More than Meets the Eye

Home Delivery in Mashonaland Central, Zimbabwe

A descriptive retrospective study describing the group of women who deliver at home, their reasons for home delivery, preferences for institutional delivery and what happens during the home delivery process

June 2012

More than Meets the Eye: Home Delivery in Mashonaland Central, Zimbabwe
JUNE 2012

This report was prepared by the Organisation for Public Health Interventions and Development (OPHID) Trust, with technical and administrative assistance from the Ministry of Health and Child Welfare (MOHCW) and Office of the Provincial Medical Director (PMD) of Mashonaland Central Province. Financial and programmatic support was provided by the Elizabeth Glaser Pediatric AIDS Foundation (EGPAF), United States Agency for International Development (USAID) and United Kingdom Department for International Development (UK Aid). The views expressed in this report are solely the responsibility of the authors and do not necessarily reflect the official views of the United States or British government, USAID, UKaid or EGPAF.

For further information contact:
OPHID Trust
3 Rowland Square, Milton Park
Harare, Zimbabwe
Telephone:+263 4 792352/3, 797350
Fax:+263 4 792361
Email:kwebb@ophid.co.zw
Website: http://www.ophid.co.zw

Table of Contents

Tables and Figures

Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	Ante-natal care
ARV	Antiretrovirals
DCE	Discrete Choice Experiment
DMO	District Medical Officer
DNO	District Nursing Officer
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EmONC	Emergency Obstetric and Neonatal Care
FGD	Focus Group Discussion
HIV	Human Immunodeficiency Virus
MDGs	UN's Millennium Development Goals
MER	More Efficacious Regimen
MOHCW	Ministry of Health and Child Welfare
MNCH	Maternal Newborn and Child Health
MTCT	Mother to Child Transmission
MWH	Maternity Waiting Home
OPHID	Organisation for Public Health Interventions and Development
PMD	Provincial Medical Director
PMTCT	Prevention of Mother to Child Transmission
PPNC	Prompt Postnatal Care
RDS	Respondent Driven Sampling
UKaid	United Kingdom aid from the Department for International Development
USAID	United States Agency for International Development
UNAIDS	Joint United Nations Program on HIV/AIDS
WHO	World Health Organisation
ZDHS	Zimbabwe Demographic and Health Surveys

Acknowledgements

Gratitude is extended to the following individuals and organisations that facilitated the design, implementation and write up of *More than Meets the Eye*:

- Ministry of Health and Child Welfare (MOHCW), AIDS & TB Unit
- For pre-test support, the Provincial Medical Director (PMD), District Medical Officer (DMO), District Nursing Officer (DNO) in Goromonzi District, Mashonaland East.
- Office of the PMD, Dr. Cremance Tshuma, Mashonaland Central Province
- Offices of the DMO and DNO in Mazowe, Bindura, Mt. Darwin, Shamva, Guruve and Centenary
- The Nurse in Charge and staff at each of the clinic and hospital sites sampled
- The offices of UK Aid and USAID for financial support of OPHID's operational research activities

The author would also like to thank the OPHID Mashonaland Central Province team: Provincial Coordinator, Grapper Mujaranji for her support and guidance as well as administrative support from Gertrude Rusero and dedication of the OPHID drivers who transported research assistants to the field. Additional thanks go to OPHID colleagues, including pre-test support provided by Theresa Ndoro(Mashonaland East Provincial Coordinator) and input and comments provided by Tendai Mwotowanyuka (Monitoring and Evaluation Officer), Priscilla Matyanga (PMTCT Trainer), and Tarisai Mukotekwa (Manicaland Provincial Coordinator).

Appreciative thanks go to the committed efforts of the research assistants who collected data from the field, in alphabetical order: Tendai Chada, Ruvimbo Chigorimbo, Viola Maponga, Tapiwa Matyanga, Mukudzeishe Mavuwa, Gerald Mbulazi, Peter Mufarinya, Ancillah Tapfumaneyi, Precious Wata, and Vivian Zamba. Special thanks go out to Lead Research Assistants Patience Chakarisa and Harriet Chiunda, as well as for coding and data entry conducted by Fungai Mugadza.

The study design, analysis and report writing was performed by Karen Webb, OPHID Operational Research Coordinator, under the support and guidance of Barbara Engelsmann (OPHID Country Director) and Diana Patel (OPHID Deputy Director).

Finally, this study would not have been possible without the openness and generosity of time of mothers who delivered at home in various communities across Mashonaland Central. These women provided us with invaluable descriptions of their experience of home birth and insight into their perceptions for the reasons for their home delivery and preferences to facilitate future institutional delivery which made this report and its recommendations conceivable.

Foreword

The reduced levels of institutional deliveries with skilled attendance attributable to increasing rates of home delivery represent a major risk to the health and survival of mothers and infants in Zimbabwe. This risk is due to the increased morbidity and mortality during 'the critical' 48 hours following birth. This risk can be worsened after a home delivery by babies and their mothers. HIV is noted as the leading cause of maternal death in Zimbabwe and home delivery linked to increased risk of HIV transmission during labour and poor adherence to ARV regimens by HIV positive women. Thus, increasing facility births is not only a priority for the success of Maternal Newborn and Child Health programmes, but also for Prevention of Mother to Child Transmission (PMTCT) of HIV and elimination of paediatric infections.

Increasing rates of facility based delivery in Zimbabwe will make substantial contributions to Zimbabwe's progress towards the meeting of Millennium Development Goals (MDGs) 4 and 5, and eliminating new paediatric HIV infections by 2015.

The voices and perceived needs of rural women should be accounted for in any programme aimed at improving their health and the health of their children. Accordingly, current data on the characteristics of women who deliver at home (including a description of health seeking behaviours during ante, peri, and post-partum stages) and their perceptions of barriers and facilitators for health service uptake will greatly inform the efforts of the Ministry of Health and Child Welfare (MOHCW) and its partners. Such information will enable the design of comprehensive and integrated programmes intended to increase demand and uptake of Maternal and Child Health services along the PMTCT/Maternal Health cascade, including safe delivery at a health facility.

For these reasons, it is hoped that the findings outlined in this report will be reflected upon when designing programmes in line with existing government policy and will contribute to priority areas for action that are intended to improve demand and uptake of maternal health services in Zimbabwe.

Dr. O. Mugurungi
Director, AIDS and TB Programme
Ministry of Health and Child Welfare

Dr. B. Madzima
Director Family Child Health
Ministry of Health and Child Welfare

Chapter 1: Introduction

1.0 Introduction

1.1 Background

1.1.1 Globally, maternal and neonatal mortality is high and closely linked to rates of home delivery

3.6 million newborn infants die in the first four weeks of life every year, 99% of them in low and middle-income countries, most in the first week of life and following home deliveries.[1, 2] Despite recent improvements in child survival in sub Saharan Africa, neonatal mortality rates remain largely unchanged.[3] One reason for this limited progress is the slow pace of increase in facility-based deliveries.[4] 60 million non-facility births occur worldwide every year and outcomes are worst among the poorest; more than 70% of all births in the lowest two wealth quintiles take place at home without skilled help.[4 - 7] Reducing morbidity and mortality during the intrapartum and postpartum period among the poorest wealth quintiles are key to achieving UN Millennium Development Goals (MDGs) four and five, which look to substantially reduce maternal and child mortality.[8] In order to achieve this, there is a critical need to identify context-appropriate strategies to increase facility-based deliveries.

1.1.2 Home delivery also reduces coverage of PMTCT programmes

The morbidity and mortality associated with home deliveries in low-income countries is further exacerbated in countries with high prevalence of Human Immunodeficiency Virus (HIV). While Mother-To-Child Transmission (MTCT) of HIV has been virtually eliminated in industrialized countries, it remains common in Africa.[9] The Joint United Nations Program on HIV/AIDS (UNAIDS) has set the ambitious goal to virtually eliminate vertical transmission of HIV (defined as MTCT transmission of less than 5%) and to reduce AIDS-related maternal mortality by half by 2015 through enhancing coverage of PMTCT Programmes and by implementation of more effective programmes.[10]

Home delivery has been noted as limiting coverage of Prevention of Mother to Child Transmission (PMTCT) of HIV programmes[11] and it has been reported that even when HIV status is known and HIV positive mothers are enrolled in PMTCT programmes, home delivery is associated with non-adherence to ARVs to prevent vertical transmission.[12 - 15] Strengthening the continuum of care between the home and health facilities during pregnancy, childbirth and the new born period is not only important for reducing anti-, peri- and postpartum infant and maternal mortality and morbidity,[5] but is also an important approach for reducing vertical transmission of HIV in high prevalence countries.

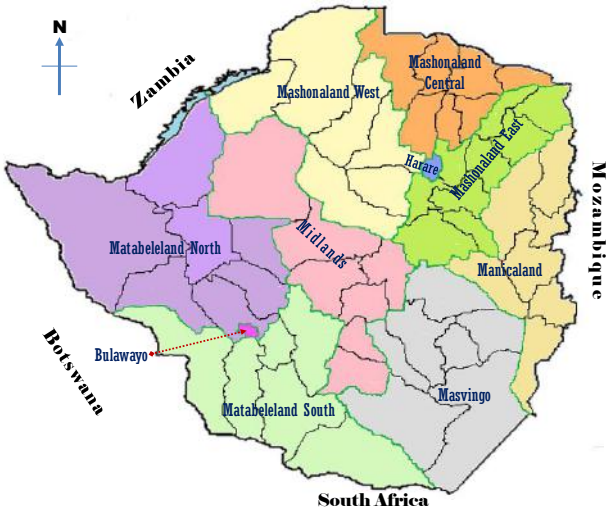
1.1.3 The Zimbabwean Context

Home Delivery in Zimbabwe

There has been an increasing trend of home deliveries in Zimbabwe since 1999, in the context of a weakened health delivery system and economic hardships.[16] The Zimbabwe Demographic and Health Surveys (ZDHS) documented a 34 per cent increase in home deliveries among women aged 15-49 years from 1999 (23%)[17] to 2005/2006 (31%).[18] Recent

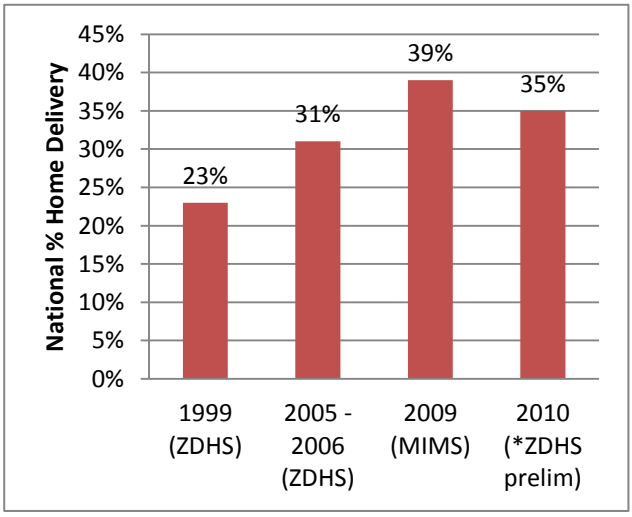
statistics indicate yet another 13-26% rise from 2005/2006 to 2009/2010 with the national rate of home deliveries reported as 39% by the Multiple Indicator Monitoring Survey (MIMS)[17] and 35% by the Preliminary Report of the ZDHS 2010-2011[19] (See Figure 2).

Figure 1: Map of Zimbabwe



Maternal mortality in Zimbabwe is unacceptably high at 725 per 100 000 live births and reducing maternal mortality is a priority of the Zimbabwean Ministry of Health and Child Welfare (MOHCW).[20] Most maternal deaths could be prevented through increased access to antenatal, delivery and post natal care.[21] The Zimbabwe Maternal and Neonatal Health Road Map, together with the National Health Policy, National Health Strategic Plan, and the Reproductive Health Policy have identified Millennium Development Goals (MDGs) 4 (to reduce Under Five Mortality), 5 (to improve Maternal Health), and 6 (to combat HIV and AIDS, Malaria and other diseases) as key to improving neonatal and maternal health in Zimbabwe. Specifically, Zimbabwe has defined Goal 4 of its current National Health Strategy (2009-2013) to reduce the maternity mortality ratio to 300 deaths per 100 000 live births by 2013, with the specific objective to "improve access to skilled attendance at delivery including Emergency Obstetric and Neonatal care (EmONC)".

Figure 2: Percentage national home delivery in Zimbabwe 1999-2010

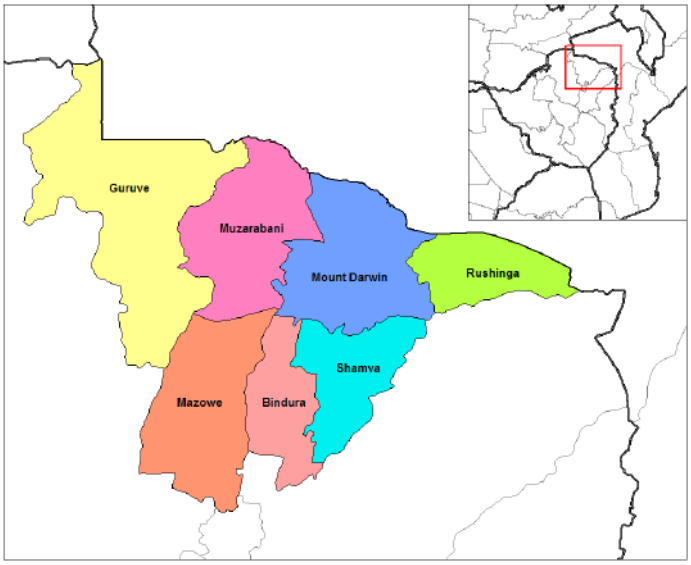


Zimbabwe is one of the "hyper-endemic" settings for HIV in sub-Saharan Africa[22], with an adult HIV prevalence rate of 13.7%.[23] While this is a significant decline from reported adult prevalence rates as high as 33% (2001), coupled with years of socio-economic decline and erosion of the public health system, the toll of the HIV epidemic on the nation's health, economy and social support networks has been severe. HIV prevalence among pregnant women attending ANC remains high at 16.1%.[23] An estimated 15 000 new HIV infections occurred in Zimbabwean children in 2009, more than 90% of whom were infected through MTCT.[23] In a 2007 study on the causes of maternal and perinatal mortality in Zimbabwe, it was discovered that HIV and AIDS was the leading cause of maternal deaths.[24] Accordingly, in its National Programme review to inform the National Strategic Plan for Elimination of New Paediatric HIV Infections: 2011 – 2015, the MOHCW has identified overall access and utilisation/uptake of services as a key bottleneck for the acceleration of PMTCT and paediatric HIV prevention, treatment and care scale up.[25]

Home Delivery in Mashonaland Central

Mashonaland Central (Figure 3)[26] is located in the North East of Zimbabwe, along the Mozambican border. It has an area of 28,347 km² and a population of approximately 998,265 (2002), representing about 8.5% of the total Zimbabwean population. Primarily consisting of rural communities, large commercial farm lands and an expanding mining sector, the province is divided administratively into seven districts: Bindura, Centenary, Guruve, Mount Darwin, Rushinga, Shamva and Mazowe. With long distances between many villages, farms and the closest health facility, and employment opportunities requiring travel away from the family home (farming and mining), Mashonaland Central has the highest rate of home delivery nationwide, with just over half of all women (50.3%) delivering in a health facility, significantly lower than the national average of 65%. Only slightly more women deliver with a skilled provider[1] (51.4%) in Mashonaland Central.[18] Home delivery has also been cited as a significant factor to non-adherence to the infant dose of nevirapine (NVP) in a recent study conducted in Bindura, the capital of Mashonaland Central.[27]

Figure 3: Map of Mashonaland Central, Zimbabwe



1.2 Information Required to Move towards Reversing the Increasing Trend of Home Delivery in Zimbabwe

1.2.1 Cohort Description

The characteristics of the cohort of mothers who have delivered at home captured by previous surveys suggest that the majority of mothers who give birth in the home in Zimbabwe belong to the lowest wealth quintile (53.5%), have no education (65.5%), attended no ANC visits (70.2%) and children born belong to the highest birth order category of 6+ (54.6%).[18]

These characteristics however, have not been referenced against the reasons provided by mothers for delivering at home, the preferences of different women for interventions to increase facility delivery or the practices during home birth. Such analyses may assist in the identification of targeted interventions required among sub-groups of women with documented higher incidence of home deliveries, such as women belonging to the Apostolic Faith.[28]

[1] Skilled provider includes doctor, nurse midwife, or nurse.

