collect data for this study. The limitations of the study, and the ethical considerations employed in the collection of the data are also reviewed.

3.2 Aim and Objectives of the Research

The aim of this study was to explore the strengths and weaknesses of the maternity-related referral system that is currently operating between the different levels of health care in the urban district of Lusaka, Zambia and consider how the current system might be strengthened so as to support a stronger continuum of care with respect to maternal and neonatal health.

The objectives of the study were to:
- Describe the maternity-related referral and counter-referral system currently operating between the primary and tertiary levels of care in the public health service in Lusaka District, Zambia.
- Identify the critical strengths and weaknesses in the referral system.
- Identify ways in which the system can be improved so as to support the provision of an appropriate continuum of care for maternal and neonatal health in the district.

3.3 Methodology

Study design

This explorative study used a descriptive qualitative research approach. Qualitative research aims at elucidating lived experiences and the questions of “why”, “what”, and “how” (Green & Thorogood, 2004). The approach was useful in understanding the experiences and perspectives of the various stakeholders who are either directly or indirectly involved in delivering maternal and neonatal health (MNH) services in Lusaka district. The qualitative approach also enabled
the researcher to probe many of the responses in order to gain an in-depth understanding of the referral system for maternal and neonatal health.

**Study population**

The study population in this study consisted of all stakeholders involved in the planning, delivery, support, evaluation and/or oversight of MNH-related health services from a primary to tertiary level of health care in the urban district of Lusaka, Zambia. The study also included international agencies working on maternal and neonatal health in various parts of the country.

**Sampling**

In this study, potential interviewees were purposively sampled from the LDHMT, the Ministry of Health, the Ministry of Community Development Mother and Child Health, non-governmental organisations working on maternal health, the University Teaching Hospital and primary health care facilities in the district. In relation to the latter, six of the 12 midwife-led primary health care facilities or clinics were initially sampled by the researcher in consultation with the study’s local Supervisor who is the Consultant Gynaecologist at UTH and the liaison point-person with the LDHMT on maternity referrals to UTH.

Data on maternity admissions and deliveries at clinics, as well as referrals to UTH from clinics was accessed from the UTH from the records at the Department of Obstetrics and Gynaecology. The data accessed was from January to December of 2014 and from 29th December 2014 - 11th October 2015.

So as to capture the range of referral and counter-referral experiences that clinics in the Lusaka district encountered, two clinics with the highest number of referrals in 2014 (Kanyama & Chipata), clinics with a low number of referrals (Kalinglinga and Bauleni) and one in between (Mutendere) were selected to be a part of the sample. As can be seen from the table below, a high number of referrals to UTH was considered to be over 2000 referrals annually; between 300 and 500 referred to a low number of referrals and between 800 and 1400 referrals for the mid-level. In addition to the considerations around the number of referrals, Chipata and Kanyama clinics were selected as they were among five clinics in the district that earmarked for upgrading to first level hospitals by 2015 – the others being Matero, Chilenje and Chawama clinics. It was hoped that representatives from these two institutions would share their experience of referrals and counter-referrals between them and the PHC clinics as well as
between themselves and the UTH. At the time of the study, Chipata clinic was already operating as a first level hospital.

Chainama Clinic, is a practicum site for the Chainama College of Health Sciences and is therefore not under the authority of the LDHMT but under the direct authority of the Ministry of Health, which has responsibility for health training schools. It was included in the sample on account of the high proportion of cases it refers to UTH (45% in 2014 and 46% of maternity admissions) as illustrated in Table 3.1 below. It should be noted when comparing the tables that in 2014 there were 11 mid-wife led clinics However, in 2015 – the year in which this study took place - a 12th clinic was established in the Lusaka district, the Chainda Clinic.

Guided by the local supervisor, once the researcher had identified these clinics based on the criteria above, the proposed sample was presented to the LDHMT for their review and the sample was approved on 2nd October 2015.

In relation to international aid agencies, five organisations were sampled but only three were able to participate. These included the United States Agency for International Development (USAID), Johns Hopkins Program for International Education on Gynaecology and Obstetrics (JHPIEGO) and Mobilising Access to Maternal Health Services in Zambia (MAMaZ), representatives from the United Nations Childrens Emergency Fund (UNICEF) and United Nations Population Fund (UNFPA). These five agencies were sampled as some of the organisations working on maternal and neonatal health and specifically working to provide support to the Ministry in the development of maternity referral systems in Zambia.

The Provincial Health Office (PHO) was also included in the sample on account of its supervisory and coordinating roles with respect to UTH and the LDHMT.
Table 3.1 Maternity admissions and deliveries at clinics and referrals to UTH, January to December 2014 and January to December 2015.

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Period</th>
<th>Maternity ADMISSIONS to Clinic</th>
<th>DELIVERIES at Clinic</th>
<th>REFERRALS to UTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauleni</td>
<td>2014</td>
<td>1,594</td>
<td>1,026</td>
<td>450</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>1,465</td>
<td>973</td>
<td>366</td>
</tr>
<tr>
<td>Chainama</td>
<td>2014</td>
<td>3,170</td>
<td>1,495</td>
<td>1,429</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>2,568</td>
<td>1,176</td>
<td>1,181</td>
</tr>
<tr>
<td>Chainda</td>
<td>2014</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>7,992</td>
<td>657</td>
<td>206</td>
</tr>
<tr>
<td>Chawama</td>
<td>2014</td>
<td>5,155</td>
<td>4,145</td>
<td>424</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>4,652</td>
<td>3,597</td>
<td>295</td>
</tr>
<tr>
<td>Chilenje</td>
<td>2014</td>
<td>3,565</td>
<td>2,569</td>
<td>804</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>3,287</td>
<td>2,636</td>
<td>609</td>
</tr>
<tr>
<td>Chipata*</td>
<td>2014</td>
<td>8,028</td>
<td>5,969</td>
<td>1,362</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>9,013</td>
<td>7,190</td>
<td>797</td>
</tr>
<tr>
<td>George</td>
<td>2014</td>
<td>4,854</td>
<td>3,496</td>
<td>714</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>5,086</td>
<td>3,571</td>
<td>861</td>
</tr>
<tr>
<td>Kalingalinga</td>
<td>2014</td>
<td>1,415</td>
<td>984</td>
<td>317</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>1,490</td>
<td>1,113</td>
<td>282</td>
</tr>
<tr>
<td>Kanyama</td>
<td>2014</td>
<td>10,890</td>
<td>7,552</td>
<td>2,825</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>12,381</td>
<td>8,112</td>
<td>3,545</td>
</tr>
<tr>
<td>Matero REF</td>
<td>2014</td>
<td>5,893</td>
<td>3,629</td>
<td>1,687</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>6,472</td>
<td>4,170</td>
<td>1,697</td>
</tr>
<tr>
<td>Mutendere</td>
<td>2014</td>
<td>3,354</td>
<td>2,296</td>
<td>811</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>2,815</td>
<td>1,990</td>
<td>503</td>
</tr>
<tr>
<td>Ngombe</td>
<td>2014</td>
<td>2,271</td>
<td>1,541</td>
<td>565</td>
</tr>
<tr>
<td></td>
<td>2015</td>
<td>2,186</td>
<td>1,444</td>
<td>611</td>
</tr>
</tbody>
</table>

Source: Adapted from Department of Obstetrics & Gynaecology Data, UTH.

* Chipata Clinic, which used to be a PHC, has been operating as a first level, or district, hospital since 2014.
Recruitment of interview participants
In terms of the decision-making around who, from each of the stakeholder groups, ought to be requested to participate in an interview, the following potential interviewees were identified by the researcher in consultation with the local Supervisor:

- The Sisters-in-Charge of each of the six clinics;
- The Sisters-in-Charge of the Labour, Post-natal and Gynaecology Emergency Admission Wards, the Acting Nursing Officer for the Maternity Ward, the Head of Department in the Department of Obstetrics and Gynaecology and the Consultant of Obstetrics and Gynaecology at UTH; and
- In relation to provincial and district health administration in Lusaka, the Provincial Medical Officer and the Provincial Nursing Officer were included while the District Medical Officer, the Nursing Care Expert and the Maternal Health Coordinator were included from the LDHMT.

In terms of international aid agencies, Senior Advisors and Programme Managers for Maternal and Child Health were preferred as interviewees as the researcher was of the understanding that they had oversight of MNCH programmes within their organizations as well as the relevant technical expertise on maternity referral systems. Of the 25 people initially approached to participate in the study, only one respondent working for the Ministry of Health declined to participate. The two UN agencies’ representatives initially sampled, were not interviewed as one on was on leave and the other out of town during the data collection phase. A total of 23 people were thus interviewed during the course of this study.

Data collection methods
Data was collected through individual, semi-structured interviews with staff in each institution. Interviews with each set of stakeholders (namely the clinics, UTH, LDHMT, Ministry of Community Development Mother and Child Health, the Ministry of Health and the international aid agencies) was structured around a similar set of questions but modified to take into account their unique role in relation to maternal and neonatal healthcare. The interview guides for each set of stakeholders can be found in Appendix 8.
The main categories of enquiry included the understanding and experiences of the participants of the referral system for maternal and neonatal health, the identification of strengths and weaknesses as well as suggestions for improvement of the system.

The interview guides were first developed by the researcher in consultation with her SOPH Supervisor. Before finalization of the interview guides, the researcher went through all the questions with her local Supervisor to ascertain their appropriateness for the local context and to add or revise particular questions.

Data collection procedures
In terms of process, approval to conduct the study was obtained from the Senate Research Committee of the University of the Western Cape in South Africa and the Excellence in Research Ethics and Science (ERES) Converge Ethical Review Board in Zambia on 8th September 2015 and 13th September 2015 respectively. Further approval for entry into the health facilities was granted by the Ministry of Health on 21st September 2015. (See Appendices 1 - 3). The study was then formally introduced to the Lusaka District Health Management Team (LDHMT) by way of a letter and once they sanctioned the study on 2nd October 2015, the researcher proceeded with the data collection (Appendix 4). The data collection occurred over a three week period between 1st October and 21st October 2015. A letter was submitted to UTH to request formal approval to conduct the study within UTH. Approval was granted on 2nd October 2015 (Appendix 5).

In relation to the actual data collection, all respondents were either contacted by both phone and/or email. For the clinics, the LDHMT provided phone numbers for all the Sisters-in-Charge and the researcher called them, introduced herself and the purpose of the call and provided them with some introductory information on the nature of the research study. Once they had verbally agreed to take part in the study, appointments were set up for a face-to-face meeting. For the UTH, once approval was granted by the Senior Medical Superintendent, the Consultant for Obstetrics and Gynaecology (i.e. the local Supervisor) and the matron (Acting Nursing Officer for Maternity) introduced the researcher to the other members of staff that had been identified as potential respondents. Once the researcher had been introduced, the researcher made appointments with each individual for an interview to be conducted at a time of their convenience. All interviews were held at the institutions where the respondents worked. For instance, all interviews in the clinics were held in the office of the Sister-in-Charge. Upon
arrival for the interviews, the researcher re-introduced herself and the purpose of the study. The interviewees were then given time to read the information sheet and consent form. A few were reluctant to write their names on the consent form but were happy to just append their signature. It seemed that some were reluctant to write their names in full to avoid being directly linked to the study. In the end, only one respondent totally refused to write their name in full but appended their signature. Once the consent form had been signed or their signature recorded, interviewees were asked if they were comfortable for the interview to be recorded. The majority declined with only 3 out of the 23 interviews that were conducted being recorded. Despite the researcher assuring the interviewees that the recordings and the information that they shared would remain completely confidential, some interviewees feared that the recordings would incriminate them in some way or other. For example, a few of the interviewees indicated that they were concerned that the interview might be used for other purposes and this could then get them into trouble with their superiors or the government. The researcher therefore took detailed notes throughout the majority of the interviews – recording the interview as close to verbatim as possible.

All interviews were conducted in English and were done at a mutually agreed time and location. The interviews lasted between thirty minutes and one hour. Once the interview was completed, the researcher asked the interviewees if they had anything to ask or share. Most of the interviewees took the opportunity to emphasize or highlight some aspect of the interview. The researcher then thanked the interviewees and committed to sharing the findings of the study with them once it was finalized.

