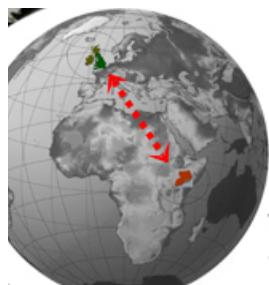


2014

Transport-related delays and maternal mortality in Uganda: the effects of managed and controlled mobility on maternal health and well-being

*A study on the subjective experience of
transport constraints amongst antenatal patients
in Wakiso District, Uganda*



LMP

The Liverpool - Mulago Partnership
for Women's and Children's Health



Emma Aldrich

MSc: International Development Studies

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E. C. Aldrich

4044614

Master's Thesis: International Development Studies

Department of Human Geography

Faculty of Geosciences

Utrecht University

Supervisor: Dr. W.H.M. Leung

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Abstract

Maternal Mortality Ratios (MMRs) in poor countries have been identified as a critical priority for development policy and intervention. MMRs in Uganda, specifically, remain extremely high at 440 maternal deaths per 100,000 live births. The delay in arriving at a health facility for care has been acknowledged as a leading non-clinical factor in maternal mortality, and a growing body of evidence suggests that inadequate transport is a significant factor in explaining maternal deaths. Despite this, emergency transport, the efficacy of referral systems, and barriers to mobility continue to remain largely neglected within the study of maternal health. This research study primarily intends to describe, in detail, the subjective experiences of women who require and seek emergency obstetric care and to illuminate what specific factors contribute to transport-related delays.

This research took place predominantly in Wakiso District, Uganda. Surveys and interviews were conducted at health centers located in Kabubbu, Kasangati and Buwambo, all within a 22 km radius of Uganda's capital city Kampala. A combination of quantitative and qualitative methods was used; 47 in-depth interviews were conducted. This is inclusive of interviews conducted with health center patients, health workers and health administrators. A total of 182 health center patients completed surveys.

The results of the study reveal that gendered norms and practices significantly influence women's mobility in this context. While the relative inaccessibility of health centers, the limited availability of transport methods, and the expensive nature of emergency transport are all factors contributing to mobility limitations, interviews suggest that within the population studied, gendered norms governing the management and control of resources for mobility contribute most significantly to mobility constraints. Male partners (who are often the sole wage earners) frequently manage family finances and control women's daily access to spending money. If women experience an obstetric emergency, they rarely are in possession of an adequate amount of money to pay for appropriate or safe transport. Transport-related interventions can empower women socially and economically, thereby contributing to the reduction of maternal deaths *and* the improvement of maternal life.

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Abbreviations

ALS	Advanced Life Support
ART	Anti-Retroviral Therapy
CAP	Mbale Coaltion Against Poverty
DHO	District Health Office
EmOC	Emergency Obstetric Care
GAD	Gender and Development
GDP	Gross Domestic Product
HC	Health Center
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HUB	Ugandan Maternal and Newborn Hub
LMP	Liverpool Mulago Partnership for Women's and Children's Health
LRA	Lord's Resistance Army
MA	Motorcycle Ambulance
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
MPDR	Maternal Perinatal Death Review
NDP	National Development Programme
NGO	Non-Governmental Organization
NRH	National Referral Hospital
ODA	Overseas Development Assistance
PONT	Partnership Overseas Networking Trust
PPH	Post-Partum Hemorrhage
RCOG	Royal College of Gynecology

RRH	Regional Referral Hospital
SVP	Sustainable Volunteering Programme
TFR	Total Fertility Rate
THET	Tropical Health Education Trust
UGX	Ugandan Shillings
UN	United Nations
USD	United States Dollars
VHT	Village Heath Team
WHO	World Health Organization
WID	Women in Development

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1 Introduction

In Northern Europe women have a 1 in 30000 chance of dying as a result of pregnancy or childbirth in their lifetime; in the poorest areas of the world a woman's chance of dying as a result of pregnancy or childbirth is as high as 1 in 6 (Ronsmans and Graham, 2006, p.1198). The vast majority of the half a million maternal deaths that occur each year take place in sub-Saharan Africa where many health systems are over-burdened, understaffed and under resourced. The global maternal health crisis indicated by such high Maternal Mortality Ratios (MMRs) in poor countries has been identified as a critical priority for development policy and intervention. Indeed the United Nations Millennium Development Goals (UN MDGs) have set the ambitious intention to reduce maternal mortality in developing countries by 75% by 2015. While many developing and transition countries have succeeded in lowering MMRs and thus meeting MDG Number 5, numerous countries in sub-Saharan Africa have seemingly stalled in the midst of progress. In Uganda, specifically, MMRs remain extremely high at 440 maternal deaths per 100,000 live births (WHO, 2012). It is significant that the vast majority of maternal deaths in Uganda and those in sub-Saharan Africa at large are due to emergency obstetric complications that are entirely treatable. Over the past few decades, researchers have identified a variety of non-biomedical factors and processes that ultimately result in maternal deaths. The delay in arriving at a health facility for care has been acknowledged as a leading non-clinical factor in maternal mortality and is the subject with which this research is concerned.

1.1 Problem identification and research objectives

Adequate, affordable and efficient transportation to health facilities for Emergency Obstetric Care (EmOC) persists as an unmet need for many women in both rural and urban areas of Uganda (MHT, 2013). The significant constraints women face when in need of EmOC include geographical or physical barriers (mountainous terrain and infrequently maintained rural roads), financial barriers (the cost of transport), as well as infrastructural barriers (the lack of available emergency vehicles) (MHT, 2013). It has become accepted that “the financial and time cost of traveling to health facilities and their low status and negotiating power within the household” may delay women from making

the decision to seek care as well as actually reaching care (Barber, 2013). According to Fillipi et al. (p. 1, 2006),

“Women are intensely vulnerable to the effects of costs incurred during childbirth... User charges add to the costs of transport and companion time, which can be substantial for those living far from facilities. The time spent looking for cash can also delay access to emergency life-saving care in facilities. Women are encouraged to plan for their deliveries, but the unpredictability of the outcomes and costs makes planning difficult. Indeed, the fear of anticipated cost can deter use of services.”

Indeed, a growing body of evidence suggests that inadequate transport is a significant factor in explaining maternal deaths (Barber, 2013). Despite all this, emergency transport, the efficacy of referral systems and barriers to mobility continue to remain largely neglected within the study of maternal health (Hofman et al., 2008; Porter, 2008, Bhopal, Halpin, and Gerein, 2012; Surridge et al., 2014). In order to identify and recommend focused and context-specific solutions to the problem of maternal mortality, policy makers require a more sensitive social scientific analysis of mobility, gender and health and a more thorough exploration of the transport and maternal mortality link (Barber, 2013).

This research study primarily intends to describe, in detail, the subjective experiences of women who seek EmOC. This mixed methods, explorative study within the greater Kampala area illuminates what specific factors contribute to the delays women experience in travel and transportation. By gathering information regarding the distance women travel, the road conditions they traverse, the transport methods they utilize, the costs they incur, as well as the societal and behavioral norms that challenge or enable their mobility, it is hoped that potential opportunities for intervention may be identified. In examining how different aspects of mobility are managed, controlled or constrained in a low-resource setting, it is hoped that a more complete picture of the costs and consequences of mobility limitations will emerge. In light of these objectives, the main questions guiding this research are as follows:

- 1) How is a woman's mobility managed or controlled in the context of the process of accessing emergency obstetrical care?
- 2) In regards to transportation, how do the aspects of physical accessibility, availability, financial affordability, and social acceptability affect maternal health and well-being?

The main questions are then enhanced by the following inquiries:

- A) What existing transportation mechanisms and contingencies exist for women experiencing emergency complications?
- B) How do transport delays affect the efficacy of referrals?
- C) What lessons can be learned from evaluations of existing transportation-related interventions both within and outside of the Ugandan Maternal and Newborn HUB; How can the Liverpool Mulago Partnership for Women's and Children's Health contribute to the development of sustainable solutions regarding the problem of inadequate transport?

It may be noticed in question 2 that the terms “maternal health and well-being” have been chosen rather than “maternal mortality.” Though this research seeks to better understand the transport-related delays that contribute to maternal mortality, it is considered that the study of maternal health encompasses more than simply the statistical data offered by MMRs. Both maternal mortality and maternal morbidity are clinical terms, used for diagnosis by medical professionals. Because it was not possible to access the medical records of antenatal patient respondents it was not possible to ascertain clinical diagnoses. Many of the respondents described the pregnancy-related complications they have experienced in subjective, non-clinical terms. It is therefore not possible to determine how the aforementioned aspects of mobility *directly* affect maternal mortality and morbidity. It is possible, however, to determine their affect on the subjective experience of health and well-being.

1.2 Thesis Structure

Following the introduction, the theoretical framework and conceptual models utilized for this research are presented. The limitations of pre-existing frameworks for this specific research theme are explored, and an alternative model, the mobility model, is explained. Furthermore a gendered analysis of this subject is promoted. In chapter three the national and local contexts of this study are explored in depth. Specifically, the Ugandan health system and the emergency referral system are explained, and the Health Centers (HCs) with which this study is concerned are identified. Finally, the organization for which policy recommendations are made is recognized and described. Chapter four discusses the research design and methodology of this research as well as the limitations of the study. Within chapters five and six the findings of the research are revealed. Quantitative data is used to compliment the qualitative data collected on the efficacy of the current emergency referral system and the factors that influence mobility and the resources for mobility. The characteristics of the research population are presented, and the accessibility, availability and affordability of transport are examined. In chapter seven and eight inferences are made from the findings. How mobility is managed and controlled is explored deeper. The management of facility-based and community-based methods of transport (especially emergency transport) is assessed. A gendered analysis is offered and subsequently the effects of constraints on mobility are disclosed and grounded by theory. Chapter nine considers the possible contributions the LMP could make in this context and discusses existing transport interventions as well as the possibility of community-based interventions in the future. Finally, chapter 10 presents concluding remarks and makes recommendations for future research.

2 Theoretical Framework

This research on maternal health, mobility and transportation is grounded in Gender and Development (GAD) discourse as well as public health concepts. It utilizes two existing analytical frameworks that feature prominently within the field of public health research. Both the Three Delays Model as conceptualized by Thaddeus and Maine (1994) and the Access Model theorized by Peters et al. (2008) provide useful categories for analysis.

Because this research, however, is specific to what Thaddeus and Maine identify as what will be explained as the 2nd Delay in accessing maternal health care, it is useful to design and utilize a new conceptual framework that combines the most relevant aspects of each model. The final conceptual model presented (figure 3) is a framework for identifying, describing and analyzing transport-related barriers to mobility in the context of the 2nd Delay. This framework, based on the work of Thaddeus and Maine and Peters et al., is also influenced by scholarship on mobilities (Grieco, 2005; Sheller and Urry, 2006). Finally, this chapter briefly summarizes the existing body of research on the subject and identifies the research gaps that this study aims to fill.

2.1 Gender and development

The conceptual frameworks developed by Thaddeus and Maine (1994) and Peters et al. (2008) both utilize ideas of sociocultural health determinants as mediators of health care access. One important sociocultural health determinant is gender. According to Khanna (2013, p.12),

“Women’s and men’s well-being is determined by social, political and economic factors that shape their lives, as well as by their biological condition. Biological differences between women and men – that is differences related to their sex – affect their vulnerability to illness or disease. Differences in the roles, resources and status of women compared to men interact with biology to increase or decrease this vulnerability. These gender differences also affect access to health knowledge, self-perceptions of health needs and the ability to access services. Gender inequalities in the preconditions for health and in health information and services produce inequalities in health outcomes.”

Gender can thereby be identified as a sociocultural health determinant that is significant to maternal health outcomes. With this in mind, this research on maternal health, mobility and transportation is grounded by a GAD theoretical approach, which acknowledges the socially constructed differences between women and men and advocates challenging existing gender roles (Razavi and Miller, 1995). Unlike the liberal feminist Women in Development (WID) discourse of the 1970s, which uses economic efficiency arguments

to advocate for women's greater involvement in economic development, GAD argues the relational nature of women's subordination and emphasizes the concepts of power and control within gender relations (Razavi and Miller, 1995, p.12). With roots in feminist anthropology, GAD considers gender to be a social relationship, which among other things plays a defining role in the division of labor. This is deemed to be particularly relevant given the geopolitical and cultural context of this research. It is well documented that in many developing countries, gender plays a determining role in regards to access to education, access to wage-earning employment outside the home and income equality, as well as the freedom to exercise agency and to act autonomously (Fillipi et al. 2006). In the study of maternal health it is therefore important to examine a variety of factors that influence women's health including the geopolitical environment, culture, gender norms and sanctions, women's roles in reproduction and production, and health-related mediators such as social capital and networks, the availability and use of health services, and stress (Moss, 2002).

2.2 Stress, maternal health and wellness

Though the concept of well-being will be operationalized as being imbued with aspects of agency, power and control, it is also helpful to ground the concept firmly within current public health discourse. Stress as a health-related mediator is of particular relevance to this research. According to the World Health Organization (WHO), "good health is a state of complete physical, social and mental well-being, and not merely the absence of disease or infirmity. Health is a resource for everyday life, not the object of living, and is a positive concept emphasizing social and personal resources as well as physical capabilities" (2014). It is therefore extremely relevant within the study of maternal health to explore the ways in which constraints on mobility and the resources for mobility affect the mental well-being of mothers and mothers-to-be. Fillipi et al. (2006) explain the relevance of the study of stress and anxiety to the study of maternal health in the following way:

"The days before or after childbirth can be a period of ambiguity for women. Some moments are joyful, and childbearing is highly valued: if everything goes well, the

emotional, personal, and social benefits are great, but women might become more vulnerable. Stressors include lack of education, money, and decision-making power (particularly in relation to care during pregnancy) as well as the pressure to reproduce, the fear of complications, and a perceived inability to control the danger. This increased, repeated vulnerability linked to gender makes maternal health a unique issue.”

The specific stressors of insufficient finances, a lack of decision-making power, the fear of complications and a perceived inability to control the danger significantly impact a mother's experience of her own health and wellness. Mobility constraints are impacted by and contribute to the experience of these stressors, and in identifying these sources of undue stress it becomes possible to explore the tangible effects of controlled and managed mobility on women's lives and on maternal health at large.

2.3 The Three Delays Model

The Three Delays Model, conceptualized by Thaddeus and Maine in 1994, provides a valuable and often used framework within which the study of maternal mortality can be conducted. The Three Delays Model was theorized in the context of the founding of the Safe Motherhood Initiative and the Prevention of Maternal Mortality Program in 1987 (Thaddeus and Maine, 1994, p.1091). These initiatives helped to establish maternal mortality and the well being of women as areas of necessary and crucial research, policy reform and concerted intervention (Thaddeus and Maine, 1994, p.1091). After a multidisciplinary literature review, Thaddeus and Maine concluded that within the period of time between the onset and outcome of an obstetrical complication, there are *three factors or phases of delay* that prevent women from seeking, accessing or benefiting from high quality obstetrical care, and these *delays* contribute to maternal deaths (1994, p. 1092). The vast majority of maternal deaths are related to preventable and treatable direct obstetric complications and thus, if addressed in a timely and efficient way, are avoidable (Thaddeus and Maine, 1994, P. 1092).

Specifically, these delays are identified as the following: Phase 1 (the delay in the decision to see care), Phase 2 (the delay in reaching an adequate healthcare facility) and Phase 3 (the delay in receiving adequate care at the healthcare facility) (Thaddeus and

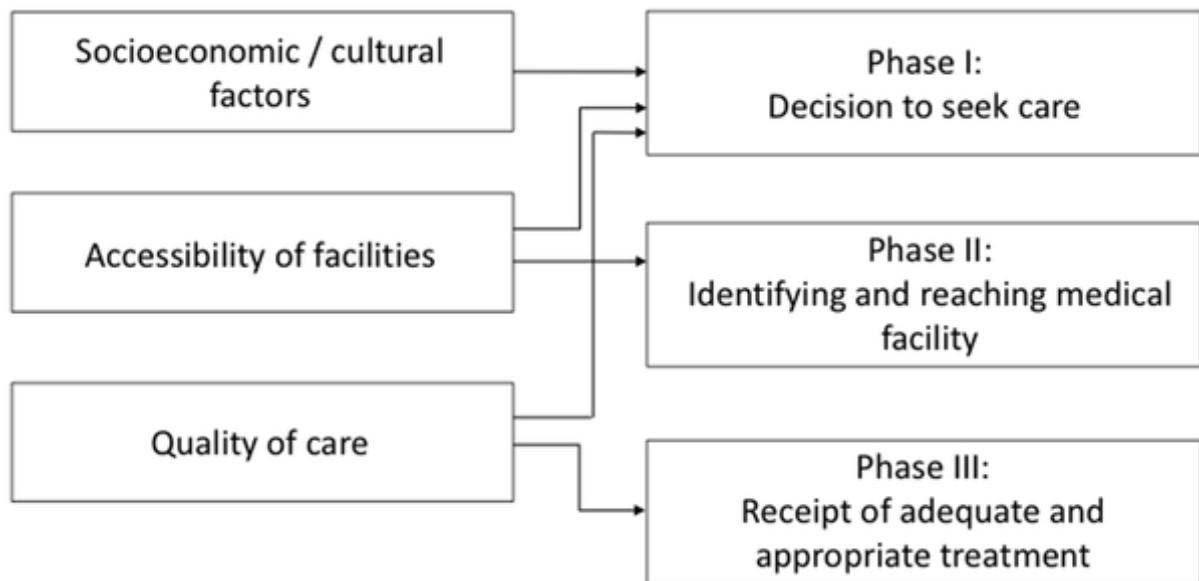
Maine, 1994, p.1092). The first phase, then, refers to the socio-cultural factors in health-seeking behavior, the second to infrastructural factors that influence facility accessibility, and the third to issues specific to the competency of healthcare providers and associated facilities (Thaddeus and Maine, 1994, p.1092). While these categories are presented as sequential and distinct from one another, they are in fact reciprocal and reinforcing. For example: Phase 2 delays are not limited to the infrastructural characteristics of the poor quality of rural roads or the sheer distance to be traveled from home to the hospital; Phase 2 delays also encompass the ways in which infrastructural barriers to access act as a disincentive to seek care, and therefore feed back into socio-cultural behaviors and decision making (Thaddeus and Maine, 1994, p. 1101). It is generally agreed upon amongst maternal health researchers that the Three Delays Model “provides a clear framework for the study of maternal deaths beyond the medical causes by combining in a single framework the social and behavioral causal sequences related to the household, community, and health system, transcending clinical or demographic information” (Pacagnella et. al, 2012).