1.2.2 Reasons for Home Delivery

In Zimbabwe, available data suggests failure to make use of institutional maternity services include: women's minimal expectations of cleanliness and non-interference during labour and delivery; institutional delivery costs including traveling expenses; losing family support and the inability to meet cultural expectations; women's lack of knowledge about danger signs of pregnancy; women's negative perceptions of nurses working at the institution(s);[29] previous delivery at home; belonging to the Apostolic Faith;[28] non-use of maternity waiting shelters; unemployment; being without a husband; and use of traditional care.[30] More recent qualitative data suggests no health care provider being available; lack of access to drugs; shortage of equipment;[31] the high costs of transport; upkeep costs at the health institutions and other constraints may be inhibiting factors for women to access maternity care.[13] Many of these findings are consistent with the "three delays model" in which individual decision making, access to affordable services, and the provision of skilled personnel at birth are proposed as the main factors which can delay access to effective interventions to prevent maternal mortality.[32]

These studies, however, were not designed to specifically target a representative sample of women who have delivered at home for in-depth study to capture their perceptions for the reasons for their own home delivery. Additionally, no recent study has been conducted since the introduction of the US dollar in 2009 to address hyper-inflation, which has seen improvements in the quality and availability of health services. Finally, in the face of limited resources for health system interventions, there is a need to sift through the bulk listing of reasons for home delivery to determine the most influential reasons, and prioritise these through targeted interventions to increase facility based delivery. This will require the strategic collection of information about reasons for home delivery by engaging mothers in a listing of all reasons perceived to have played a role in their home delivery and a ranking of the most important reasons.

1.2.3 Preference for Institutional Delivery

It has been suggested that failure of health care providers to consistently communicate the importance of skilled delivery and immediate post-partum care for all women during routine ANC visits has acted to reinforce women's preferences for a home birth and lack of appropriate planning for delivery.[33] The same study noted that while husbands serve as gatekeepers to women's reproductive health and are encouraged to participate in PMTCT programmes, messages about the importance of skilled delivery care for all women are not given emphasis with this group. Previous use of discrete choice experiments (DCE), have demonstrated how capturing the service and facility preferences of mothers and improving these at existing facilities can dramatically increase the proportion of women preferring facility delivery.[34]

Though largely out-dated, existing literature in Zimbabwe has captured some reasons for home delivery in specified regions, but not women's preferences for institutional delivery. In the context of an increasing trend of home deliveries, the facilitating conditions that mothers feel would increase their uptake of institutional maternity services in the future should be captured and described in order to inform policy and planning.

1.2.4 The Process of Home Delivery

An important, but understudied area for informing the development of intervention strategies to improve maternity care and service use is capturing what actually happens during the process of home delivery. Clean delivery of newborns has been noted as a key intervention for reducing infection-related neonatal mortality[35] and appropriate thermal care a key component of community newborn interventions.[32] These areas and others important to reducing infant and maternal mortality and morbidity through safe delivery, including PMTCT, require an understanding of local practices and beliefs.[36]

Only by capturing the home delivery process in Zimbabwe can appropriate interventions be developed that select focussed behaviours, develop acceptable and appropriate messages and approaches to promote institutional delivery and overcome barriers to the use of maternity services. Finally, in those cases where institutional delivery is not possible, or perhaps desired, describing the process of home delivery will allow for recommendations for potential high-impact interventions to improve the safety and outcomes of home delivery for both mother and child based on an awareness of current practices at household level.

1.2.5 Knowledge of Risks of Childbirth

The knowledge levels of mothers regarding the risks of childbirth for both themselves and their babies have not been captured in Zimbabwe. Previous studies have suggested that increasing pregnant women's knowledge about pregnancy, childbirth and care of the newborn will assist the women in making choices that would contribute to good pregnancy outcomes.[37] The design of effective interventions to ensure safe delivery should consider the existing knowledge levels of mothers regarding the risks associated with childbirth.

Capturing and describing the outlined areas of information and going beyond face value and often anecdotal descriptions of small numbers of women who deliver at home, will represent a critical first step towards reversing the trend of increasing home delivery in

Zimbabwe. Using a targeted sample of mothers who have had home births will provide invaluable information to inform community-based strategies combined with health systems strengthening. Such tactics are suggested to improve childbirth care, reduce inequities in maternal and newborn survival, and provide an effective transition to higher uptake of facility births.[3]

1.3 Justification for the Study

An increasing trend of home deliveries in Zimbabwe, with high provincial rates of home delivery in Mashonaland Central justified the design of a descriptive study intending to identify the gaps and missed opportunities required for reversing the trend of home deliveries in Zimbabwe.

By describing the group of women who deliver at home, mother's reasons for home delivery, preferences for institutional birth, the process of home delivery and knowledge levels of women regarding the risks of childbirth, OPHID will be capable of generating targeted and evidence-based recommendations that will contribute to efforts towards the virtual elimination of MTCT and improvements in child and maternal health by reversing the trend of home deliveries.

Chapter 2:

Aims and Methodology

2.0 Aims and Methodology

2.1 Study Objectives

The overall aim of the study was to provide targeted and evidence based recommendations that will contribute to efforts towards the virtual elimination of MTCT and improvements in child and maternal health by reversing the trend of home deliveries in Mashonaland Central, Zimbabwe.

Specific objectives of this descriptive study included:

- To describe the cohort of women delivering at home.
- To describe the reasons for home delivery as provided by mothers.
- To describe mothers' preferences for interventions to support institutional delivery and improve future uptake of maternal health services.
- To describe the process of home delivery and services received by mothers ante-, peri- and postpartum.
- To describe the knowledge levels of women who deliver at home regarding the risks of childbirth for both mothers and babies.
- To make recommendations to policy makers and planners on interventions/strategies aimed at contributing to efforts towards the virtual elimination of MTCT and improvements in child and maternal health by reversing the trend of home deliveries in Zimbabwe.

2.2 Study Design

The study was a descriptive, retrospective study of mothers who delivered at home in the previous 12 months in Mashonaland Central province. The selection of Mashonaland Central was due to both the high reported rates of home delivery province-wide as well as being an area where OPHID has existing capacity in improving child and maternal health through its support of the implementation of the national PMTCT programme, and working partnerships with the Ministry of Health and Child Welfare, Provincial and District Health Authorities, and local stakeholders. Due to the largely rural composition of the province, it was intended that trends or findings from Mashonaland Central would be broadly applicable, though not generalizable, to other rural and very rural populations in Zimbabwe.

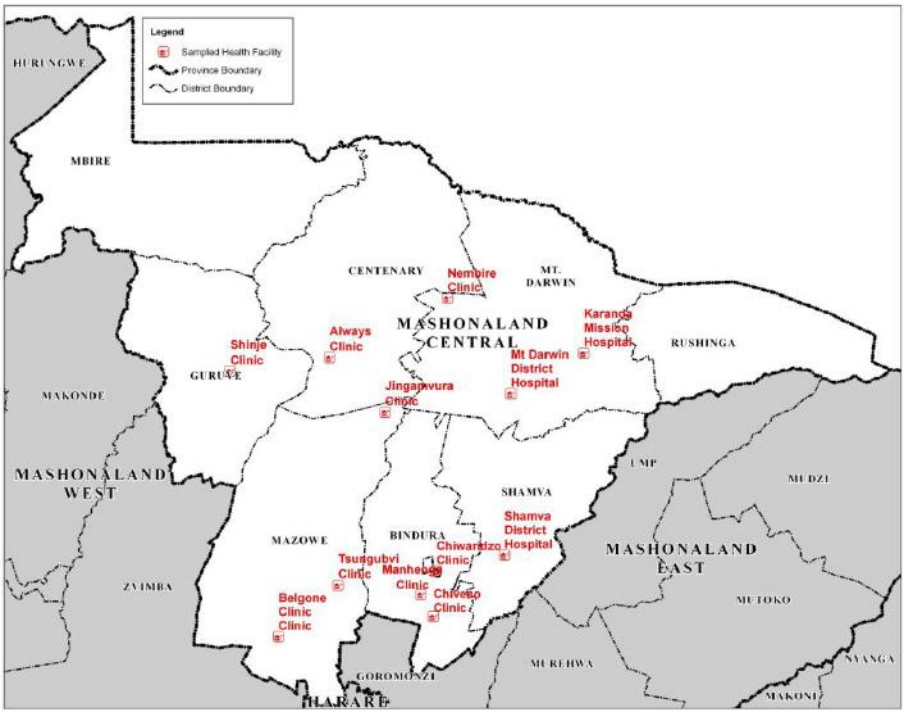
2.3 Study Population and Sampling Procedure

2.3.1 Study Population and Site Selection

The target population for inclusion in the Home Delivery Study was mothers who had delivered at home within the preceding 12 months and were residing in the catchment area of targeted health facilities in Mashonaland Central.

In order to capture the access and utilization issues associated with different levels of health facilities (District Hospitals, Mission Hospitals and Rural Health Facilities), a random sample from each level was taken which was sensitive to the overall proportion of the number of facilities. The composition of the twelve (12) health facility types to be targeted was purposively chosen as follows: 2 District Hospitals (2/6); 1 Mission Hospital (1/5); 9 Rural Health Centres (9/135). The actual health facility sites targeted among these broad groups were randomly selected using the RANDBETWEEN function of facility lists in Microsoft Excel. A map showing the location of the randomly selected health sites can be found in Figure 4[ii].

Figure 4: Map of sampled health facilities, Mashonaland Central Province



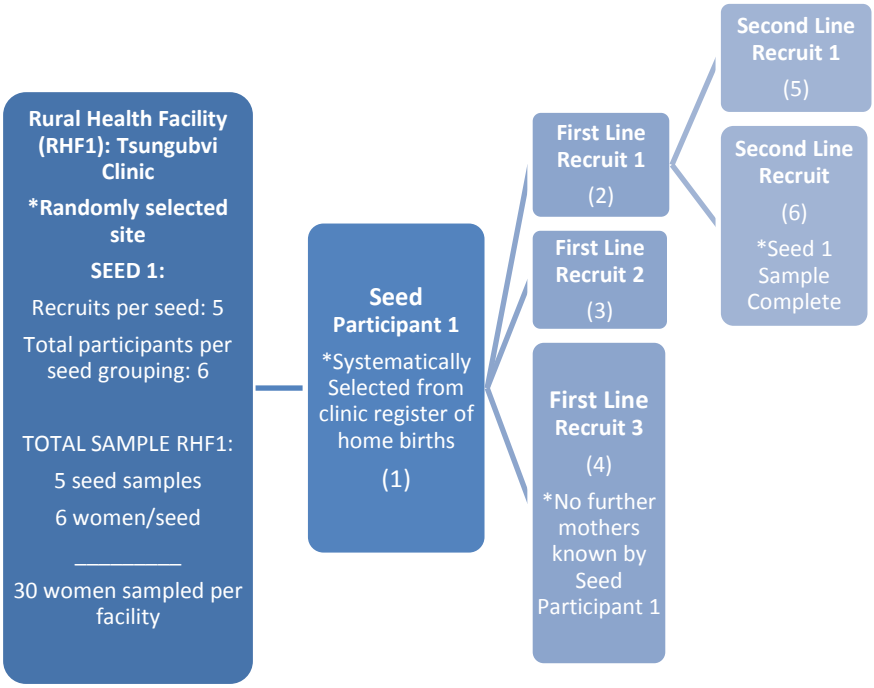
2.3.2 Sampling Procedure

The sampling procedure used both systematic "seed selection" of mother's who have delivered at home as well as non-randomized, purposive community-based sampling using chain-referral, or snowball techniques. As unregistered home births would not be captured from random sampling of facility registers of home deliveries, this mixed-method sampling procedure was designed in an attempt to capture information from mothers with both registered and unregistered home births and/or mothers who delivered at home that both had and had not made use of antenatal and postpartum health services.

[ii] Map created with assistance of United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Zimbabwe

Within each sampled facility, fifteen (15) 'seed participants' registered at the targeted health facility as having had a home delivery in the previous 12 months were systematically selected by choosing each third woman on the targeted clinic's register of home births for the previous year. Of these 15 systematically selected women, the first five (5) who were successfully traced back to their listed place of residence, consented to participate and were able to nominate at least one other known woman who had delivered at home in the previous 12 months were included in the study. Each of these five "seed mothers" subsequently nominated up to five (5) additional women known to have delivered at home in the previous 12 months. Where a "seed mother" could not nominate five women, the first woman nominated would be asked to continue the process of nomination using this snowball method until the sample for that seed was closed. An example of the sampling process described is provided in Figure 5. With 30 women per site sampled at 12 sites, a minimum total sample size of 360 mothers who delivered at home were interviewed at their households using a pilot-tested, structured survey instrument.

Figure 5: Example of individual site sampling procedure process



2.4 Data Collection Methods

2.4.1 Questionnaire Development, Pre-Testing and Research Assistant Training

The original questionnaire was developed using previously validated methods where possible. The sections listing the possible reasons for home delivery and preferences for institutional delivery were developed based upon a desk review of home delivery in sub-Saharan Africa, and Zimbabwe specifically. Context specific factors identified by OPHID Provincial Coordinators based upon their knowledge at community level were also included. Each question included an open-ended component to allow for unlisted reasons or preferences perceived to be important by mothers to be captured. Additional exploratory questions were included to provide more in-depth explanation of the 'why's' behind reasons provided for home delivery and preferences for actions to increase likelihood of institutional delivery cited. In addition to listing reasons, the questionnaire was structured to engage responding mothers in a ranking of their most important reasons/preferences from 1 (most important) to 5. A section on the process of delivery was designed to capture information related to service uptake and practices during the peripartum and postnatal period, with emphasis on practices known to improve health for mothers and their babies during this time. Finally, a short section on the knowledge of the risks associated with childbirth to both mother and child was included. This draft questionnaire was then translated into the local language (Shona).

Two lead research assistants were trained on the draft questionnaire, which was then piloted in Goromonzi district, Mashonaland East with the support of the District Medical Officer (DMO) and District Nursing Officer (DNO). The purpose of the pilot was to pre-test both the sampling methodology which made use of both systematic (from facility registers) and purposive, snowball sampling techniques. The pilot was also intended to provide input regarding the somewhat complex structure of the questionnaire and to help finalise the questions in content and language based on enumerator experiences and respondent feedback.

Following the pilot, any feedback related to each question in the questionnaire was reviewed and suggestions to increase comprehension/avoid repetition in questions were incorporated. The questionnaire was finalised and a further 15 research assistants, primarily composed of University students in the social sciences, were trained over two days in Harare on the study's purpose, sampling procedures, questionnaire content and appropriate interview techniques for working with rural women in local languages. Paired and group role-plays with suggestions/critiques on interview styles were conducted.