**Rigor**

As Sandelowski (1986: 27) notes, “qualitative methods are frequently viewed as failing to achieve or make explicit rules for achieving reliability, validity and objectivity – criteria of adequacy or rigor in scientific research”. Thus, making explicit how rigor was achieved in this study is important. The following strategies were used:

*Triangulation*, defined by Cresswell and Miller (2000) as a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study. Triangulation may be done across data sources, theories, methods and among different investigators. In this study, triangulation was done across data sources. For example, information collected through the interviews with the personnel at the clinics was triangulated with information obtained from staff working at the UTH and in turn
with data obtained from Ministry officials, members of the LDHMT, the provincial health office and international aid agencies. These are all stakeholders working within the same referral system but with different roles.

*Member checking*, defined as “the most crucial technique for establishing credibility”, involves “taking data and interpretations back to the participants in the study so that they can confirm the credibility of the information and narrative account” (Lincoln & Guba, 1985, as cited by Cresswell & Miller, 2000: 127). In this study, a summary of what the researcher thought were the key points discussed in the interviews was presented to the participants at the end of the interview so that they could confirm that the researcher indeed had captured the essence of what they had said.

*Peer debriefing or peer review* is defined as “the review of the data and research process by someone who is familiar with the research or the phenomenon being explored” (Cresswell & Miller, 2000: 129). The local Supervisor was a local health professional who is a MNH specialist and has experience in conducting research on maternal health and referral systems in Zambia. He provided peer support at key points in the preparatory stages, in the data collection phase, the analysis and the report writing stages given his understanding of the Zambian context. This helped establish the best way to engage with respondents as well as ensuring that the tools used for data collection were the most appropriate in generating data that would answer the study question.

*Researcher reflexivity* is defined as “the process whereby researchers report on personal beliefs, values, and biases that may shape their enquiry” (Cresswell & Miller, 2000: 127). As the researcher, I reflected on the assumptions, influences or biases I brought to the study. One of the obvious biases was my perception that the maternity-related referral system is fraught with challenges. Mindful of this as I began the process of interviews, I ensured that this bias did not dominate the content of the interviews by, for example, following the interview guide, recording my reflections of each interview in a fieldwork notebook.

*Analysis:* A thematic analysis approach to data analysis was used in this study. According to Green and Thorogood (2004), thematic analysis has to do with categorizing data according to the recurrent or common themes that emerge. The aim is to report key elements from the accounts of the respondents. In this study, this was done through the review of the data collected
during the interviews on an ongoing basis. The researcher identified common themes and sub-themes as they came up from the interviewees’ statements and categorized the data accordingly. The researcher also looked at relationships between the common themes and sub-themes to identify patterns that were emerging under each theme, and to help compare, contrast and build up categories and meanings. The researcher observed that the themes across the different groups of stakeholders were similar, with variations in their perspectives based on their roles within the referral system.

3.4 **Limitations**

One of the obvious limitations of this study was that it only focused on an urban setting and did not therefore take into account the particular dynamics and challenges found in the peri-urban health centres in Lusaka district. As such, there would be value in a study that would take into account the whole district.

Another limitation of the study was that, given the researcher’s resource constraints (specifically in terms of time and funding), data were only gathered from six of the 12 midwife led clinics. However, it is hoped that, as an explorative study, it will be able to generate some findings that could be useful for all the 12 midwife-led clinics in the district.

Another limitation to the study is that it did not include the perspective of clients – and thus, the direct experiences of mothers with respect to the district MNH services (and specifically the referral processes) were not considered. It was felt that including a client perspective could be considered as the next step, or as a complementary research study to this one – but would be too ambitious an undertaking to include in the current study given the limitations of time and resources at the disposal of this student researcher. In addition, while noting the importance of the community perspective, the researcher wanted to take a look at things from the perspective of service providers and understand what is happening within the referral system, given the unavailability of such information. As suggested by Austin et al. (2015), in terms of the approach of engaging health care providers, it was noted that the perspective of these providers is vital in identifying and evaluating interventions to improve the quality of emergency obstetric care as well identifying high impact interventions that would address poor quality emergency obstetric services.
3.5 *Ethics Statement*

After ethical approval was obtained from the University of the Western Cape through the Senate Research Committee, the research protocol was submitted to the Excellence in Research Ethics and Science (ERES) Converge Ethical Review Board, one of the three research ethics boards in Zambia. Once ethics approval was obtained from the UWC Senate Research Committee (8th September 2015) and by the ERES Converge IRB (15th September 2015), the protocol was submitted to the Directorate for Public Health and Research in the Ministry of Health, Zambia, as well as to the Lusaka District Health Management Team, to facilitate access to the relevant health facilities. Participation in the study was voluntary for all the respondents. They were all provided with an information sheet (Appendix 6) stating the details of the research study, requesting their voluntary participation and assuring them of confidentiality. Their informed consent was sought (Appendix 7), and those willing to participate in the research signed the relevant informed consent form. Respondents were also assured that there would be no adverse consequences for them if they decided *not* to participate in the study. They were also informed that their names would not appear in any of the reports related to the study. Although the need did not arise during the course of conducting interviews, the researcher did make arrangements for follow-up counselling support should the need arise as a result of the interviews; a professional counsellor was on call should such a need arise.
CHAPTER FOUR - RESULTS

4.1 Introduction

This chapter begins with a brief description of the key stakeholders involved in the provision of maternal and neonatal health services in the public sector in Lusaka. This is followed by a presentation of the respondents’ observations and experiences of, and insights into, the functioning of the maternity-related referral system between primary and tertiary levels of care in the district. Thereafter, recommendations for how the functioning of the existing referral system could be improved are presented. Based on the study’s findings – presented through a series of key themes that emerged from the 23 interviews conducted – the chapter ends by highlighting the strengths and weaknesses of the current referral system as well as some related suggestions for how the system could be improved as suggested by the respondents.

Table 4.1. The categories of respondents interviewed

<table>
<thead>
<tr>
<th>Type of Institution/Organisation</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinics (Sister-in-Charges)</td>
<td>6</td>
</tr>
<tr>
<td>Lusaka District Health Management Team</td>
<td>3</td>
</tr>
<tr>
<td>Provincial Health Office</td>
<td>2</td>
</tr>
<tr>
<td>University Teaching Hospital (Department of Obstetrics &amp; Gynaecology)</td>
<td>2</td>
</tr>
<tr>
<td>University Teaching Hospital (Maternity Unit)</td>
<td>5</td>
</tr>
<tr>
<td>Ministry of Community Development Mother &amp; Child Health</td>
<td>1</td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>1</td>
</tr>
<tr>
<td>International Agency</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>
4.2 Key Stakeholders Involved in the Provision of Maternal and Neonatal Health Services in the Lusaka District

The key stakeholders in the provision of maternal and neonatal health services in Lusaka district are the Provincial Health Office (PHO), the Lusaka District Health Management Team (LDHMT) and the University Teaching Hospital (UTH). All of these stakeholders work under the direction of the Ministry of Health (MOH), which has overall responsibility for health in Zambia. Whilst they each have a unique role, their work is also complementary so as to ensure the coordination of the provision of maternal and neonatal health in Lusaka district. These unique but linked roles were elaborated on by a number of respondents during the interviews and form the basis of the data presented in the first section of this chapter.

4.2.1 Provincial Health Office

The Provincial Health Office (PHO) is the link between the national level and all the lower levels of the health system. The role of the PHO is to coordinate all provincial health services across the continuum of care and to provide leadership to ensure that quality services are provided in the Lusaka Province.

*The role of the PHO is to coordinate health services across the continuum of care including the non-governmental organisations and private sector.* (Respondent 2)

Among other things, this includes providing technical support to all public health facilities as well as capacity building through on-the-job training and mentorship to all cadres of health workers.

*[The PHO provides] Capacity building...on the job training and mentorship with a focus on improving quality of care.* (Respondent 2)

With regard to maternal and neonatal health services, the PHO is responsible for the coordination, planning, monitoring and evaluation of the services and ensuring that services – including referrals for maternal and neonatal health – are provided according to the approved guidelines. The PHO noted that UTH, though a tertiary institution and reporting directly to the Ministry of Health, was administratively coordinated by the PHO on account of its critical role to the population of Lusaka. This is based on the reality that, despite being intended as a national...
referral hospital, the majority of patients at UTH are Lusaka residents. Lusaka also has Levy Mwanawasa General Hospital (LMGH), a second level hospital established in 2011 to assist in the de-congestion of UTH. Officials at the PHO noted that there was good collaboration among the institutions involved in the provision of maternal and neonatal health services.

*There is very good collaboration between the UTH, the province and the district.* (Respondent 2)

Using an agreed process and set of criteria, the PHO oversees both the UTH and the LDHMT through performance assessments. These are conducted twice a year and consist of desk reviews and “snap shot” observations. In addition, as part of these performance assessments, the PHO may visit the antenatal and postnatal wards, the theatre or the neonatal unit to see the extent to which UTH and the clinics were providing services in line with set protocols and guidelines. Based on the findings of these performance reviews, the PHO then compiles a report and provides UTH and the LDHMT with both written and verbal feedback specifying actions that need to be undertaken. Where necessary, and depending on the issues identified, the PHO will provide appropriate technical assistance to support the recommended interventions.

**4.2.2 Lusaka District Health Management Team**

The Lusaka District Health Management Team (LDHMT) has responsibility for health services in the district.

*The role of the LDHMT is to ensure functionality of the health centres, that is, appropriate funding, capacity building, availability of essential commodities and that ambulance services are available, monitoring human resource gaps.* (Respondent 21)

In terms of maternal and neonatal health in particular, the LDHMT provides supervisory support, technical support and mentorship to facilities and facilitates the training of staff involved in providing emergency obstetric care. The LDHMT also collects data on the provision of maternal and neonatal health services in the district. This is done in the form of a weekly and monthly report compiled and submitted to the LDHMT from the labour wards in the 12 clinics that provide maternity care in the district. Among other things, these reports include information on the number of deliveries, as well as referrals made from a facility to UTH or Levy
Mwanawasa General Hospital. Lusaka district has 23 primary health care facilities that are often the first level of contact for people seeking health care.

Respondents from the clinics reported that, among other services, they provided curative and preventive services, maternal and neonatal health services, mother and child health services, growth monitoring, HIV services, non-communicable diseases, male circumcision, cervical cancer screening and nutrition services. As mentioned in the previous chapter, 12 of the 23 primary health care facilities in the district are midwife-led clinics or delivery centres. In terms of maternal and neonatal health these 12 clinics provide antenatal, delivery and post-natal services and refer obstetric complications to the UTH or Levy Mwanawasa General Hospital. The main complications that respondents from clinics reported referring up were post-partum haemorrhage, pre-eclampsia and eclampsia. Since 2014, one of the 12 PHCs offering maternity services, Chipata Clinic, has been operating as a first level or district hospital, and is able to manage a number of these complications, including the performance of caesarian sections. An additional four of these midwife-led PHCs had been earmarked to become first level hospitals. In terms of staffing, on average, the delivery centres from which the respondents were drawn had 16 midwives each. Six of the 12 delivery centers, hereafter referred to as clinics, namely, Bauleni, Mutendere, Kalinglinga, Chipata (now first level hospital), Kanyama and Chainama, were included in the study sample.

4.2.3 University Teaching Hospital

The University Teaching Hospital (UTH) is a national referral hospital in Zambia with subspecializations in internal medicine, surgery, paediatrics, obstetrics, gynaecology, intensive care, psychiatry, training and research.

*UTH is a tertiary referral hospital receiving clients from all over the country.* (Respondent 16)

Currently, all complicated maternity and neonatal cases that cannot be attended to at the clinics in Lusaka are referred to the maternity unit of the UTH or the Levy Mwanawasa General Hospital.

*On average in 2014, 80% [of the maternity cases at UTH] were referred.*

(Respondent 6)
In addition to attending to referred patients, the specialists in the Department of Obstetrics and Gynaecology at UTH provide technical back up for the lower level health facilities through occasional interlabour ward meetings and through training when required. At the time of data collection (October 2015), it was reported that UTH had approximately 60 midwives in total with an average of 7 midwives working on each shift.

4.3 The Referral Process for Maternal Health from Delivery Centres to UTH

All the respondents were asked to describe the referral process for maternal and neonatal health between the primary health care facilities and the UTH. The responses were consistent among the 13 respondents from the clinics and UTH. Essentially, when a pregnant woman in labour presents at a health centre, she is assessed by a midwife, nurse or clinical officer. If there is an obstetric complication that the clinic is unable to handle, a decision is made by the midwife or nurse who assessed the patient to refer her to UTH or to Levy Mwanawasa General Hospital. This decision to refer is guided by the midwifery training as well as a list of indications that has been provided to health facilities, and which also forms the basis for reporting to the LDHMT (Appendix 9).