The Three Delays conceptual model is particularly useful to this research as it provides a way of theorizing the cause and effect relationship between a number of variables related to transportation and maternal mortality. To study accessibility (both actual and perceived) as presented in the 2nd Delay, one must study distance as a disincentive, transportation types, road conditions, weather contingencies, as well as the costs both formal and informal associated with transport. While the model accounts for the ways in which perceived accessibility influences the process of deciding to seek care (the 1st Delay) it does not explicitly account for the ways in which sociocultural beliefs, attitudes, or norms may have a direct impact on a woman’s ability to access and pay for transportation options, once she has decided to seek care.

The Three Delays framework considers delays that contribute to maternal mortality specifically. This research, however, concerns the broader, more subjective personal experience of maternal health and wellness. It therefore includes survey and interview participants who may not have ever experienced an obstetric emergency or life threatening pregnancy-related complications. This study assumes that women who

experience mobility constraints when seeking antenatal care are likely to also experience hardships in accessing appropriate and adequate transport in the event of an obstetric emergency. It is therefore considered that the 2nd Delay may be investigated without directly examining cases of maternal death, thus using respondents who may or may not have experienced obstetric complications as a proxy. This justification is partly supported by Pacagnella et al. (p. 2012) who asserts that maternal near-misses (women who experience the same or similar obstetrical complications as those who do not survive) encounter similar obstacles in their pathways to seeking and accessing adequate care and thus “constitute a proxy model for death, giving a larger number of cases for analysis” (Pacagnella, p. 2012). In a similar way, the transport usage patterns of antenatal patients may give insight into the practical possibilities that exist for emergency transport. The Three Delays Model is visually demonstrated in Figure 1 below.

Figure 1: Three Delays Conceptual Model



Source: Knight, Self and Kennedy, 2013

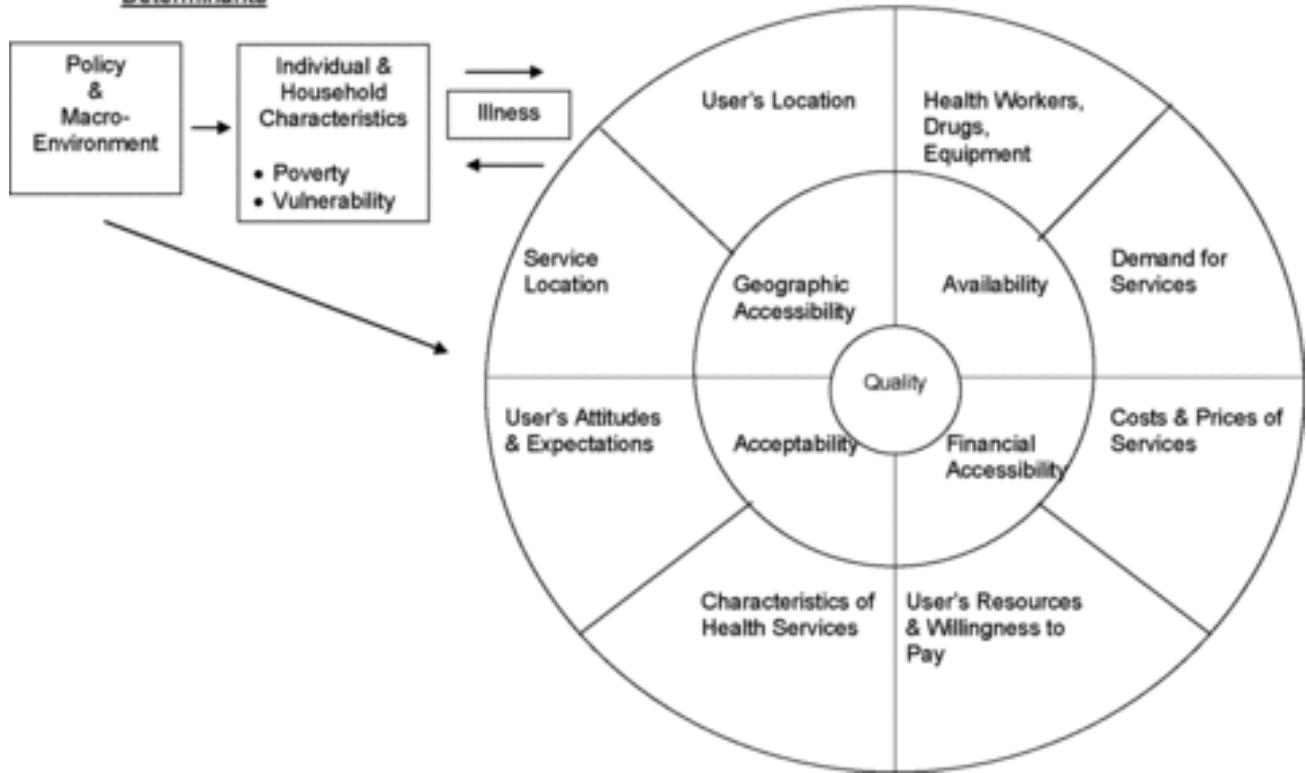
2.4 The Access Model

Peters et al. provide a conceptual framework for assessing access to health services along four main *dimensions* of access: geographic accessibility, availability, financial accessibility, and acceptability (see Figure 2) (2008, p. 162). These four main dimensions of access are considered to be areas in which barriers to access potentially exist and can be understood as factors that contribute to the quality of care one is able to receive (Peters et al., 2008, p.162). The Access Model incorporates all of the factors considered within the Three Delays framework, but rather than being specific to the analysis of maternal health care, the Access Model provides categories for analysis that may be used in a variety of health contexts. The two models are indeed overlapping and complimentary. According to Peters et al. (2008, p. 162) the following definitions can be associated with these dimensions of access to health care:

- 1) Geographic accessibility- the physical distance or travel time from service delivery point to the user
- 2) Availability- having the right type of care available to those who need it, such as hours of operation and waiting times that meet demands of those who would use care, as well as having the appropriate type of service providers and materials
- 3) Financial accessibility- the relationship between the price of services (in part affected by their costs) and the willingness and ability of users to pay for those services, as well as be protected from the economic consequences of health costs
- 4) Acceptability- the match between how responsive health service providers are to the social and cultural expectations of individual users and communities

Figure 2: Poverty and Access to Healthcare in Developing Countries Model

Determinants



Source: Peters et al., 2008

2.5 The Mobility Model

The framework of Peters et al. provides a foundation from which one can assess aspects of access in the context of the 2nd delay. Rather than assessing how certain barriers affect a woman's access to quality health care, however, this research investigates how certain barriers affect a woman's *mobility*, which will help to illuminate the subjective experience of the 2nd Delay. The following statement by professor of transport and society Margaret Grieco (2005) demonstrates the relationship between mobility and maternal mortality:

"There is a relationship between mobility, power, and well-being. The differences between male and female travel patterns and the cultural rules and roles associated with these differences are under charted in the policy environment. The impact of constrained mobility on bargaining also has its impact on what comes to be available as resource and service within local constraints. No better demonstration of these constraints can be

found than in Africa's portrait of maternal mortality: constraints on mobility and on the resources for mobility and accessibility have devastating consequences for women's health on the African continent."

Mobility is hereby conceptualized as a resource or capital, the possession of which can empower the individual; likewise, the paucity of mobility can severely limit an individual's agency. In this sense ``mobility and control over mobility both reflect and reinforce power. Mobility is a resource to which not everyone has an equal relationship" (Sheller and Urry, 2006, p. 211). Mobility in this context reflects more than the physical movement and the means by which women travel from one place to another. It is an essential and valuable tool or resource to be in possession of and control over in the event of an obstetrical emergency. Constraints on a woman's mobility, identified within the 2nd Delay as the physical, financial and social barriers that stand in the way of a woman's movement toward EmOC, feature prominently within the causes of maternal morbidity and mortality. It can be argued that *increased mobility* in this context may be valued as *better*, in that it leads to objectively *better* health outcomes. Increased mobility allows for greater opportunities for women to experience and enjoy the capabilities that are central to human functioning including "being able to live to the end of a human life of normal length; not dying prematurely, or before one's life is so diminished as to be not worth living" as well as "being able to have good health, including reproductive health" (Nussbaum, 1999, p. 235).

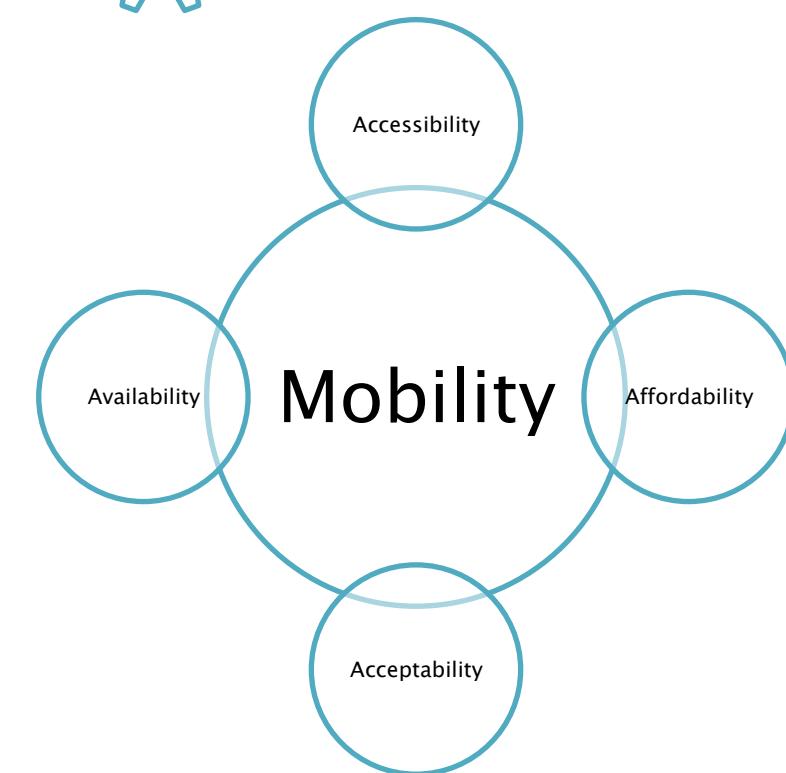
The degree to which a woman possesses and exercises her mobility can be linked to the power and control she has over her own body and movement as well as her potential for experiencing the well-being that is associated with autonomy and agency. It is believed that identifying, describing and analyzing the constraints on a woman's mobility that delay her from accessing EmOC offers more insight into the ways women's mobility is managed and controlled and the ways in which power and agency are central to positive maternal health outcomes. In 'measuring' a woman's mobility it will become possible to ascertain *how* central power and control are to the ability of women to access efficient transport, to travel long distances, to pay for the costs that transport incur, and to decide to do so in the first place.

2.5.1 Operationalization of Terms

For the purpose of this research on maternal health and transportation a new conceptual model (see Figure 3) is proposed. Using the dimensions of access to health care that have been linked to the concept of *quality* (Peters et al., 2008), this model operationalizes these dimensions of access as dimensions of *mobility*. These aspects, which will be used to describe and analyze the possession and exercise of mobility, encompass the following elements:

- 1) Geographic accessibility- in addition to the distance or travel time from service delivery point to the user: quality of roads, weather-related considerations
- 2) Availability-availability and frequency of adequate and efficient transport methods to an appropriate health facility for routine care and during obstetric emergencies
- 3) Financial accessibility- the relationship between the prices of *transportation services* and the willingness and ability of users to pay for such services
- 4) Acceptability- the social and cultural expectations of transport users and their relatives/community members with regards to attitudes around the use of various transport methods in the case of emergency referral or to access routine care (includes a consideration of gender norms, gendered relationships and the control over money and resources within the household)

Figure 3: The Mobility Model



Source: Aldrich, 2014

In the Mobility Model, a framework for deeply exploring phase 2 delays, the possession of and ability to exercise some degree of power or self-empowerment will be considered to be a prerequisite to mobility. Mobility is thus the expression and experience of power or self-empowerment. Well-being will be considered to be the positive physical, mental, and emotional experience of possessing and exerting agency. The power, mobility and well-being gears above the Mobility Model are meant to suggest that women who are empowered to exercise their mobility can experience well-being, an integral aspect of

health. The experience of well-being is of course linked to a woman's ability to enjoy her central human functional capabilities of which the ability to *live a full life* is the most relevant in this context (Nussbaum, 1999). In this way power, mobility and well-being are central concepts to take into consideration when analyzing the constraints on women's mobility that contribute to a negative experience of maternal health. The proposed dimensions of mobility are relevant to an exploration of the ways in which transport and maternal health are linked in that they often combine to act as stressors that contribute to a deterioration of a woman's health and wellness.

This mobility-focused research is particularly relevant as it was unusual to come across extensive, in-depth qualitative studies into the time-sensitive transport-related delays women encounter when in need of EmOC during desk research. While the work of Cham et al., (2005) on access to EmOC found that the lack of adequate transportation as well as inefficiency within the referral system indeed contributed to maternal mortality in the Gambia, the researchers did not deeply explore the subjective experience of respondents. Regarding the study of transport-related interventions, much of the data collected exists in gray literature and is therefore challenging to access (Surridge et al., 2014). In exception to this, the following studies evaluate and analyze transport-related interventions: The study of Hofman et al. (2008) on the use of motorcycle ambulances for the referral of obstetric emergencies in Malawi finds that such an intervention is both cost effective and time efficient. Bhopal, Halpin, and Gerein (2012) find that a motorcycle ambulance service in rural Sierra Leone benefitted greatly from the district-wide training of Traditional Birth Attendants and the sensitization of local communities, which helped promote awareness of the importance of such a service for laboring women. The study of Surridge et al. (2014) on a community-based emergency referral system in rural Zambia finds that "maximising the potential for communities to manage their own systems which bridge the gap between the community and the health facility could be the most effective and cost-effective way of ensuring poor people's access to both emergency and non-emergency maternal health services (Surridge et al., p.18, 2014). This research on maternal health and transport in Uganda contributes to the existing body of research by emphasizing subjectivity and exploring social constraints.

3 Regional thematic context

This chapter provides a broad overview of the national and local context in which this research took place. First the geopolitical and economic landscapes of Uganda will be presented, continued by an overview of the issue of gender equality in the country. A discussion of maternal health and mortality in Uganda will follow. The Ugandan health care system and more specifically the emergency referral system will be explained in order to situate the health centers studied within the pathway of referral. Next comes a discussion of the local context (Kampala), the three relevant health centers and the national referral hospital. As the researcher was hosted by the Liverpool Mulago Partnership for Women's and Children's Health (LMP) and the study was conducted within their sphere of influence, recommendations with the charity in mind will be made in the concluding chapters of the dissertation. An explanation of the LMP will therefore conclude this chapter.

3.1 Uganda: the national context

Located in Eastern Africa, the Republic of Uganda is a landlocked country of 34.5 million people bordered by Kenya, Tanzania, Rwanda, Democratic Republic of Congo and South Sudan (see Map 1 below) (UNDP, 2014).

Map 1: Uganda and neighboring countries



Source: Ezilon, 2014

Since independence from Britain in 1962 the country has experienced, on the whole, relative peace and stability; the exceptions to this state of political calm are most notably the eight year authoritarian regime of President Idi Amin Dada (1971-1979) during which time Uganda experienced economic decline, social disintegration, the deterioration of vital public health services, and the loss of human lives in staggering numbers (300,000

Ugandans were killed), as well as the more recent upheaval caused by Joseph Kony's insurgent group, the Lord's Resistance Army (LRA) (UNDP, 2014). The LRA gained global infamy after a US-based activist group documented the group's extensive recruitment and use of 'child soldiers' in the Ugandan north (Child Voice International, 2014). The current president, Yoweri Museveni, has been president since 1986, and though he has been lauded for his effective, pragmatic national response to the HIV/AIDS epidemic, the global community has at different times during his presidency accused the Ugandan government of corruption and human rights abuses. The overall atmosphere of political stability since Museveni came to power as well as his enthusiastic embrace of neoliberal rhetoric as advocated by the Washington Consensus has arguably set the stage for the expansive and sustained economic growth that Uganda has experienced during the past two decades. Between 1992-2011 Uganda has experienced an average annual Gross Domestic Product (GDP) growth rate of 7.1%, the third highest growth rate in sub-Saharan Africa during this time (UNDP, 2014). Growth in the industrial and service sectors, strong investment and export growth, large inflows of Overseas Development Assistance (ODA), as well a general policy of openness to foreign investment and international trade have all contributed in putting Uganda on the fast track to economic development (UNDP, 2014). It should be noted, however, that Uganda's economy is primarily agricultural, and the agriculture and fishing sectors employ over 80% of the work force (Heritage, 2014).

Despite these positive economic trends, Uganda continues to contend with wide spread poverty. Uganda's current poverty rate stands at 24.5% (2009-2010) and its Human Development Index (HDI) is .456, ranking Uganda 161 out of 187 countries; Uganda's per capita income is 490 USD annually (UNDP, 2014). As is the case in many low-income countries, the life expectancy at birth in Uganda is quite low at 54 compared to nearly 79 in the USA, and the country experiences high prevalence rates of malaria and HIV (UNICEF, 2011). Regarding HIV specifically, 7.4% or 1.4 million people are currently living with HIV in Uganda (UNAIDS, 2014). The country's current national development strategy, the National Development Plan (NDP), has been developed by the government to promote 'growth, employment and socio-economic transformation for prosperity' between 2010-2015 (UNDP, 2014). This current NDP theme prioritizes the

following initiatives: the improvement of household incomes, availability of jobs, physical infrastructure, access to public services, governance and rule of law, and ways to promote sustainability in population growth and land use (UNDP, 2014).

In addition to adherence to the NDP, Uganda is also one of many low-income countries in which UN MDGs for 2015 are being promoted, monitored and evaluated. Encouragingly, the 2013 Uganda MDG Progress Report demonstrates that Uganda has made “considerable progress in achieving the MDGs, having already achieved two of its 17 MDG targets: halving the number of people living in absolute poverty and achieving debt sustainability” (UNDP, 2013). The report is optimistic that Uganda will also reach its MDGs regarding gender equality and empowering women, reducing child mortality, as well as the targets of sustainable access to safe drinking water and basic sanitation (UNDP, p.iii, 2013). Unfortunately, progress on maternal health has stagnated and it seems unlikely that Uganda will meet its goal of reducing MMRs by three quarters by 2015 (UNDP, p.iii, 2013).

3.2 Gender inequality in Uganda

Before elaborating on the status of maternal health and morality in Uganda, it is necessary to explain gender inequality in this context. In chapter 2 it was suggested that gender often plays a powerful determining role in health and health care access. According to a discussion paper made available by the Ugandan Ministry of Finance, Planning and Economic Development (MFPED) (2006, p.23),

“The economic dependence of women—their lack of control over productive resources and assets—is at the root of the problems women face. At the household level, women’s limited decision-making is associated with their insecurity of access to productive resources, especially land, and to their being predominantly engaged in the unpaid care economy. While women perform most of the agricultural work, they do not make decisions of what enterprises to get involved in or how the benefits accruing from them are distributed. This leaves women in unfavorable bargaining positions as well as poor fallback positions in cases of marriage break-ups.”