2.4.2 Data Collection Methods Employed

Desk review – of literature related to the impact of home delivery on maternal and neonatal morbidity, mortality and vertical transmission of HIV, reasons for home delivery, and interventions to increase uptake of facility based, or institutional, deliveries. The desk review used a progressively focussed approach, originally searching for globally-relevant materials, then sub-Saharan Africa, then Zimbabwe-specific academic and grey literature. Sites such as Google Scholar, PubMed and Biomed were used for searching for journal articles and UN-agency websites (UNAIDS, UNICEF, WHO) and others used to source reports and policy and programme statements. The purpose of the desk review was to both inform the scope of reasons for home delivery, preferences to increase uptake of

Box 2.1 Reasons for Home Delivery: Summary of choices provided

The following is a summary of the choices provided to women regarding the reason for their home delivery. Where a woman said 'yes' to any topic, she was provided with a further series of questions to explore why this acted as a barrier. For example, if a mother chose 'distance' she was then asked to describe why distance was a problem (access – could not reach transport; pay – could not pay for transport; support – had no one to accompany her in journey; other (open).

A. Access: Reasons related to ability to make use of health services

1. **Fees**: *'you did not have enough money to pay for services'*
2. **Distance**: *'you live to far away from nearest health facility(transportation)*
3. **Waiting Mothers Shelter**: *could not make use of a suitable WMS.*

B. Health Care Services and Providers: Attitudes and Perceptions About

4. **Not Necessary**: *Did not feel it was necessary to give birth in a health facility.*
5. **Conditions**: *Anything about the infrastructure/conditions at the nearest health facility*
6. **Staff**: *Concerns about the staff at the health facility*
7. **Confidentiality**: *Concerns about confidentiality*
8. **Non-Medical Support**: *Inability to have non-medical people present at time of birth*

C. Utilisation: How health seeking behaviour during pregnancy influence use of maternity services at delivery

9. **Non-Use of Services**: *'did not make use of health services during pregnancy'*

D. Beliefs and Practices: Cultural, religious or family influences

10. **Partner**: *would not give permission*
11. **Other family**: *pressure to deliver at home*
12: **Religion**: *practices or beliefs*
13. **Traditional Health Services**: *preference for over biomedical*

E. Circumstances Surrounding Labour

14. **Baby came too fast**: *to travel to health facility*
15. **Signs of true labour:** *did not recognise in time to travel*
16. **Time of day**: *made it impossible to get to health facility*
17. **Staying in different area**: *than where I was registered to give birth.*

F. Other

Under each heading.

facility delivery and important health aspects of the antenatal, intra and postpartum periods to include in the process section during questionnaire development, and finally, to frame the results of the study.

Structured Questionnaire – the primary data collection instrument for the study, a structured questionnaire was administered with mothers who had delivered at home in the previous 12 months. The questionnaire sought to capture quantitative descriptive data under four main sections: Section 1. Cohort characteristics; 2. Reasons for home delivery/preferences for institutional delivery; 3. Process of home delivery; and 4. Knowledge of Risks of Home Delivery. Open-ended questions were included throughout the questionnaire to allow mothers the opportunity to explain the "why's" behind their reasons, preferences, experiences and knowledge. A copy of this questionnaire can be found in Appendix I.

Focus Group Discussion (FGD) – An FGD was conducted with Research Assistants at the end of the data collection process to provide an opportunity for enumerators to add further depth through their participation in field work. This included their perceptions regarding the implementation of study methodology, including the identification of any perceived biases among themselves, the methods used, or their study population. Enumerators were encouraged to reflect on any trends they felt there may be found in the statistical analysis of data based on the women they interviewed. This included reflecting on what they felt to be the most common responses for each section, as well as a description of those respondents they felt represented outliers. Finally, due to the somewhat sensitive nature of interview topics, the lead researcher wanted to hear about any nuances in the interview environment or responses provided by women that would not have been captured on the standardized questionnaire, but might be relevant to the topics being studied. Though not analysed using robust qualitative methods and only capable of being reported anecdotally, the enumerator feedback provided during the FGD provided depth to interpretive analysis.

2.5 Ethical considerations

Authorization to conduct the study was sought from the Medical Research Council of Zimbabwe (Approval No. MRCZ/A/1623), as well as letters of support from the offices of the National PMTCT and Paediatric Care and Treatment Coordinator and Secretary for Health and Child Welfare. Formal approval was sought from the Provincial Medical Director (PMD) for Mashonaland Central Province. Prior to commencing with data collection in each district, approval was also sought where possible from the District Medical Officers (DMO) and District Nursing Officers (DNO) prior to access of health facility records in their area. Signed informed consent was obtained from study participants after explaining to them what the study involved, including confidentiality assurances. Following the interview, each study participant was provided with a cloth Zambia wrap with HIV messages and an information pamphlet, 'Knowledge of Childbirth for Mother and Baby' which provided information about the risks of labour and childbirth for both mother and baby, in both English and Shona.

2.6 Data Management, Analysis and Presentation

All responses during structured interviews were captured on hard-copy Shona questionnaires. Enumerators also carried English copies of the questionnaire, if there was any need to translate questions/concepts into English. As questionnaires came in from the field, they were checked for completeness by Lead Research Assistants as a first step in data cleaning.

Data was coded, data entry template sheets developed using Epi Info V3.5.1 and descriptive analysis conducted using SPSS for Windows V16.0. Cross-checking of data entered by the data entry clerk was performed through comparison of randomly chosen questionnaires for correct entry by the Lead Researcher throughout the data entry process. A summary of initial frequencies was shared with key staff at OPHID and discussed for further data analysis. Due to the sample focusing solely on women who have delivered at home in the desire to describe their characteristics and perceptions, descriptive statistics such as frequencies, percentages and cross tabulations were primarily used to generate study findings. Due to a lack of a comparison group and use of mixed-method sampling procedures, tests for homogeneity within clusters (created through snowball sampling) were conducted; with acceptable variation within clusters to justify sub-analyses between groups within the sample.

Descriptive and inferential analysis was first performed examining means, frequencies and chi-squared tests at the 95% confidence interval (95%CI). Bivariate analysis using linear regression for trend and crude odds ratios (ORs) and their 95%CIs were done to demonstrate directionality of proportional differences. Given the mixed-method sampling techniques and lack of a comparison group, adjusted odds ratios and logistic regression was not performed. As the characteristics of the entire population of women who deliver at home are difficult to reliably capture, these results are intended to demonstrate trends and highlight areas of importance for future investigations.

2.7 Study Limitations

When reading *More than Meets the Eye* it is important to recognise that the study has several limitations. First, attempting to capture the diverse and complex perceptions of women regarding the reasons for their home delivery and preferences for institutional delivery involves a broad spectrum of social, structural, economic and individual circumstances, and the possible permeations of the combined effects of these on a single individual. Accordingly, developing a questionnaire that might account for all possible reasons for home delivery and preferences for uptake of facility-based delivery for all contexts is very challenging. While the use of literature reviews, field-level staff

review of the reasons and piloting of the questionnaire were conducted in attempt to obtain a 'theoretical saturation' of the possible options for reasons and preferences, it is recognised that the complexity of the issues made achieving this somewhat impossible. Accordingly, for some women certain questions may have been irrelevant, while for others they may not have been detailed or exact enough to capture their particular experience. While the inclusion of open-ended questions to provide women with the opportunity to elaborate and/or provide reasons/preferences not listed were meant to help to overcome some of these limitations, it is possible that the specific context and nuances surrounding a woman's reason for delivering at home and her preferences for interventions to deliver her baby at a health facility in subsequent pregnancies were not fully captured using a structured instrument primarily intended to collect quantitative descriptive data.

The second limitation involves the use of a mixed method sampling procedure to identify women who delivered at home for study inclusion. Wanting to include a representative sample of women in Mashonaland Central who delivered at home in the previous 12 months was mediated by the desire to ensure inclusion of potentially marginalised women who may not have registered their home birth, or did not make use of antenatal or postnatal care for themselves or their baby. It was felt that this 'zero uptake' group of mothers hold perhaps the most important information for providing recommendations regarding strategies to increase facility-based delivery. These mothers would not have been accessed through systematic sampling of facility registers. Consequently, the use of purposive sampling methods, through systematically sampled "seed mothers" from facility registers nominating other mothers known to have delivered at home in an adapted snowball technique was an attempt to provide a more balanced capturing of the health service "use" and "non-use" groups of mothers who deliver at home. Accordingly, the study was subject to the sampling biases commonly associated with purposive sampling, and specifically chain-referral or snowball techniques, including referral, and proximity or friendship biases.

Related to the use of mixed-method sampling, is the third limitation which relates to the generalizability of the findings in this study to all women who deliver at home in Mashonaland Central Province, or to other rural settings in Zimbabwe. Like many issues related to health-service uptake and utilisation, context and circumstance play strong roles in the reasons why people may or may not make use of health services at any given point. While it is suggested that the trends revealed in this study provide important depth to understanding the question of why such a high proportion of rural women in Zimbabwe deliver at home; opportunities and challenges for increasing facility-based delivery rates; and will likely be broadly applicable to Mashonaland Central and other rural communities in Zimbabwe with similar characteristics, they should not be interpreted as being broadly generalizable.

Chapter 3: Findings

3.0 Findings

3.1 Women in the Study

Of 360 women interviewed, 5 responses were insufficient (missing or incomplete data) for inclusion in the study. Therefore, unless otherwise stated, N = 355.

3.1.1 General Demographics

A summary of the demographic characteristics of participating women can be found in Table 2.

Table 1: General characteristics of study population

		N	%
Number		355	
Age (years)	<20	47	13.5
	20 – 30	237	66.7
	> 30	70	19.7
Residential Status	Urban low density	13	3.7
	Peri urban	54	15.3
	Old resettlement	51	14.5
	New resettlement	14	4.0
	Communal lands	118	33.5
	Large commercial farm	102	29.0
Marital Status	Never married	6	1.7
	Married monogamous	281	79.2
	Married polygamous	43	12.1
	Divorced or separated	15	4.2
	Widowed	7	2.0
Level of education	None	19	5.4
	Primary	196	55.2
	Form 1 and 2	67	18.9
	Form 3 and 4	73	20.6
Religion	Apostolic	215	60.6
	Catholic	13	3.7
	Protestant	21	5.9
	Pentacostal	31	8.7
	Moslem	6	1.7
	Traditional or Other	67	18.9
Source of Income (mother)	Formally employed	37	10.4
	Self employed	135	38.0
	Subsistence farmer	118	33.2
	Remittances	1	0.3
	Cross border trading	4	1.1
	Unemployed	42	11.8
	Dependent on partner	11	3.1
	Other	6	1.7

Residential Status
The majority of women sampled lived in rural settings (81%), with most living on communal lands (33.2%) or large communal farms (28.7%).

Age
Among the entire sample of women interviewed in this study, the youngest were 16 years of age (1.7%) and the eldest 49 years (0.3%), with a mean reported age of 26 years.

Marital Status
The vast majority of women (79.2%) classified their marital status as married monogamous.

Education
Primary education was the highest level of education obtained by the majority (60.6%) of responding mothers.

Religion
215 women in the sample identified themselves as belonging to the Apostolic[iii] faith (60.6%). 18.9% of women (n=67) were of Traditional or Other beliefs. There were significant odds of living on a commercial farm among

[iii] **Apostolic** – those individuals that self-identify themselves as of Apostolic faith when asked about their religious affiliation. *Mweya Mutsvene* (Holy Spirit) serves as the divine force that guides the church, though this includes multiple groups in Zimbabwe, ranging from moderate to highly conservative. Accordingly, this broad group can be expected to be heterogeneous in their beliefs and practices.

belonging to the Traditional or Other group compared to all other religions (OR 3.5961, 95%CI 2.0687 to 6.2512, p < 0.0001). The combined total of the Christian denominations in the sample was (18.3%).

Source of Income

The main source of income most commonly cited by women was self-employment (38%), followed by subsistence farming (33.2%). Among the 10.4% of women were formally employed, the majority were farmworkers. Partner's sources of income closely approximated those of women, with the majority reported as being self-employed (30.1%), followed by subsistence farming (29.6%), though more partners were reported as having formal employment (28.2%), primarily on farms.

3.1.2 Household Characteristics

The majority of women who delivered at home stated that their husband was the head of the household (71.3%). Seventy nine per cent of women (79.2%) reported staying in the same household as their partner once per week or on weekends, with the remainder never staying with their partner (7.3%) or staying with them once per month or less (6.7%). None (n=0) of the women in the sample reported staying with their partner most nights.

With regards to social support from other adults besides their partner, 81.3% said they were not staying with in-laws who are older than them and 68.5% of women were not staying with any relative older than themselves. Close to half (41.1%) of women reported that there were no other adults other than themselves living in their household.

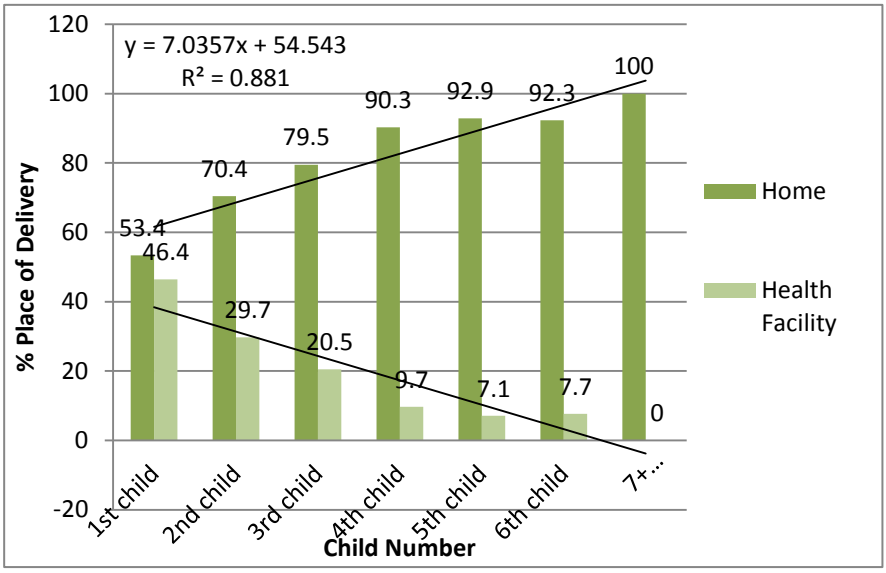
Conversely, 96% of women who delivered at home said they had at least one child staying with them at their household, with the majority (54.6%) reporting 1-3 children in the household, followed by 4-5 children (28.2%) and 13.2% reporting staying with 5+ children.

3.1.3 Past Pregnancies

Over half of the mothers who delivered at home interviewed reported having three or more pregnancies (56.1%), including miscarriages and stillbirths.

Linear regression of place of birth and number of children demonstrated trend between increased parity and home delivery (Figure 6).

Figure 6: Place of delivery and child parity



3.1.4 Current Pregnancy

The 'current pregnancy' referred to the pregnancy for the baby born at home in the previous 12 months, for which the mother was included in the study.

Antenatal Care (ANC) and Delivery Booking

Eighty per cent (80.2%) of women who delivered at home reported booking for Antenatal Care (ANC). The majority of mothers booked for ANC at the clinic nearest to their residence (76.3%), followed by the District hospital (12.5%). More than half of the mothers were more than 20 weeks pregnant when they made their first ANC booking (57.2%). Almost three quarters of women (70.3%) reported attending 3 or more ANC visits. Among the 65 respondents (19.5%) who did not book for ANC, 90% of these women cited 'no money for ANC services' as the reason. A lower proportion of women reported booking for delivery (74.6%) than for ANC. 77.5% (n=203) of women who booked did so at the health centre nearest to their place of residence. The next most frequent place of booking for delivery was at the district hospital (n=36, 13.7%).