Using a referral form, the patient’s details are captured by a member of staff in the labour ward at the clinic. This includes the name of the patient, the reason for referring the patient, the provisional diagnosis made by the referring health worker and the investigations that have been done at the health centre. The midwife then calls for an ambulance from what is known as the ‘Command Centre’: a central place in Lusaka where ambulances are stationed and dispatched from in the case of an emergency. The patient is then accompanied by a midwife to UTH, where the midwife will do a hand-over to the staff at UTH before returning to his/her clinic. After treatment at UTH, a discharge summary report is completed and a copy given to the mother and another sent via the mother to the referring clinic. The discharge summary includes a labour and delivery summary showing such things as duration of labour, method of delivery as well as vital statistics of the infant. The following diagram gives a representation of the referral process from the clinics to UTH as described by the respondents.
Figure 4.1. The referral process from the clinics to UTH as described by the respondents

The description outlined above, drawn from respondents working from the provincial to facility level, provides a valuable description of the pathway a woman would take were she to require emergency obstetric care. However, the study found that in practice the process was not seamless but rather fraught with challenges at each stage. In addition, whilst the steps and process described above are very familiar to those working within the Zambian’s district health system, it appears that they have not been documented in a formal manner and have thus not been available as information for external stakeholders – including clients and citizens who might benefit from an understanding of the referral process.

4.4 Strengths and Challenges Identified in the Referral System of Maternal and Neonatal Health in Lusaka District

All the respondents were asked what they thought were the strengths and weaknesses or challenges of the referral system for maternal and neonatal health in Lusaka district. Their responses are now presented according to the main themes that emerged during the course of the interviews. For each theme, both the strengths and the weaknesses are outlined – just as articulated by the respondents in their interviews with the researcher.

4.4.1 Establishment of First Level Hospitals and Proximity to Referral Hospital

One of the significant strengths of the system, as mentioned by the PHO, was the earmarking of five clinics, namely Chipata, Matero, Chilenje, Chawama and Kanyama clinics, for upgrading to first level hospitals. These first level hospitals should be able to provide both basic and comprehensive emergency obstetric care, in line with the WHO signal functions, as articulated by WHO (2009), and highlighted in the Report of the Auditor General (2015). The
conversion of these clinics should have been completed by 2015; however, at the time of data collection, in October 2015, only one of these (Chipata Clinic) was operating as a first level hospital – and had been since September 2014. The Sister-in-Charge at Chipata Clinic reported that maternity referrals to UTH had been substantially reduced from an average of over 100 a month to a maximum of about 42 per month as a result of the upgrading. This is supported by the data in Table 3.1 in Chapter Three which shows a reduction in referrals from Chipata Clinic to UTH and Levy Mwanawasa General Hospital from 17% in 2014 to 8.8% in 2015. In addition to the new theatre, the facility had 5 doctors on its staff and a doctor able to handle the bulk of obstetric complications was available on a 24-hour basis. Both the PHO and the Ministry of Community Development Mother and Child Health highlighted how the establishment of first level hospitals was a positive development for the referrals system, as it would decongest UTH and strengthen primary level health care in Lusaka district.

Another strength highlighted by respondents was that Lusaka had a good road network and that all of the clinics in the study were within 7km of the referral hospital. Respondents noted that this made it possible to transfer patients requiring emergency care from the clinics to UTH within a relatively short time. In addition, it was noted by some respondents that Lusaka had Levy Mwanawasa General Hospital, opened in 2011 and providing first and second level services, to which clinics in Lusaka also referred cases. UTH, however, still took the majority of referrals. For instance, in 2014, 85% of the referrals from the delivery centres were to UTH while 15% were to LMGH (MOH, 2014).

4.4.2 Infrastructure and Equipment at Clinics and the UTH

One observation made by most respondents was that even though there was good proximity to a referral hospital, both the clinics and UTH had challenges with infrastructure and equipment. This included limited delivery beds, no capacity to manage premature babies in the clinics, and limited availability of modern equipment such as cardiotocography (CTG) machines, ultrasound machines, doppler machines and delivery kits. For some of the clinics, the infrastructure challenges included erratic access to water and electricity.

Respondents from the PHO and UTH further observed that UTH infrastructure had been outstripped by the increase in the size of the population that UTH was having to serve in the district. For example, at the time of the study, 10 new beds had been donated to the UTH labour
ward but there was nowhere to put them on account of limited space. In 2014, the number of referrals to UTH had increased by 9.5% from 2013 but the delivery space at UTH had remained the same (MOH, 2015).

The problems associated with the physical infrastructure of UTH were reported by respondents from UTH and MOH to be compounded by the high volume of referrals, including what were termed by one respondent as ‘unnecessary referrals’.

*We receive a lot of unnecessary referrals and end up doing normal deliveries instead of emergencies because the clinics are not doing their job.* (Respondent 13)

Another respondent suggested that:

*Referral should move hand in hand with commodities and skills at receiving facilities. UTH is overwhelmed because of people who are not supposed to be referred, and doesn’t always have the commodities.* (Respondent 4)

Suggesting improvements to the maternity-related referral system, respondents highlighted the need for investment in infrastructure and equipment at all clinics and that the five clinics earmarked for transformation into first level hospitals ought to be thoroughly functional in all respects. This included ensuring that the clinics had an adequate supply of water and electricity, the absence of which was noted as resulting in abnormal or non-clinical referrals.

*Most of the referrals are not normal referrals from the clinics, [the clinics say its because] there is no water or there is no electricity.* (Respondent 13)

One respondent suggested expanding the UTH maternity wing or building a hospital dedicated to maternity in order to cater for the high volume of deliveries in Lusaka.

### 4.4.3 Availability of Ambulances

The availability of ambulances within the Lusaka district was consistently cited as a strength by respondents working in clinics, the PHO and the LDHMT even though they were quick to point out the weaknesses in their functionality. The ambulances were for general emergencies,
though priority was given to maternity cases. Respondents indicated that the availability of ambulances had contributed to complicated maternity cases reaching hospital in time. There were five ambulances in the Lusaka district, and these were stationed at what is called a ‘command centre’. It was noted, however, that the ambulances were not sufficient and that there was need to increase the number of functional ambulances. The situation was worse in the night when the ambulances were parked at the LDHMT offices due to an insufficient number of drivers, and only one ambulance was available for use at night. In the event that an ambulance was not available or was delayed, the clinics used their initiative and transferred referred patients by taxi or advised patients to use their own transport where possible. It was noted by a respondent working in a clinic that this situation was not ideal because a taxi or personal vehicle was not equipped with life-saving equipment to be used on the way to the hospital. It was also noted by another respondent that even the ambulances themselves were not sufficiently equipped with resuscitative equipment.

A respondent working at a clinic indicated that this presented a real dilemma for those at primary care level facilities as they were faced with having to decide whether to move a patient so that they could receive a higher level of care but who might – in being transported to access such care – need oxygen support that would not necessarily be available in the ambulance. At one clinic, a respondent mentioned a case where she received a patient with a suspected ruptured uterus. She called the ambulance three times and when it finally came, the ambulance had no oxygen. When they eventually got to UTH, the elevators were out of order and the patient had to be carried up the stairs. This patient died.

Respondents at the clinics also indicated that there were instances where ambulances were available but had no fuel.

*Sometimes there are delays by ambulances or breakdowns, clinic has no money and the patient has no money.* (Respondent 8)

Respondents from UTH shared how in their experience some of the referrals from clinics were delayed due to the limited number of ambulances, which then had obvious negative consequences.
Patients come late, and [they] die on the way, or at the hospital…most of the bad outcomes are from clinics including maternal and neonatal deaths. (Respondent 16)

Some respondents suggested that the number of ambulances ought to be increased, and that they should be sufficiently equipped with resuscitative and other equipment. At a minimum, it was suggested that each of the clinics earmarked to be first level hospitals should have an ambulance stationed at the premises. The LDHMT proposed that each of the eight zones in Lusaka, which are based on where clinics are located, could have their own ambulance, although ultimately, each of the 12 delivery centres should have an ambulance.

4.4.4 Availability of Trained Human Resources

There are twelve midwife-led clinics in Lusaka where midwives are able to identify obstetric complications in good time and make the decision to refer in the absence of a doctor. The 6 facilities included in the study had a total of between 14 and 18 midwives each, with an average of two on duty at a time This was viewed as a strength, particularly when contrasted with the situation in rural areas where there was a much smaller number per health facility.

However, all respondents drawn from the clinics (without exception) were quick to say that the number of midwives they had at each facility was insufficient due to the high volume of patients that they had to attend to. This gap in human resources was also highlighted by a LDHMT representative, who noted that there were currently about 300 midwives in Lusaka, while the need was estimated to be 800.

The inadequacy in the number of midwives at the UTH was also noted. At the time of the study it was reported that the labour ward at UTH had a total of approximately 60 midwives. On any given shift, there would be an average of 7 on duty. With the number of referrals per day being anything between 50 and 80, the human resources were far below the requirement of ensuring one midwife to two patients.

The ideal is that each delivery should be attended by two midwives. (Respondent 18)
UTH is overwhelmed with referrals. The number of clients has blown out of proportion. This compromises the standards of care. You have one midwife attending to six or more patients at a time. (Respondent 19)

Both the PHO and the LDHMT noted that there was a critical shortage of midwives and that, as a result, midwives were often overwhelmed, and this compromised the quality of care. For instance, they often omitted to use the partograph during the examination of a pregnant woman. Also linked to the shortage of midwives, staff from the clinics noted that in some extreme cases, where there were only two midwives on duty in a busy labour ward, patients were referred to the UTH without being accompanied by a midwife. In such an event, the patient might be managed by a relative in the ambulance.

[Because of] staff shortages... it becomes difficult to escort patients if you are alone in the ward. (Respondent 8)

A representative of the LDHMT noted that in their view the shortage of midwives was not due to a lack of trained midwives but rather due to the absence of Treasury authorisation or funding to allow for the expansion of the staff complement.

With regards to in-service training in Emergency Obstetric & Neonatal Care (EmONC), at the time of the study, only 10 nurses had been trained in the whole of Lusaka district and another 20 staff were under-going the training. This had a bearing on the ability to manage obstetric emergencies, as well as on the quality of referrals from the clinics. The PHO noted the importance of having quality staff at the clinics.

[The] quality of referrals depends on the quality of the cadre. (Respondent 2)

Respondents from the clinics, the LDHMT and the UTH proposed an increase in the number of midwives, and in ongoing in-service training in EmONC, both in clinics and at UTH, for the midwives, doctors and other key personnel to improve the quality of care for women who experience obstetric emergencies.
4.4.5 Protocols, Referral Guidelines and Forms

As part of the study, the researcher asked for copies of documentation related to referrals. Specifically, the researcher made enquiries regarding protocols for the identification and management of obstetric complications, the referral guidelines and the related referral forms.

Protocols for Identification and Management of Obstetric Complications

With regard to protocols, staff at the PHO, MOH and LDHMT indicated that protocols based on WHO guidelines were available to guide midwives on how to manage various complications. The PHO noted, however, that some facilities did not have protocols. In the absence of such protocols, a respondent at one clinic indicated that midwives relied on their midwifery training for decisions on management of cases and on referral of complicated obstetric cases.

The researcher, in the course of conducting interviews with respondents, observed that there was varying information and that there were different protocols on the management of obstetric complications in the labour wards at all the clinics. For example, in all the clinics visited, there were variations in the documents stuck up on the notice boards in the labour wards on how to manage post-partum haemorrhage, eclampsia and one or two other complications. One clinic had a two page document indicating which complications should be referred to UTH and another had a WHO manual entitled *Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice* published in 2003. While the researcher did not undertake to review the content of the various guidelines stuck on the notice boards, the researcher observed that there was no standard format to these guidelines, and one of the respondents from the PHO noted that guidelines were not available for some of the obstetric complications.