The discussion papers report that in Uganda men are typically the sole and primary “breadwinners.” Even when women earn an income, men frequently have sole or significant say in how the earnings are spent (MFPED, 2006). Ugandan women’s economic dependence on their partners has implications for health, health care access and mobility. Inequity in regards to the control over productive resources and assets is systemic and rooted in deeply entrenched cultural beliefs about women’s status. Cultural customs such as the payment of bride wealth, for example, contribute to the consideration of women’s time and labor as owned and controlled by men and their extended families (MFPED, 2006, p. 23). According to the MFPED (2006, p.23),

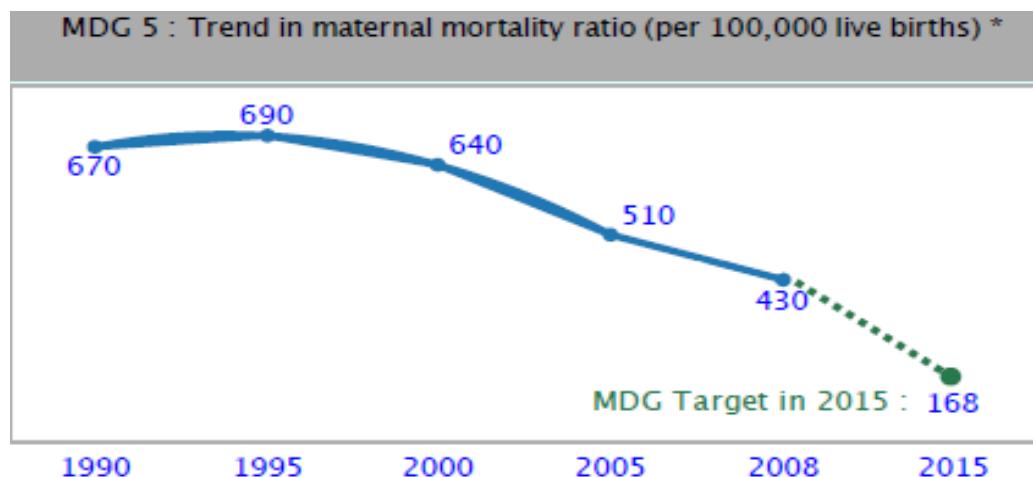
“Differences in decision-making power within the household is one of the factors contributing to poor health outcomes in Uganda, including the high levels of maternal and child mortality. The combination of heavy workload, resource dependency, and limited decision-making may also help to explain why 44 percent of pregnant women delay their first visit to a health facility to the last trimester of their pregnancy. The issue of women’s lack of control applies to the use of their own time...men control women’s time, with implications for economic, social, and political activity as well as mobility more generally.”

3.3 Maternal health and mortality in Uganda

The availability of quality maternal health care is of particular importance in Uganda; with an estimated total fertility rate of 6.06 children per woman in 2013, Uganda has the 4th highest total fertility rate in the world (CIA, 2013). (It should be noted, however, that Total Fertility Rates (TFRs) decrease with education. In 2000 women who had received education at the secondary level or higher had a TFR of only 3.9 (MFPED, 2006)). According to the MDG Progress Report, though the country has seen a large increase in the proportion of births assisted by a trained health workers (from 42% to 58% between 2006 and 2011) and an increase in more women having access to postnatal care within 2 days after childbirth (from 27% to 33% during the same time), there has been no statistically significant change in MMRs (UNDP b, p.24, 2013). Though the MMR, which is defined as the number of maternal deaths per 100,000 live births, has decreased from 506 in 1995 to 438 in 2011 (UNDP b p.24, 2013) the Ugandan Ministry of Health

(MoH) advises caution when interpreting this decrease as a trend, due to the methodology and limited sample sizes used to collect this data (UNDP b, 2013).

Figure 4: Trends in Uganda's Maternal Mortality Ratios



Source: Uganda Health Statistics Profile, WHO, 2010

Indeed, the 2015 target to reduce MMRs to 131 maternal deaths per 100,000 live births remains out of reach (UNDP b, p.24, 2013). Since 2008 the Ugandan MoH has employed the Maternal Perinatal Death Review (MPDR) committee to audit health facilities where maternal deaths are reported (UNDP b, p.25, 2013). According to the MPDR auditing teams, between 2009-2011 the most common underlying or indirect cause of death was the inadequate number of staff numbers (a factor reported in 63% of cases) (UNDP b, p.25, 2013). One study found that the availability of midwives at health facilities could prevent up to 80% of maternal fatalities while a national assessment found that in the early 2000s only 3% of health facilities expected to offer EmOC were able to do so (UNDP b, p. 25, 2013). The stagnation of progress in decreasing MMRs can be largely attributed to issues related to the use and quality of services along the continuum of care from pregnancy, to childbirth, to postnatal care (UNDP b, pp.25-26, 2013). For example, 64% of mothers do not receive any postnatal care in Uganda (UNDP b p.25, 2013). This is particularly worrying, considering that 60% of maternal deaths in developing countries occur 23-48 hours after delivery due to Post-Partum Hemorrhage

(PPH) and hypertensive disorders (pre-eclampsia and eclampsia) and 48 hours after delivery due to infection/sepsis (UNDP b, p.25, 2013). These *direct* or clinical causes of maternal death, along with obstructed labor and unsafe abortion, account for at least 80% of maternal deaths (WHO, 2012). Clinical complications such as PPH, hypertensive disorders, and infections in particular are entirely treatable if attended to within a certain time frame. PPH, or severe bleeding after birth, can prove fatal within 2 hours if a woman is unattended, and infection after childbirth can be treated if early signs are detected (WHO, 2012). Furthermore, if pre-eclampsia, a condition associated with dangerously high blood pressure, is detected early, the condition is unlikely to progress to eclampsia (WHO, 2012).

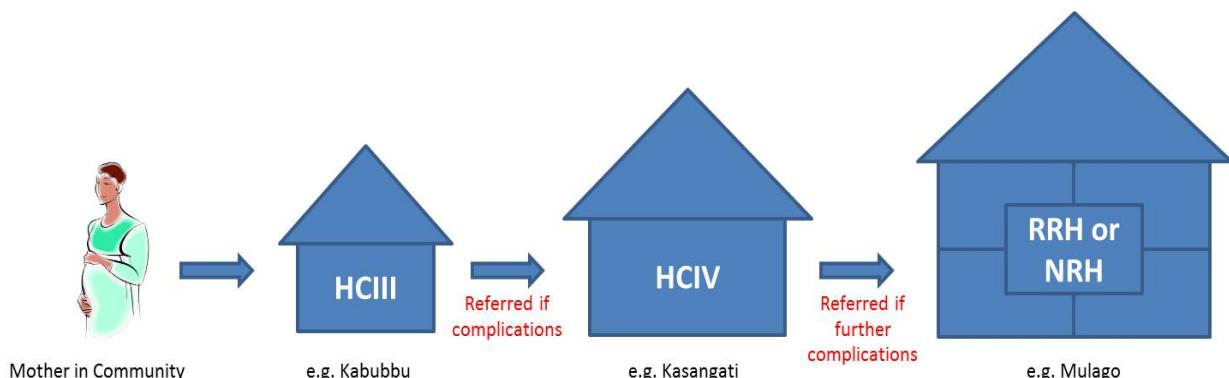
MMRs can only tell part of the story. For every woman that dies, many more women survive life-threatening complications. According to Fillipi et al. (2006) all over the world “an estimated 10–20 million women develop physical or mental disabilities every year as a result of complications or poor management.... The long-term consequences are not only physical, but are also psychological, social, and economic.” According to the Ugandan government, in order to better prevent maternal deaths and maternal morbidity, it is critical to invest in rural transportation infrastructure in order to increase women’s access to EmOC (UNDP b, p.25, 2013).

3.4 Ugandan health care system

Although the Ugandan government has declared a desire to both improve women’s access to EmOC and to improve the quality of health care available, structural and infrastructural resource constraints prevent swift, expansive governmental intervention, and the regional referral network is often rendered ineffectual. The public health care sector, which comprises 30% of facilities, frequently experiences a shortage of personnel and medicine, and skilled medical professionals are often deterred by poor healthcare infrastructure, low wages and overburdened caseloads (Frijters, p.21, 2013). Furthermore the country does not yet have a national ambulance system in operation. It is important to understand the way Uganda’s health care system operates at the regional level, in order to recognize and explain the barriers that women encounter in accessing EmOC in time. Uganda’s health care system is referral based and is inclusive of 4 levels of care. In rural

areas of the country, the first contact many people have with a healthcare provider is at the Village Health Team (VHT)/community medicine distributor level. It is not unusual, however, for VHT volunteers to be unavailable or have little to no medicine on hand (Kavuma, 2009). If adequate care is not available at the VHT level, patients can be referred (or self-refer) to the next level of care. Health Center II (HCII) facilities, according to the Ugandan government's health policy, should be present within every parish and serve up to a "few thousand people" (Kavuma, 2009). Ideally, a HCII is staffed by a nurse, two midwives and a health assistant who are well-equipped to treat common diseases like malaria and to offer antenatal care (Kavuma, 2009). Next in the chain of referral are Health Center IIIIs, (HCIII), which in theory function within every sub-county, possess 18 staff led by a senior clinical officer, and offer outpatient services as well as a maternity ward (Kavuma, 2009). Those whose needs cannot be met by the HCIII can seek care at the Health Center IV level (HCIV). HCIVs serve a county or parliamentary constituency and should in fact function as a small hospital; HCIVs should be able to perform routine surgeries as well as emergency C-sections and to admit and treat a higher volume of patients (Kavuma, 2009). It is common, however, that while HCIVs should in fact possess a working and well-resourced operating theatre at which emergency obstetrical procedures may be performed 24-hours a day, they often do not (LMP, 2014). The top and final link in the referral chain is the Regional Referral Hospital (RRH) or the National Referral Hospital (NRH), New Mulago Hospital. The referral pathway for maternal health, specifically, is thus designed to work as follows:

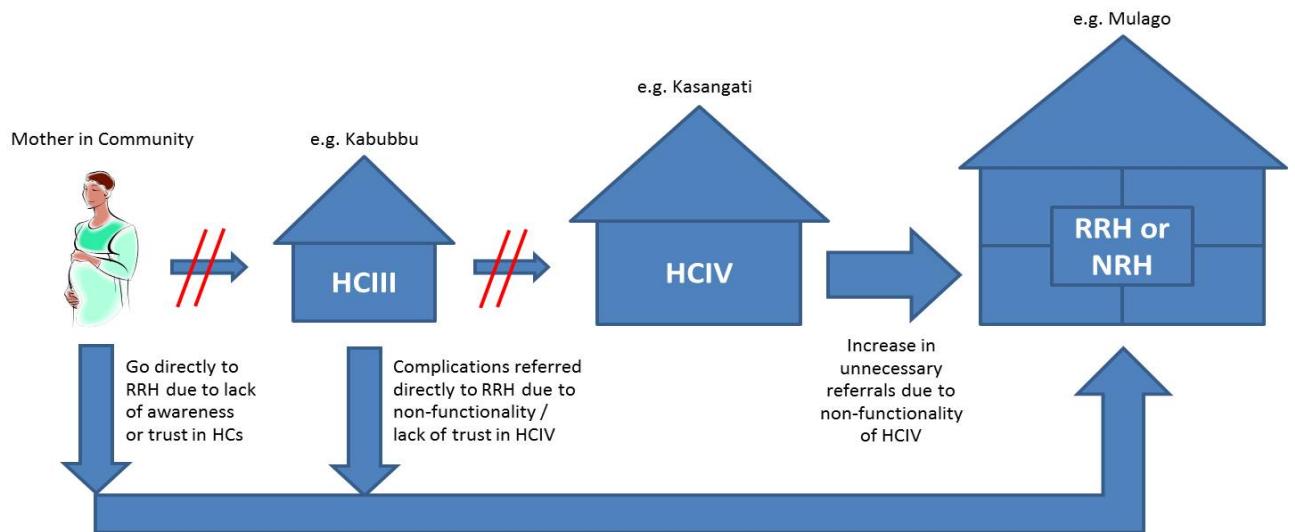
Figure 5: Functioning referral pathway



Source: LMP, 2013

According to the 2011 annual health sector review, the referral pathway for maternal health in and around Kampala does not in fact function as designed and less than 24% of health centers are in working order (LMP, 2014). This is largely due to unavailability of staff and resources (LMP, 2014). Below is the current referral pathway for women seeking obstetrical care as it actually functions:

Figure 6: The broken referral pathway



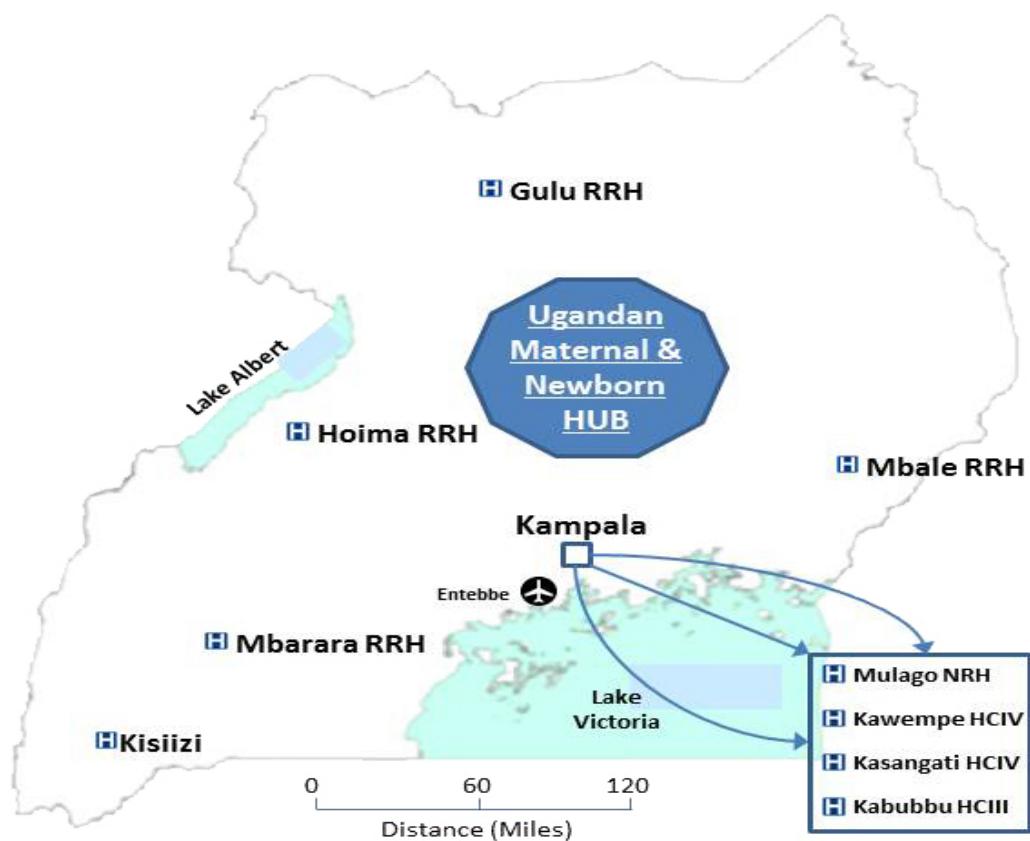
Source: LMP, 2013

The previous diagram indicates that often women go directly to RRHs due to a lack of awareness of what the level of care is that they require or a lack of trust in HCs. This is especially common within the Liverpool Mulago Partnership's (LMP) Maternal and Newborn hub (HUB) (see Map 2 and section 3.5 for more information regarding the HUB), where many women choose to seek care directly at Mulago NRH (LMP, 2014). This contributes to dangerous conditions of overcrowding at Mulago NRH, which handles 33,000 deliveries per year (LMP, 2014). According to the LMP, this contributes to the hospital's high MMRs. Furthermore, "the breakdown in the referrals process leads to additional and highly stressful delays, high and often unaffordable transport costs and, inevitably, poor maternal outcomes" (LMP, 2011).

3.5 Kampala: the local context

This research is concerned with segments within the referral pathway that are connected to NRH Mulago by the LMP HUB and in particular, focuses on the referral pathways between Kabubbu HCIII, Kasangati HCIV, Buwambo HCIV and Mulago NRH, all located within the Central Region, of which Kampala is the capital. Although Buwambo HCIV is not featured in Map 2 below, all three HCs are located within the square underneath ‘Kampala.’ Kampala has a population 1.209 million people (2002) and due to high urbanization growth rates, the demand for public services has outgrown available supply (UNSD, 2014). Rates of urban poverty increased in 2013 (Mwesigwa, 2013) and peripheral areas within the city in particular are “affected by non-access to improved sanitation facilities, sanitation-related diseases, [and] polluted water sources” (UN Habitat, 2014).

Map 2: Ugandan Maternal and Newborn HUB



Source: LMP, 2013

3.5.1 Transport in and around Kampala

Transport is a key input in achieving positive health outcomes, and improving access to health facilities improves their utilization; transport therefore plays a critical role in effective referral systems between different levels of health care (Lule, 2004). As previously mentioned, Uganda does not currently have a national ambulance service. While private hospitals often do operate ambulance services, the expense of private transport and care is out of reach for the average citizen. Women receiving care at health centers outside of the city and who require an emergency transfer to the NRH must often make their own way. It is well documented that distance, the poor quality of roads, and a lack of a comprehensive and efficiently utilized ambulance service delays the timely management of life threatening obstetrical complications (Lule, 2004). Unanticipated complications that require emergency transport are challenging for many women and their families to handle; it is often a financial hardship to plan ahead in the arrangement and payment for transport (Lule, 2004.) Women in need of EmOC in and around the greater Kampala area encounter many of the above mentioned transport delays.