HIV Testing and PMTCT Programme Involvement

The majority of women reported receiving an HIV test while pregnant (78%). Twenty women who tested said they were HIV positive (7% of those tested). Of those that were positive, fifteen (n=15) said they were enrolled in a PMTCT programme (83.3%), all of whom reported receiving medication for PMTCT. However, of these, 7 reported receiving sdNVP only, and 5 others were not clear about the medications received. Only one woman reported receiving AZT from 28 weeks, sdNVP during labour and combivir after labour. Only 1 woman out of 20 disclosing HIV positive status received the currently recommended regimen for PMTCT under MER28.[iv] Less than half of mothers reported their babies receiving MER28 (6/13).

Table 2: Factors associated with antenatal and intrapartum service uptake

Demographic Factors	Zero Service Uptake (%) n =40	Service Uptake (%) n = 285	Prevalence Odds Ratio	Confidence Interval (p-value)
Residential status				
Large Commercial Farm	17 (42.5)	78 (27.7)	1.9331	0.9803 to 3.8120
Not large commercial farm	23 (57.5)	204 (72.3)a		(0.05)*
Education				
Primary or less	29 (72.5)	164 (57.5)	1.9451	0.9348 to 4.0473
Secondary or More	11 (27.5)	121 (42.5)		(0.07)
Marital Status				
Polygamous marriage	9 (22.5)	28 (9.9)	5.5818	2.7951 to 11.1469
Other Marital Status	31 (77.5)	255 (90.1)		(0.0001)*
Religion				
Apostolic/Traditional or Other	32 (82.1)	221 (77.8)	1.3032	0.5490 to 3.0932
All Other Religions	7 (17.9)	63 (22.2)		(0.55)
Employment Status				
Formally Employed	2 (5)	34 (12)	0.3870	0.0893 to 1.6770
Not Formally Employed	38(95)	250(88)		(0.20)
Pregnancies				
4+	15 (37.5)	95 (33.3)	1.2000	0.6044 to 2.3826
Less than 4	25 (62.5)	190(66.7)		(0.6024)
Place of birth current pregnancy				
Born at place of residence	39 (97.5)	242 (86.1)	6.2851	0.8391 to 47.0758
Born other	1 (2.5)	39 (13.9)		(0.07)

a. Categories may not sum to the total number because of missing data. Percentages are calculated based on the number of respondents in each category for whom data were reported.
***p < 0.05**

[iv] No woman reported receiving MER14 as this was not being implemented in Mashonaland Central at the time of data collection.

Of the 70 women (19.2%) who did not test for HIV, 42 (60%) also did not book for ANC. A small but important group of 40 (11.2%) 'zero uptake' women emerged, who did not make use of ANC services, HIV testing, or maternity services (booking or delivery)[v]. Women who lived on a large commercial farm (OR 1.93, 95% CI 0.98-3.81) and identified themselves as being in a polygamous marriage (OR 5.58, 2.79-11.15) were more likely to be part of the zero uptake group (Table 3).

3.2 Reasons for Home Delivery and Preferred Actions for Overcoming Barriers to Institutional Delivery

This section provides information regarding mother's perceived reasons for delivering their baby at home. This question pertained to the "current pregnancy", the baby delivered at home in the previous 12 months. Related to each reason cited, women were asked to also indicate which intervention for institutional delivery would have helped her to overcome the reason cited.

Mothers were asked to indicate their reasons and preferences in two different ways. First, indicating any and all reasons and preferences which they felt played a role in their current pregnancy, with no indication of their importance relative to one another ('**unranked**' or '**free ranked**'). Following this exercise, mothers were then reminded of the reasons and preferences they provided, and asked to **rank** their 'top 5' with 1 being the most important reason/preference.

Table 3: Unranked reasons for home delivery (N=614)*

#	Reason for home delivery
1	Fees: 52.1%** (185)
2	Distance from clinic: 36.6% (130)
3	Baby came too fast: 33.0% (117)
4	Did not recognise signs of labour: 20.8% (74)
	Time of day: 20.8% (74)
5	Could not make use of Waiting Mothers Shelter: 7.9% (28)
6	Staying in different area than registered to give birth: 5.6% (20)
7	Religious practice or belief: 3.1% (11)
8	Did not make use of health services while pregnant: 2.0% (7)
9	I did not feel it was necessary to give birth in a HF: 1.4% (5)
10	Conditions at the nearest health facility: 0.8% (3)

*** The reported N for unranked frequencies is greater than the number of mothers in the study, as each mother was able to provide as many answers as she felt relevant.**
****Percentages in this table reflect response rate among total women sampled (N = 355)**

3.2.1 Individual Reasons and Preferences

Unranked Reasons and Preferences

Of the 17 main reasons provided to mothers for home delivery listed in Box 2.1, the top ten unranked individual reasons provided by mothers for their home delivery are provided in Table 4, with 52.1% of all mothers in the study citing fees as a reason, the most frequent unranked single reason provided.

Of the 54 possible preferences for interventions to help overcome identified reasons for home delivery and increase likelihood of uptake of maternity services, just 4 interventions can be grouped

[v] 40 women in the study explicitly stated 'no' when asked did you make use of ANC, HIV testing, maternity booking in your current pregnancy, however 7 additional women who indicated 'don't know/no response' to any of the above, provided answers to open ended questions such as "my church would not allow me" which indicates they also belong to the 'zero uptake' group. This would take the overall percentage of the zero uptake group to 13.2% (n=47). In the interest of conservatism however, sub analyses reported for the zero uptake group, used the 40 women who explicitly stated 'no' to service use.

to reflect the most frequent unranked choices (Table 5). Assistance with fees and use of suitable Waiting Mothers Shelter (WMS) were listed by the majority of women during free ranking.

Ranked Reasons and Preferences

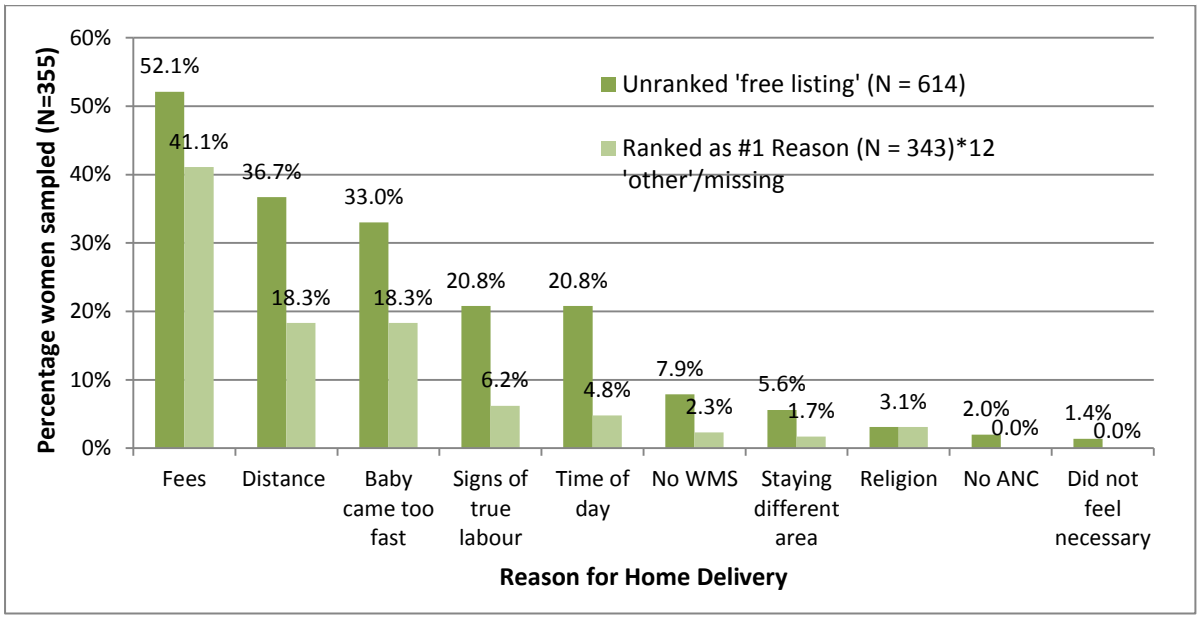
Once all reasons and preferences were 'free listed', mothers were then asked to rank their top five reasons for home delivery and preference for institutional delivery, with number one (1) being the most influential reason/preference. The majority of mothers chose to list only one 'most important' reason in their ranking. Accordingly, the descriptive analysis will provide the listing of the most frequently cited 'number one' reasons.

Table 4: Top 4 unranked preferences for institutional delivery (N=681)

#	Preference for institutional delivery
1	Assistance with Maternity Service Fees: 67.0% (238) Specific Preferences Under Service Fee Interventions: • 1. Free maternity service: 25.1% (89) • 2. Pay for maternity services in instalments: 16.9% (60) • 3. Pay in commodities: 13.5% (48) • 4. Pay for services with vouchers/coupons provided during ANC visits: 11.5% (41)
2	Use of suitable Waiting Mothers Shelter (WMS): 56.3% (200) Reasons linked to choice of WMS preference: • 1. Baby came too fast:20.5% (73) • 2. Distance: 15.2% (54) • 3. Time of day: 10.4% (37) • 4. Did not recognise signs of true labour: 10.1% (36)
3	Community Car: 21.7% (77)
4	Information about the signs of true labour: 9.9% (35)
***NB Percentages in this table reflect response rate of total women sampled (N = 355)**	

The order of the top ten individual reasons for home delivery post-ranking approximated the order of free listing of unranked reasons as depicted in Figure 7, clearly showing that maternity service fees were perceived by mothers to be the most influential reason for their home delivery, representing 41% (n=146) of the number one reasons cited. Similarly, free maternity services was the number one preference for an intervention to facilitate facility delivery among 18.3% of women (n=65), the most frequently cited number one single intervention preference. The order of the top ten ranked individual preferences for intervention similarly remained consistent with the order of the most frequently chosen unranked preferences.

Figure 7: Individual reasons for home delivery - unranked and ranked frequencies

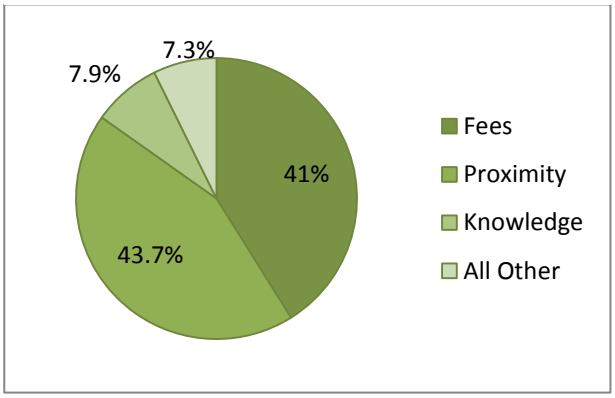


Of importance to note, is that the ranking of individual reasons changed for the group of 40 'zero uptake' women who did not make use of any antenatal or intrapartum services. Among these women, fees were the most important reason for home delivery for a greater proportion than the service uptake group (n=28; 59.6%), with the next most commonly cited number one ranked reason of religion (n=7; 14.9%). The majority of women (7/11) who cited religion as their number one reason in the combined group were also from this zero uptake group. Information on sub-analyses conducted on the most frequently cited reasons and preferences can be found in Section 3.2.4.

3.2.2 Grouped Reasons and Preferences

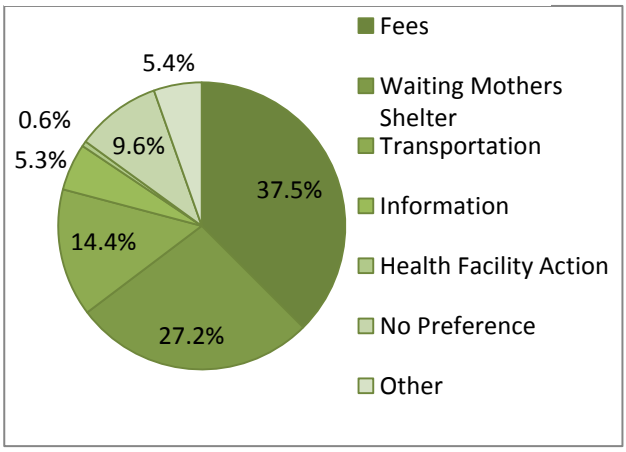
To account for the multiple listing of individual reasons, the frequencies were then grouped according to broad categories related to 1. Fees (all those that involved money as a reason/preference); 2. Proximity (all those that involved the inability of a woman to be close to the hospital at the time of delivery as the primary reason/preference including distance from facility, baby came too fast to travel, time of day made travel impossible, no Waiting Mothers Shelter); 3. Knowledge (all reasons related to a woman's lack of knowledge regarding her due dates, the signs of true labour, etc); 4. All Other. The picture of weight of importance of reasons for home delivery and preference for institutional delivery changes slightly when individual reasons are grouped into broader categories as shown in Figure 8. Where individual reasons clearly demonstrated the importance of fees as a barrier to mothers for making use of maternity services at the time of delivery, once grouped, the role of a woman's proximity to the health facility at the time of delivery takes on a slightly greater weight than fees, housing 43.7% of number one ranked reasons for home delivery.

Figure 8: Percentage grouped number one reasons for home delivery



A similar effect takes place when preferences are grouped (Figure 9). Under these groupings, interventions involving assistance with fees for services remained critical, with 37.5% of women (n=133) citing fee-related interventions as their number one preference to help them uptake maternity services. Close behind however, are the use of suitable Waiting Mothers Shelters, with 27.2% (n=97) of number one rankings. Of interest are the 34 women (9.5%) who cited no preference for intervention, 32 of whom (94%) also belonged to the 'zero uptake' group of antenatal and intrapartum health services, indicating that they do not perceive that there is any intervention that would make them likely to uptake maternity services.

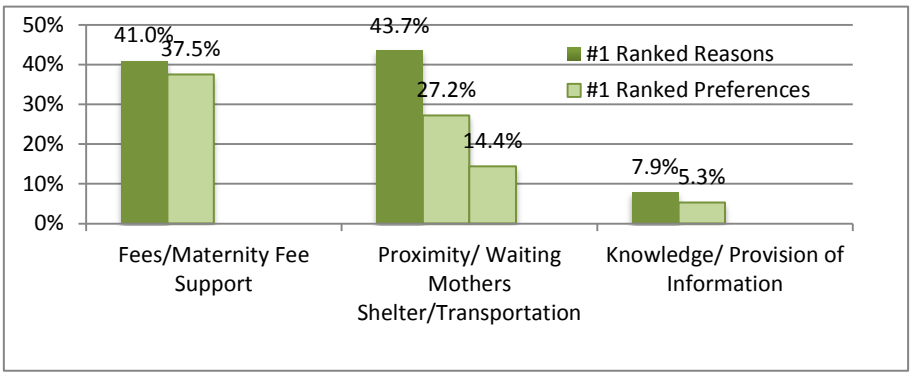
Figure 9: Percentage grouped number one preferences for institutional delivery



3.2.3 Comparison of Number One Reasons and Preferences

Figure 10 demonstrates the weight that the reasons fees and proximity to the health facility play in home delivery, accounting for 84.7% of the top ranked reasons. Similarly, the grouped preferences related to these reasons - maternity fee support, use of suitable Waiting Mothers Shelters at time of delivery and assistance with transportation at time of delivery capture 79.1% of top ranked preferences to support uptake of facility-based delivery. When further grouped, proximity-related interventions intended to ensure mothers are closer to the facility at the time of delivery were number one, with WMS and transportation intervention preferences accounting for 41.6% of number one ranked intervention preferences.