On the management of obstetric complications, a respondent from UTH suggested that there was a need to standardize protocols. With regard to the list of indications for referral in use at the time of the study, it was noted that there was a need to revise the list of about 81 indications as it was outdated, and a number of these complications could, in fact, be handled at PHC level. It was suggested that standardizing protocols, revising and reducing the list of indications could, in fact, lead to a reduction in the number of referrals to UTH.
Referral Guidelines

With regard to referral procedure guidelines, it was reported that while midwives were familiar with the referral process, there were no documented guidelines in place. None of the respondents had seen such a document, even though one or two thought such a document existed.

There are no guidelines for referral. [We] just look at [the] conditions based on [our] midwifery training. (Respondent 11)

A respondent from the PHO, and another from UTH, suggested that there was a need to develop clear guidelines for the referral process.

A referral protocol should be written and not relying on precedence. (Respondent 23)

The respondent from the PHO added that the referral guidelines could include a summary in flow chart format that would show the referral process from the clinic to the district hospital to the tertiary hospital and back to the initiating facility. This flow chart could be displayed in all clinics. Another respondent from UTH proposed that referral guidelines should include a step-by-step process that might include, among other things, the indications for referral, the mechanism for referral (with appropriate forms) as well as appropriate transport and giving of feedback to the initiating facility.

Referral Books and Forms

Only one clinic made reference to the use of a referral book where midwives write their findings on a case they have referred. All the clinics noted that referral forms were required for referral of patients. However, these forms were not always available or used.

Two of the six clinics indicated that they did not have referral forms and that, instead, they used admission forms to make referrals. There appeared to be no standardised forms in the facilities. Four different types of referral forms were collected from the clinics, including one with no section for feedback (Appendix 9). One form indicated as being from the Lusaka District Health Office had a detachable provision for UTH feedback to the health centre which, in addition to the patient’s details, provided for feedback from UTH on their diagnosis, investigations, treatments and review date. Another form indicated ‘Ministry of Health Lusaka Province’, in
addition to details as above, had a provision for information on maternal outcome, fetal outcome and final diagnosis. It also had more detail for the referral in terms of the fetal heart, pulse, blood pressure and temperature of the patient.

One of the challenges noted by a representative at the MOH was the lack of resources to print referral forms for all facilities. The printing of referral forms had since been decentralised, and was therefore largely dependent on resources available at the facilities. This could explain why there were various formats and the lack of use of referral forms in some instances.

4.4.6 Communication and Feedback between the Clinics and UTH

Communication from Clinics to UTH

It was reported by most respondents in the study that, previously, there had been a radio system linking the health centres and facilities, UTH and the command centre. Once a call was made to the command centre, the facilities would know where an emergency had occurred and would have a sense of when they could expect an ambulance should the need arise. Using the radio system, the facilities could also contact the UTH ahead of transferring a patient to the hospital, which would enable UTH staff to prepare to receive a patient. At the time of the study, the radio system was not working, and clinics indicated that they were thus not able to notify UTH of incoming referrals. UTH also confirmed that in the absence of the radio system, they just received patients without being able to prepare for them. Respondents from the clinics reported that in the absence of an operational radio, they now often used their personal mobile phones to call the command centre whenever they needed an ambulance.

Feedback from UTH to Health Centres

One of the main challenges raised by all respondents in relation to the maternity-related referral system, was the absence of feedback to the referring or initiating facility from UTH. All the six clinics in the sample indicated that they did not receive feedback from UTH.

UTH does not give feedback. There is no system in place for feedback. (Respondent 6)

While it was not clear to most why feedback was not given, some suggested that it could be due to the large volumes of patients that UTH had to attend to.
It is not easy for UTH because the facilities are many. Perhaps clinics should have their own system for following up on referrals. (Respondent 6)

Others were of the view that providing feedback may not be seen as a priority by UTH. It was reported that even with the electronic system that was piloted in 2006, UTH still had challenges providing feedback.

Doctors forget to fill in the feedback form. (Respondent 16)

A respondent from UTH confirmed that they did not give feedback to clinics.

[We do not give feedback to the clinic. The] referral form remains on file. [The] discharge slip is the only thing given [to the patient]. (Respondent 12)

At UTH, one respondent suggested that clinics should go to UTH to collect data on clients they had referred.

Clinics should collect data. It is cumbersome for UTH to give feedback due to the volume of work. (Respondent 19)

This respondent also noted that at the last inter-labour ward meeting, it had, in fact, been agreed that clinics should appoint clerks to go to UTH and get feedback on referred cases.

Some clinics used their initiative and had staff going to UTH on a regular basis to follow up on referrals and document the outcome of the referrals. Some midwives also got the telephone numbers of the patients they referred and called them directly to find out the outcome of the referral to UTH.

Almost all respondents in the study noted the importance of feedback. The LDHMT noted that without feedback it was difficult to know what had happened to the women that had been referred and whether their babies had survived.

Further, it was noted that a good feedback system would help the LDHMT ensure continuum
of care. The LDHMT reported that several meetings had been held with UTH regarding feedback, but to no avail. Overall, respondents noted that feedback was necessary to facilitate the learning of clinics on how to improve their management of maternity cases and thereby reduce unnecessary referrals up to UTH.

*Feedback is important [so as] to know what happens to the patients they refer... [and it] could give them feedback on the unnecessary referrals.* (Respondent 13)

*Feedback (is important) to know if referral was genuine, to know if something was missed during examination and for future cases.* (Respondent 15)

*We miss out on maternal deaths. Referring facility has a role to play in the review of maternal deaths. The facility would know how to prevent further deaths.* (Respondent 7)

*Feedback should be given so that facility can know what to do with similar cases in the future to reduce future referrals.* (Respondent 12)

One respondent suggested the resumption of inter-labour ward meetings, which previously served as one conduit for providing feedback to clinics. These meetings were previously called by the LDHMT and UTH but had not occurred for a long time.

Two respondents from the PHO and UTH were of the view that the matter of feedback from UTH required dedicated leadership to ensure that UTH provided feedback to referring facilities, and noting that the challenge of lack of feedback had been raised over and over again in the past.

Counter-referral, on the other hand, was a concept that one respondent noted to be unfamiliar and not well known or established in Zambia. The indication, therefore, was that there was no system for counter-referral in place, and the respondent suggested that it should be established.
4.4.7 Collaboration Between Referral Levels and Partners

Weekly Reports on Maternity Referrals to the LDHMT

The LDHMT had a standard form to help capture information from the labour wards in the health centres. On a weekly basis, the clinics submitted a report to the Senior Nursing Care Standards Officer that reflected the number of maternity admissions, deliveries, referrals to UTH and Levy Mwanawasa General Hospital, the status of births as well as maternal and neonatal deaths. The form also provided for classification of referrals (Appendix 9). The information was also aggregated by the clinic into a monthly report. Based on this, the LDHMT and the PHO were able to identify gaps and issues that required follow up in the maternity referral system, and other issues related to maternal and neonatal health. The LDHMT and the PHO reported that the weekly reports had also helped them to identify the most common complications leading to referrals and, on the basis of that, to provide focused mentorship or training for the staff in the health clinics.

Provincial Maternal Death Surveillance Reviews

Provincial Maternal Death Surveillance Reviews are held on a quarterly basis and provide an opportunity for stakeholders to understand the maternal deaths as well as, to some extent, how the referral system is working. According to the PHO, this had contributed to the stakeholders working as a team, and it was observed that there was good collaboration between UTH, the PHO and the LDHMT. PHO also noted that the maternal death review meetings had been looking at strengthening of the feedback mechanism as well as at developing national referral guidelines. While good collaboration was reported between the PHO, UTH and the LDHMT, some staff at clinics and UTH were of the view that there was need to improve the relationship between the midwives at the two levels. One respondent from a clinic suggested that the attitudes of nurses at UTH discouraged the nurses at clinics from referring patients to UTH. Another noted that staff at UTH were sometimes skeptical of the cases referred to UTH. As mentioned earlier, some staff felt that some of the referrals from clinics were unnecessary, and that staff at clinics were not doing their job.

*We end up delivering normal deliveries instead of emergencies because clinics are not doing their job.* (Respondent 13)
An example given was that even though all midwives at the clinics had been trained in how to do manual vacuum aspiration for abortion cases, clinics were still referring all such cases to UTH.

One respondent suggested the holding of quarterly meetings to discuss referrals as well as lessons learnt from the various cases referred to UTH. Respondents from UTH suggested the resumption of inter-labour meetings. It was observed by another respondent from UTH that these meetings provided an opportunity for exchange between the staff at the clinics and the hospital.

*In the past there were inter-labour ward meetings. Clinics and [the] hospital share challenges and come up with solutions.* (Respondent 12)

At the time of the study, it was reported that no such meeting had been held for about one year.

### 4.5 Role of Cooperating Partners in Referral System for Maternal and Neonatal Health

Cooperating Partners is a term loosely used in Zambia to refer to organizations that provide financial or technical support to the government for development processes. A respondent from the LDHMT noted that there were not many partners engaged in providing support for the referral system for maternal and neonatal health in Lusaka. With the understanding that Lusaka district was better off than the rest of the country, many partners had opted to support the rural areas more than the Lusaka district. To some extent, this had led to a sidelining of Lusaka district, with the result, for instance, that it was likely that there were more staff trained in EmONC outside Lusaka Province.

The representatives from cooperating partners who were interviewed as part of this study all noted that they did not provide direct support to the maternity related referral system in the Lusaka district, but provided technical support to the MOH at national level and also participated in the provincial maternal death surveillance review meetings. Outside Lusaka, these partners had, however, provided support to the referral system through capacity building (including training in EmONC, Helping Babies Breathe), through infrastructure development and procurement of ambulances (including boat and motor cycle ambulances), communications systems (radios, mobile phones and call-time), as well as enhancing referrals from the
community through Safe Motherhood Action Groups (SMAGs). Through such support, the first phase of Saving Mothers Giving Life (SMGL) had reduced the maternal mortality ratio in health facilities in the project districts by 54%. In Luapula, and Eastern and Southern Provinces, JHPIEGO had been running a mentorship program on gynaecological and obstetric emergencies, in order to reduce the number of referrals to hospital so that only the cases that needed to be referred were referred. This had been done through a consortium of referral partners involved in the SMGL project, who included the cooperating partners, the health centres as well as the district and provincial health offices. Through these efforts, the referral time – or the time from when the ambulance was called to the time the patient was attended to at a referral facility – had reduced from an average of 4 to 5 hours, to 1 hour.

For JHPIEGO, the biggest contribution to the improvements in the referral system could be attributed to the mentorship program. The mentorship program had, it was reported, contributed to reducing hostility between the clinics and hospitals in the referral system in Luapula Province. Referrals had been used as an opportunity for teaching and exchanging of information. It had also encouraged unity among service providers, who were then able to tap into one another’s strengths for the improvement of maternal health services. In Mansa district, a WhatsApp group was set up, which helped with the referral process. All health partners in the district were on the group (i.e. donors, District Medical Officers, senior doctors and the deputy minister of health [at the time] and who happened to be the area member of parliament). This also contributed to enhancing accountability in the referral system. The JHPIEGO experience in Luapula Province could, it was suggested, be replicated in Lusaka and other parts of the country.

Suggestions for improving the referral system for maternity health in general included ensuring the availability of ambulances, putting in place feedback mechanisms to the clinics and ensuring operational switchboards at receiving facilities, and using mentorship to build the capacity for emergency obstetric care at lower level facilities.

4.6 Conclusion

Based on the findings discussed above, it is apparent that a framework for a referral system for maternal and neonatal health exists in the Lusaka district. Lusaka district is also privileged to
have both a second level and a tertiary level hospital that can attend to obstetric complications and emergencies from the 12 delivery centres in the district.

However, it appears that the system and relevant protocols (including referral forms) are not well documented and/or standardised across the delivery centres in the district. In addition, significant challenges related to the limited availability of referral transport, communication equipment, trained human resources and infrastructure (both at clinic and tertiary level) compromise the efficient functioning of the maternity-related referral system. This, in turn, has implications for the health of mothers and children, as well as for those who work in the field of maternal and child health in the public health sector.

The following chapter provides a discussion of the findings with reference to available literature on referral systems for maternal and neonatal health.
CHAPTER FIVE - DISCUSSION

5.1 Introduction

From the outset, this study was informed by the conceptual framework developed by Murray et al. (2001), which outlined the key components for an effective maternity referral system. Murray et al. (2001) suggested that these include: an adequately resourced referral centre; communications and feedback systems; designated transport; agreed upon, setting-specific protocols for the identification of complications; personnel trained in their use; teamwork between referral levels; a unified records system; and mechanisms to ensure that patients do not bypass a level of the referral system. In a later study, Murray and Pearson (2006) suggested that active collaboration between referral levels and across sectors, the capacity to monitor effectiveness and policy support are also important.