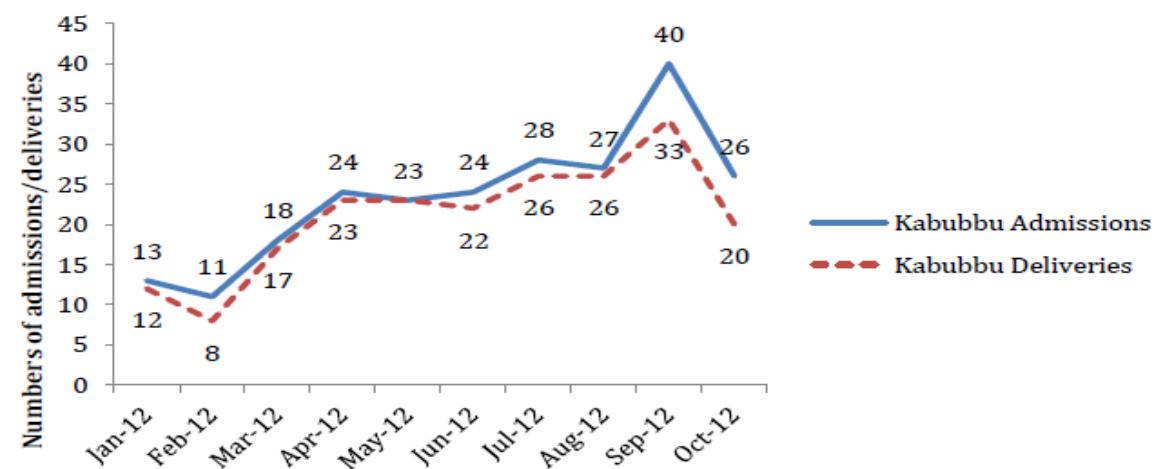
As previously described, many HCIVs lack provisions for emergency transport and the roads connecting HCs to Mulago NRH are often in poor repair. This is further complicated by a situation known within Kampala called “the jam.” Early in the morning (around 8am) and later in the evening (around 6pm) the traffic congestion or *jam* in Kampala peaks. Of the 800,000 vehicles in Uganda, half are located in Kampala (Magoola, 2013), and during peak traffic congestion it can take well over an hour to travel less than 5 km (Ackers, 2013). Privately owned or leased motorbike taxis, called boda-bodas, frantically bob and weave between cars and trucks stopped at a stand-still in an attempt to transport clients to their destinations. While boda bodas are the fastest method of transport, boda-boda drivers are known for being heedless of traffic regulations, and the boda-boda method of transport is becoming increasingly dangerous for passengers as well as pedestrians (Magoola, 2013). Often women in need of EmOC choose boda-bodas as their method of transport due to convenience and cost, adding an element of even greater risk to their journey. The other options for emergency transport include taxi vans that are inexpensive but slow, as they must stop often to allow

passengers on and off, and private taxis known as special hire vehicles, which are exceedingly costly.

3.5.2 Kabubbu HCIII

As previously mentioned, this research is concerned with three HCs in particular: Kabubbu HCIII, Kasangati HCIV, and Buwambo HCIV. Kabubbu HCIII is a ‘feeder’ health center for Kasangati HCIV and Mulago NRH and has only recently been upgraded to HCIII status (LMP, p.9, 2013). As a HCIII, Kabubbu provides non-emergency maternity care. Kabubbu HCIII sees a much smaller volume of patients than the other health facilities studied here; the mean number of maternity admissions per month at Kabubbu HCIII is 19 (LMP, p. 6, 2013). Over 90% of maternity admissions result in deliveries, which suggests that mothers experiencing complications are identified and referred without visiting Kabubbu HCIII (See Figure 7) (LMP, p.6, 2013). During the time period analyzed within the most recent HUB Benchmarking Report (2013), no maternal deaths were recorded; all obstetric complications and emergencies within the greater Kampala area were directly referred to Mulago NRH (LMP, p. 14, 2013). It is of interest to this research study on maternal health and transportation to assess the efficacy of the referral pathway between Kabubbu and Kasangati HCIV, and to ascertain what is the quality, availability, and cost of transport options available to women who are in fact experiencing emergency obstetric complications.

Figure 7:Admissions and deliveries at Kabubbu- 2012

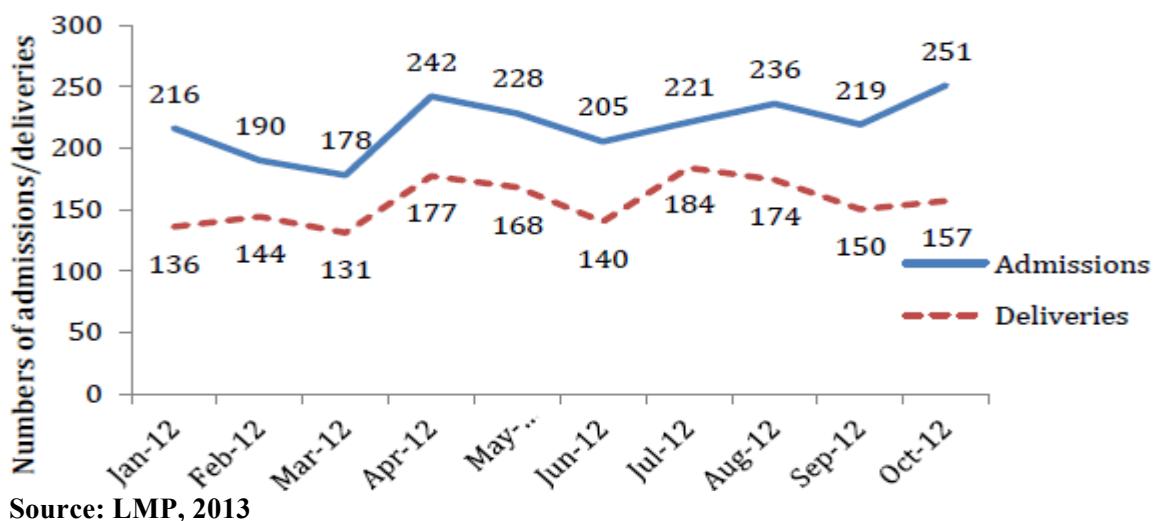


Source: LMP 2013

3.5.3 Kasangati HCIV

Kasangati HCIV is situated in the outskirts of Kampala and delivers approximately 2,000 babies per year (LMP, 2014). The HC is situated in the referral pathway between Kabubbu HCIII and Mulago NRH (LMP, 2011). Since the completion of the LMP's efforts to functionalize the HC in 2012, Kasangati HC possesses a fully functioning operating theatre (LMP, 2014). Due to a shortage of available staff, the HC is only able to offer EmOC during limited hours (LMP, 2014) and women who by-pass Kasangati due to unawareness of available treatment facilities or because treatment is in fact unavailable must make the 40+ min drive to NRH Mulago (LMP, 2011). The mean number of monthly maternity admissions at Kasangati HCIV during the period of the HUB's most recent benchmarking report (January 2012 –October 2012) was 223, which corresponds with a mean of 156 deliveries (see Figure 8) (LMP, p. 6, 2013). Of the 29% of maternal admissions not delivered, it is likely that while some mothers were not actually in labor, others were identified as having complications and an emergency referral was made to NRH Mulago (LMP, p. 9, 2013). As in the case of Kabubbu HCIII, during the time period analyzed, no maternal deaths were recorded as all obstetric complications and emergencies within the greater Kampala area were directly referred to Mulago NRH (LMP, p. 14, 2013).

Figure 8: Admissions and deliveries at Kasangati- 2012



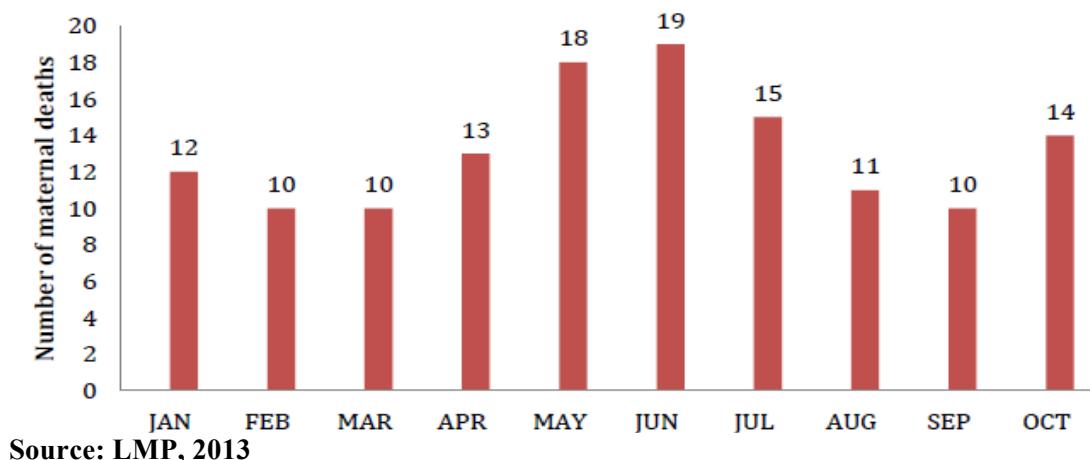
3.5.4 Buwambo HCIV

Buwambo HCIV is located the furthest from NRH Mulago at 21km away and serves around 300,000 people (LMP, 2014). Like many HCIVs in Uganda, though Buwambo HC should possess a fully functioning operating theatre and maternity ward, it does not yet have the resources to do so (LMP, 2014). Therefore the HC refers all emergency cases including women in need of EmOC directly to Mulago NRH, a journey that can take up to 2 hours (LMP, 2014). There are currently no annual statistics available for Buwambo that indicate maternal admission, delivery, or mortality rates.

3.5.5 Mulago National Referral Hospital

The final healthcare facility that is of concern to this study is NRH Mulago which accounts for the greatest mean number of maternity admissions per month within the HUB at 2602, and as the NRH, treats the largest number of obstetrical emergency cases; subsequently Mulago NRH accounts for the largest total numbers of maternal deaths (see figure 9 below) (LMP, p.20, 2013).

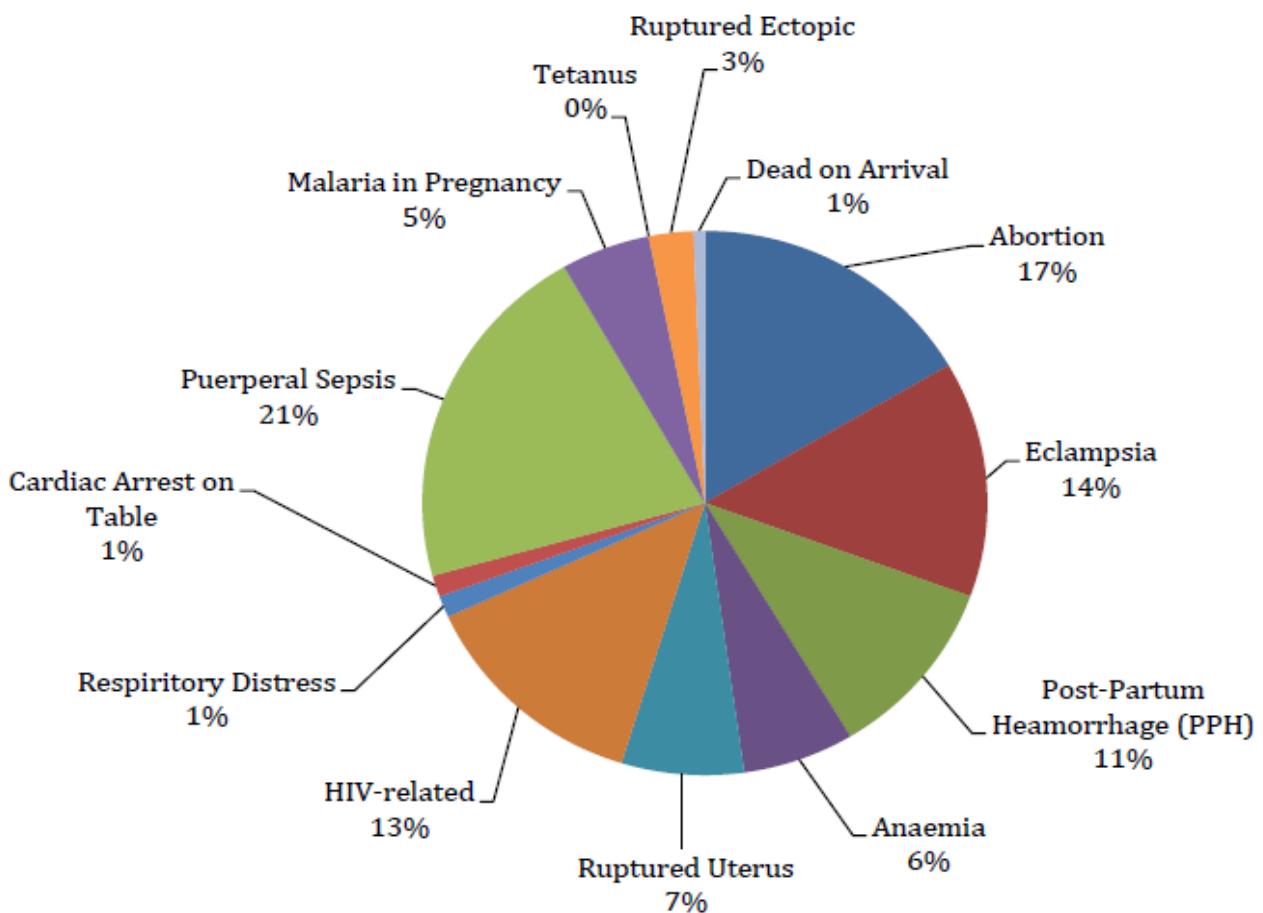
Figure 9: Total number of maternal deaths in Mulago NRH: Jan '12-Oct '12



Between January 2012 and December 2012, the mean number of maternal deaths at NRH Mulago was 13.2, and the absolute number of maternal deaths for the year analyzed was 157 (LMP, p.20, 2013). The leading direct causes of maternal death at Mulago NRH are consistent with national and international maternal mortality statistics: these were puerperal sepsis (33 cases), complications from abortion (26 cases), Eclampsia (22 cases)

and PPH (17 cases) in 2012 (see Figure 10 for a visual representation of the proportional causes of maternal death at Mulago NRH) (LMP, p.20, 2013).

Figure 10: Causes of maternal death in Mulago National Referral Hospital Jan-12 to Dec-12



Source: LMP, 2013

3.6 The Liverpool Mulago Partnership

This research can be contextualized within the sphere of influence of the Liverpool Mulago Partnership for Women's and Children's Health and aims to inform the future policies and practices of the charity. Launched in 2008 and formally recognized as an independent charity in 2012, the LMP represents a formal twinning arrangement between the two largest maternity units in Europe and Africa: the Liverpool Women's NHS Foundation Trust in Liverpool, UK and the Mulago National Referral Hospital in Kampala, Uganda (LMP, 2014). The partnership was initiated in order to facilitate

knowledge sharing between the two hospitals as well as to provide opportunities for medical professionals to gain experience and training that might not otherwise be available to them in their home country (LMP, 2014). Medical professionals from Mulago NRH are able to train in high technology medicine at Liverpool, while healthcare workers from Liverpool may gain experience in the clinical management of advanced pathology at Mulago (LMP, 2013). This is facilitated specifically through the Sustainable Volunteering Project (SVP), funded by the Health Partnership Scheme (HPS) and Royal College of Obstetricians and Gynecologists (RCOG) (LMP, 2014). The SVP recruits and deploys professional medical volunteers to work in Uganda while the British Commonwealth Exchange Fellowships scheme provides funding for Ugandan health workers to visit the UK for training (LMP, 2014). In addition to arranging a reciprocal learning agreement, the LMP has strengthened the linkages between existing healthcare partnerships, a process resulting in the Ugandan Maternal and Newborn Hub (HUB) (see Map 2).

According to the LMP, the mission of the HUB is “to reduce maternal and infant mortality and improve the standard of maternal and newborn healthcare access across Uganda through the placement of volunteers; and improve communication and knowledge exchange between various similar healthcare partnerships” (LMP, 2014). The LMP thus works within the HUB on a number of different projects, including the restoration and functionalization of HCIVs in accordance with the Ugandan Ministry of Health’s identification of “the restoration of HCIV facilities as central to its strategy to reduce congestion at [NRH Mulago] and also to reduce delays in treatment caused by travel” (LMP, p. 1, 2011). Kabubbu HCIII, Kasangati HCIV, and Buwambo HCIV are all linked to Mulago NRH via the LMP HUB. This study of maternal health, mobility and transportation is contextualized within the referral pathways that are linked within the HUB and in which LMP volunteers are present.

4 Research design and methodology

For this research on mobility constraints, transportation and maternal health, both qualitative and quantitative research methods have been used. A total of 32 antenatal

patients, 4 female Anti-Retroviral Therapy (ART) Clinic patients, 6 medical staff, 1 LMP volunteer, and 6 participants in a motorcycle ambulance intervention were interviewed, resulting in 47 individual interviews and 1 group interview. A total of 182 women participated in a survey that aimed to establish common modes of transport and possible mobility limitations, as well as to identify possible interview respondents. Following is a thorough explanation of the research design, chosen methods and limitations of the study.

4.1 The use of surveys to identify interview participants

Because the aim of this research is to provide insight into the subjective experiences of women who encounter transport challenges while seeking antenatal or emergency obstetric care, it was considered that semi-structured, in-depth interviews would yield the most appropriate data. Identifying interview participants who have experienced pregnancy-related complications and emergency medical referrals proved difficult. Medical records at Mulago NRH were inaccessible to the researcher and so it was considered best to begin the investigation at a previous level of referral. While it may have been possible to access medical records of maternity patients who had experienced complications/referrals at Kasangati HCIV, Buwambo HCIV and Kabubbu HCIII and to subsequently seek interviews with them, time, resource and transport limitations prevented the researcher and an assistant from traveling into more remote and rural areas to collect data. A survey was therefore conducted, in which all female patients present at the maternal HC could potentially participate. The researcher and assistant visited the HCs on days during which antenatal patients would likely be present. Survey respondents who reported having experienced pregnancy-related complications and/or who sought EmOC in the past were invited to participate in an interview. Of the respondents who responded affirmatively to having experienced pregnancy-related complications previously, 63% participated in interviews. The remaining 37% were not interviewed due to time constraints or personal preference. The subsequent interview was semi-structured and utilized an interview guide in order to gather reliable and comparable qualitative data. Because interviews usually involved translation, it was possible to type and transcribe responses in real time; therefore these interviews were not recorded.

It was considered that women who have not yet experienced complications and emergency referrals could still offer important insight into transport-related constraints. Because of this, the quantitative survey data collected from 178 antenatal patients and 4 ART Clinic attendants is considered useful in establishing baseline information regarding the average distance women travel for care, the average time they spend in transit, the transport costs they incur, and their emergency transport contingencies. Such information assists in identifying the level of need for transport interventions and in assessing the adequacy of the current emergency referral systems. Interviews are meant to provide representative perspectives on the experiences of the broader sample population, and unless noted otherwise the terms respondents or participants are used to signify the 182 surveyed HC patients inclusive of the 36 who were interviewed.

This purposive convenience sampling method was considered to be most appropriate because of the aforementioned time and resource limitations of the study, but also because the study has a specific context and aim. The study, on behalf of the LMP, intends on gathering health center specific information in order to illuminate the challenges faced by the population the charity directly serves. Because of this, as well as the intention of this study to make context-specific recommendations, a nonprobability sampling method was thought to yield the most relevant data.