Figure 10: Grouped number one ranked reasons for home delivery and preferences for institutional delivery



3.2.4 Findings from sub analyses of most frequently cited reasons and preferences

Fees

- When responses were disaggregated for fee level, at one clinic at which maternity services were listed as free; 7/42 women (16.7%) continued to cite 'not enough money to pay for maternity services' as a reason for their home delivery. When responses for clinic sites at which maternity service fees were 5 USD or less were isolated, fees remained the most frequently cited number one reason for home delivery (29.6%; n=42), though at less of a margin than in the combined group (41%).
- 70% of women (103/146) who cited fees as their number one reason indicated they had a received assistance from an Unskilled Birth Attendant[vi] at the time of delivery. A summary of payments made to these individuals indicate that the 'cost' of an Unskilled Attendant to be present at a home birth is approximate to the health facility fees on average (Table 7) and almost double that of health facilities in areas where maternity service costs are US$5 or less.
- 60% of women from the zero uptake group (n=24) who made no use of antenatal or intrapartum services, compared to 30% of the service uptake group (n=100) listed fees as the number one ranked reason for their home delivery (p = 0.002).
- Of women who ranked fees as their number one reason for home delivery, free maternity services was the number one ranked preference for an intervention to help overcome the challenge of fees by 44.5% (n=65) of these women. Ability to pay in instalments was the next highest ranked intervention among 20.5% of women (n=30) who listed fees as their number one reason, followed by vouchers provided at ANC for maternity services for 22 women (15.1%); ability to pay in commodities for 11% (n=16) and 8.9% of women for whom fees were the greatest reason for home delivery listing 'other' preferred interventions, the most frequent 'other' being capital for income generation projects (n=6).

[vi] **Skilled birth attendant** is an accredited health professional – such as a midwife, doctor or nurse – who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns (WHO: http://www.who.int/healthinfo/statistics/indbirthswithskilledhealthpersonnel/en/). Accordingly, Village Health Workers (VHWs) and Traditional Birth Attendants (TBAs) both trained and untrained do not qualify as skilled birth attendants under this definition.

Distance

- Inability to reach transport while in labour was cited by 60% as the primary reason distance posed a barrier to them (n=78), followed by inability to pay for transport among 25.4% and lack of support/not having anyone available to accompany them to hospital for 8.5%.
- Among those who ranked distance as their number one reason (n=65), the preferred intervention was a community car system, where a community member is reimbursed to provide free transport to mothers in labour (n= 30, 46.2%), followed by use of a suitable Waiting Mothers Shelter (n=14, 21.5%) and transport vouchers provided during ANC (n=11; 16.9%).

Baby Came Too Fast, Time of Day and Signs of True Labour

- 62% of women who said baby came too fast, 48% of woman for which time of delivery was a listed reason and 50% of women who said they did not recognise the true signs of labour chose use of Waiting Mothers Shelter as their preferred intervention for facility delivery. Other preferences specifically chosen by this group included to be provided with more detailed information about signs of labour at ANC (47% of women who answered yes to 'did not recognise signs of true labour').

Waiting Mothers Shelters

- Only 2 out of the 12 health facility sites sampled had a functioning Waiting Mothers Shelter at the time of data collection.
- An interesting finding was the limited number of women who cited Waiting Mothers Shelters as a reason for their home delivery (n=28, 7.9% free ranked; n=8, 2.3% number one ranked), compared to the large proportion that cited use of a WMS at the time of delivery as an intervention preference to overcome other barriers such as distance, baby came to fast, time of day and did not recognise signs of true labour. 'Use of a suitable Waiting Mothers Shelter' accounted for 27.2% of the number one ranked preferences for facility delivery (n=97).
- Among the women who cited no WMS as a reason in free-ranking, the majority (n= 16; 57.1%) indicated 'no WMS available' as the reason why they did not make use of a shelter at the time of delivery. This was followed by women who said they did not have money to pay for maintenance while staying at the shelter (n=6; 21.4%) and 3 women (10.7%) who said they did not know how to make arrangements to stay at the shelter that was available.

3.3 Process of Home Delivery

This section provides a picture of what women experience during the periods immediately before, during and after home delivery and their perceptions of this experience.

3.3.1 Overall Perceptions of Home Delivery

The vast majority, 89%, of women stated that their home delivery was unplanned (n=316), that their overall experience of home delivery was not a positive one (91.8%; n=326) and that they would not plan to have a home delivery for future pregnancies (90.1%; n=319). However, a noteworthy proportion of women who indicated their home delivery was unplanned failed to consistently uptake services along the maternal health continuum as demonstrated in Figure 11.

Early uptake of ANC, receipt of post natal counselling and attending post natal checks for themselves were specific areas with low uptake (< 40%) with almost 20% of women with unplanned home deliveries failing to book for ANC or have an HIV test while pregnant.

3.3.2 Preparations Made Prior to Home Delivery

These questions focussed on what preparations were made; services were used before the birth of the baby.

Figure 11: Health service uptake along maternal health cascade among women with reported unplanned home deliveries (N=316)

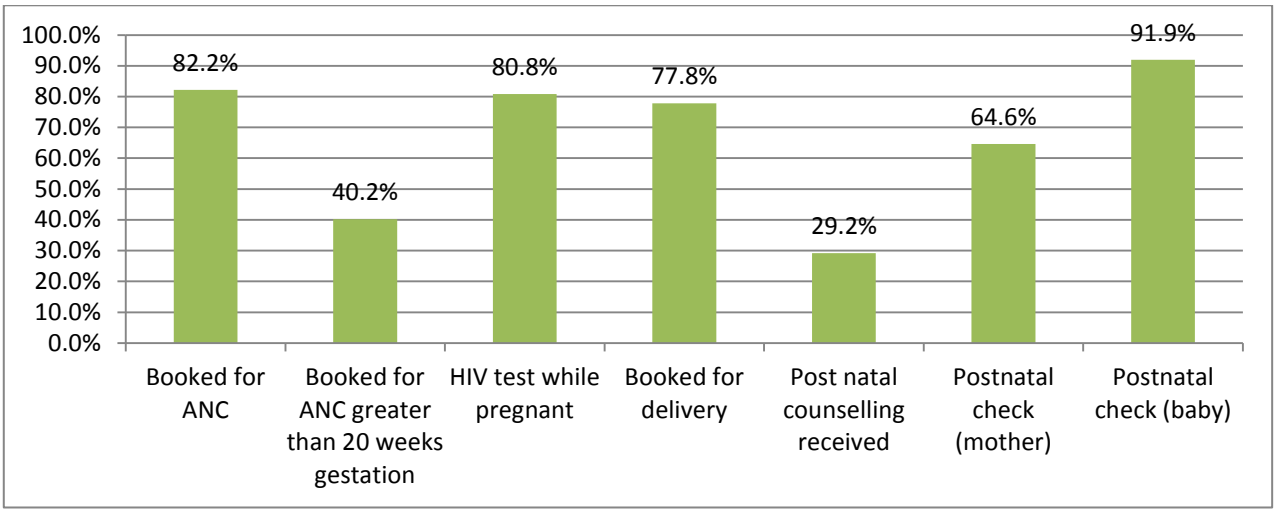


Table 5: Materials prepared for home delivery (N=355)

Material	N	%
Blankets	317	89.3%
Gloves	204	57.5%
Water	308	86.6%
Wash cloth	308	80.6%
Sterile razor	320	90.1%
Sterile clamp	47	8.7%
String for cord	313	88.2%
Antiseptic for umbilical stump	111	31.3%
Antiseptic for cleaning blood and waste	15	4.2%

With regards to actions mothers took to prepare for delivery of the baby, some interesting and conflicting findings emerged. The majority of women (n=242; 68.2%) made use of services provided by their Village Health Worker (VHW)[vii][40], followed by family support (n=46; 13.2%). Few women reported making use of either religious support (n=13; 3.9%) or Traditional Birth Attendants (n=12; 3.4%).

With regards to equipment used, the majority of women indicated blankets, water, sterile razor and string were prepared for the birth. More specific delivery-related infection control materials were however rarely prepared. Sterile clamps and antiseptic for cleaning the umbilical stump or for cleaning blood and waste were used in relatively few home births. A list of the materials present at delivery and their frequencies can be found in Table 6.

[vii] In Zimbabwe, the Village Health Worker is the community's link with the formal health structure, supports community based disease surveillance and is a conduit for information to feed into the national health information system.

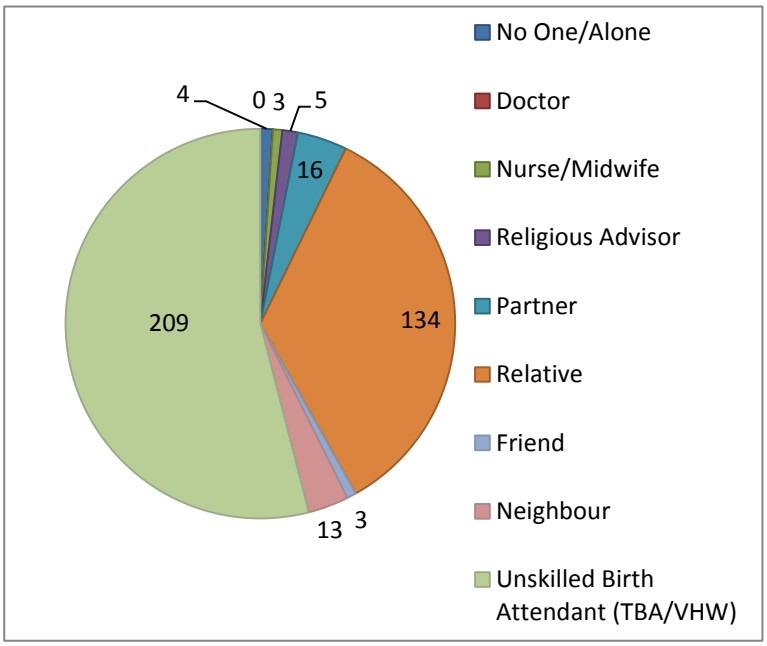
3.3.3 Process of Home Delivery

Questions related to the process of home delivery were intended to capture what happened during labour and while the baby was being born.

Who is Present at Home Deliveries

The person present at time of delivery (N=387 for this group, as more than one person could have been present) revealed that Unskilled Birth Attendants, comprising of Village Health Workers (VHWs) and Traditional Birth Attendants (TBAs) were present at over half of all deliveries (n=209; 58.9%). However, the internal composition of this group could not be accurately determined as there were some indications that the terms VHW and TBA were being used interchangeably. Relatives were the next most frequently cited group present at time of delivery (n=134; 37.7%). A summary of the frequencies of those present at time of delivery can be found in Figure 12.

Figure 12: Frequency person present at time of delivery (N=387)



The conditions for women during childbirth

The majority of babies were born indoors on the floor (n=309; 87%) with 2.3% born outdoors/on the way to the clinic and a small percentage (n=6; 1.7%) born indoors on a bed. The majority of women gave birth while lying on their backs (n=304; 85.6%), with the next most frequent birth position being squatting (n=16; 4.5%), on hands and knees (n=11; 3.1%) and 'other' who mostly comprised women describing the birth position as lying on their sides (n=8; 2.3%).

Only 14.1% of women (n=50) who gave birth at home received any kind of pain relief. Among these women, just over half received paracetamol (n=26), followed by herbs (n=8), with 7 women citing they had been given holy water for pain. 43.7% of women indicated there were physical examinations done while they were in labour (n=155), among those who had physical examinations done: 117 (75%) had their stomach palpated, 102 (65%) had baby's heart listened to, 140 (90%) had vaginal examinations.

11.8% (n=42) of women reported birth complications, but only 4 (1.1%) reported seeking medical attention for these complications. Of complications reported, 5 were bleeding more than normal, 4 infections of the uterus, 3 were of wounds not healing properly, while 28 reported 'other complications'. 16 women reported that the afterbirth did not come out as a complication (38% of reported complications). Among those who reported experiencing complications, only 14/42 (33%) felt that these complications could have been avoided by delivery at a health facility.

The 'cost' of home delivery

The cost of having various individuals present varied widely in form and amount between respondents. Where only 9% of women indicated there was a cost to the assistance of relatives, 35.9% of women (n=75) who had an Unskilled Birth Attendant present at the time of delivery reported making payments for their services. Among the 28 women (13.4%) who indicated a monetary fee for Unskilled Birth Attendant services, US dollar fees ranged from less than $5 to one respondent reporting a $100 fee. In contrast to service fees at facility level, the most frequent method of payment for Unskilled Birth Attendant presence at the home birth, as described by 47 mothers (63%), was through other commodities, such as soap, fabric, tennis shoes, Vaseline, chickens, sugar and rice.

The amount of commodities provided as payment also varied widely and can be said to approximate the US dollar value range of the monetary figures quoted, from one bar of soap only to packages of commodities provided as payment including fabric, soap, chicken and lotion for a single home birth. Thirty five (35) of the 47 mothers who indicated they paid in commodities provided answers that were quantifiable in monetary terms based on estimated values (Appendix 2). For example, those who listed 'groceries' as commodities paid to Unskilled Birth Attendants, without listing what was provided, were excluded from the costing exercise. While the frequencies for comparison are limited, when percentage frequencies of cash and commodity costs are compared, the monetary cost of having an Unskilled Birth Attendant present at time of delivery does not appear to be substantially less than the average cost of birth at a health facility among all sites sampled (Table 7). Of particular interest is the examination of payments made to Unskilled Birth Attendants by women residing in catchment areas of clinics at which fees were $5 or less. The average payment made to Unskilled Birth Attendants was $12.08 in these areas, more than double the cost of using a health facility ($5). In addition, among the 20 respondents residing in the catchment area where clinic services were free, 9 (45%) reported paying an Unskilled Birth Attendant for being present at their home birth, with an average cost of $10.25 in cash/commodities paid.

Table 6: Reported cost of Unskilled Birth Attendant services for home delivery and sampled health facilities

USD cost	Unskilled Birth Attendant Cash Payments n=28 (%)	Unskilled Birth Attendant Commodity Payments n=35 (%)	Unskilled Birth Attendant Fees Cash and Commodity Payment Combined n=63 (%)	Health Facility* n=12 (%)
$5 or less	8 (28.6)	18 (51.4)	26 (41.2)	5 (41.7)
$6 -10	7 (25)	9 (25.7)	16 (25.4)	2 (16.7)
$11 - 20	8 (28.6)	8 (22.9)	16 (25.4)	3 (25)
$21 +	4 (14.3)	0 (0)	4 (6.3)	2 (16.7)
Average Cost Paid	**$16.54**	**$6.67**	**$11.05**	**$16.66**
***Information Provided by District Focal Persons November 2011**				

3.3.4 Post Delivery

The following findings refer to immediate post-partum events.

The vast majority of women reported the baby crying immediately after being born (n=325) 91.5%.