The Murray et al. (2001) framework, as well as those requirements suggested by Murray and Pearson (2006), form the basis of this discussion. Six of the requirements are discussed with some level of detail, while others are only highlighted in relation to the findings of this study.

5.2 The Importance of an Adequately Resourced Referral Centre

In order for referrals to be effective, the referral centre, in this case UTH, must be adequately resourced in terms of personnel, bed space, equipment, as well as drugs and other consumables. Ensuring quality obstetric care at referral level is a precondition for successful referral (Jahn & De Brouwere, 2001: 238). The results of this study suggest that UTH is not adequately resourced as a maternity referral centre given that it has limited physical space, limited delivery beds, a shortage of midwives and limited equipment.

It was also noted by respondents from UTH that the situation is exacerbated by what are considered to be unnecessary referrals, or referrals that could be avoided with better resourced delivery centres or clinics. As noted by Negin et al. (2012) and Murray et al. (2001), the over-utilisation of a referral hospital has cost implications and is detrimental to the quality of care.
The upgrading of lower level facilities is therefore a priority, as the functioning of these facilities is demonstrably linked to the adequacy of the referral centre. Murray and Pearson (2006) also suggest that the lack of basic equipment, up-to-date knowledge, and ability to act on obstetric complications at frontline facilities can impede the efficiency of the referral system.

Evidence from the Millennium Development Goal Acceleration Initiative (MDGI) Baseline Assessment (MCDMCH, 2014) conducted in the Lusaka and Copperbelt Provinces – and referred to earlier in this report – suggested that the majority of maternal deaths at the referral hospitals in the two provinces were cases that had been referred up from lower levels within the health service. In this study, a respondent from UTH also noted that most of the negative outcomes (i.e. maternal deaths) were from the clinics.

Some respondents noted that UTH was overwhelmed, that its infrastructure had been outstripped by population growth, that it had insufficient bed space and insufficient human resources, among other things. This suggests that, at present, UTH is inadequate as a referral centre. Jahn and De Brouwere (2001), in their paper titled “Referral in Pregnancy and Childbirth: Concepts and Strategies”, observe that whilst availability of quality obstetric care at the referral level was considered an essential component in maternity referral systems, in reality, available obstetric care was often not of an acceptable quality; they also observe that a considerable proportion of maternal and perinatal mortality was attributed to sub-standard referral level care.

Given these circumstances in referral hospitals, Murray and Pearson note that “in contexts in which hospitals are overburdened it seems logical that filtering patients through closer, lower technology health services should improve the effectiveness of the entire maternity system” (Murray & Pearson, 2006: 2207). Zambia was once cited as an example of this: of how strengthening lower level facilities could reduce the number of maternity referrals and thereby reduce the inadequacy of the referral centre (Murray & Pearson, 2006). Related to this, in 1998 it was noted that a refurbished and extended nurse-midwife run satellite clinic network had reduced the overload on the referral hospital by reducing the number of deliveries at UTH from 24,000 in 1982 to 10,500 in 1998 (Murray et al., 2001 as cited by Murray & Pearson, 2006).

Similarly, recent efforts to decongest UTH through the establishment of five 1st level hospitals might contribute to improving UTH’s capacity to manage the referrals they receive; however,
given that the process has not yet been completed, it is too early to assess the collective contribution this change will make in reducing the patient load of UTH. Notwithstanding this, it was noted by the Sister-In-Charge of one of the clinics that had already been upgraded to a 1st level hospital that their referrals up to UTH were reduced from approximately 120 per month to a maximum of 40 per month over the course of one year (September 2014 - September 2015).

The WHO (2015b), in their summary of key processes to guide health services managers in the establishment of robust referral systems, highlight how all levels of the health system must function appropriately, including primary health care services, in order for the referral system to work at its best. The resourcing of the referral centre (for example, at a district or tertiary level) and its ability to function effectively is therefore intricately linked to the functioning of lower level facilities. For instance, as suggested by some respondents in the study, when the clinics refer cases to UTH that they should actually be able to handle at the level of the clinic, this puts unnecessary pressure on the available resources at UTH and has a significant bearing on its ability to function effectively. In ensuring that UTH functions adequately as a referral centre, there is thus a need to invest in the resourcing of both UTH and the clinics lower down the level in the health system.

5.3 Communication and Feedback Systems

Communication and an effective feedback system are the backbone of a good referral system within a health system (Gupta, Mavalankar & Trivedi, 2009). This study found that there were challenges with regard to communication and feedback within the maternity referral system in the Lusaka district. With regard to the means or methods of communication between the clinics and UTH, the radio system put in place for this purpose was not working at the time the study was conducted, in October 2015; clinics were thus not able to call ahead when sending referrals to UTH. This had a negative effect on UTH’s ability to prepare to receive emergency obstetric cases. Midwives relied on their personal, and in some cases institutional, mobile phones, neither of which always had available call-time. In a study on barriers to the provision of quality emergency obstetric care in Addis Ababa, Ethiopia, it was noted that lack of dedicated communication infrastructure was a barrier to implementing their referral protocol (Austin et al., 2015).
In addition to the absence of such functioning communication mechanisms or tools, a major communication challenge noted by respondents at all levels in the system was the absence of any feedback back to the clinics from UTH on the cases that had been referred up to them. From the interviews conducted, it seemed that the lack of feedback from UTH back to those that had made the initial referral up from the primary level could be associated with the limited human resources at UTH, an absence of an effective system for ensuring accountability between UTH and the clinics, as well as with a lack of supervision to ensure that feedback from health workers to their colleagues at primary level took place. In a study by Afari (2015), focusing on the barriers and solutions to improving emergency obstetric referrals in Assin North, Ghana, the high workload of staff at the referral center was similarly cited as a barrier to providing feedback. Afari (2015) also observed that the lack of feedback from the receiving hospitals weakens the referral process for emergency obstetric care. It does so, for example, by limiting the opportunities primary level health care workers have to learn about what they could do to improve the management of complications within their own practice or facility at the lower level of care.

WHO (2015b) notes that feedback not only ensures proper patient care and follow up, but also provides continuing education to the initiating facility and their staff and completes the referral process (WHO, 2015b). The problem of the lack of feedback from UTH appears to be a long-standing one, as evidenced by an earlier study by Atkinson et al. (1999), which pointed out the lack of an appropriate linkage from UTH back to the clinics.

5.4 Designated Transport for Obstetric Emergencies

Emergency referral transport is critical in reducing delays and is a crucial component of emergency obstetric care. However, it has been observed that reliable transportation is frequently a missing link to timely, accessible and affordable emergency care (Raj, Manthri & Sahoo, 2015).

In this study, it was reported that there had been an increase since 2014, from one to six ambulances in the Lusaka district. However, the current number of ambulances was still insufficient to meet the maternity referral needs of all the 12 delivery centres, as well as the other clinics in the Lusaka district. Apart from the number of vehicles being perceived as inadequate in relation to the need, a number of other challenges related to the ambulances were
raised by respondents: the limited number of drivers available, especially during the night, when there would be only one driver on duty; the lack of fuel on some occasions; and the fact that not all the ambulances were well equipped with resuscitative and other basic emergency care equipment.

The challenges observed in the study make the transportation unreliable by contributing to delays and not enabling pre-hospital care while transporting patients. In relation to the availability of resuscitative and other emergency equipment, Raj, Manthri and Sahoo, (2015) note that the goal of referral transport is to address the second delay and also provide pre-hospital care while transporting a patient to the appropriate hospital. As such, the referral transport system must be managed in such a way that basic interventions can be administered to patients while in transit.

It is also important to note that while the number of ambulances in Lusaka had increased, and while obstetric emergencies were prioritized, the ambulances were also used for non-maternity related emergencies.

5.5 The Existence of Protocols for the Referrer and Receiver

Referring facilities require protocols to guide them in their decision making as to the point (in relation to risk and/or complication) when a pregnant woman should be referred to a higher level of care (Jahn & De Brouwere, 2001 as cited by Murray et al., 2001). Murray and Pearson (2006) further state that referral protocols or guidelines must reflect local epidemiological conditions, such as the prevalence of the Human Immuno-deficiency Virus/Acquired Immuno Deficiency Syndrome (HIV/AIDS), which may have a bearing on the types and causes of pregnancy related referrals. Protocols must also take into account the organisational capacity of the institutions involved, and be sensitive to community preferences and to the potential difficulties that could arise on account of differences in language, behavior and expectations between consumers of health care and the providers. The protocols ought to also be standardised throughout the health system and be comprehensively understood by staff at all levels in the system so that they can be easily used when required.
In practical terms, the WHO (2015b) suggests that a standardised referral form – something used throughout the network of service providers – ensures that the same, and essential information is documented at every instance in which a referral is initiated.

5.5.1 Availability of Protocols for Referral

The maternity referral system flows in Lusaka district, that is, the way in which respondents indicated that referrals actually occur, appears to fall short of the recommendation provided by the WHO (2015b) and which was referred to in Chapter 2 of this report (Figure 2.3). Specifically, what this study found with regard to standard protocols for management of obstetric complications was that, while Provincial Health Office, Lusaka District Health Management Team and the Ministry of Health representatives confirmed the existence of these protocols, they were not readily available in the clinics.

5.5.2 Standardisation and Use of Referral Forms and Guidelines

Other findings were that outgoing referral forms were not standardised and often not used; there was no prior communication to the UTH regarding cases being referred; and there was no feedback to initiating facilities on the appropriateness and/or outcome of their referrals.

Further, on referral guidelines, it was reported that whilst midwives were familiar with the referral process, there were no actual documented guidelines. The absence of standard referral guidelines and accompanying documents also poses a challenge for monitoring and evaluation of the maternity referral system, given the absence of well-defined performance indicators.

5.5.3 Referral System Guidelines in other Countries

An example of health referral system guidelines that could be adapted with some specific detail on maternity referral are the guidelines developed by the Ministry of Health in Kenya in 2014. The guidelines provide detail on the structure and organisation of the referral system, the referral chain, indications or reasons for referral, roles and responsibilities, coordination of the referral system and monitoring of the referral system with clear performance indicators (Kenya. Ministry of Health, 2014). An example was also found in New Zealand’s Ministry of Health “Guidelines for Consultation with Obstetric and Related Medical Services (Referral Guidelines)” (New Zealand. Ministry of Health, 2012). These guidelines include, among other
things, categories for referral, as well as processes for referral, including process maps that provide step by step illustration maps for personnel.

5.6 **Trained Personnel to Manage Obstetric Emergencies**

5.6.1 **Limitations Regarding the Availability of Personnel**

The management of obstetric emergencies obviously requires the availability of the required number of adequately trained personnel. The study found that both the clinics and the UTH had severe shortages of midwives. It was noted, for instance, by a UTH respondent, that at UTH, instead of two midwives attending to one delivery, one midwife could in fact end up having to attend to up to six patients at once. At the clinics, it was reported that often on account of staff shortages, midwives were sometimes not able to use the partograph during the examination of women in labour. They were also often unable to leave the clinic to accompany a referred patient to UTH. One responded added that the quality of the staff at the clinics had a bearing on the quality of referrals. As a result of limitations in the numbers and capacity of midwives at the clinics, midwives at UTH were particularly overwhelmed with the responsibilities of their caseload and felt that the quality of care they were able to provide was being compromised.

5.6.2 **Limitations Regarding the Training of Personnel**

In terms of training, apart from the basic midwifery training, very few midwives working both at UTH and at the clinics had been trained in full EmoNC. Austin et al. (2015), in their paper on barriers to providing quality emergency obstetric care in Addis Ababa, Ethiopia mentioned earlier, noted that training providers in emergency obstetric care was critical for reducing maternal mortality. It has been further suggested that basic emergency obstetric and neonatal care training for providers working in health centres, coupled with supportive supervision that emphasized appropriate referral, could reduce pressure on the referral hospital by increasing the proportion of low-risk births that were managed at the health centre level (Austin et al., 2015).