It should be noted that all survey respondents were assured of their anonymity and the confidentiality of their responses. The research assistant introduced the researcher, explained the purpose of the study, and explained that participation was not mandatory each time it was administered to the group of patients awaiting care. Respondents were encouraged to ask questions if necessary. The research assistant identified respondents who had challenges with literacy and assisted them accordingly. Permission was orally obtained from each interview participant to take notes, transcribe responses, and to include the collected data in the research study.

4.2 Expert Interviews

Additional expert interviews were conducted with 11 medical or social science professionals who were considered to possess specialized knowledge about the subject

being investigated. Six staff from the relevant HCs participated in semi-structured interviews and 1 LMP volunteer participated in an informal interview, during which time patient mobility constraints, the current emergency referral system, and ideas for intervention were discussed. An informal group interview conducted in English with Lugisu translation when necessary was held with 3 VHT workers who are employed to manage a fleet of motorcycle ambulances in eastern Uganda, in order to gain insight on the logistics of such a program and the affect it has had on the community. This was complimented by 2 informal interviews with women in the community who had utilized the motorcycle ambulance in the past, and 1 in-depth, semi-structured interview with the coordinator of the motorcycle ambulance project.

All expert interviews except for 1 were audio recorded and transcribed shortly thereafter. The singular interview that was not audio recorded was short in length, and notes were taken in order to record the participant's responses. Oral permission was granted by each participant to record the interview, to take notes, and to include the data collected in the research study. Participants were assured of their anonymity and confidentiality, although a few stated that they did not mind being mentioned as the source of the information they provided.

4.3 Limitations of the study

4.3.1 Literacy

Literacy was a challenge for some survey respondents. While all survey respondents spoke Luganda, not all respondents were proficient in reading and writing. At Buwambo HCIV and Kabubbu HCIII a research assistant identified those who needed assistance and was able to administer the survey orally while recording the answers. Unfortunately, it was not possible to duplicate this process at Kasangati HCIV, where the volume of patients being seen for antenatal care on any given weekday is significantly higher. While some respondents participated in the survey orally, it was not possible for a research assistant to follow-up with every illiterate respondent. Therefore, there exists a bias in the sampling population from Kasangati toward higher educated and literate respondents.

In general, the surveying and interviewing environment at Kasangati HC was chaotic and frantic due to the many medical investigations and examinations happening at once. While a research assistant remained present throughout the survey to assist and answer questions, some respondents did not receive the assistance they required. Subsequently, there are surveys in which missing data may indicate that while a respondent possessed basic literacy, more complicated questions were not understood. Furthermore, because many survey respondents spelled phonetically in Luganda, there was room for a higher degree of mistranslation, though every effort was made to accurately translate responses.

It is for the reasons indicated above that 2 surveys of the total 182 collected have been excluded from the data analysis. The survey responses were indicative of total illiteracy. The results of the data analysis therefore utilize 180 responses. When relevant, other missing data is noted in absolute numbers in the data tables. The valid percentages represent the number of responses out of those who actually responded; in other words, missing data is also missing from the percentages provided within the presentation of findings.

4.3.2 Repeat respondents and the inclusion of non-antenatal patients

Because surveys were conducted in close succession at Kasangati HC (on 3 different days within a 7 day period) it is unlikely that respondents filled out the survey twice, as it is unlikely they would have been attending antenatal care twice within such a time period. It is possible, though unlikely, that some survey respondents may have filled out the survey twice if they are going to more than one health center for antenatal care. For example, a woman seen at Kasangati HC on Thursday March 20th may have been seen at Kabubbu HC on Thursday March 6th.

While most of the respondents are women who are receiving antenatal care at the relevant health center, the participants surveyed and interviewed on Tuesday March 25th at Buwambo HCIV were attending the weekly ART Clinic (4 as recipients of care and 1 as a peer educator). The survey and interview participants, while not currently pregnant, all had previous pregnancies. It should simply be noted that of the 169 survey

respondents, 5 were not antenatal patients and therefore their responses likely introduce aberrations in the data.

4.3.3 Translation and additional bias

Finally, two research assistants and translators were used to facilitate surveys and interviews, one of which had no prior interviewing experience or social science training. While both assistants were requested to translate literally, it is possible that nuance occasionally got lost in translation. Also, because of the purposive convenience sampling method utilized to survey and interview respondents, a recall bias exists towards women who succeeded in traveling to the health center for care. The study therefore does not include the most vulnerable women in the community such as those unable to travel the distance for care due to disability, more extreme poverty, controlling or abusive relationships, or unawareness of available health services.

4.3.4 Generalizability

Due to the relatively small purposive convenience sample it will not be possible to generalize findings. The majority of the data collected is qualitative and therefore very context-specific. Such limitations have been considered and while many studies have identified possible constraints on women's mobility in the context of the 2nd Delay, not many studies have utilized in-depth qualitative data to describe and further explore these barriers. In order to fill this research gap, breadth is sacrificed in favor of depth.

5 The broken emergency referral system

Within the following chapters, chapter 5 and chapter 6, the results of the data are presented. In order to contextualize the data supplied by antenatal patients at the three HCs, it is useful to explain the emergency referral system of each HC as described by HC staff. In doing so, it becomes possible to see the ways in which transport delays can affect the efficiency of referrals, and in some cases, how important discrepancies exist between policy and practice. Following is a description of how the relevant emergency referral systems currently operate. This description effectively answers the research question: "What existing transportation mechanisms and contingencies exist for women experiencing emergency complications?"

5.1 Kabubbu HCIII

Kabubbu HCIII is unique amongst the HCs studied in that it is funded by the private charity, the Quicken Trust. The HC possesses an ambulance equipped to offer Advanced Life Support (ALS). In the case of an obstetric emergency, the midwife on duty telephones one of three ambulance drivers on call to come to the facility and drive the patient to NRH Mulago. As per protocol, a midwife attends the patient while in transit. While women hailing from Kabubbu Parishes A and B (the area comprised of the villages closest to the HC) do not pay for health services or ambulance transfers, patients from outside those parameters are meant to pay a recently instituted one time fee of 10,000 UGX (Ugandan Shillings) which converts to \$4 United States Dollars (USD). This covers 4 antenatal visits, delivery, and an emergency transfer to NRH Mulago if necessary. In many cases, the HC subsumes the cost of transfer (approximately 50,000 UGX or \$19 USD for fuel). (It should be noted that some discrepancies exist between different health worker's explanations of fees for transport. One staff member suggested that all mothers who live outside Kabubbu A and B are requested to pay the 50,000 UGX for fuel, while another claimed that no woman referred by the HC to NRH Mulago is held liable for any costs incurred).

As a HCIII, Kabubbu is meant to refer obstetric emergencies to Kasangati HCIV, a drive that, in an ambulance, can take 15 minutes. Instead, the HC frequently bypasses Kasangati HC to make the 45-minute drive to NRH Mulago. According to health workers at Kabubbu HCIII, almost all emergency referrals occur at night. As the operating theatre at Kasangati HCIV is only functional Monday through Friday, 8am-5pm, in most cases Kabubbu HCIII has no choice but to bypass the HC next in the chain of referral. When asked whether or not the ambulance ever picks up women in the community who are in labor (the challenges women face in reaching the health facility will be further explored) staff reported that the ambulance hasn't done so in years because the cost of fuel proved to be too expensive and because, according to one, "mothers exploit that opportunity. They call when they have a fever." According to senior staff members, however, it is official policy to supply antenatal patients with the phone number of the primary

ambulance driver when they attend antenatal clinics, so that they can access emergency transport at night when public methods aren't available. When asked whether or not they were likely to utilize ambulance services, however, many interviewees from Kabubbu HCIII replied that they would if they possessed the telephone number of the ambulance driver, but that they had not yet received it. One woman in particular, who was completing her final antenatal visit before delivery, recounted how she and her fellow patients were told that the staff member who could provide them with the phone number was not present at the clinic and that the information was therefore unavailable.

While it seems that ambulance pick-up within the community is a debated issue within the HC, all staff members expressed a frustration regarding the health facility's financial constraints and a desire to increase the availability of this service. The following captures the sentiment frequently expressed:

"We should go to the community to pick these mothers in case of an emergency, in case labor sets in when it's late in the night. It would be better if such a program would be resumed, because it would really save mothers a bit. I think it all goes back to finances, and then, building more, cheaper interventions...like giving a number to the mothers to call...we need to increase the budget that goes to maternity, so that surely its always there to go and fetch them." - Health Worker, Kabubbu HCIII



Photo 1: Ambulance provided by the Quicken Trust at Kabubbu HCIII

5.2 Kasangati HCIV

As previously stated, because Kasangati HCIV's operating theatre is only functional during weekdays, emergency cases are often referred to NRH Mulago. Furthermore, the HC continues to suffer from shortages of water and electricity. If the operating theatre is unable to function, or the necessary staff is unavailable to perform a procedure, (operations such as C-Sections require the presence of an Obstetric surgeon, a scrub nurse, an anesthetist, and a midwife) patients must be transferred. According to senior HC staff "more than 95% of patients go on their own. The majority of them don't even have a coin on them. The rest of the patients have to contribute to their transport to Mulago." This is particularly interesting, as Kasangati HCIV, like Kabubbu HCIII, possesses an ambulance. In this case, however, the "ambulance" is actually a pick-up truck designated for emergency transfer services. The pick-up truck ambulance is described by staff as "unreliable" and "not qualified to be an ambulance" as it lacks any medical supplies, most significantly resuscitation equipment. Patients who do use the ambulance pay 20,000 UGX or \$8 USD (the cost of fuel from Kasangati to NRH

Mulago), but the service is rarely used. A health worker explains this in the following way:

"Most times the driver is unavailable. Reason being, it is the same ambulance ... which brings equipment from the national medical stores, the same ambulance that takes stuff to the district sometimes, when they are having meetings. Sometimes it is the same vehicle they are using if they have outreach programs. They can borrow it and use it for different activities that are not emergencies actually...the process demotivates the people [staff]. Sometimes you find them not calling him at all. They think he will take a lot of time. They just end up telling the patients 'You go to Mulago.'" -Health Worker, Kasangati HCIV

Women who are in earlier stages of labor and who require a referral are left to their own devices; patients must coordinate a boda boda journey (which costs between 6000-10000 UGX or \$2-4 USD) to travel to the NRH. Boda bodas have the advantage of being faster and more adept at negotiating heavy traffic congestion. Women being transferred during the day also have the option of taking a taxi van, which costs about 500 UGX (\$.20 USD). While less expensive, taxis are significantly slower because they must continue stopping and starting to take on and let off passengers. Furthermore, staff members report that taxi drivers are often reluctant to transport laboring women because they fear a delivery in transit. Staff lament that neither option is ideal; boda bodas travel rapidly over potholes that bump and jar patients, running a high risk of accidents, while taxis rarely drop off patients directly at the hospital gates which means that women must walk a significant distance to reach care. Patients in a more advanced stage of labor, if not transferred in the pick-up ambulance, must coordinate their own special hire vehicle. The cost of a special hire from Kasangati HC to NRH Mulago is between 20,000-30,000 UGX (\$8-11 USD). Patients who use the ambulance or special hires rarely possess enough money to pay for transport and often must resort to borrowing from family, friends, other patients, and occasionally HC staff members. The time it takes to coordinate the money necessary for the journey can significantly delay women from reaching the NRH.

5.3 Buwambo HCIV

Mothers who arrive at Buwambo HCIV and require emergency medical referrals to NRH Mulago are likely to encounter transport-related delays; the HC does not currently have a functional operating theatre or an operational ambulance of any kind. The HC did in fact possess a working ambulance, however it broke down 2 years ago, and the HC has not yet received funds to repair it. Though HC staff members encourage women to save money to pay for transport in the event of an emergency, women typically are not able to save enough to pay for a special hire vehicle. As in the case of Kasangati HCIV, often taxi drivers are unwilling to drive laboring mothers to the NRH, which makes the process of finding a willing driver particularly arduous. Many times family members and neighbors must fill the gap in transport service provision; Friends and family often transfer patients on their own motorcycles. One staff member suggests,

“It is very vital to get an ambulance. That’s the big challenge we are facing. That and fuel. You may be having a vehicle there, but you may not have the fuel. Primary care funds are so limited. I think if our theatre starts operating it will save us a lot...it will reduce on fuel and the hiring of taxis that women pay for.”

As in the case of Kasangati HCIV, the process of finding and acquiring the money to pay for transport significantly delays patients from arriving at NRH Mulago.

6 Factors influencing mobility and resources for mobility

Following is a detailed analysis of the data regarding transport practices and preferences collected from antenatal patients and health workers. Antenatal interview participants are considered to be representative of the sample; the survey responses and the qualitative data they supplied is analyzed within the total survey sample of 182 women. Throughout this and the remaining chapters the stories of particular women who were surveyed and interviewed are spotlighted and presented as a representative example of the data collected. These stories are easily identifiable in that they are *italicized* and situated within a text box. The names of the women have been changed in

keeping with confidentiality and anonymity agreements. It is hoped that these miniature case studies help to synthesize the data and bring it to life.

6.1 Characteristics of the research population

In total, 182 attendees of antenatal clinics at Kabubbu HCIII, Kasangati HCIV and Buwambo HCIV were surveyed. Of the 182 surveys, 42 were conducted at Kabubbu HCIII, 99 at Kasangati HCIV, and 39 at Buwambo HCIV. The main characteristics of the total sample population are displayed in Appendices 1 and 2. Participants ranged in age from 16-53, and the average age of respondents was 23.5.

One third of participants (32.8%) completed some primary school, while the majority of participants (60.3%) attended some secondary school. Only one participant reported never having received formal schooling and 11 participants, 6.3%, had completed some level of tertiary education. Interestingly, all but one of the HC staff members interviewed described the majority of the antenatal and obstetric patients they see as “not very educated” or “mostly primary school drop-outs.” While the rural HCs in Kabubbu and Buwambo both had higher percentages of primary school leavers (45% and 35.1% respectively) when compared to the more centrally located Kasangati HCIV (only 26.8% of respondents reported leaving school at the primary level) in all three cases a higher percentage of respondents attended some secondary or tertiary education than those who didn’t. That the HC staff members interviewed generally believed their patients to be less educated than they actually are may impact relationships between staff and patients. (For example, many women interviewed expressed frustration at a lack of communication from staff to patients in regards to explaining obstetric complications).

The vast majority of participants (93.1%) reported having a partner. HC staff described the majority of their antenatal patients as cohabitating, though not perhaps legally married. Indeed, it should be noted that long-term concurrent relationships are common in many East African cultures including within these particular Ugandan communities. According to staff, it is not uncommon for women to have “partners who have other partners” and the word “married” when used colloquially doesn’t necessary

indicate a legally binding union. It was therefore considered more culturally relevant to collect data regarding partnership status at large rather than formal, legal marital status.

HC staff described the communities within their catchment areas as “quite poor” and having “very limited income.” Families are typically engaged in informal employment including small-scale farming and quarrying. According to one HC staff member, over 90% of antenatal patients are unemployed. Indeed, male partners were repeatedly described as the primary or sole income-earners, and staff affirmed that women “depend on their husbands even if they have some small income-generating activity.”

The average number of lifetime pregnancies reported by respondents was 2.42, while the average amount of living children reported by respondents was 1.35. While women reported having between 1 and 9 pregnancies, nearly 95% reported 4 or less lifetime pregnancies. Over half of all respondents reported having between 0-1 children and only 9 respondents had 4 or more living children. This is not surprising when one considers the national correlation between higher levels of education and lower fertility rates. Of the 75% of respondents who had 1 or more previous pregnancies, 57 (39.6%) reported experiencing previous obstetric complications. Of these 57 antenatal patients, 36 women were interviewed.

6.2 Accessibility of health centers

While the amount of time spent in transit to HCs for antenatal care ranged from 2 minutes to 171 minutes, half of all respondents spent 35 minutes or less in transit. The most commonly reported transit times were between 21-30 minutes and between 51-60 minutes. Only 10% of respondents spent over 90 minutes in transit, and the average amount of time spent in transit to the health center was 49.1 minutes. Of the antenatal clinic attendees at Kabubbu HCIII, 17.5% spent over 1 hour in transit, and 12.2% of Kasangati HCIV antenatal attendees spent over 1 hour in transit. Significantly, 30.4% of Buwambo HCIV antenatal clinic attendees spent over 1 hour in transit. This confirms that the rural, remote location of the HC and the poor condition of the dirt roads as described by HC staff and antenatal clinic attendees indeed contribute to longer transit times. In the

case of Buwambo HCIV, the in-accessibility of the HC results in a high number of home births aided by TBAs. According to Buwambo HC staff, even health care workers face transport challenges related to the accessibility of the clinic; staff members typically arrive to work between the hours of 9:30 am to 11:30 am (services start at 8am) partly due to the distance many must travel in taxi vans. (Frequency Table 1 below presents the data collected regarding how many minutes survey participants spent in transit to the HCs for antenatal care).

Minutes to HC	Frequency	Valid Percentage
10 or less	18	11.0%
11-20	19	11.7%
21-30	43	26.4%
31-40	7	4.3%
41-50	8	4.9%
51-60	40	24.5%
61-90	10	6.1%
91-120	11	6.7%
121 or more	7	4.3%
Total	163	100.0%
Missing	17	
Total	180	

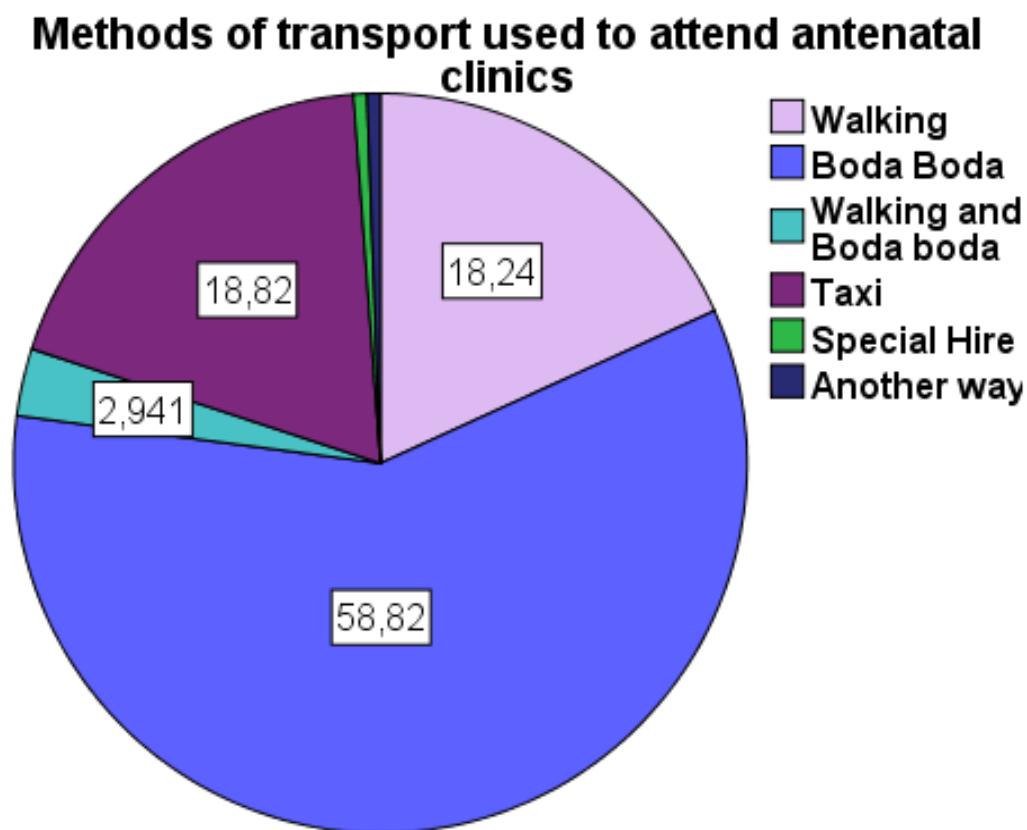
Table 1: Minutes spent in transit to the HC

6.3 Availability of transport

The majority of respondents (58.8%) used a boda boda to travel to the health center for antenatal care. After boda bodas, walking (18.2%) and taxi services (18.8%) were the most common methods of transport used. Of the remaining respondents, only 1 reported

having taken a special hire, while 1 reported using an unspecified method. (Figure 11 below offers a visual representation of what percentage of the population utilized each possible transport method).