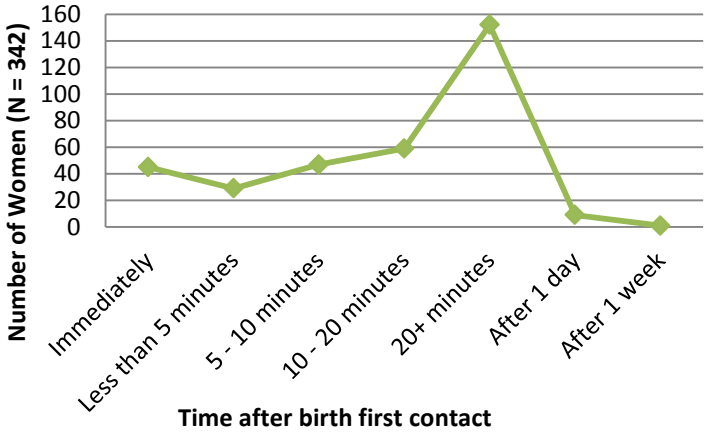
Cutting and tying of the umbilical cord

A razor was used to cut the cord for 344 (96.9%) of the women, with the next most frequently cited instrument used being vegetal matter (stalk of maize or sugar cane) to cut the cord (n=5), one more than the number of women who reported using scissors (n=4). The cord was cut after the afterbirth was expelled for 82.3% (n=292) of women, and cut before the afterbirth was expelled for 45 (12.7%), with 18 mothers don't know/no response.

The vast majority of women tied the umbilical cord with string, 94% (330/355), with plastic clamps used in only 5.4% of women (n=19). The majority of women 55.8% (n=198) reported not knowing if anything was applied to the umbilical stump to prevent infection, and among those who knew if something had been applied to the umbilical stump, only 115 women (32.4%) reported applying spirits to the umbilical cord stump to prevent infection. Infrequent but multiple responses regarding what was applied to the umbilical cord to prevent infection included banana based mixtures with ash, salt, herbs (n=6) and ash power (n=3).

288 women (81.1%) reported that their afterbirth was checked for completeness, with VHWs checking in 58.5% of women. The majority of women reported disposing of the afterbirth in the toilet (n =129; 36%), 85 women buried is (23.9%), and 74 women discarded it in a pit latrine (20.8%).

Figure 13: Time of mother's first contact with baby after birth



Mother's contact with her baby post-delivery

Almost all mothers, 94.9% (n=337), reported that their baby was dried and wrapped in a blanket immediately after birth. Only 12.7% of women (n=45) reported holding their babies immediately after birth and the majority, 152 mothers, held their babies for the first time 20 minutes or more after birth (42.8%). Slightly less than half (49.6%) reported skin to skin contact on first contact with their baby. The timeline for the distribution for responses on first contact is provided in Figure 13.

More babies were washed one hour or more after birth (44.8%, n=159) than within the first hour (n=119; 33.5%). With 12.1% (n=43) washed immediately; 9% (n=32) washed within the first 10 minutes; 7.3% (n=26) between 10-30 minutes; and 5.1% between 30 minutes and 1 hour. 58 babies (16.3%) were washed one day or more after birth.

Breast milk was the first thing the baby ingested among

Child health cards and women who deliver at home: Feedback from enumerator Focus Group Discussions (FGDs)…

During FGDs held with enumerators, it was noted that in multiple circumstances when mothers retrieved information regarding questions related to post-natal check-ups and immunizations for her child, many mothers who delivered at home did not have standard child health cards. Instead, many mothers who delivered at home were observed to keep records of their child's health and immunisations in school notebooks that they had to purchase themselves.

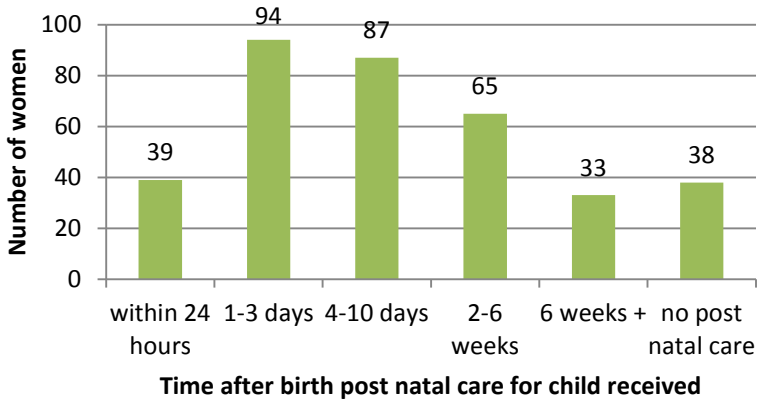
82.8% of women (n=294), however 12.1% of women gave their children water first (n=43). The majority of women (n=310; 87.3%), breastfed their child within the first five hours after birth.

Postpartum Care Received

Of concern, 70.4% of women who delivered at home (n=250) reported that they did not receive any post-natal counselling. Among those who received counselling, more than 85% reported being counselled on topics such as warning signs for their own and the child's health, infant feeding and PMTCT.

Additionally, 36.1% of mothers (n=128) did not attend any post-natal check-ups at the health facility for their own health. Of interest, the most frequently cited reasons provided by mothers for not attending post-natal check-ups were that they were not aware that they should go (n=28; 21.9%) and religion (n=23; 18%). However, a significantly greater proportion of mothers took their baby in for a post-natal check-up (n=313; 88.2%) than for themselves (Chi Squared p<0.0001). Postnatal care for children for children was not prompt, with only 37.5% of mothers (n=133) bringing children in for care during the critical 72 hour period after birth (Figure 14) for both administering ARVs for preventing vertical transmission of HIV as well as the prevention, identification and treatment for other postnatal complications and serious infections that could result in morbidity and death in children. Approximately the same number of children received their immunisations as had received post natal check-ups (n=312, 87.9%).

Figure 14: Time after birth post natal care for child accessed (N=355)



The majority of mothers reported to have registered the birth of their child (275 – 77.5%), the majority of registrations were done at the local clinic (266 – 74.9%). This however does mean that from the sample of 355 mothers, 80 children (22.5%) had not been registered.

3.4 Knowledge of Risks of Childbirth

This section was intended to determine the knowledge of mothers surrounding the risks of childbirth, risks which can be reduced through facility births with trained personnel, adequate equipment and medicines. The majority of women felt that delivering a baby at home is more dangerous than

Mother's Knowledge of Risks of Childbirth: Feedback from enumerator FGDs…

While reported knowledge levels were high regarding risks of childbirth, enumerators felt that this was misleading in some respects and that other knowledge gaps existed which may have contributed to their home delivery. In particular, enumerators felt that many women did not have a clear understanding of other knowledge required to facilitate uptake of institutional delivery including the meaning of their Expected Date of Delivery (EDD) or the signs of true labour/when to go to the health facility. Enumerators felt this knowledge gap was particularly marked in young mothers interviewed.

delivering at a health facility (n = 304, 85.6%), 13 women (3.6%) felt a health facility was more dangerous, and 17 felt there was no difference (4.8%). Over 90% of mothers confirmed they were aware of the risks of home delivery to the mother and child including injury, haemorrhaging, infection and problems during healing and indicated that they would seek medical assistance if these occurred during home delivery. This reported awareness contrasts the less than 10% of women who reported birth complications that sought medical attention for those complications.

Chapter 4:

Discussion and Recommendations

4.0 Discussion and Recommendations

4.1 Summary of Key Findings and Discussion

4.1.1 Women who deliver at home share characteristics with the most vulnerable and isolated

Socio-Demographic Characteristics Indicate Vulnerability

The socio-demographic characteristics of the women in the current study **were largely consistent with previous reports** of characteristics of women who deliver at home in Zimbabwe related to low wealth/employment, education and high child parity. The vast majority of women in the study lived in rural areas, with the largest proportions on large commercial farms and communal lands. The majority of women in the study also had limited education, and a small proportion of women or their partners were formally employed. Data therefore suggest that it is the most vulnerable and isolated women who are delivering at home in Zimbabwe.

There was a much higher rate of those belonging to the **Apostolic Faith** (60.6%) in this sample than the national figure of 38%.[18] While without a comparison group, this cannot be reported as a significant characteristic, however, the Home Delivery Study findings are consistent with evidence that there are higher levels of maternal and infant mortality and morbidity and poorer health outcomes among Apostolic communities compared with other religions in Zimbabwe due to poor uptake of maternal health services[41]. As noted by Maguranyanga in this study, there is greater research required on specific facets of this growing sector of the Zimbabwean population and their health practices and beliefs in order to develop acceptable and feasible interventions to support Apostolic women for the increased uptake of health services along the maternal health cascade, including facility based delivery. In addition, there is a further need to understand the Traditional and Other religious groups of women, who were the second largest group reported under religion in the study (18.9%) and were significantly more likely to live on large commercial farms.

In terms of maternal and infant HIV-related outcomes, women who deliver at home share many of the socio-demographic **factors associated with vulnerability to HIV infection and non-adherence to PMTCT programmes** reported on women in sub-Saharan Africa including young age, limited education, unemployment/low income, high parity and limited partner and social support.[42 - 48] This indicates that women who deliver at home are not only at greater risk of birth complications which result in increased morbidity and mortality among mothers and their newborns, but that as a group, their socio-demographic characteristics may also be making them more vulnerable to HIV infection or at risk of non-adherence to PMTCT programmes if they have known positive serostatus. Community-based outreach and interventions are required to identify and support these vulnerable women for optimal service uptake throughout the PMTCT and maternal/child health cascade as a strategy towards reducing maternal and newborn mortality and mobility and achieving virtual elimination of paediatric HIV. Based upon the potential benefit of non-monetary incentives on uptake of facility based delivery in other rural populations,[49] the use of targeted information and incentives to increase demand and uptake of facility-deliveries among this vulnerable population of women warrants further study.

Women who deliver at home have limited social support

"I was home alone and afraid to leave the compound as there are thieves"

"I am afraid of dying or my baby might die but I had no one to take me"

Comments made by women which underscore the feelings of helplessness of women at the time of delivery who have limited social support.

A striking trend among women who deliver at home is the **limited social support** that they reported to have available to them. The partners of women in this study stayed in the same household on weekends only or less frequently, there were no adults older than her residing in the homes of most women, yet almost all had children living in the household to care for. Most women also reported living 5km or more from the nearest health facility. With very few women or partners engaged in formal employment, it can be suggested the majority of women would have sporadic access to money and may also be facing livelihoods insecurity. When viewed in this light, the thought of a woman with such limited social support going into labour in her rural home alone, and with limited resources at her disposal, highlights why home delivery would be her only realistic course of action. These finding are consistent with evidence from a population based study 13 years ago that identified limited social support including unemployment and being without a husband as factors associated with delivery outside of a health facility.[50] Community-based programmes intending to increase uptake of maternity health services should investigate effective and sustainable methods of providing additional social support for women around the time of labour, within their own communities.

The good news and bad news of service uptake during pregnancy and after birth

Mothers who delivered at home demonstrated flashpoints of high service uptake during certain stages of the antenatal and postpartum continuum of services. Contrary to previous census data in Zimbabwe, which indicated zero ANC visits among 70% of women who delivered at home in the 2005/2006 ZDHS[18], 80.2% of mothers in the home delivery study reported booking for ANC. While lower than the total of 91.8% of women in Mashonaland Central recently reported to have received antenatal care from a skilled provider[19], the high rates of ANC uptake among women who delivered at home in this study is some positive news about gains by the Ministry of Health and Child Welfare and its partners in **improving in ANC coverage** in recent years. It also has implications for the potential of rural women to successfully overcome access barriers to health services when sufficient demand exists, with 70% of women in the study having raised service and transport fees to attend 3 or more ANC visits.

However, such gains should be received with caution as **ANC uptake was late** (20+ weeks for over half of women), particularly in reference to PMTCT programme efforts to follow current WHO

guidelines which indicate the More Efficacious Regimen should be initiated at 14 weeks (MER14).[51] Previous qualitative investigations in Zimbabwe have documented the role of culture upon women's use of prenatal care, specifically linked to the time a pregnancy is acknowledged and reported.[52] Assessments for improving PMTCT programme coverage in Kenya also indicate the need to develop evidence-based interventions to change ANC utilization patterns in line with current recommendations.[53] The figures also seem to indicate that the 8.2% of women who do not book for ANC in Mashonaland Central, likely belong to the group of women who also deliver at home, reinforcing these women as a priority group for intervention.

High ANC uptake paired with high home delivery rates also point to a **gap in the maternal health services continuum** resulting in a drop off of mothers from the ANC service continuum at intrapartum stages. Again, this has implications for child and maternal health in home versus facility delivery and PMTCT, with mother-infant pairs enrolled in PMTCT programmes who deliver at home shown to be less likely to ingest their medications.[54]

Uptake patterns of post natal care for mothers who deliver at home and their babies is poor. While mothers made good use of post-natal services for their babies (88.2%) overall, uptake of Prompt Postnatal Care (PPNC) for children within the first 48 hours after delivery was poor, with only 37.5% taking their babies in for post natal care within 72 hours following home birth.
In terms of post natal care for the mother, both uptake of post-natal check-ups for themselves as well as receipt of post-natal counselling for preventing childhood malnutrition and PMTCT, were comparatively low, 63% and 29.6% respectively. Previous studies have found that belonging to the Apostolic faith and non-medical attendance at birth were related to the non-use of postnatal care services in a peri-urban care setting of Zimbabwe.[55] The discrepancy between post-natal services accessed for themselves and those accessed for their children indicates that mothers have **prioritised the health needs of their child** over themselves (though the precise reasons for this remain unclear). There is a need to investigate whether this is due to the separation of maternal health from ideas of safe motherhood, prioritisation of scarce resources in face of user fees, or impact of cultural influences and community norms on service utilisation patterns. An interpretation of when and how mothers demonstrated high levels of service uptake appear to show a pattern of attempts at perceived 'due diligence' on the part of mothers who deliver at home for the health of their children. High levels of service uptake were evidenced at both antenatal (high ANC uptake) and postnatal (high post-natal check-up and immunisation for infants) stages, with the chasm of intrapartum service uptake in between. Health promotion efforts at community-level should re-emphasise the health of mothers and not just babies as part of safe motherhood. While post natal care and immunization rates were relatively high (>80%), **mothers require support and information regarding the importance of PPNC for both their child and themselves**.

Finally, a small but important group of **'zero uptake' women** (11.2%), who did not make use of ANC, HIV testing, or maternity services (booking or delivery) emerged in this study. With residency on a large commercial farm and being in a polygamous marriage revealed as significant odds to belonging to this group, there is a need to further investigate this group of 'invisible' women from a programmer's standpoint. Understanding how to identify and reach these women is not only important for designing outreach programmes intended to ensure comprehensive MNCH and reduce maternal and infant mortality and morbidity, but also for achieving the 90-95% PMTCT programme coverage required for virtual elimination.

4.1.2 The Reasons for Home Delivery and Preferences for Institutional Delivery are Less Clear than the Numbers Suggest

While the number one ranked reasons for home delivery and preferences for institutional delivery appear straightforward, inconsistencies in the data raise important questions.

Understanding the real 'cost' of maternity services

'Maternity service fees' was revealed as the **most important single reason for home delivery**. Fees were the most frequently cited number one unranked and ranked reason for home delivery, chosen by 185 (52.1%) and 146 (41%) women respectively. The number one ranked single preference for increased uptake of facility-based delivery was the elimination of service fees (37.5%). Perhaps most compelling was the significantly greater proportion of women in the zero uptake group that cited fees as their number one reason (60%) over women who made use of some antenatal and intrapartum services (37.5%). Such figures highlight the overriding importance of the second delay of the three delays model, 'access to affordable services' in home delivery for women in this sample and underscore the importance of **removal of maternity user fees** for increasing demand and equitable uptake.