There is an urgent need to increase the number and quality of personnel trained in the management of obstetric emergencies in order to improve the quality of referrals. It is also suggested that there is need to ensure that the deployment and use of midwives and other key health staff is more efficient and effective (Global Health Workforce Alliance, 2013). In terms of
mentorship, the earlier example of JHPIEGO and the use of referrals as an opportunity for teaching and exchange of information should be explored further.

5.7  **Collaboration Between Referral Levels and across Sectors**

5.7.1  **Meetings as a Means of Collaboration**

This study found that inter-labour ward meetings between UTH and the clinics, which served as an avenue for collaboration between referral levels within the Lusaka district, were not held regularly.

In support of the role of inter-level meetings in strengthening the referral system, and thereby, maternal and child health outcomes, Murray and Pearson (2006) cite an example from Yunnan Province, China, which had a hierarchical model of performance management, in which each lower-level meeting was organised by the immediate higher-level institution to discuss monthly statistics, problems, training and planning for maternity services. These monthly meetings created a means for integrating the service providers at various levels. In addition to strong policy guidance, strong programme implementation and ensuring financial accessibility, the strong referral links were noted as a factor contributing to the reduction of the maternal mortality rate in Yunnan Province in China from 149 to 101 between 1989 and 1998. In the Tonghai district of Yunnan Province, which had set up an Emergency Referring System for Pregnant Women (ERS), it was noted that the survival rate for the obstetric emergency cases averaged 96% between 1990 and 1999. One of the strategies of the ERS was the establishment of a guiding group for coordination (Koblinsky, 2003).

The reliance of the different referral levels on one another for the effective and efficient management of obstetric emergencies necessitates that mechanisms be put in place to ensure collaboration.

In the absence of regular meetings between the labour wards of UTH and the clinics there are limited opportunities for discussion on how to improve the referral flows between the two levels, as well as for ensuring mutual accountability.
5.7.2 Perceptions and Attitudes Hindering Collaboration

Outside of meetings, collaboration is also hindered by perceptions and attitudes. Midwives at UTH were perceived to be sceptical of midwives from clinics who refer cases to UTH. The scepticism arises from a perception by the UTH midwives that the clinics refer cases that they should be able to handle, thereby contributing to the overcrowding at UTH, and the overwhelming of the staff. This suggests a lack of trust or confidence in the staff at lower levels, which does not make for good collaboration.

It ought to be noted that this study did not explore collaboration across other sectors such as the private sector or non-governmental organisations providing maternity and referral related services.

5.8 Policy Support

The presence of policy is another area that Murray and Pearson (2006) suggest is a requirement for the referral system to function well. In this study, it was observed that Zambia has does have a national policy to guide the overall flow of referrals. However, the lack of translation of national policy into visible and easily accessible practical guidelines presents challenges for implementation as well as for monitoring the different aspects of the referral system. This study confirms the previous observation and statement mentioned in Chapter 2, where the National Health Strategic Plan 2011-2015 (MOH, 2011) notes that the hospital referral systems, in general, are not working in Zambia, due largely to a shortage of health workers, insufficient human resource capacity at lower levels, and an erratic supply of essential drugs and medical supplies, among other things. Despite the fact that improving the hospital referral systems is one of the priority interventions in relation to service delivery in the country’s National Health Strategic Plan 2011-2015, the mid-term review of the current Plan noted that the referral system was still poorly functioning (MOH & MCDMCH, 2015). The “Roadmap for Accelerating Reduction of Maternal, Newborn and Child Mortality (2013-2016)” also makes references to the challenge of the country’s weak referral systems and the absence of emergency systems in reducing maternal and neonatal mortality, and identifies improving referral systems as one its key strategies.
5.9 Conclusion

Raj, Manthri and Sahoo (2015: 100) note:

To establish a responsive emergency referral system and the transportation mechanisms to safely transfer a woman from a site of complication to a definite level of care (health facility and further referrals) needs clinical judgment, stabilization and transfer protocols, communications technology, transportation, and cost arrangements.

The above quote highlights the interdependence of the various elements of the referral system for maternity care, as has been observed in this study. Specifically, the inadequacy in the resourcing of the clinics and UTH, the limited number of adequately trained personnel to manage obstetric emergencies, the absence of referral guidelines and non-adherence to referral requirements such as the filling in of referral forms, the giving of feedback from UTH as well as the lack of designated and adequately equipped referral transport, separately and collectively have a bearing on the functioning of the maternity referral system.

At the onset, the focus of this study was on communication and feedback. However, the study found that like the other elements of the referral system, feedback from UTH to clinics, for instance, was directly influenced by other factors such as the heavy workload of staff at UTH. The study also observed that the lack of feedback to clinics also contributed to increasing the workload at UTH because there were limited opportunities for staff at the lower levels to learn from the cases that had been referred up to UTH. Without this learning, clinics continued to refer cases that could potentially be handled at the clinic level –and so the vicious cycle continued. The study therefore noted the need for a comprehensive approach to the referral system, as opposed to just focusing on one aspect of the system alone.

In terms of limitations, this study did not explore all the components of a referral system – such as the need for a unified system as suggested by Murray et al. (2001), as well as the capacity to monitor effectiveness of the referral system. These are important aspects that need to be considered in future. Another aspect that was identified during the course of the interviews, was the critical role that leadership plays in developing, maintaining and overseeing a referral system. This aspect of leadership and its engagement with, and oversight, over a referral system requires further investigation.
Despite not exploring all the elements of the referral system – as depicted by Murray et al. 2001) and by Murray and Pearson (2006) – this study was able to highlight some of the current gaps in the referral and counter referral system for maternal and neonatal health services within the Lusaka district, Zambia. It found that, whilst aspects of this framework and its elements are in place, much needs to be done to enhance the efficient and effective functioning of the system.

In light of the above, the next chapter proposes some recommendations for addressing some of the specific challenges in the district’s maternity referral system that have been highlighted in the course of conducting this study.
CHAPTER SIX - CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The study set out to describe the referral and counter referral system for maternal and neonatal health currently operating between the primary and tertiary levels of care in the public health service in Lusaka District, Zambia, and identify the strengths and weaknesses of the system and identify ways in which the system could be improved so as to support the provision of an appropriate continuum of care for maternal and neonatal health in Lusaka district.

Having presented and discussed the findings of this study, this chapter will now provide an overview of conclusions and outline some recommendations arising from this study for the improvement of the referral system,

6.2 Conclusions

The study found that a framework for a referral system for maternity and neonatal health exists. However, in practice, there is a level of dysfunction in the system which results in less than optimal services for obstetric and newborn emergencies. There is a general understanding by personnel at the clinics, University Teaching Hospital (UTH), Lusaka District Health Management Team and the Provincial Health Office (PHO) of the steps for referral of obstetric emergencies as well as of the different elements within the system. However, the maternity referral system has not been formalized for some time and is not available in the form of comprehensive standard operational procedures or guidelines which explicitly outline the reasons for referral and the related referral steps and mechanisms. The result is that the reasons or indications for referrals are based on precedence arising from initial guidelines developed in the 1980s and which thus need to be revised. In addition, there is no formal basis for monitoring the overall performance of the maternal and neonatal referral system. Apart from immediate concerns, such as why there are so many stillbirths at a particular point in time or why so many stillbirths occurred in a particular clinic, there is no systematic review that scrutinises the appropriateness and outcome of the referrals. In
addition, counter-referral did not seem to be a concept that was established or well understood during the study.

The strengths of the existing referral system that were identified by this study included the close geographical proximity of the six primary level clinics that were sampled in this study to the UTH and the availability of ambulances and midwives. However, respondents also highlighted some challenges that were observed with regard to the ambulances and the staffing of both the clinics and UTH. For example, whilst the close proximity of the six sampled clinics to the UTH and the availability of vehicles made the transfer of patients relatively easy (despite there being some challenges in relation to the volume of patients requiring transport up to UTH), there were some very basic logistical challenges that prevented their effective operation – such as a lack of fuel on some occasions and the lack of availability of drivers during the night. Similarly, whilst clinics reported having on average between 14 and 18 midwives on their staff, given the volume of patients being attended to, these numbers fell short of their requirements.

Other challenges to the referral system that were observed included limited infrastructure in terms of physical space, delivery beds, and limited equipment at both the clinics and UTH. These limitations on resources at a clinic level resulted in the staff continually referring obstetric emergency cases to UTH – which, given an appropriate supply of resources, could potentially have been attended to at a lower level, and thus at a lower cost. These circumstances are exacerbated by the absence of feedback to clinics from UTH on, for example, the outcome of their referrals, and the timing and appropriateness of their referrals up to the next level of care.

As the referrals are sent up to a higher level within the health system and end up (often unnecessarily) at the UTH – which is faced with its own resource constraints – these referrals serve to impose an additional burden to an already resource-constrained health care setting. This results in UTH being overwhelmed with maternity patients, which ultimately compromises the quality of care provided to women with obstetric complications.

With regards to the gap in communication and feedback – specifically between the UTH and the clinics, the study found that there were multiple contributing factors. These include the large
volume of patients at UTH and the lack of adequate human resources to manage both their clinical care and the related administrative matters. However, it appears that the lack of feedback to the clinics is not merely a result of resource constraints but is also linked to inadequate levels of supervision and management that would facilitate feedback to referring facilities.

The challenges or weaknesses observed in the study confirm the interdependence of the different elements of a referral system, and the way in which they reinforce one another – either positively or negatively. It also confirms the role of all of the components of the health system in ensuring a functional referral system. These are, namely, service delivery, the health workforce, the health information system, medical products and health finance and leadership and governance.

The maternity referral system is a system within the Lusaka District health system and, ultimately, within the national health system. As such, many of the weaknesses observed in relation to MNCH referrals can be linked to poor functioning of the health system in general. In a resource limited setting, leadership and governance become critical in the use of available resources for maximum impact, but also in motivating and challenging personnel. In discussing suggestions for ways in which the maternity referral system could be improved, one respondent noted: “We know what needs to be done”. So, while there are many resource constraints and system issues that need to be addressed, a critical question remains as to how one can move from knowledge to action within such a context. The changes required to improve the maternity related referrals will require firm and clear leadership, joint commitment and desire to improve maternity related referrals at all levels.

Overall, the study observed that there is a policy framework, namely the National Health Strategic Plan 2011 to 2015, that provides broad guidance on the health referral system in general. A framework for the maternity referral system and the practice of referring obstetric emergencies is also largely in existence, but is not well documented and does not function as optimally as it should. There is thus much room for improvement – particularly so as to ensure the provision of high quality, seamless care for women requiring referral, and in particular referrals for emergency obstetric care.
6.3  Recommendations

Given that this was an exploratory study, it is recommended that further research—possibly in the form of a baseline audit—be conducted, so as to develop a more detailed and/or operational assessment of the actual level of functionality of the district’s maternity referral system. It is important that an audit like this not only provides an overview of the system as a whole, but also focuses down on each one of the different components of the referral system—including the ‘softer’ system elements such as the attitudes of health workers and the quality and extent of leadership. Such research might be useful to conduct in both an urban district (like Lusaka) and a rural district, given that the rural context has a very different dynamic to that of an urban area. The outcome of this further research process ought ideally to be followed by the collaborative development of a plan for improving the referral system with clear indicators for measurement of progress, as well as the establishment of formal systems for monitoring and accountability.

Apart from the suggestion that a more detailed and/or operational type audit of the Lusaka District’s maternal referral system (and, ideally, a rural district as well) be done, a set of specific recommendations are also proposed for the various stakeholders who are critical role players in the referral system, namely, the clinics, the University Teaching Hospital, the Lusaka District Health Management Team, the Provincial Health Office, the Ministry of Health and Cooperating Partners.

6.3.1 Ministry of Health

In relation to the Zambian Ministry of Health, it is recommended that:

- Following this study and further research, the Ministry, through a consultative process, should initiate the development of and/or make available a locally relevant referral manual and/or set of guidelines for maternal and neonatal health. These guidelines should include, amongst other things, the motivation for a referral and counter-referral, the indicators for a referral and the various processes that are required to make a referral and counter-referral. These guidelines ought to be based on international best practice and sound evidence, and importantly, they ought to follow national policy guidelines and be based on the current experience and challenges faced by practitioners and clients within, and using, the Zambian health system.
• These guidelines should be complemented by the development of standard protocols, referral forms and registers for the management of obstetric emergencies. The referral process could also be summarised into a flow chart that could then be displayed on the clinic labour ward notice boards – with an equivalent and appropriate explanation of the process being made available for clients of the service.