Figure 11: Methods of transport utilized



6.3.1 Variation in use of transport methods

When comparing the three different health centers, it becomes clear that transportation use varies. Availability of certain transport methods depends largely on the accessibility of the health center. Table 2 below demonstrates the variation in use of transport methods between the health centers.

	Walking	Boda Boda	Walking & Boda Boda	Taxi	Special Hire	Another Way
Kabbubu	9.8%	80.5%	9.8%	0.0%	0.0%	0.0%
Kasangati	22.9%	45.8%	1.0%	29.2%	1.0%	0.0%
Buwambo	15.2%	69.7%	0.0%	12.1%	0.0%	3.0%

Table 2: Variation in transport method use by HC

Survey respondents from the most centrally located health center, Kasangati HCIV, display a more even spread across methods: 22.9% walked, 45.8% used boda bodas, and 29.2% used taxis. The majority of survey respondents from the two rural HCs, Kabubbu HCIII and Buwambo HCIV, primarily utilized boda boda services to travel to the antenatal clinic (See Table 2). Some respondents interviewed at Kabubbu HCIII explained that they chose to use boda boda services because there are no taxi routes around the areas in which they live. This is reflected in the data collected in that no respondents from Kabubbu HCIII used taxis. Indeed, when asked what factor most significantly influenced their choice in transport method, of the antenatal clinic attendees from Kabubbu HCIII 28.6% of respondents selected “availability” while only 4.6% and 7.7% of respondents from Kasangati HCIV and Buwambo HCIV did so respectively (see table 5, p. 60). Interviews reveal how HC accessibility and transport method availability intersect to contribute to delays in reaching care.

When 15-year-old Miriam was 7 months pregnant with twins, she realized she had malaria. Though she felt sick she delayed seeking care. She was at home when her miscarriage began. Her parents searched in vain for a special hire or a taxi in which their daughter could travel comfortably to the hospital. After 3 hours they succeeded in coordinating a boda boda ride for Miriam. According to Miriam, while she was waiting for transport to arrive she thought about nothing but the physical pain she was experiencing. At age 20 and pregnant for the third time, Miriam plans on using a boda boda to travel to the health center when she goes into labor or a taxi to travel to NRH Mulago if she receives an emergency referral. When asked, “but what would you do in the middle of the night?” she is silent for a long time. Eventually she responds. She says she doesn’t know what she would do. –Antenatal patient, Buwambo HCIV.

6.3.2 Day and night: dramatic differences in availability

As illustrated by Miriam’s story, procuring transport at night can be a particular problem for expectant mothers. When asked what method of transport they were likely to use in labor or in the event of an obstetric emergency, 81.4% of respondents selected boda boda, the most widely available method (See Appendix 3). What options do women have, then, when public means of transport including boda boda services cease after midnight? HC staff and antenatal patients identify a significant dearth of options as a potential barrier to reaching the health center for delivery.

At 2am, Namatovu’s labor started. Since it was past midnight she had no means of transport. She was alone in her house as her husband had been away for work. Knowing the 20,000 UGX she had saved for an emergency would not be enough to pay the cost of a special hire, she left the house hoping a driver would allow her to call her husband and organize the money. After walking for 20 minutes she came upon the house of a Traditional Birth Attendant known within the community. She delivered 20 minutes later. - Antenatal patient, Kasangati HCIV.

Because transport is often unavailable, women who’s labor starts past midnight often chose to wait at home until morning before going to the health center. Such women are

particularly vulnerable if complications arise. When asked what action they were likely to take if they went into labor or experienced an obstetric emergency in the middle of the night and no public transport was available, 60.7% selected, “I would ask someone, like a neighbor, a friend, or a family member who has transport, to get me to the health center as soon as possible.” Of the two HCs that possess an ambulance or vehicle designated for emergency transport, only 25.0% of respondents from Kabubbu HCIII and 3.4% of respondents from Kasangati HCIV said they were likely call the ambulance in such an event. (8.8% of respondents from Buwambo HCIV reported themselves likely to call an ambulance even though the HC doesn’t current possess the service). Table 3 below demonstrates women’s responses when asked about the course of action they would take if they went into labor or experienced an obstetric emergency after the hours that public transport is available. Responses varied between HCs.

	I'd ask friends and family for help	I'd use the Ambulance	I'd use a Special Hire	I'd wait until morning
Kabubbu	45.5%	25.0%	15.0%	15.0%
Kasangati	69.7%	3.4%	13.5%	13.5%
Buwambo	55.9%	8.8%	23.5%	11.8%
Total	60.7%	9.8%	16.0%	13.5%

Table 3.: Course of action most likely to take in the event of labor or an obstetric emergency at night

6.4 Affordability of methods

Respondents spent between 0 and 10,000 UGX (3.83 USD) on transport to the antenatal clinic. The average amount of money spent on transport was 2113.45 UGX (.81 USD). More than half of all respondents (53.2%) spent 1500 UGX (.57 USD) or less, while 20 respondents reported having spent 5000 UGX (1.91 USD) or more (see table 4 below).

UGX on Transport	Frequency	Valid Percent
Less than 1000	46	26.9%
1000-1999	45	26.3%
2000-2999	28	16.4%
3000-3999	21	12.3%
4000-4999	11	6.4%
5000 or more	20	11.7%
Total	171	100.0%
Missing	9	

Table 4: UGX spent on transport for antenatal care

Perceptions of affordability varied amongst interview participants. Many described paying between 1500-3000 UGX (.57-1.15 USD) for transport to the antenatal clinic as affordable, and considered 4000-7000 (1.53-2.68 USD) to be expensive. HC staff confirm that 5000 UGX (1.91 USD) is indeed expensive for most patients; 5000 UGX is the cost of 2KGs of sugar, a frequently used food staple. Interviewees described the ideal cost of ambulance transport as between 5000-20000 UGX (1.91-7.65 USD). Those who chose to walk to antenatal services often did so because they had no money available to them. When asked why they didn't have money for transport, many gave the reason that their partner was away working or that their partner did not have any money for transport.

6.4.1 Affordability impacted by male partner's contribution

"Women get a very big problem with transport. If when your husband is getting a salary, and the salary takes a long time to come in, it will be a big problem for him to provide transport to go to the health center." -Antenatal patient, Kabubbu HCIII

“Most of them, without help [from a partner], you see them footing. They foot to come, they have nothing else to do.” –Antenatal patient, Kabubbu HCIII

Of the 36 interview participants, 28 identified male partners as playing an important role in paying health-care related transport costs. Women often identified their partner as the source of the money they used for transport to the antenatal clinic, while others identified a partner’s absence as the reason they didn’t have money for transport in past emergencies. According to health workers at all three HCs, a woman’s husband or partner frequently has sole control and final decision-making power over the money for daily expenses including transport. In the event of an emergency, if the partner is unable to cover the cost of transport, he often coordinates the borrowing of money from family or friends.

Mary, age 20, needed to go to the health center. Her labor had begun, but she didn’t have money for transport and neither did her partner. “After a long time” her partner “figured out where to get money from and borrowed it.” The total cost of the journey was 5000 UGX. Since then, she and her partner have separated. When she found out she was HIV+ she asked him to get tested and he refused, so she left him. She now earns money when she can, by gardening for her neighbors. –Antenatal patient, Buwambo HCIV.

Women like Mary may be especially vulnerable to transport-related delays. According to the 4 respondents who identified themselves as HIV+, “most men run away when they hear a woman is positive.” Of the 4 respondents, 2 reported having current partners. It is not possible to draw conclusions about the specific transport challenges faced by HIV+ women in the area. It is possible, however, that HIV+ mothers may be more likely to experience transport-related challenges in that they are less likely to have financial support from a partner. Because Uganda has an HIV prevalence rate of 7.2% and prevalence is on the rise, this issue merits further exploration (UNAIDS, 2014).

26-year-old Beatrice, mother of 4, is HIV+ and recently separated from her husband. She walked for 2 hours to the health center's ART clinic today. She says she experiences hardship in obtaining money for transport because she acts as the mother and the father. Without a husband, she doesn't have enough money for food or school fees. In her previous pregnancies she experienced excessive bleeding around 7 months. When asked how she would get to NRH Mulago in the event of an emergency, she replied that she would go back home, talk to family and friends, to see if they can collect the money. "If I don't get the money, I would die. If I got the money, I could get a boda or taxi."

6.5 Affordable and available methods are not always appropriate or safe

The availability and affordability of certain methods of transport seems to be a significant factor in how women choose to travel for antenatal and obstetric care. According to health workers interviewed, in the event of an obstetric emergency referral it is preferable that patients travel in a private or “special-hire” vehicle that can drop them off directly at the hospital gates. Most patients, however, cannot afford the exorbitant cost of a “special.” As previously explained, at HCs in which ambulance services are non-functional, it is common to send emergency referrals in their first stage of labor on boda bodas or in taxis. Boda bodas, specifically, are perceived by women to be more convenient and efficient than taxis, and although more expensive, are significantly less expensive than a special hire vehicle. Again, 81.4% of antenatal patients surveyed reported themselves likely to use a boda boda to travel to the health center once they go into labor or if they experience an obstetric emergency. The table below illustrates what factor was most significant to women when choosing transport for antenatal care.

	Efficiency	Affordability	Availability	No money
Kabbubu	38.1%	28.6%	28.6%	4.8%
Kasangati	44.8%	34.5%	4.6%	16.1%
Buwambo	38.5%	34.6%	7.7%	19.2%

Table 5.:Most significant factor in choice of transport method for antental care

Affordability, and of course availability, often weigh more heavily than ease and comfort of travel when expectant mothers make decisions on transport methods. Availability and perceived/actual affordability of transport have tangible effects on women's experience of well-being during labor or an obstetric emergency. The use of the most affordable and most available form of transport, boda bodas, can contribute to a worsening of physical or emotional pain experienced by laboring women or those in transit to the HC due to obstetric emergency. Respondents who used boda bodas while experiencing labor pains often described the experience as challenging due to difficulties staying seated over rough roads, difficulties holding on during contractions, or difficulties being comfortable while experiencing bleeding/m miscarriages.

At three months pregnant with her second child, Nakatte began to bleed. After deciding she had to go to the hospital, Nakatte arranged a boda boda for herself. During the 30 minute journey Nakatte became afraid she was having a miscarriage. While in transit she experienced tremendous pain due to the bumping and jarring of the boda boda as it barreled over the potholed road. According to Nakatte, the pain persisted for 4 days after. Fortunately, she was able to carry her baby to term. –Antenatal patient, Kasangati HCIV.

Nakatte's story demonstrates the ways in which inappropriate and inadequate methods of emergency transport contribute to the physical and emotional discomfort of the experience.

Violet had been in labor for two days when she received an emergency referral from her health clinic to Buwambo HCIV. “The baby started coming out legs first. But transport from that health clinic to here was a challenge. It was around 3 am. There were some boda boda guys I knew, but no one could take me to Buwambo. They fear night robbers who will take their boda bodas.” For 2 hours a health worker searched for a boda boda driver willing to transport Violet. She finally found one who would transport her the 2 hours to the health center for 10,000 shillings. According to Violet the journey was excruciating. Barely able to stand, she fought to stay on the boda boda. “I thought I was going to die.” She says this kind of challenge is common where she lives. “If you don’t

have the money with you when the labor pains start you have a big problem getting transport. When they see you in labor they will think you have some good money. Most don't want to transport women because they could deliver on the way.” –Antenatal patient, Buwambo HCIV.

Violet's story highlights another issue particular to the use of boda bodas during labor or an emergency; boda boda drivers frequently increase the charge of their services to transport women to a HC or hospital and prices rise most significantly at night or while its raining. According to HC staff this is for a variety of reasons including “slippery roads,” “fear of robbery or being killed along the way,” as well as assuming a mother must be willing to pay any price to get to a HC quickly. Antenatal interviewees confirm that boda boda drivers often capitalize on the urgency of an emergency medical situation by increasing the cost of transport, and respondents consider it unsurprising because the women themselves are vulnerable in that they have few options and limited bargaining power. It is clear that even when transport is available and a woman possesses the money to pay for it, procurement can be demoralizing. One antenatal patient describes the process of a patient she witnessed attempting to use the pick-up truck designated for emergency transfers at Kasangati HCIV:

“When I was here with my first pregnancy, there was a mother who was here and had to go to Mulago. They had money but the driver just refused to take them to Mulago. They knelt before that man and the man said, ‘No, I have other things I have to do.’ They [the HC] should look for a serious driver who minds about peoples lives... He took her, but after some long time. It was after the administration talked to the driver and that’s when he took them to Mulago.” Antenatal patient, Kasangati HCIV

The above statement reflects how restraints on mobility and the resources for mobility can augment stress and anxiety during an already heightened emotional situation. The process of finding and securing appropriate and efficient emergency transport is, for many mothers, a daunting and dispiriting experience.

7 Managed and controlled mobility

Within this chapter the findings of the research are considered. In an effort to answer the research question, “How is a woman’s mobility managed or controlled in the context of the process of accessing emergency obstetrical care?” this chapter explores the management and control of mobility from three different angles. First, the impact of underutilized, mismanaged or nonexistent facility-based transport methods will be assessed. Second, the effects of expensive and inappropriate community-based transport on maternal health and well-being are explored. Lastly, male management and control over the resources for mobility are discussed. These three issues are considered to converge to significantly impact mobility and in some respects to be a source of mobility constraints. The discussion of the management of facility-based transport methods and the inadequacies in community-based transport methods also aims to answer the research question: “How do transport delays affect the efficacy of referrals?” Following this discussions an answer to the research question, “In regards to transportation, how do the aspects of physical accessibility, availability, financial affordability, and social acceptability affect maternal health and well-being?” is offered.

7.1 Transport delays and the efficacy of referrals

The efficiency of emergency referrals is significantly hindered by transport-related delays. The data collected is reflective of Thaddeus and Maine’s 3-Delays model in that transport-related delays do in fact intersect with other delays all along the process of care. Interviews revealed a number of common scenarios that contribute to delaying the process of referral; Staff or patients must often take time to find appropriate transport and subsequently, to procure enough money for transport. One staff member at Kasangati HCIV recalled a recent event where delays in procuring transport compounded first and third stage delays and contributed to a deterioration of both the mother’s and the baby’s condition:

“Last week there was a lady who got obstructed. She was referred to Mulago but they delayed. And actually she got a fresh stillbirth, the baby couldn’t survive. I think 2 weeks ago we had a premature that was sent to Mulago and also did not make it. I think she

also came late, already well in established labor. Of course the midwife would not know.... she tries to see the progress. But you find after the next 4 hours, at the next examination the lady is still the same. And then they make a decision to refer the delay. And sometimes you can't detect, because they are multi-gravidas and they have delivered before. So you have hope they can deliver. And unfortunately they get a malpresentation. In that particular case actually, by the time they got the referral to Mulago, they had to contribute money, it was late in the evening about 8pm. By the time they left and reached, the baby was already asphyxiated.... So usually the delays we have are with presentation of the patients and the decision to refer the patient. And then it is complicated by the transportation of the patient.” –Health Worker, Kasangati HCIV

In this particular example a phase 1 delay occurred when a patient delayed in arriving at the HC. Once she arrived at the HC her progress was checked again after 4 hours. It is possible that this particular woman, having been in labor for an unknown but potentially significant amount of time before reaching the HC, required more attentive care than she received; it was the opinion of this staff member that her emergency referral should have been ordered sooner. In addition to this third phase delay (the delay in receiving adequate care at the health facility) it took time for the patient or her partner to borrow money for transport thus resulting in a phase 2 delay. Where health centers don't have functional or reliable ambulance services, patients and their partners or family members are responsible for organizing transport. When a woman has been suffering in obstructed labor and is in need of an emergency C-section, every second counts. In this particular case, the minutes multiplied and the delays combined to contribute to the asphyxiation of the baby, resulting in a stillbirth. The data shows that patients rarely have enough cash on hand to pay for a private emergency vehicle at the time it is necessary. It is clear that a reliable and affordable ambulance service would significantly reduce delays that occur in arranging transport, thus contributing to a more effective emergency referral system.

7.2 Who manages and controls women's mobility?

This sub-chapter aims to answer the research question: “How is a woman’s mobility managed or controlled in the context of the process of accessing emergency obstetrical care?” Control and management at the institutional (facility) and social (community and family) levels is considered.

7.2.1 Facility-based transport

Health care facilities both indirectly and directly manage and control mobility. In the case of the three HCs studied, facility administered emergency transport is underutilized, mismanaged, or nonexistent. Following is an explanation of how facility-based transport is managed and how it affects women’s mobility.