Further analysis of data, however, demonstrated the **underlying situation is decidedly more complex** than pure frequencies of reasons and preference suggest. In areas where maternity services were free, mothers continued to cite service fees as their number one barrier. In addition, while the majority of mothers had an Unskilled Birth Attendant present at the time of delivery, a crude comparison of costs between Unskilled Birth Attendants and facility-based services showed that generally, home birth is more 'expensive' in monetary terms than facility-based delivery in the majority of districts sampled. This cost can also be on-going, with anecdotal reports of cultural expectations in many communities which encourage mothers to continue providing gifts to the Unskilled Birth Attendant that presided over the child's birth at milestones throughout that child's life.

Perhaps most compelling is the high rate of uptake of ANC services among women sampled. In most health service settings, delivery fees should be included as part of the ANC service package. In other words, the 80.2% of women who accessed ANC services should technically have had their delivery service fees covered. What fees then are the 41% of women who ranked fees as their number one reason for home delivery referring to? Such inconsistencies raise real and important questions regarding the structuring, implementation and consistent application of official policies on maternity user fees and the communication of these among rural populations. The documented occurrence of on-going charges due to under-staffing and dwindling facility revenues despite national policy on free delivery in Nepal should be noted by policy-makers seeking to abolish maternity user fees as a primary strategy for increasing uptake of facility based delivery.[56]

Due to contradictions mentioned above, a closer examination of the **real and perceived 'costs'** of facility delivery need to be explored among women who deliver at home. The ability of women with limited social and financial support to make use of health services (arrange childcare, cost of upkeep while away from home, transportation, loss of productive labour at household level, breaking social or religious norms) clearly involves more than just raising user fees. Others have

documented the influence of these 'costs other than charges' upon demand for health services.[57] In this context, the use of Unskilled Birth Attendants who are perceived by communities to be experienced and knowledgeable in conducting safe deliveries, with flexibility in payment terms, the acceptability of paying in commodities, while meeting social or cultural obligations could make home delivery appear a potentially 'low cost' decision compared to facility delivery for some rural women.

Demand creation for facility based delivery among rural populations sharing the social or financial constraints of women in this study appears to require not just system-level removal of user fees but **complementary community-based approaches** which acknowledge the full 'cost' of using health services among this population. Based on information provided by mothers in this study, such approaches should seek to enlist critical cadres such as Village Health Workers, Traditional Birth Attendants, male partners and community leaders and elders to identify and address the 'costs' of facility delivery as perceived by women. Such participatory approaches should be used to create a community environment which promotes and supports women to make use of maternity services. Community efforts should necessarily include health education on safe motherhood, the importance of developing a birth plan and the potential costs of home delivery to mothers and babies, including maternal and newborn birth complications, infections (including HIV) and death.

Being close to the health facility at time of delivery is a major challenge for women

The responses of women in the home delivery study demonstrated that **proximity to the health facility at time of delivery is more than just a transport issue**. Distance from health facility (18.3%) and 'baby came too fast' (18.3%) were the next most frequently ranked single number one reasons for home delivery after fees. When grouped, number one ranked reasons for home delivery and preferences for institutional delivery related to proximity outweighed those of fees. However, 70% of mothers in the study were able to arrange transport to uptake ANC services up to 3 times during their pregnancy. This indicates there is something about the particular circumstances surrounding the time of labour which amplify the barrier distance poses to facility delivery (i.e., time of day), but that with adequate planning and support, women are able to arrange transport to make use of maternal health services.

The high ranking of use of suitable Waiting Mothers Shelters as a preference for increasing facility based delivery (n=97) was surprising given the limited number of women who listed lack of WMS as

the reason for their home delivery (n=28). Regardless, the perception that use of suitable Waiting Mothers Shelters would play a major role in removing barriers to uptake of facility based delivery, provides support for **structural interventions to refurbish and build WMS'** at health facilities as a strategy for increasing facility based deliveries. This finding is in line with previous research indicating the potential of maternity waiting homes to reduce perinatal mortality in rural areas with low geographic access to hospitals.[58] This finding also supports existing government policy, plans and external donor support committed to supporting the revitalisation of Maternity Waiting Homes (MWHs) as vital to ensuring increased access to Emergency Obstetric and Neonatal Care (EmONC) including the Zimbabwe National Maternal and Neonatal Health Roadmap (2007-2015) and the Health Transition Fund(2011-2015). Based on a lack of rigorous evidence, the implementation of these systems-level improvements should be conducted within randomised controlled trial settings to improve the evidence base regarding the effectiveness of WMSs for improving maternal and neonatal outcomes.[59]

As with fees, structural interventions related to assisting women to be closer to the health facility at the time of delivery should be implemented in tandem with **community-level efforts to identify and assist the most vulnerable women** with limited social support or financial resources to make appropriate and timely use of Waiting Mothers Shelters. Assisting women to make use of WMSs includes not just structural availability, using a shared set of operational guidelines and data collection tools[60]; but also ensuring mothers have adequate information regarding the availability and use of Waiting Mothers Shelters in their community. Such information should include who to contact to arrange staying at WMS, what to expect (admission criteria, when to go, any fees, how long they can stay, what they need to bring with them) and the importance of including WMS stays in the birth plan of rural women without access to transport at all times of day. Given the limited social support and high numbers of dependants reported by women, the feasibility of 'family friendly WMSs' should be explored.

There are mixed messages about the role of culture and knowledge levels on individual decision making

Though less explicit, the study also revealed the influence of the first delay, individual decision making, upon uptake of facility delivery through lack of knowledge about the signs of labour, estimated due dates and when to go to the health facility. An additional element of individual decision making requiring further investigation includes how cultural factors

Box 4.1 A 'community culture' of Home Delivery? Feedback from enumerator Focus Group Discussions (FGDs)…

During FGDs held following data collection, enumerators felt that a *'community culture'* of home delivery had been created in many villages they visited. The immediate neighbours of many women interviewed and women in close proximity known to one another all delivered at home. While this can be said to relate to biases (friendship/proximity) associated with snowball techniques, the apparent clustering of women who deliver at home in some villages is notable. Though anecdotal, they suggested that if no complications of delivery occurred that the 'fad' of home delivery continues unchecked and if a woman chooses to deliver at a health facility that it will be going against the accepted norm of home delivery among that group. Enumerators felt that while women responded it was their intention to deliver at a health facility, some community situations actually appear to discourage this.

"I will not be allowed to pray again"
"Because that is what I believe in"
"I did not want to give birth at home but the parents I stay with forced me"
"At clinics there are medicines which we do not like"
Open-ended answers offered by mothers who ranked RP18.a. 'My religious practices or beliefs' as the number one reasons for home delivery.

"It has always been easy at home."
"I always deliver without complication so home delivery is fine"
"We are handled with care at home"
Open-ended answers offered by mother who indicated they would likely deliver at home in future pregnancies.

may be influencing uptake of maternal health services. While cited by relatively few women as the reason for their home delivery, there was a disproportionately large group of women belonging to the **Apostolic faith** in the sample as compared with national figures.

In addition, the perception by enumerators of a **'community culture' of home delivery** with apparent 'clusters' of women who delivered at home all living within very close proximity of one another requires further investigation. The fact that many women referred during snowball sampling were immediate neighbours suggests the possibility of additional factors influencing clustering beyond the limitations of snowball sampling, discussed in Box 4.1.

Low uptake levels of women with 'unplanned' home deliveries across the maternal health service continuum, high level of reported knowledge regarding the risks of home delivery to mother and child, and increasing linear trend of home deliveries with increased parity even though 90% of women indicated they would not plan to deliver at home in future pregnancies, indicate discrepancies between women's stated desires, decision making and subsequent behaviours. These trends are despite the demonstration that most women with previous complications can deliver safely at rural health facilities in Zimbabwe and that better utilization of maternal health care, especially for delivery, reduced adverse perinatal outcomes.[61] Such contradictions indicate that in order to reverse the increasing trend of home deliveries **demand generation activities** will need to take place at community level to support and incentivise mothers to increase uptake of facility based delivery. In the face of structural barriers such as user fees and access to health facilities at the time of delivery, the weight of knowledge-based and cultural elements upon the differences between reported intentions and described behaviours were difficult to isolate in this descriptive study. These deserve further investigation along with the impact of demand generation interventions upon health seeking behaviours.

Limitations of the Study – the role of confounding and social desirability biases

While friendship and proximity biases introduced from snowball sampling methods have been acknowledged, the discrepancy between reported reasons, preferences and behaviours indicate the possible role of **social desirability bias** in the Home Delivery Study findings. The susceptibility of questionnaire surveys to social desirability biases in capturing attitudes around sensitive issues has been acknowledged to result in data not reflective of community norms.[62] The issue of home delivery does not at face value appear to be tapping into highly 'sensitive issues' such as sexual behaviours or illicit drug taking, often prone to social desirability biases. However, the results of this study appear to demonstrate a number of discrepancies between responses provided by mothers. Such discrepancies are suggested to reflect the complex array of competing social, financial and personal forces home vs. facility delivery pose to rural women, as well as the influences of social desirability bias.

Such potential biases suggest that when working with vulnerable populations (such as women in the home delivery study who in the face of limited social support, low levels of education, possible religious, cultural and livelihoods constraints while living in remote areas) there is a need to understand the underlying thought processes and the cultural context behind question responses through techniques such as **cognitive interviewing**[63] and/or adaptation of tools such as the **Marlowe-Crowne social desireability scale**.[64] Without controlling for social desirability biases, cultural or social norms may have biased answers provided and led individuals to reflexively give

what was perceived to be the most generally accepted answer (fees, distance), even though this might not capture the entire picture of influences upon their health seeking behaviours. While the questionnaire tool was pre-tested in an attempt to ensure comprehension of all questions, the failure to conduct cognitive interviewing to explicitly understand the meanings behind different roles in the community may have resulted in the seeming interchangeable use of the some terms, and the broadening of meaning for others. For example, women appear to have used the terms Village Health Worker and Traditional Birth Attendant interchangeably between questions; and, women who should already have met their delivery fees through use of ANC services continued to cite service fees as a barrier. It is suggested that such biases may have resulted in contradictions within data sets between reported reasons for home delivery and actual context or behaviours as demonstrated by the Home Delivery Study, and future work with such vulnerable populations should make specific efforts to control for social desirability bias.

4.1.3 The Conditions during Home Delivery put mothers and babies at risk

Infection control during home delivery needs to be addressed

The reported availability of only basic materials at delivery indicates that due to the unplanned nature of the majority of home births, materials prepared included those already commonly available at household level (blankets, water, razors, string), with specific materials and equipment intended for infection control during delivery (antiseptics and sterile equipment) not present. Simple infection control materials used as part of standard precautions in health facility settings have the capacity to reduce preventable maternal and newborn morbidity and mortality caused by infection during the critical delivery and early post-natal period.[65] Given the complexity of the problem of home delivery and the breadth of system-level and community-based changes that need to occur to reverse the trend of increasing home delivery, we know that women will not stop delivering at home overnight. Accordingly, in an attempt to address preventable infections which may occur during home delivery, without promoting home delivery, it is suggested that the feasibility of providing mothers attending ANC with a small pack of essentials for infection control (i.e., gloves, sterile razor, sterile clamp, antiseptic for cleaning umbilical stump and cotton wool) as part of birth preparedness/planning at ANC be investigated. This pack could be intended to be carried with them to maternity services when presenting for delivery, but in the event of a home delivery, the mother will be equipped with the knowledge and instruments for basic infection control.

There is a need to better understand the role of Unskilled Birth Attendants in home delivery and MNCH

One of the most important findings of the study uncovered during the process description is the **critical role of Unskilled Birth Attendants**, including Village Health Workers and Traditional Birth Attendants, in supporting women who deliver at home. The majority of women had an Unskilled Birth Attendant present at their home birth. The confusion between the defined roles of VHWs and TBAs requires clarification through further study. Where 188 women (52.9%) reported VHWs assisting in the delivery process as part of the services

> ***"Even if you deliver at home you have to pay so it is better to go to the health facility where you can get help if there are complications".***
>
> Open-ended answers offered by mother in response to P3 '*Would you plan to have a home delivery for future pregnancies?*'

provided by VHWs in preparing for delivery, when asked who was present at the time of delivery zero woman answered VHW, and this proportion and more indicated the presence of a TBA. Regardless of the composition of this group, the current findings underscore the critical role Unskilled Birth Attendants play in community level MNCH, particularly in rural and very rural communities. Accordingly, there is need to consult and engage with all individuals comprising this group (trained and untrained VHWs and TBAs) when implementing any health system change or improvement that will influence the communities they serve. This finding coincides with recent review of evidence which demonstrated that integration of TBAs within the formal health system with complementary actions to overcome context-specific barriers can increase skilled birth attendance.[66] With respect to Village Health Workers, the important role these men and women play in their communities as part-time volunteers[67] should also be guarded, and over-taxing this critical community resource operating in a voluntary capacity in rural settings (such as being 'on call' 24-7, and attending high numbers of evening deliveries) should clearly be avoided.

Unskilled Birth Attendants gain social status and monetary remuneration for attending home deliveries. The apparent trend that the **cost of Unskilled Birth Attendants presiding over home deliveries may approximate, and in many cases exceed those of health facility fees** is a concern, particularly among women who indicated 'did not have enough money to pay for delivery services' as their reason for home delivery. With the complexities of the cost of uptake of facility delivery to mothers noted, it should be acknowledged that attending home deliveries may be one of the only ways that Village Health Workers, operating in a voluntary capacity, can sustain themselves financially through their community-based service. A greater understanding of the roles, strengths and challenges of this critical cadre should be explored from the perspective of VHWs themselves, and inform subsequent programmes. The importance of including the experiences and perspectives of community-based caregivers such as VHWs and their contexts and realities has been stressed as critical for influencing the provision and uptake of ANC in Zimbabwe.[68]

The important role Unskilled Birth Attendants, including VHWs and TBAs, play in the maternal health of rural women indicates their potential role in strengthening the referral system for optimal uptake of antenatal services and skilled attendance at delivery at community level, supported by findings that women with antenatal referral were more likely to have hospital delivery.[69]

MNCH activities implemented by the MOHCW have supported the re-orientation of Traditional Birth Attendants to mobilise for improved skilled attendance at delivery[20], and trained TBAs are advised to only conduct home deliveries in emergency situations, the same advice regarding conducting home deliveries provided to VHWs. As the Village Health Worker role is an individual selected by the community in which they live, [70] it is intended that they will embody the beliefs held in esteem by their fellow community members. Whether the apparent interchangeable use of terms of VHW and TBA reflects the reorientation of TBAs into more formalised roles as VHWs in some communities, or a result of bias, is unknown and deserves further study. However, the failure to reflect on local knowledge and realities has been documented to result in the combination of traditional and professional care as a means of a mother's efforts to receive different forms of assurances for a positive pregnancy outcome in Zimbabwe.[71] Accordingly, more in-depth investigations should be undertaken to explore whether the high rate of Unskilled Birth Attendants at home deliveries is a reflection of true necessity by rural women as the high ranking of fees and distance indicate, or an affirmation of the multi-pronged traditional and biomedical resource this cadre embodies to the communities they serve.

4.1.4 A Special Note on PMTCT

There is an established association between maternal HIV infection, maternal mortality[24] and the risk of infant death in developing countries[72] and challenges to PMTCT posed by non-facility births.[27, 44, 48, 49, 50] The poor picture of PMTCT for women who deliver at home in Zimbabwe is further evidenced by Home Delivery Study findings which indicate:

- Shared socio-demographic characteristics between women who deliver at home and those related to vulnerability to HIV infection and risk of non-adherence to PMTCT programmes documented in the sub-Saharan African region
- Late uptake of ANC services (+20 weeks) in reference to the More Efficacious Regimen for ARVs to prevent MTCT as per current Government policy and in line with WHO 2010 guidelines (<14 weeks)
- Reported lack of infection control equipment and procedures during home delivery which could increase potential for vertical transmission during childbirth
- Late uptake of postnatal care for babies within critical 72 hour period post-birth for prevention of infections that could lead to infant morbidity and mortality, including the timely administration of ARV prophylaxis among HIV-exposed children
- Low rates of post-natal counselling and low uptake of post-natal services for mothers limits opportunities to reinforce PMTCT messages through ARV adherence monitoring and exclusive breastfeeding counselling, and importance of prevention of new HIV infections and re-infection while breastfeeding and beyond.