• The Ministry establish a core team of senior managers at UTH, PHO and the LDHMT who are tasked with the responsibility of overseeing the functioning, monitoring and evaluation of the maternity and neonatal referral system in the district. As part of their oversight responsibility, the team ought to investigate the inclusion of appropriate referral indicators in the health information system so as to improve data collection on maternity referrals.

• The Ministry ought to also expedite the operationalization of the five first level hospitals in the Lusaka District so as to increase their functionality in terms of being able to provide more comprehensive maternity care. In addition, it is recommended that the Ministry secure the necessary Treasury authority to increase the number of available midwives for the Lusaka District.

6.3.2 Provincial Health Office (PHO)

In relation to the PHO, it is recommended that:

• The PHO engage senior management at the UTH and LDHMT to identify, and then address the barriers that exist currently, and which prevent the relevant UTH staff from providing feedback on the referrals they receive from the clinics.

• The PHO develop a strategy to strengthen the use of the bi-annual performance assessment reports of UTH and the clinics. Given that these assessments examine the extent to which facilities are providing services in line with set protocols and guidelines, improving the follow up of implementation of recommendations related to the referral system could contribute to the improvement of the maternity referral system and, ultimately, to health outcomes of women.
• The PHO ensure the participation of Sisters-in-Charge from all the clinics at the quarterly provincial Maternal Death Surveillance and Review meetings chaired by Provincial Medical Officer.

• The PHO investigate the use of technology, such as mobile phones and an electronic record system, to enhance communication, feedback and information management between the clinics and UTH.

• The PHO ought to facilitate EmoNC training for all relevant staff in the Lusaka District.

6.3.3 University Teaching Hospital (UTH)

In relation to the UTH, it is recommended that:

• The UTH and Lusaka District Health Management Team ought to re-establish monthly inter-labour ward meetings between UTH, the clinics and the first level hospitals, to serve as an important platform and opportunity to provide feedback and strengthen collaboration between the various levels of care.

• The UTH ought to include the provision of feedback to referring clinics as a key performance indicator for the relevant personnel at UTH.

6.3.4 Lusaka District Health Management Team (LDHMT)

In relation to the LDHMT, it is recommended that:

• Once these are developed, the LDHMT facilitate the availability and use of the standard protocols and guidelines for establishing levels of care appropriate to the level of facility and the related referral forms and registers in all of the health facilities.
• The LDHMT strengthen the provision of supportive supervision and mentorship within the district so as to build the capacity of staff at the primary level of care to ensure appropriate referrals and to support the extent to which they are provided with feedback on their referrals and practice from higher level institutions.

• The LDHMT actively interrogate the referrals made by clinics to UTH based on the monthly reports submitted to the LDHMT by clinics.

6.3.5 Clinics

In relation to the clinics in the district, it is recommended that:

• Each clinic conduct regular in-house training for midwives on what types of patients to refer and also on the preparation and stabilization of patients before referral.

• Each clinic, with the support of technical experts in midwifery, obstetrics and neonatal care from the higher level facilities, and provincial office, ought to ensure that the new protocols for examining pregnant women, as well as the management of obstetric emergencies – along with all the related forms – are introduced to the appropriate staff; that they are adequately skilled to use them and feel comfortable sharing their feedback and suggestions about the new and/or formalized referral and counter-referral processes up to the first level hospitals and/or up to UTH.

6.3.6 Cooperating Partners

In relation to the cooperating partners, it is recommended that:

• They support EmONC training for relevant health personnel in the Lusaka District.

• They support the local implementation of successful models that have been used in other provinces and districts, such as the mentorship model by Johns Hopkins Program for
International Education on Gynaecology and Obstetrics (JHPIEGO), and the Saving Mothers Giving Life (SMGL) district health systems strengthening approach.
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LIST OF APPENDICES

APPENDIX 1: Letter of Approval from the University of the Western Cape Senate Research Committee

APPENDIX 2: Letter of Approval from the Excellence in Research Ethics & Science (ERES) Converge Ethical Review Board

APPENDIX 3: Letter of Approval from the Ministry of Health

APPENDIX 4: Letter of Approval from the Lusaka District Health Management Team (LDHMT)

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OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT

UNIVERSITY OF THE WESTERN CAPE

08 September 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by: Mrs M Mwondela (School of Public Health)

Research Project: An exploration of the strengths and weaknesses of the referral and counter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia.

Registration no: 15/6/27

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Jostas
Research Ethics Committee Officer
University of the Western Cape
APPENDIX 2: Letter of Approval from the Excellence in Research Ethics & Science (ERES) Converge Ethical Review Board

13th September, 2015

Ref. No. 2015-Aug-006

The Principal Investigator
Mrs. Malala Mwondela
P/Bag E835, Kabulonga,
Box 200,
LUSAKA.

Dear Mrs. Mwondela,

RE: AN EXPLORATION OF THE STRENGTHS AND WEAKNESSES OF THE REFERRALS AND COUNTER REFERRAL SYSTEM OF MATERNAL & NEONATAL HEALTH SERVICES BETWEEN PRIMARY LEVEL HEALTH FACILITIES AND A TERTIARY HOSPITAL IN LUSAKA, ZAMBIA.

Reference is made to your corrections dated 7th September, 2015. The IRB resolved to approve this study and your participation as principal investigator for a period of one year.

<table>
<thead>
<tr>
<th>Review Type</th>
<th>Ordinary</th>
<th>Approval No. 2015-Aug-006</th>
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<td>Approval and Expiry Date</td>
<td>Approval Date: 13th September, 2015</td>
<td>Expiry Date: 12th September, 2016</td>
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<td>Protocol Version and Date</td>
<td>Version-Nil</td>
<td>12th September, 2016</td>
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<td>Information Sheet, Consent Forms and Dates</td>
<td>• English.</td>
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<td>12th September, 2016</td>
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<td>Recruitment Materials</td>
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<td>Other Study Documents</td>
<td>Questionnaires.</td>
<td>12th September, 2016</td>
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<tr>
<td>Number of participants approved for study</td>
<td>-</td>
<td>12th September, 2016</td>
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</table>
Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

Conditions of Approval

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to the IRB within 5 days.
- All protocol modifications must be IRB approved prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to the IRB within 5 working days.
- All recruitment materials must be approved by the IRB prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. Documents must be received by the IRB at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Any documents received less than 30 days before expiry will be labelled “late submissions” and will incur a penalty.
- Every 6 (six) months a progress report form supplied by ERES IRB must be filled in and submitted to us.
- ERES Converge IRB does not “stamp” approval letters, consent forms or study documents unless requested for in writing. This is because the approval letter clearly indicates the documents approved by the IRB as well as other elements and conditions of approval.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of ERES Converge IRB, we would like to wish you all the success as you carry out your study.

Yours faithfully,

GRES CONVERGE IRB

Dr. E. Muralula-Nkandu
BSc (Hons), MSc, MA Bioethics, PgD R/Ethics, PhD
CHAIRPERSON
APPENDIX 3: Letter of Approval from the Ministry of Health

21st September 2015

Ms. Malala Mwondela
P/Bag E385
Lusaka

Dear Ms. Mwondela,

Re: Request for Authority to Conduct Research

The Ministry of Health is in receipt of your request for authority to conduct research titled “An exploration of the strengths and weaknesses of the referral andcounter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia.”

I wish to inform you that following submission of your request to this Ministry, our review of the same and in view of the ethical clearance by the University of Lusaka, we have granted you authority to carry out the above mentioned exercise on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to MoH quarterly from the date of commencement of the study;
3. The final study report is cleared by the MoH before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the MoH, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, and all key respondents.

Yours sincerely,

Dr. P. Mwabu
Permanent Secretary
MINISTRY OF HEALTH
APPENDIX 4: Letter of Approval from the Lusaka District Health Management Team (LDHMT)

All communications should be addressed to the Community Development Officer
Telephone: +260-211-235554
Telefax: +260-211-236429

REPUBLIC OF ZAMBIA
MINISTRY OF COMMUNITY DEVELOPMENT
MOTHER AND CHILD HEALTH

DISTRICT COMMUNITY HEALTH OFFICE
P. O. BOX 50827
LUSAKA

2nd October, 2015

Office Of The Dean
Department Of Research Development
University Of the Western Cape
Private Bag X17, Bellville 7535,
SOUTH AFRICA

Dear Ms. Malala Mwondela

RE: PERMISSION FOR A RESEARCH IN ETHICS AND SCIENCE (ERES) VISIT TO THE FOLLOWING HEALTH CENTRES:

This serves to inform you that permission has been granted for your student to visit the following Health Centres for a research project on exploration of the strengths and weaknesses of the referral and counter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka Zambia. 14th to 19th September, 2015.

By copy of this letter, the Health Facility In-Charge is kindly requested to render them the necessary support.

Yours sincerely,

Muma Muma
Human Resource Management Officer
FOR/DISTRICT MEDICAL OFFICER
LUSAKA DISTRICT COMMUNITY HEALTH OFFICE

C.c: The In-Charge: Kanyama 1st Level Hospital, Bauleni, Kalingalinga and Mtendere
C.c: Malala Mwondela
APPENDIX 5: Letter of Approval from University Teaching Hospital

REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH

MH/101/23/10
NDEKE HOUSE
P. O. BOX 30205
LUSAKA

21st September 2015

Ms. Malala Mwenda
P/Bag 1385
Lusaka

Dear Ms. Mwenda,

Re: Request for Authority to Conduct Research

The Ministry of Health is in receipt of your request for authority to conduct research titled “An exploration of the strengths and weaknesses of the referral and counter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia.”

I wish to inform you that following submission of your request to my Ministry, our review of the same and in view of the ethical clearance, my Ministry has granted you authority to carry out the above mentioned exercise on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to MoH quarterly from the date of commencement of the study;
3. The final study report is cleared by the MoH before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the MoH, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, and all key respondents.

Yours sincerely,

[Signature]
Permanent Secretary
MINISTRY OF HEALTH
APPENDIX 6: Information Sheet

Project Title:
An exploration of the strengths and weaknesses of the referral and counter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia.

What is this study about?
This is a research project being supervised by Mr. Malish Mphela, a student at the University of the Western Cape, Cape Town, South Africa who is currently completing her Masters in Public Health (MPH) qualification. We are inviting you to participate in this research project because you are a key stakeholder involved in the planning, delivery, support, evaluation and/or oversight of maternal and neonatal health related services in the urban district of Lusaka, Zambia. The purpose of this research project is to explore the strengths and weaknesses of the maternal and neonatal health referral system currently operating between primary and tertiary levels of care in the district and consider how the referral system might be strengthened so as to support a stronger continuum of care in relation to maternal and neonatal health.

What will I be asked to do if I agree to participate?
You will be asked to participate in an interview which will take no longer than 45 minutes. The questions will focus on your knowledge, experiences and opinions of the maternal and neonatal health referral system in the Lusaka district. Where applicable, you
may be asked to share samples of documentation related to this referral system. With your permission, the interview may be recorded to ensure that myself, as the researcher, can capture the interview in its entirety.

**Would my participation in this study be kept confidential?**

I will, as the researcher, undertake to protect your identity and the nature of your contribution. To ensure your anonymity, unless express permission is granted, your name will not be included in the data. To ensure your confidentiality, all the data will be stored in a lockable cabinet and on a computer with a password only known to myself. In the report or subsequent articles about this research project, your identity will be protected.

In accordance with legal requirements and/or professional standards, I will disclose to the appropriate individuals and/or authorities information that comes to my attention concerning child abuse or neglect or potential harm to you or others. In this event, I will inform you that I have to break confidentiality to fulfill my legal responsibility to report to the designated authorities.

**What are the risks of this research?**

There may be some risks from participating in this research study. All human interactions carry some amount of risks. I will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study.

**What are the benefits of this research?**

This research is not designed to help you personally. However, it is hoped that the results will contribute to improving the maternal and neonatal health referral system in Lusaka and ultimately support you as you continue to work or engage in this area of health service delivery. I hope that, in the future, this study can feed into efforts to strengthen the maternity referral system in other districts in Zambia and ultimately enhance the continuum of care we provide to Zambian citizens.
Do I have to be in this research and may I stop participating at any time?
Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?
This research is being conducted by Ms Malala Mwondela – an MPH student at the University of the Western Cape, Cape Town, South Africa – but resident within Lusaka district.
If you have any questions about the research study itself, please contact Malala Mwondela at malalamwondela@gmail.com or +260-966-645220.