At Kabubbu HCIII, while staff report that the antenatal patients are supplied with the telephone number of the ambulance driver, the data suggests that this practice is inconsistent; multiple antenatal patients reported having been told that the service was free and available to them in an emergency, however they had not received the telephone number or instructions on how to procure the service. That more survey respondents from Kabubbu (45%) reported themselves likely to ask a friend or neighbor for assistance in securing late-night emergency transport rather than call the ambulance (25.5%) suggests a few possibilities; It is possible that there is a greater need for awareness and sensitization regarding ambulance transport within the community. Perhaps there exists confusion around the appropriate use of the service or a lack of confidence in the method. Indeed, this would not be surprising. As Uganda does not yet possess a national ambulance service, and most ambulances are privately owned and operated, ambulances are not a fixture of everyday life. Informal conversations with LMP staff members suggest that as ambulances are difficult and expensive to procure, they are associated with prestige. The vast majority of Ugandans don’t have access to ambulance services, and it is therefore not the normative or obvious choice of transport. Ideas of what constitute an emergency and justifies the use of an ambulance, for example, may be unclear. Or perhaps difficulties in accessing the telephone number for the service act as a disincentive for patients who would otherwise use it. It is also possible that staff withhold

information regarding the use of the ambulance due to a reluctance to pay the expense of the fuel. While the service is funded by a charitable trust, the staff still consider it to be expensive; interviews reveal that budgeting concerns weigh heavily on the minds of staff members. Whatever the reasons, the ambulance is severely underutilized. Patients and staff confirm that emergency pick-ups within the community are extremely rare, and that the ambulance is primarily used to refer patients from the HC to the hospital. When one considers the mobility constraints antenatal patients who attend Kabubbu HCIII face (finding affordable and appropriate community-based emergency and non-emergency methods) it becomes clear that scaling-up the existing ambulance service would increase HC accessibility and significantly reduce the weight of resource and mobility restraints faced by women in the area.

At Kasangati HCIV, the ambulance is used so infrequently and inconsistently that it suggests the service is severely mismanaged. Interviews with staff and patients hint that the sole ambulance driver is often unavailable to transfer patients. As demonstrated by the story of one patient who witnessed an incident wherein the driver was reluctant to drive a woman to the hospital, a disconnect exists in regards to the primary goal of an ambulance (the rapid transfer of emergency cases to emergency care) and the perceived purpose of the ambulance. That the ambulance is so often co-opted by the District Health Office (DHO) for errands and transport to meetings suggests that the health and safety of laboring women is not adequately prioritized. When one adopts a pragmatic perspective, however, this is not entirely surprising. Efficient transport is obviously a commodity that DHO staff members too require access to. The efficacy of the current ambulance system, though, is significantly challenged by the fact that the HC only employs one driver. Without more available staff, it is not possible for the current ambulance to serve the needs of the community. Community-based pick-ups do not occur, and the cost of fuel for the ambulance is prohibitive for many patients. The current ambulance service does not seem to make a significant positive contribution to reducing transport relays, as it is rarely used. In not making the most of its available resources and providing consistent ambulance services HC administrators greatly inhibits the mobility of its patients.

Buwambo HCIV does not currently offer facility-managed emergency transport. This places a significant financial burden on mothers in the area as well as exposes them to greater risk. Within Buwambo area public transport is scarce, particularly at night. While there exists a need for transport to NRH Mulago for laboring mothers who encounter complications, the delivery rate at Buwambo is quite low. Buwambo HCIV delivers significantly less babies than Kasangati HCIV, for example, and makes significantly fewer referrals. There is a desperate need, however, for transport from the community to the HC. The majority of survey and interview respondents at all three HCs experience constrained mobility with regards to access. Mothers that labor and deliver at Buwambo HCIV are in particular need of emergency transport and in so much as the health center fails to offer transport services, women's mobility is constrained.

It is not uncommon in low-resource settings for governments to pass on health-care costs to the end-users themselves. Indeed, in Uganda where the government provides primary health care free of charge, expectant mothers must bring a variety of necessary materials with them to the HC when they give birth including a plastic sheet to deliver on, clothing for mother and baby to wear after delivery, cotton wool to stem bleeding, and cleaning solution for labor room. It is perhaps reasonable to expect some monetary contribution from patients towards transport costs in the event of an emergency referral. The problem, however, is that the majority of patients are unable to meet the necessary costs in a time effective manner.

Kabubbu HCIII, with the assistance of private funding, models the role of the HC in the event of an emergency. While the HC does not yet adequately meet the community's needs for emergency transport in that the ambulance is reserved primarily for HC to hospital referrals rather than community pick-ups, Kabubbu HCIII efficiently and rapidly transfers emergency cases to the next level of care. Kabubbu HCIII can therefore be said to effectively manage the mobility of its patients; in providing facility-based transport the HC is able to transfer patients quickly when complication arise, thereby minimizing the compounding affect of time delays and added stress in an emergency situation.

In frequently leaving laboring women to their own devices in coordinating emergency transport, maternity patients at Kasangati HCIV and Buwambo HCIV are unsupported in their health care needs. In inadequately managing emergency transport, the HCs leave an infrastructural void that vulnerable women, their families and their friends must attempt to traverse as quickly as possible. The data suggests, of course, that the procurement of transport is rarely quick and easy. The tangible results of this of course are high rates of maternal mortality and maternal morbidity throughout the country. Kampala-based NGO, the Centre for Health, Human Rights, and Development finds the government increasingly negligent. That 16 maternal deaths occur daily in Uganda is, according to the activist group, a breach of basic human rights (Kasasira, 2012). The group highlights what they identify as “upside down” budget priorities; in their fight for increased funding to the Ugandan health sector to be used toward emergency transport and better wages for staff, the NGO points out that though the health sector is meant to command 15% of the national budget, it currently is given just 7% (Kasasira, 2012). The government does little to facilitate emergency transport for the majority of Ugandan mothers, and in this neglect, the government and associated health infrastructure can be said to put meaningful constraints on women’s mobility.

7.2.2 Community-based public transport

Community members both indirectly and directly manage and control mobility. Drivers of public methods of transportation have inordinate influence over the affordability and availability of transport. In providing the primary source of transport for both routine and emergency medical care, public transport providers play an important role in ferrying women to care and potentially, can play a role in constraining women’s mobility. Boda boda drivers, for example, frequently increase the cost of services if it appears that a woman requires medical attention. This practice of up charging when customers are particularly vulnerable can be seen as a livelihood strategy of capitalizing on personal catastrophe. Interviews reveal that women, having few options (due to aspects of affordability, availability, and HC accessibility), have little protection from this small-scale extortion. Taxi van operators, reluctant to cater to the needs of one customer over the requirements of the many, are free to deny laboring women passage on taxi vans and

are unlikely to go out of their way to transport a woman rapidly to the hospital. In many respects this is understandable; the vehicles owned and operated by public transport providers are often an individual's sole source of income. It is unlikely that the mothers who rely on these services would be able to offer financial compensation in the event of damages incurred or mess made. Why should the drivers of these vehicles feel compelled to take on personal financial risk? Whether the practice of up charging during an emergency is purely pragmatic or born out of a lack of empathy, in charging women more money during an obstetric emergency public transport providers contribute to creating mobility constraints. The affordability and availability of transport rests largely on the shoulders of the providers, leaving the end-users vulnerable, both economically and personally.

At the same time, communities seem to play an active role in combating limitations on women's mobility. Interviewees frequently cited their neighbors, family members or friends as playing an integral role in coordinating and paying for emergency transport. Women reported asking neighbors who possessed motorcycles for assistance and borrowing money from relatives when necessary. Women often professed trust and confidence in their neighbors, friends and family members to help them in whatever way was necessary if an emergency occurred. Single women and women who described themselves as orphans, having no extended family, were more likely to profess worry and anxiety around the issue of emergency transport and were more likely to have walked to antenatal care due to financial constraints. Social networks, therefore, seem to play a positive and important role in enabling women's mobility in this context.

7.2.3 Gendered distribution of power and resources

While it is obvious and perhaps logical that formal and informal infrastructure plays a role in managing and controlling women's mobility, it can be harder to determine the influencing role of relationships that take place in the private sphere. Interviews reveal, however, that male partners do indeed indirectly and directly manage and control mobility. HC staff and interviewed antenatal patients confirm that women in the area rarely have immediate access to household funds. Male partners, who are often the sole wage earners, largely control access to family finances. Even women engaged in income-

earning activities frequently give their earnings to their partner to manage. This of course poses a problem because “you never know when labor may come...you can’t be ready.” Women dependent on their partner for cash often find themselves at a loss when, for example, labor begins in the middle of the night and their partner is what is colloquially known as “on safari” or working far away from the home. In so far as men manage and control the resources for mobility, women are limited in their ability to make autonomous decisions relating to both emergency and nonemergency transport. When women are reliant on their partner’s physical presence for money to pay for transport, women become vulnerable to significant transport delays. (This is seen most starkly in the transport-related delays experienced by single women).

While this might not necessarily affect the health and wellness of all antenatal patients (as one patient remarked, women who’s partners are unable to provide money for transport simply walk, sometimes up to 2 hours, to services) this dependency becomes increasingly problematic as complications develop. If a partner is not present and able to financially support a woman at the precise moment when pregnancy-related complications develop and she needs emergency care, it is often not possible to secure appropriate transport efficiently. The impact of this constrained mobility is significant. As stated earlier, “The impact of constrained mobility on bargaining also has its impact on what comes to be available as resource and service within local constraints.” When women experience emergency complications and find themselves to be without enough money (perhaps the most significant resource for mobility) public transportation services are rendered unattainable. In this way male control over the resources for mobility can be particularly detrimental. When asked whether or not their partner was saving money for the delivery and in the case of an emergency, women who confirmed that their partners were could often not confirm how much their partner had saved. Women replied that they had never asked their husband about how much money he had saved or that there was no way they could know. Women who’s partners were able to support them financially reported ease in procuring transport and confidence that it would be available in the event of an emergency.

The findings of this research are in alignment with the Ugandan MFPED's 2006 assessment of the status of women in the country: "The economic dependence of women, their lack of control over productive resources and assets, is indeed at the root of the problems women face. At the household level, women's limited decision-making is associated with their insecurity of access to productive resources." In so far as male partners manage and control family finances, men play a significant role in managing and controlling women's mobility.

8 The impact of managed and controlled mobility on maternal health and well-being

This chapter aims to answer the research question, "In regards to transportation, how do the aspects of physical accessibility, availability, financial affordability, and social acceptability affect maternal health and well-being?" Specifically, gender norms and normative social practices (aspects of the social acceptability of using transport methods) were found to bear an impact on the three other dimensions of mobility: the accessibility of HCs, the availability of transport, and the financial affordability of available transport methods. Practices governing the control and management of the resources for mobility thereby contribute most significantly to the mobility constraints faced by antenatal patients at the HCs studied.

8.1 Impact of constraints on mobility and the resources for mobility

Of the four proposed aspects of mobility above, it is arguable that social acceptability is the most significant aspect in influencing women's mobility; in accordance with dominant gender norms the women interviewed defer to their male partners in financial matters. The population studied is predominantly poor and vulnerable to financial insecurity; the modest cash incomes generated by families are controlled largely by male partners. In this way the social practice of designating men as heads of household and daily expenditures limits the daily mobility of women. In a cash economy, where immediate access to credit almost nonexistent, women require immediate access to cash.

Men, who are more likely to be engaged in wage-earning work, are also more likely to exercise mobility, as they frequently possess the means to do so. Affordability of transport, the availability of transport, and even the accessibility of transport are all compounded by mobility constraints that stem from this normative gendered practice. Affordability is mediated by who has control over the resources for mobility; in controlling and managing the means to pay for transport, male partners often inadvertently impact what women are able to pay for and afford. Affordability of transport for women therefore rests largely on the ability and will of male partners to provide an adequate amount of money for appropriate transport. Male partners also mediate availability of transport in that partners must often coordinate and be present to pay for the cost of transport. By allocating and distributing money for transport to their partners, men can directly contribute to making HCs and maternal health care more accessible for women.

It was previously argued that there is a relationship between power, mobility and well-being and that “mobility and control over mobility both reflect and reinforce power. Mobility is a resource to which not everyone has an equal relationship.” The paucity of available and affordable transportation options to travel to both antenatal care and emergency obstetric care constrains access to vital health services. It is clear that socioeconomic status defines the parameters of one’s relationship to mobility. The majority of the women surveyed and interviewed were members of relatively poor families for whom the cost of a special hire vehicle or the fuel for an ambulance is an exorbitant expense. Within poor households men retain the traditional role of financial provider. That men, in this context, control mobility reflects and reinforces gender inequity. If well-being is shaped by social, political, and economic factors as well as biological condition, what then are the effects of inequitable access to mobility and the resources for mobility on mothers? The following quote offers some insight into answering this:

“If the ambulance is at Kasangati many lives of the mothers would be saved since most mothers get complications and the only referral center is Mulago. It would make

transport easier for the mothers. Whenever a mother thinks of transport, when she has complications, that complication can become worse because the stress goes to her head."

-Antenatal patient, Kasangati HCIV

MMRs starkly convey that delays in seeking care, reaching care, and receiving care can result in maternal death. The effects of mobility constraints on maternal mental health and well-being are more challenging to document and quantify. All antenatal patients who were interviewed reported having experienced pregnancy-related complications in the past; their testimonies reveal that constraints on mobility and the transport-delays that can and do occur indeed impact maternal health and wellness. The statement "whenever a mother thinks of transport, when she has complications, that complication can become worse because the stress goes to her head," is representative of a feeling that was frequently expressed by interviewees. The experience of complications during pregnancy and during labor is acutely stressful. Interviewees described experiencing complications in the following ways: respondents reported being fixated on physical pain, anxious about the health and safety of their unborn child, and worried about the experience and risks of impending surgery. The added stress of waiting for transport, or enduring long, arduous journeys on unsafe or inadequate transport, can indeed contribute to a worsening of the psychological experience. One respondent reported that while pregnant, she and her friends worry about how they would pay for and organize emergency transport frequently.

Furthermore, in having limited resources for mobility, women experiencing obstetric emergencies are exposed to ever more risk and danger during their journeys to care. Specifically, financial constraints due to overall socioeconomic circumstances as well as the distribution of power and control over finances within the home combine to limit safe and appropriate options for transport for women. In often choosing the ubiquitous boda boda for transport to both routine and emergency medical care, pregnant women inadvertently put their health and welfare on the line. One village in Tanzania has recognized the dangers of using motorcycle taxis as a means of transport while pregnant; recently the leadership in a village in Ilemela District, Tanzania banned expectant

mothers from using boda boda services. This was in response to the death of a 28 woman named Miriam, who died during childbirth after riding 20 km on a boda boda to the HC. Her doctor determined that she had suffered extensive bleeding due to the bumping and jarring caused by the rough road. According to the village chairman, “Our area is rough and roads are bad. A pregnant mother using a motorcycle as a means of transport to a health centre risks both her life and that of her unborn baby...such incidents are what has prompted us to take action and impose the bylaw” (Matthew, 2014). While this may be a meaningful step towards reducing MMRs in this particular Tanzanian district, it is unclear whether or not deterring pregnant women from using boda bodas by imposing fines will be effective. After all, what alternatives for affordable transport actually exist? Whether or not this case from Tanzania is a truly practical example of how to reduce maternal deaths, it paints a stark example of the tangible, direct effects of controlled, managed and limited resources and choices for mobility.

8.2 Agency and positive maternal health experiences

As previously stated, health is a state of physical, mental, and social well-being, not merely the absence of disease or infirmity. Well-being is shaped by a variety of social, economic, and political factors as well as biological condition. In this case, social and economic factors combine to create constraints on women’s mobility and thus their experience of health and well-being. Medical pathology (bio-medical complications) is compounded by mental and emotional duress. The stress and anxiety women experience regarding emergency transport and associated delays contributes to negative maternal health experiences. Limitations on a woman’s mobility are also limitations on a woman’s agency or her capacity to act in the world and to exercise the fullness of her human capabilities.

9 Moving forward: clearing away obstacles to mobility

What then can be done to minimize life-threatening transport-related delays and to increase women's mobility? The following chapter aims to highlight the success of one intervention in particular, the Mbale Coalition Against Poverty (CAP) motorcycle ambulance initiative, and to make context-specific recommendations for maternal health and transport projects coordinated in the area this research is concerned with.



Photo 2: Community Health Worker and Motorcycle Ambulance driver, Irene, demonstrating how to drive an E-Ranger ambulance in Mbale, eastern Uganda

9.1 Motorcycle ambulances and increased mobility

The transport-challenges that affect the mobility of women surveyed and interviewed in Kabubbu, Kasangati, and Buwambo are experienced by women all over Uganda. Mukimba, a mother from Mbale in eastern Uganda near the Kenyan border, described how though she only lives 3 km from her closest HC, and though there are boda bodas

that operate during the day and evening, she always chose to walk to the HC in the past; She walked because she couldn't afford a boda boda and she found it challenging to stay balanced and secure on the back of a boda boda when pregnant. Until recently, women like Mukimba have born the burden of constrained mobility and high MMRs. Programs Manager and Health Links Coordinator of the Mbale Coalition Against Poverty, Fred Chemuko, attributes this to a previous lack of emergency transport in the extremely impoverished, rural surrounds of Mbale region. Fortunately for Mukimba, things are beginning to change for the better and MMRs have decreased dramatically. According to Chemuko, this is because of an intervention fostered by the Partnership Overseas Networking Trust (PONT), which formally links Rhondda Cynon Taf county borough in Wales with Mbale district in Uganda, thereby connecting professionals in both locations and increasing the capacity for Ugandan organizations to engage in development work and to distribute aid effectively.

Mbale CAP, a coalition of NGOs under umbrella organization PONT, engages in a variety of poverty alleviation strategies, most notably in interventions for the improvement of maternal and child health in the area; in liaising with the District Heath Office (DHOs) and district leaders and engaging in networking and advocacy in order to improve women's access to quality obstetric care, Mbale CAP took on the issue of maternal mortality and transport head on. Chemuko describes the way in which PONT, the Welsh Ambulance Trust and the DHOs brainstormed a solution to the problem of emergency transport:

"Well it was an all inclusive approach where we sat as a team ... we were looking at finding a solution towards reducing maternal child mortality and maternal mortality in this region. So we said, what are the key elements that lead to the deaths of these children and mothers who are expectant and giving deliveries? And one of the challenges that was strongly outstanding was transport. And that the reason there was a lot of delays was due to lack of transport. So we tried to think through the process, which transport is more affordable, and cheaper that we can support the community to mitigate that challenge? So that's why we came up with an integrated emergency response service, that is bringing in the motorcycle ambulance, bicycle ambulance, mountain rescue stretchers,

mobile phone, training of people, districts providing shelters for those motorcycle ambulances.”

With financial assistance from the UK-based Tropical Health and Education Trust (THET), the DFID funded Global Poverty Action Fund (GPAF) Mbale CAP thus implemented a Motorcycle Ambulance (MA) program for emergency transport for expectant mothers. Starting with only 7 MAs, 180 mountain rescue stretchers, and 30 bicycle ambulances the program has grown to include 35 more MAs. The MAs, which cost around 1 million UGX (\$383 USD) to operate monthly, are the same motorcycles that boda boda drivers use; the difference is that they possess an attached 3-wheel covered buggy in which a laboring woman can lie down in as she is transferred to the HC. MAs therefore offer increased stability, safety and ease of use for mothers. A further bonus is that the MAs are significantly less expensive to purchase and operate than traditional 4x4 ambulances. Because the cost of using the MAs is shouldered by Mbale CAP and various donors, the problem of affordability for mothers is circumvented.