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Prof Helen Schneider
Head of Department
University of the Western Cape
Private Bag X17
Bellville 7535
hschneider@uwc.ac.za

Prof José Frantz
Dean of the Faculty of Community and Health Sciences
University of the Western Cape
Private Bag X17
Bellville 7535
cbs-deanoffice@uwc.ac.za
Dr. F. Munalula-Nkandu  
ERES Converge IRB  
33 Joseph Mwila Road  
Rhodes Park, Lusaka  
Tel: +260 955 155633, +260 955 155634  
Cell: +260 966 765503  
eresconverge@yahoo.co.uk

This research has been approved by the University of the Western Cape’s Senate Research Committee (REFERENCE NUMBER: 15/6/27) and the Excellence in Research Ethics & Science (ERES) Converge Ethical Review Board in Zambia.
APPENDIX 7: Informed Consent Form

7.2 Consent form.

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-939 2809 Fax: +27 21-939 2872
E-mail: ph.comm@uwc.ac.za

CONSENT FORM

Title of Research Project: An exploration of the strengths and weaknesses of the referral and counter referral system for maternal and neonatal health services between primary level health facilities and a tertiary hospital in Lusaka, Zambia.

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant’s name ........................................
Participant’s signature ...................................
Date ..........................................................

APPROVED

13 SEP 2015
ERES CONVERGE
P/BAG 125, LUSAKA.
7.3 Questionnaires.
The study will use a semi-structured questionnaire or interview guide for the five categories of respondents. The following is the interview guide.

Health Centre(s)

*Their role in relation to maternal and neonatal health services:*

- What is the catchment area of this health centre?
- What health services do you provide at this health centre?
- What maternal and neonatal health services do you provide at this centre?
- How many and what level of staff do you have working on maternal and neonatal health services?
- What type of maternity or obstetric complications are you able to handle?

*Their understanding of the maternity-related referral and counter-referral process currently operating between the district health centers and the UTH in the district:*

- Which obstetric complications do you refer to UTH?
- Can you help me understand what the current protocol or practice is in terms of referring a complicated maternity-related case from:
  - the health centre up to the UTH and
  - from UTH back down to the health centre?

Prompts if not raised:

- Do you have designated referrals forms?
- Are you aware of a referral protocol document?
- Are you and other staff familiar with the protocol?
- On average how many patients do you refer in a month?
- Do you receive any feedback from UTH on the outcomes of the cases you refer?
- What happens to referred patients once discharged from UTH?
Their opinion on the strengths and weakness of the system and implications for their own work:

- In your opinion, what are the strengths and weaknesses of the maternity referral system?

Prompts if not raised:

- I understand there are some challenges with the current referral system [provide an example] – can you describe if there are any and what these are from your perspective?
- What implications or consequences does the current functioning of this referral system have on the work of your health centre

Ideas for improvement of the maternity referral and counter referral system in the district:

- Do you mind sharing with me what you consider to be an ideal maternity-related referral and counter-referral system between a health centre and a third-level hospital like UTH in this district. [Ask respondents to describe the referral system in detail – both ways [up and down] – almost like they are describing the journey of a patient up and down the continuum of care] OR
- What do you think should be done to improve or strengthen the referral and counter referral system between the health centres and the UTH for maternal, neonatal health in this district?
- What could your health centre do to contribute to improving the referral and counter referral system for maternal and neonatal health?

Partnership with other stakeholders

- Could you explain to me what the relationship is between your clinic and the LDHMT, with a particular focus on the referral and counter referral system for maternal and neonatal health?
- Are there any other partners that you work with in relation to the referral and counter referral system for maternal and neonatal health?
University Teaching Hospital

Their role in relation to maternal and neonatal health:

- What is the key role of the UTH with regard to maternal and neonatal health?
- What specialisations exist at UTH in relation to maternal neonatal health?
- What is the target population of the UTH?

Their understanding of the maternity-related referral and counter-referral process currently operating between the district health centers and the UTH in the district:

- In 2014, of the maternity cases that were handled at UTH, how many were referred from other facilities?
- On average, how many maternity referrals do you receive in a month?
- What is the procedure when you receive a referral for an obstetric complication?
- Do you have the appropriate forms for dealing with referrals?
- What nature of complications do you handle most?
- Once a referred patient is discharged from UTH, what is the procedure for counter referral to the initiating facility?
- Are staff in the maternity department familiar with the referral and counter referral procedures?

Their opinion on the strengths and weakness of the system and implications for their own work:

- In your opinion, what are the strengths and weaknesses of the current maternity referral system from the primary to tertiary level of health care?

Prompts if not raised:

- I understand there are some challenges with the current referral system [provide an example] – can you describe if there are any and what these are from your perspective?
- What implications or consequences does the current functioning of this referral system have on the work of the UTH?
Ideas for improvement of the maternity referral and counter-referral system in the district:

- Do you mind sharing with me what you consider to be an ideal maternity-related referral and counter-referral system between a health centre and a third-level hospital like UTH in this district. [Ask respondents to describe the referral system in detail – both ways [up and down] – almost like they are describing the journey of a patient up and down the continuum of care] OR
- What do you think should be done to improve or strengthen the referral and counter referral system between the health centres and the UTH for maternal and neonatal health in this district?
- What could UTH do to improve the referral system?

Lusaka District Health Management Team (LDHMT)

Their role in relation to maternal and neonatal health services:

- What is the key role of the LDHMT in relation to the management and oversight of health services in the district?
- What role do you specifically play in relation to the management and oversight of maternal and neonatal health services specifically?

Their understanding of the maternity-related referral and counter-referral process currently operating between the district health centers and the UTH in the district:

- Can you help me understand what the current protocol or practice is in terms of referring a complicated maternity-related case from:
  - the health centre up to the UTH and
  - from UTH back down to the health centre?

Their opinion on the strengths and weakness of the system and implications for their own work:

- In your opinion, what are the strengths and weaknesses of the current maternity referral system from the primary to tertiary level of health care?
Prompts if not raised:

- I understand there are some challenges with the current referral system [provide an example] – can you describe if there are any and what these are from your perspective?
- What implications or consequences does the current functioning of this referral system have on the work of the LDHMT?

**Ideas for improvement of the maternity referral and counter referral system in the district:**

- Do you mind sharing with me what you consider to be an ideal maternity-related referral and counter-referral system between a health centre and a third-level hospital like UTH in this district. [Ask respondents to describe the referral system in detail – both ways [up and down] almost like they are describing the journey of a patient up and down the continuum of care]. OR
- What do you think should be done to improve or strengthen the referral and counter referral system between the health centres and the UTH for maternal and neonatal health in this district?
- What could the LDHMT do to improve the referral system?

Ministry of Community Development Mother & Child Health and the Ministry of Health

*Their role in ensuring policy guidance for maternity referral systems*

- Has the Ministry developed a national referral protocol?
- Has the Ministry developed a maternity referral protocol?
- If so, is it available at all health facilities?
- In the absence of a national referral protocol or a maternity referral protocol, what guides the practice of referrals from one facility to another?
- Are staff in facilities familiar with the referral protocol?
• Has the Ministry developed appropriate referral forms?
• Who is responsible for the functioning of the referral system within the ministry?

Strategies to support the functioning of the referral and counter referral systems for maternal and neonatal health

• What strategies are in place to address challenges in the referral system for maternal health? (Highlight challenges as indicated in the National Health Strategic Plan, the Roadmap and the mid-term review of the National Health Strategic Plan)

Their opinion on the strengths and weaknesses of the system and implications for their own work:

• In your opinion, what are the strengths and weaknesses of the maternity referral system?

Prompts if not raised:

• I understand there are some challenges with the current referral system [provide an example] – can you describe if there are any and what these are from your perspective?
• What implications or consequences does the current functioning of this referral system have on the health system?

Ideas for improvement of the maternity referral and counter referral system in the district:

• What should be done to improve or strengthen the referral and counter referral system for maternal and neonatal health?
• What are the major investments required to improve the referral and counter referral system in order to promote the continuum of care?
Non-Governmental Organisations

Their role in relation to maternal and neonatal health services:

- What is your role in maternal and neonatal health services?
- What is your role if any in maternal referral systems?

Their opinion on the strengths and weaknesses of the system and implications for their own work:

- In your opinion, what are the strengths and weaknesses of the maternity referral system?

Prompts if not raised:

- I understand there are some challenges with the current referral system [provide an example] – can you describe if there are any and what these are from your perspective?
- What implications or consequences does the current functioning of this referral system have on the health system?

Ideas for improvement of the maternity referral and counter referral system in the district:

- What do you think should be done to improve or strengthen the referral and counter referral system for maternal and neonatal health?
- What is your organization doing to improve the referral system?
APPENDIX 9: Forms and Guidelines Collected from the Facilities

Referral Form

Client Name: ____________________________  Sex: ______  Age: _____  Health Center: ______________________

PPTD Number: __________________________

☐ Out - Patient Department
☐ Family Planning Unit
☐ Ultra - Sound Unit
☐ ART Dept
☐ General VCT
☐ TB Corner
☐ In - Patient
☐ MCH/PMTCT
☐ Cervical Cancer
☐ Outside Clinic
☐ Project

☐ Community: ____________________________

Clinic referred from: ______________________

Name: _________________________________

Title: _________________________________

Phone Number: _________________________

Reasons for referral

Comments

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Signature: _____________________________  Date: __________________________

FEED BACK

Comment: ______________________________

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

Signature: _____________________________  Date: __________________________
BAULENI HEALTH CENTRE REFERAL FORM

REFERED TO ..........................................................................................................................

DATE..................................................TIME.........................................................................

NAME OF PATIENT..............................................................AGE................................SEX...........

FILE NO

REASON FOR REFERING THE PATIENT..........................................................................................

..........................................................................................................................................................

(INCLUDING BRIEF HISTORY/EXAMINATION FINDING)...................................................................

..........................................................................................................................................................

PROVISONAL DIAGNOSIS................................................................................................................

..........................................................................................................................................................

INVESTIGATIONS DONE...................................................................................................................

..........................................................................................................................................................

TREATMENT GIVEN & TIME.............................................................................................................

..........................................................................................................................................................

NAME OF REFERING HEALTH WORKER IN BLOCK LETTER..........................................................

..........................................................................................................................................................

RANK PLEASE TICK

MO CLINICAL OFFICER NURSE/MIDWIFE SIGN

UNIVERSITY of the WESTERN CAPE

107
LUSAKA DISTRICT HEALTH OFFICE
REFERRAL FORM

Serial No. 2200

I. Health Centre:

Referred To:

Date: ____________________ Time: ____________________

Name of Patient ____________________ Age ____________________ Sex ____________________

File No. ____________________

Reason for Referring Patient:

(Including brief History/Examination findings)

PROVISIONAL DIAGNOSIS:

INVESTIGATIONS DONE:

TREATMENT GIVEN & TIME:

NAME OF REFERRING HEALTH WORKER (IN BLOCK LETTERS):

MO/__________________________

Clinical Officer ____________ Nurse / Midwife ____________

Signature of Health Worker ____________________

Date Stamp ____________________

UNIVERSITY of the
WESTERN CAPE

II. UTH FEED BACK TO HEALTH CENTRE

Serial No. 2200

To Health Centre: ____________________ Date: ____________________ Time: ____________________

Name of Patient: ____________________ Sex: ____________________ Age: ____________________

Card / File No. ____________________

Provision Diagnosis from Health Centre:

Intervention in specialist clinic / Admission Ward

UTH

• Clinic /Ward Diagnosis: ____________________

• Investigations: ____________________

• Treatment: ____________________

• Other Comments: ____________________

• Review Date: ____________________

Name of Health Worker in Unit/Firm ____________________ Designation ____________________ Unit/Firm ____________________

Signature: ____________________

Date Stamp ____________________
**Classification of referrals for all deliveries:**

1. Under Age -
2. Raised Bp -
3. Raised Bp in Postdates -
4. Prolonged latent Phase -
5. Prolonged first stage of labour -
6. Prolonged first stage of labour with Fetal distress -
7. Prolonged 2nd stage -
8. Preterm Labour -
9. Premature rupture of membranes -
10. Previous C/S -
11. Pre Eclampsia -
12. Eclampsia -