According to Chemuko the program has strengthened the capacity of communities to care for their own; Community Health Workers (CHWs) who previously were ill-equipped to transport obstetric emergencies, have been now been trained by the Welsh Ambulance Trust in essential life saving skills. Recently, 64 new ambulance drivers were recruited and trained. By training Village Health Team (VHT) members as well as nursing assistants employed by the government, costs are shared between the government and local partners; while some VHT ambulance drivers, who in general work as VHT members on a voluntary basis, are compensated for their time by Mbale PONT, many new recruits will have to volunteer their time. Government employees, of course, receive a government paycheck. This is particularly important; according to Chemuko the key to the financial variability and sustainability of the program is employing drivers on the government payroll. This decreases the program’s dependency on external sources of funding as well as increases the ability of the program to provide 24/7 coverage to the community.

Another benefit of the program is that it fosters a strong sense of community and pride; according to Chemuko the MAs “build a level of responsibility and a strong sense

of ownership amongst health care providers. It builds that level of responsibility in them to look after their own people because the people around your community are your relatives, your friends.” One CHW describes the changes they have witnessed within the community:

“We had been burying people like that. From one village to another, from one village to another, because of the same problem, before the ambulance. But now, after the ambulance, now we have received the ambulance and begun sensitizing the people. The community is very happy. The people are now used to actually going to delivering in the health center. It is better than delivering from down in the village. Then there is even quick means for post- partum hemorrhaging patients [to get care]. There is more cohesion and we have reduced communication barriers between the health workers and the community.”

Esther, aged 36 and mother of 8, first used the MA in Mbale in 2012. Before the MA’s became available Esther used to walk up to 1 hour to deliver at the HC and she often worried about what she would do in an emergency situation. She expresses many fears: the uncertainty of when labor would commence, anxiety about walking alone, and the worry that she would, for a second time, give birth while walking to the HC. She describes her previous birth experiences: once her labor pains were so extreme that she was unable to walk. She delivered her baby at her home, aided by a HW. After delivery she experienced excessive bleeding, and the HW assisted her by ferrying her 1 hour to the HC on a bicycle. When asked what affect the MA has had on her life and on the lives of other women in her community, she responds: “It has minimized the challenges we used to face in delays in going to the health facility because the ambulance drivers, once called upon, now are very quick in attending to their calls. It has reduced on the worries of the women in the community, that now they are sure of their transport whenever they will be in an emergency situation. It has also provided confidence in the community members with the safety of our lives.” –Motorcycle Ambulance User, Mbale

An intervention that requires community collaboration could see dramatic success in the area around Kabubbu, Kasangati and Buwambo health centers. Community-members already fill in the infrastructural void; family, friends and neighbors frequently coordinate emergency transport for women in need. NGOs eager to increase access to maternal health care and decrease delays in accessing emergency care should consider interventions that view the community as a valuable resource. Any successful intervention in the area will be inclusive of the entire community; education and sensitization campaigns can help to include public transport providers as part of the solution. Appealing directly to Boda Boda drivers and taxi operators to provide life saving assistance to their fellow community members (their mothers, wives and sisters) at an affordable cost or on credit could dramatic decrease the delays due to financial constraints and the process of coordinating personal loans to pay for transport. Furthermore, involving women in community savings and financing schemes would increase the possibility for women to make autonomous decisions about money and transport and decrease their dependence on their partners. Any community-based intervention will have to appeal to male partners and male community leaders. While the division of labor and the gendered distribution of resources will not change quickly, as more women engage in income-earning activities, their agency to exercise their own mobility will be enhanced. It will be necessary to provide spaces for women to cultivate their own autonomy and independently access their earnings. Finally, in working in partnership with local DHOs, HCs and charitable trusts and donors, charities like the LMP can lead in the planning and implementing of interventions like the Mbale CAP MA program that has alleviated the financial burden of paying for emergency transport on the end-user and shifted the costs to be shared amongst a variety of stakeholders.

29-year old Mastulah has 2 children, has had one miscarriage and is pregnant for the 4th time. She says she lives deep in the village and her husband works as a night watchman. Because her husband left her money before he left for work, she was able to pay for transport to the antenatal clinic today. She says, “Women get a very big problem with transport. If when your husband is getting a salary, and the salary takes long to come in, it will be a big problem for him to provide money to come to the health center. Women should make up a savings group to get some help.” Mastulah deposits a small amount of the money she earns from digging on neighbor’s farms into a savings group each month; she says she didn’t know how to save money until a friend showed her how. The group is for women only. When asked if she shares her savings with her husband, she replies firmly that it’s her money. “I feel so well,” she says, “because I don’t have any problems, because I get my money when I need it.”

10 Conclusion

This research on maternal health and transportation offers a moment of insight into the subjective experience of living with mobility constraints. Health workers and antenatal patients at Kabubbu HCIII, Kasangati HCIV and Buwambo HCIV offered varied perspectives on how their lives are affected by having limited access to the resources for mobility. Interviews revealed that within the population studied, men predominantly control and manage both the resources for mobility (money to pay for transport) and the means of transport itself. Fillipi et al. (2006) identify a lack of decision-making power in relation to care during pregnancy a significant source of stress and a physiological trigger for expectant mothers. Limitations on autonomous decision-making, as well as fear of complications and the perceived inability to control danger, combine to create negative maternal health experiences. Gender norms that promote male dominance, power and control influence interpersonal relationships within the household and ultimately become behaviors and practices that limit women’s mobility, access to the resources for mobility, their agency, and their autonomy.

It is important to emphasize that as the study was small in scope and scale it is not possible to make generalizations to larger rural populations or Uganda in general. It is

probably, however, that within areas where MMRs are high and transport-related delays are frequent, women are vulnerable to the same stress and anxieties that ultimately affect health and well-being as the women studied here. Improving maternal health is about more than simply decreasing MMRs. Reducing the amount of maternal deaths that occur does not directly correlate to increasing the number of healthful pregnancies and deliveries. Instead, improving maternal health must also be about increasing the capacity of women to exercise their agency, to make decisions about their health, and to express the fullness of their mobility when they require health care.

It is easy to emphasize that the health and safety of women must be prioritized in health practice and policy, and to point out that emergency transport is severely neglected and underfunded in Uganda. The government, arguably, bears the ultimate responsibility to adequately prioritize the health and safety of its citizens. More importantly, however, NGOs and other development actors have the opportunity to influence government policy; NGOs can play a valuable role in increasing the capacity of communities to meet these challenges head on. The existing role of the community in enabling women's mobility is significant and encouraging; that community members so frequently play an integral role in helping to provide and coordinate emergency transport suggests that there exists a fertile ground in which community-based interventions could take root and flourish. Such interventions should empower women to be less financially dependent on their partners and empower communities to formalize their support of women in need of emergency transport. This could significantly alleviate women's anxieties around finding and affording a means to get to appropriate care during an acutely stressful experience

Of course, arguably the best way to reduce transport-related delays is to reduce the number of referrals altogether. One health worker emphasized the need for continuing to functionalize HCIVs and to increase their capacity to provide emergency obstetric care:

"We need to do some sort of like prophylaxis for the referrals themselves. If ...we have people attending to those very very critical patients, we reduce the costs of transportation in the process. If we don't sort out the reasons for the referrals it might be difficult to run

an intervention like Motorcycle Ambulances. So if you can work on improving the facilities here, you can reduce the number of referrals and then in the process we are able to attend to the very critical ones.” –Health Worker, Kasangati HCIV

It is hoped that in the future, the LMP and other development actors engaged in improving women’s access to maternal health care and increasing access to emergency transport will consider the following: that building capacity and improving functionality in smaller, more accessible health centers limits the frequency of emergency referrals; that sensitization and education within communities could make transport costs more affordable for pregnant women; and that increasing the ability of women to save money independently and make decisions about transport costs autonomously could reduce transport-delays and increase well-being.

Health, for all its objective measurements and indicators, is a subjective experience. Health is state of being, and wellness is an expression of being able to act in one’s best interest and to access the necessary resources for taking care of one’s self. Women’s limited autonomy in decision-making, prevailing gender norms and values, and a lack of available, safe and comfortable transport methods combine to constrain women’s access to emergency health care and to negatively impact the holistic experience of maternal health. Future research on this topic should consider delving deeper into interpersonal gendered relations within households and within communities. Future interventions should aim to shift practices and beliefs that limit women’s autonomy and agency towards practices and beliefs that empower women to express the full potential of their innate human capabilities. In the words of midwife and maternal health advocate Jenna Wilson (2013):

“When a mother is able to demonstrate leadership during pregnancy by caring for herself and her unborn child, she directs her community to do likewise – to care for themselves and the next generation. Poor maternal health is detrimental to household survival and function. Mothers are the forerunners to educated communities..mothers are more likely than fathers to support their children’s educational development, which can lead to sustainable change within communities. Education is a major step in

changing the cycle of poverty. Maternal mortality is a 21st Century problem that is primarily an issue for developing countries. But it is an issue that can be almost eliminated, as we have seen in developed countries, through easy access to skilled attendants and health facilities. Improving maternal health not only saves mothers, but entire communities.”

Transport interventions that aim to reduce transport-related delays in access to emergency obstetric care can accomplish more than simply save lives; transport interventions have the potential to dramatically improve the quality of daily life for the mothers they serve and to contribute to the development of communities and ultimately, countries. When women exercise control over mobility and the resources for mobility, women are empowered to actively participate in cultivating their own health and well-being. In taking more active and vocal roles in managing and controlling mobility, women not only contribute to decreasing transport-related delays; they directly engage in solving the maternal health crisis within their communities and societies.

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Appendices

Appendix 1: Characteristics of research population

	Absolute (n=180)	Valid Percentage
Age		
-16-19	34	19.1
-20-24	78	43.8
-25-29	48	27.0
-30-53	18	10.1
Missing	2	
Education		
-None	1	.6
-(some) Primary School	57	3
-(some) Secondary School	105	2.8
-Tertiary Education	11	60.3
Missing	6	6.3
Partnership status		
-Has partner	161	93.1
-Doesn't have partner	12	6.9
Missing	7	
Number of pregnancies		
-1	49	28.2
-2	52	29.9
-3	39	22.4
-4	24	13.8
-5 or more	10	5.7
Missing	6	
Number of children		
-0	54	30.3
-1	49	27.5
-2	44	24.7
-3	23	12.9
-4 or more	8	4.5
Missing	2	
Complications in previous pregnancy		
-Yes		
-No	57	39.6
-Not applicable	51	35.4
Missing	36	25.0
	36	

Appendix 2: Characteristics of population by health center

	Kabubbu Health Center	Kasangati Health Center	Buwambo Health Center
Age			
-16-19	23.8%	16.3%	21.1%
-20-24	40.5%	42.9%	50.0%
-25-29	19.0%	31.6%	23.7%
-30-53	16.7%	9.2%	5.3%
Missing		n= 1	n=1
Education			
-None	0.0%	0.0%	2.7%
-(some) Primary	45.0%	26.8%	35.1%
-(some) Secondary	47.5%	66.0%	59.5%
-Tertiary Edu	7.5%	7.2%	2.7%
Missing	n=2	n=2	n=2
Partnership status			
-Has partner	90%	95.8%	89.5%
-Doesn't have	10%	4.2%	10.5%
Missing	n=2	n=4	n=1
Number of pregnancies			
-1	33.3%	29.8%	18.4%
-2	19%	30.9%	39.5%
-3	26.2%	20.2%	23.7%
-4	19.0%	11.7%	13.2%
-5 or more	2.4%	7.4%	5.3%
Missing		n=3	n=3
Number of children			
-0			
-1	35%	32.3%	20.5%
-2	25%	27.3%	30.8%
-3	27.5%	24.2%	23.1%
-4 or more	12.5%	10.1%	20.5%
Missing	0% n=2	6.1%	5.1%
Comps in previous pregnancy			
-Yes	29.2%	41.6%	41.9%
-No	37.5%	31.5%	45.2%
-Not applicable	33.3%	27%	12.9%
Missing	n=18	n=10	n=8

Appendix 3: Method of transport likely to use in labor or an obstetric emergency

	Frequency	Valid Percent
Boda boda	136	81.4%
Other means	31	18.6%
Total	167	100%
Missing	13	

Appendix 4: General Interview Protocol

This interview protocol will contain instructions that should be followed for each interview within this study to ensure consistency between interviews and the reliability of the findings. In addition, it is to ensure that ethical guidelines such as informed consent are followed.

- *Step one: inform respondent about the research and the interview*

Guarantee anonymity and confidentiality and make sure the respondent is ok with a recorder. For example: Dear sir/madam, thank you for participating. I am an American master's student conducting research in Kasangati about transportation and maternal health. This interview will be held within my research and will help me answer my research questions. Everything you say will be strictly confidential and anonymous and will only be used for this research. Are you ok with me recording this interview? This way I can listen to it again at home and focus on your answers now.

- *Step two: questions*

Stick to the interview guide. Keep follow-up questions open enough to be able to improvise and go deeper into interesting answers. When appropriate use probe methods if you would like to hear more. Avoid yes-or-no-questions, but keep questions short. Always let the respondent finish her/his answers before you ask a new question or start probing. With every question asked, keep the research questions in mind

- *Step three: record open responses VERBATIM*

Type respondent's answers. This hard copy of the interview is vital in order to transcribe and analyze the data accurately. In addition, it can help to write something down to let the respondent think about their answers or add something

to it.

- *Step four*

At the end of the interview always thank the respondent for her/his time. Inform the respondent that the findings of the research will be made available here at the relevant health center.

Appendix 5: Health Center Staff Interview

Topic List

- Introduction

Inform the respondent about the research and the interview.

Guarantee anonymity and confidentiality and make sure the respondent is ok audio recording and note taking.
- *Verify name and title of respondent*
- *Collect background information of the respondent's role/position*
- *Collect demographic information regarding backgrounds of study participants*
 - catchment area
 - catchment population
 - income level of antenatal patients
 - employment status of antenatal patients
 - education level of antenatal patients
 - marital status of antenatal patients
- *Collect information regarding transportation-constraints of study participants*
 - affordability and availability of transport methods
 - geographical accessibility of the health center
 - control over household resources
 - role of partners, friends, and community members in coordinating emergency transport
 - challenges of transit at night or in adverse weather

- *Collect information regarding Emergency Referral System*
 - description of current emergency referral system
 - associated costs
 - availability of vehicles and of drivers
 - patient awareness of services
 - frequency of and reason for referrals
 - official referral protocols
 - referral follow-up and record keeping
 - perceived short-comings of current system
 - possible community-based solutions to transport challenges
 - possible facility-based solutions to transport challenges
- *Request last thoughts and opinions*
 - level of satisfaction with available services
- *Thank participant for her/his time and insight*

Appendix 6: Antenatal Patient Interview Topic List

- Introduction

Inform the respondent about the research and the interview.

Guarantee anonymity and confidentiality and make sure the respondent is ok with note taking.
- *Verify name of respondent and collect demographic details*
- *Collect information on circumstances of previous obstetric emergency*

Allow respondent to tell her story

Probe for details: When, Where, How, Outcome

Costs incurred

Time spent in transit

Source of money for transport

Feelings and thoughts during this time
- *Collect information regarding affordability and availability of transport-methods for antenatal and emergency care*
- *Collection of opinions*

constraints women face in the community

night time and rainy season travel

possible solutions

- *Request last thoughts and opinions*
level of satisfaction with available services

- *Thank participant for her time and insight*

Appendix 7: Motorcycle Ambulance Project Coordinator Interview Topic Guide

- Introduction

Inform the respondent about the research and the interview.

Guarantee anonymity and confidentiality and make sure the respondent is ok audio recording and note taking.

- *Verify name and title of respondent*

- *Collect background information of the respondent's role/position*

- Collect information on history of the transport intervention

Previous transport constraints for population

Previous referral system

Population intervention serves: income, education

Geographical area intervention serves

- *Collect information on logistics of intervention*

how it works

initial costs and training, running, maintenance, and repair costs

community monetary contribution

community sensitization and awareness

community reactions

project management

project monitoring an evaluation

- *Collect information on involvement of stakeholders*

Funding partners

District health office

- *Collect final thoughts on intervention*

Challenges in implementation
Sustainability
Future expansion
Integration into national ambulance system

- *Thank respondent for time and insight*

Appendix 8: Antenatal Patient Survey

SURVEY: HOW DO YOU GET TO THE HEALTH CENTER?

Instructions: Please write down the answer on the line after each question. When the question lists the possible answers below, please circle the number next to your answer. Please ask Susan for help if you have any questions about how to answer.

1. What is your age? _____
2. Where do you live? _____
3. What is the highest year of school you have completed? _____
4. How many times have you been pregnant, including this time? _____
5. How many children do you have? _____
6. Do you currently have a partner? (Please circle one)
 - 1) Yes
 - 2) No
7. How many minutes or hours did it take you to travel to the health center today? (Please write your answer on the line next to 'minutes' if you answer in minutes, OR on the line next to 'hours' if you answer in hours)
_____ Minutes _____ Hours
8. What method of transport did you use to get to the health center today? (Please circle one)

- 1) Walking
 - 2) Boda Boda
 - 3) BOTH Walking AND Boda Boda
 - 4) Taxi.
 - 5) Special Hire.
 - 6) Another way
9. How much money did your method of transport to get here cost today? (Please write your answer on the line below. If you did not spend any money on transport today please write 0).
- _____ Shillings
10. When you chose what method of transportation to use to get to the health center today, which of the sentences below BEST describes you: (Please circle one)
- 1) I took the fastest option.
 - 2) I took the cheapest option.
 - 3) I only had one option because other methods aren't available.
 - 4) I only had the option of walking, because I didn't have any money.
11. If you go into labor or have an emergency while you are pregnant, what method of transport would you take to get to the health center? (Please circle one)
- 1) Boda Boda
 - 2) Other means
12. If your contractions start in the middle of the night and there are no taxis or Or boda bodas available, what would you do? (Please circle one)

- 1) I would ask someone, like a neighbor, a friend, or family member who has transport, to help me get to the health center as soon as possible.
- 2) I would call the ambulance to come and pick me up to take me to the health center.
- 3) I would take a special hire to the health center.
- 4) I would wait until morning so that I could walk or take public transport, like a boda, to get to the health center.

If this is your first pregnancy, you are done with the survey. Please give your survey to Susan. Thank you for participating! If you have been pregnant before please answer the next question.

13. During any previous pregnancy, did you experience complications that required emergency treatment at a Health Center or Hospital? (Please circle one).
- 1) Yes
 - 2) No

If you selected the answer NO, you are done with the survey. If you Selected yes, please continue.

14. Are you willing to answer a few more questions about the pregnancy-related complications you had in a short interview today?
- 1) Yes
 - 2) No

If you selected Yes, please write down your first name below.

THANK YOU VERY MUCH