> ***"A woman's desire to deliver in the hospital and protect their babies from HIV infection is often challenged and prevented by circumstances, chance and tradition"****
> Kasenga F et al. Midwifery. 2010 Feb;26(1):27-37. Epub 2008 Jun 20.

Study findings support evidence that barriers to accessing prenatal health services and facility based delivery reduce uptake of free PMTCT services in Zimbabwe[73]and recommendations that women who deliver at home should be treated as a priority intervention group for PMTCT programmes.[74] The findings of this study also highlight that reversing the trend of home deliveries in Zimbabwe is not only a MNCH priority, but will be a critical indicator of the success of interventions to increase PMTCT programme coverage as part of the campaign to eliminate new paediatric HIV infections by 2015.[75]

4.2 Recommendations and Conclusions

The Home Delivery Study, like many descriptive studies, has provided us with as many questions as it has answers. The findings have demonstrated that there is *More than Meets the Eye* when it comes to home delivery in Zimbabwe. It has also indicated areas where further research is needed and provided some critical information on the perceptions of rural women to inform future policy and programmes. Accordingly, the recommendations forwarded from the study findings will be separated into two categories: 1. Future Research, and 2. Recommended Interventions for Action

4.2.1 Future Research

In addition to the broad spectrum of Maternal, Newborn and Child Health issues related to home delivery, the importance of a focussed national operational research agenda for identifying,

implementing, and evaluating interventions that improve uptake and retention at each stage of the PMTCT/maternal health cascade is vital.[75] Recommended areas of future research as identified by the current study are:

- Methodological investigations into the reliability of responses and influence of culture such as the adaptation of the Marlowe-Crowne social desirability scale or conducting cognitive interviewing as a strategy for increasing the reliability of outcomes in local MNCH research.
- Research on the most effective strategies for identifying and mobilizing the group of women with shared characteristics of women who deliver at home and increasing their uptake and retention along the PMTCT maternal/child health continuum.
- Specific research on the 'zero uptake' group of women who have made no use of ANC and intrapartum health services.
- Mediating factors for supporting facility based delivery and uptake of maternal health services among women belonging to the Apostolic faith* and living on large commercial farms.
- Feasibility of provision of a low-cost 'Infection Control Delivery Pack' distributed to women during ANC visits, intended to be carried to the health facility, but also used to avoid preventable infections in the case of home delivery*.
- Descriptive study to clarify 'who is the Unskilled Birth Attendant' conducting home deliveries (Traditional Birth Attendant and Village Health Worker), including the identification of specific areas for integrated action to increase service uptake along the maternal health/PMTCT cascade.
- Qualitative studies inventorying and describing the role and tasks of Village Health Workers. Specific emphasis should be placed on understanding the role of VHWs in respect to home deliveries and uptake of maternal health services at community level in practice, versus existing policy roles.*
- Descriptive study capturing characteristics of 'high maternal health service performers' and 'low performers' along the spectrum of the antenatal, intrapartum and postpartum elements of the spectrum.
- Randomised control trials or cluster randomised control trials investigating the effectiveness of Waiting Mothers Shelters for improving maternal and neonatal outcomes in rural populations.
- Investigations of the feasibility, cost-effectiveness and impact of demand generation strategies for increasing facility based delivery*.
- Feasibility and acceptability of participatory community-based interventions for increasing facility based delivery with the support of community gatekeepers to MNCH. *

*Studies currently in planning/implementation phase by OPHID Trust

4.2.2 Interventions for Action

Based upon the findings of this descriptive study, interventions for action identified include:

1. Policy Level:

- **MNCH Programmes**: Policy approach to increasing facility based delivery, particularly in rural areas, should be composed of integrated approaches that not only include health systems-based intervention, but involve demand generation and context-driven community-based problem solving to overcome barriers to uptake of maternal health services. This should include co-ordination with multi-level actors to achieve policy-level goals.
- **PMTCT Programmes**: Increasing uptake of maternity services, including facility based delivery, should be a priority area for action for achieving virtual elimination of new paediatric infections in Zimbabwe. Priority interventions should be implemented to increase uptake and retention of mothers at specific gaps in the maternal health/PMTCT cascade where women who delivered at home had low uptake including: early ANC booking, facility delivery, prompt postnatal care for infants and mothers and provision/uptake of postnatal counselling for mothers.

2. Health Systems Level

- Removal of **maternity service user fees.**
- Building/refurbishment of suitable **Waiting Mothers Shelters.**
- **Ensuring availability of skilled birth attendants providing quality services and required equipment for EmONC** to ethically promote safe deliveries at all health facilities.

3. Community Level

- **Participatory Community Engagement** in the identification of context-driven barriers to facility delivery in their community and problem solving.
- **Involvement of MNCH Gatekeepers (traditional leaders, male partners, elders)** – in ensuring service uptake throughout the maternal health/PMTCT continuum, including facility delivery.
- **Supporting and fostering a community culture which promotes/supports MNCH** – including but not limited to facility delivery.
- **Demand generation** activities at community level using existing health assets (Village Health Workers) and leadership (female elders, traditional leaders) to promote, support and create demand for maternal health services, including facility based delivery.

4. Action Information, Education and Communication (A-IEC)

- Community-based information, education and communication intended to engage mothers in specific processes of planning, problem solving or action rather than passive knowledge acquisition. Context-appropriate and locally relevant A-IEC should be supported through ANC appointments regarding:
    - **Early ANC Uptake** – for safe motherhood and PMTCT.
    - **Knowledge about labour and delivery:** a clear explanation of what Estimated Delivery Date (EDD) means, how to recognise the signs of true labour, and when to present at the hospital for delivery.
    - Ensuring all mothers in ANC are assisted in the development of a **birth plan** which includes acknowledging barriers to uptake of facility delivery and planning ahead to overcome these (such as transportation, stay at a Waiting Mothers Shelter).
    - The importance of facility delivery for ensuring **safe motherhood** and community health.

- **Risks of home delivery** and impact of home delivery on effective PMTCT.
- The importance of **Prompt Postnatal Care**
- Emphasis on the importance of the **health of mothers and not just babies** in ante- peri and post natal care-seeking for healthy mother-baby pairs and PMTCT.
- **Promotion of Waiting Mothers Shelters.**

4.2.3 Conclusion – Supporting an Integrated Approach to Maternal and Newborn Health

More than Meets the Eye has provided us with verification of many suspected truths about the group of women who deliver at home in Zimbabwe and the barriers they face to uptake of maternal health services. However, these face value verifications come with substantial caveats. Contradictions between responses provided by women have forced us to acknowledge the complexity of the problem of home delivery, and the corresponding multi-level approaches that will be required to reverse this increasing trend among rural populations.

Socio-demographic characteristics of women in the study were largely consistent with previous data captured on women who deliver at home, though the increase in uptake of ANC services in this group is encouraging evidence of gains made in expanding the coverage of maternal health services in recent years. The woman who delivers at home generally lives in a rural setting, is 5km or more away from the nearest health facility, has dependent children, limited education and faces both social and economic resource constraints. These characteristics indicate that beyond the identified lack of infection control and other conditions during home delivery putting mothers and babies at risk, these families are vulnerable to other adverse social and health outcomes. Of particular concern, are the group of 'zero uptake' women, who made no use of antenatal or intrapartum health services, and would have been 'invisible' if sampling had been based on delivery registers at facility level alone. Increasing home delivery therefore cannot rely on traditional public health campaigns and will require outreach to rural and very rural populations identified to be at increased risk of home delivery.

The reasons provided by mothers for their home delivery and interventions that would help overcome these barriers provided insight into the complexity of increasing demand and uptake among this vulnerable group of women. Women overwhelmingly indicated that user fees and not being able to be close to the health facility at the time of labour and delivery were their main reasons for delivering their baby at home and preferred interventions that would help to overcome these barriers. Accordingly, removal of user fees and increasing availability of Waiting Mothers Shelters are validated as priority

areas for health systems interventions. Inconsistencies between reported behaviours and perceived reasons and preferences indicate a need to engage in community-based interventions and demand generation. Community-based health and cultural resources (including Village Health Workers, traditional and religious leaders and male partners) should be mobilised to support and promote rural women to deliver their babies at a health facility. Community-based efforts should also focus on generating demand for uptake of facility based delivery among rural women by providing action versus passive information, and exploring the feasibility and cost-effectiveness of incentivising service uptake as a strategy to reverse the trend of increasing home deliveries.

Strategic efforts should be made to correct gaps in the maternal health/PMTCT continuum including supporting early ANC booking and retention of mothers accessing ANC throughout the maternal health cascade, with a focus on overcoming barriers to facility birth at time of delivery, and ensuring prompt post-natal care for babies and emphasising postnatal care and counselling for all mothers as missed opportunities to provide PMTCT and nutrition services through routine maternity care. Promotion of facility based delivery must be conducted only once adequate skills, equipment and quality services are available and ensured for rural women who make the substantial effort to present at health facilities at the time of labour.

For these reasons, we conclude that while absolutely necessary, systems-based interventions alone to increase facility based delivery in Mashonaland Central, and other rural populations in Zimbabwe will not be sufficient. Instead, an integrated approach to addressing the problem of home delivery through policy, health systems, community-based and demand generation activities which acknowledge and address the complex process of risk mitigation that rural women must engage in when deciding to make use of maternal health services, should be used through the coordinated efforts of multi-level actors.

References

[1] Lawn JE, Kerber K, Enweronu-Laryea C, Cousens S. 3.6 million neonatal deaths--what is progressing and what is not? Semin Perinatol. 2010 Dec;34(6):371-86.

[2] Bahl R, Qazi S, Darmstadt GL, Martines J. Why is continuum of care from home to health facilities essential to improve perinatal survival? Semin Perinatol. 2010 Dec;34(6):477-85.

[3] Penfold S, Hill Z, Mrisho M, Manzi F, Tanner M, Mshinda H, Schellenberg D, Armstrong Schellenberg JR. A large cross-sectional community-based study of newborn care practices in southern Tanzania. PLoS One. 2010 Dec 21;5(12):e15593.

[4] Kirkwood BR, Manu A, Tawiah-Agyemang C, ten Asbroek G, Gyan T, Weobong B, Lewandowski RE, Soremekun S, Danso S, Pitt C, Hanson K, Owusu-Agyei S, Hill Z. NEWHINTS cluster randomised trial to evaluate the impact on neonatal mortality in rural Ghana of routine home visits to provide a package of essential newborn care interventions in the third trimester of pregnancy and the first week of life: trial protocol. Trials. 2010 May 17;11:58.

[5] Montagu D, Yamey G, Visconti A, Harding A, Yoong J. Where do poor women in developing countries give birth? A multi-country analysis of demographic and health survey data. PLoS One. 2011 Feb 28;6(2):e17155.

[6] Darmstadt GL, Lee AC, Cousens S, Sibley L, Bhutta ZA, Donnay F, Osrin D, Bang A, Kumar V, Wall SN, Baqui A, Lawn JE. 60 Million non-facility births: who can deliver in community settings to reduce intrapartum-related deaths? Int J Gynaecol Obstet. 2009 Oct;107 Suppl 1:S89-112.

[7] Gabrysch S, Campbell OM. Still too far to walk: literature review of the determinants of delivery service use. BMC Pregnancy Childbirth. 2009 Aug 11;9:34

[8] Lewycka S, Mwansambo C, Kazembe P, Phiri T, Mganga A, Rosato M, Chapota H, Malamba F, Vergnano S, Newell ML, Osrin D, Costello A. A cluster randomised controlled trial of the community effectiveness of two interventions in rural Malawi to improve health care and to reduce maternal, newborn and infant mortality. Trials. 2010 Sep 17;11:88.

[9] UNAIDS, 2010. It Takes a Village: Ending Mother-to-Child HIV Transmission – a partnership uniting the Millennium Villages Project and UNAIDS. Geneva: UNAIDS. Available: http://www.unaids.org/en/media/unaids/contentassets/documents/document/2010/20101231_MVP_en.pdf

[10] UNAIDS, 2011. Global plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive. Geneva: UNAIDS. Available: http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110609_JC2137_Global-Plan-Elimination-HIV-Children_en.pdf

[11] Temmerman M, Quaghebeur A, Mwanyumba F, Mandaliya K. Mother-to-child HIV transmission in resource poor settings: how to improve coverage? AIDS. 2003 May 23;17(8):1239-42.

[12] Kasenga F, Hurtig AK, Emmelin M. Home deliveries: implications for adherence to nevirapine in a PMTCT programme in rural Malawi. AIDS Care. 2007 May;19(5):646-52.

[13] Albrecht S, Semrau K, Kasonde P, Sinkala M, Kankasa C, Vwalika C, Aldrovandi GM, Thea DM, Kuhn L. Predictors of nonadherence to single-dose nevirapine therapy for the prevention of mother-to-child HIV transmission. J Acquir Immune Defic Syndr. 2006 Jan 1;41(1):114-8.

[14] Bii SC, Otieno-Nyunya B, Siika A, Rotich JK. Self-reported adherence to single dose nevirapine in the prevention of mother to child transmission of HIV at Kitale District Hospital. East Afr Med J. 2007 Dec;84(12):571-6.

[15] Kuonza LR, Tshuma CD, Shambira GN, Tshimanga M. Non-adherence to the single dose nevirapine regimen for the prevention of mother-to-child transmission of HIV in Bindura town, Zimbabwe: a cross-sectional analytic study. BMC Public Health. 2010 Apr 28;10:218.

[16] Zimbabwe National Statistical Agency (ZIMSTAT). Zimbabwe. Multiple Indicator Monitoring Survey (MIMS). Preliminary Report. ZIMSTAT and United Nations Children's Fund (UNICEF), 2009.

[17] Central Statistical Office (CSO) [Zimbabwe] and Macro International Inc. *Zimbabwe Demographic and Health Survey 1999.* Calverton, Maryland: Central Statistical Office and Macro International Inc, 2000.

[18] Central Statistical Office (CSO) [Zimbabwe] and Macro International Inc. Zimbabwe Demographic and Health Survey 2005-2006. Calverton, Maryland: CSO and Macro International Inc. 2007.

[19] Zimbabwe National Statistics Agency (ZIMSTAT).2010-2011 Zimbabwe Demographic and Health Survey(2010-2011 ZDHS). Preliminary Report.Harare: ZIMSTAT, June 2011.

[20] Government of Zimbabwe. The Zimbabwe National Maternal and Neonatal Health Road Map 2007 – 2015. Ministry of Health and Child Welfare. October 2007.

[21] Government of Zimbabwe. 2010. The National Health Strategy for Zimbabwe (2009-2013), Equity and Quality in Health: A People's Right.

[22] UNAIDS, 2010. AIDS epidemic update. Geneva: UNAIDS, Available: http:// www.unaids.org/en/KnowledgeCentre/HIVData/EpiUpdate/EpiUpdArchive/2009/default.as

[23] Zimbabwe Ministry of Health and Child Welfare (MOH&CW), 2011. The Zimbabwe Programme for Prevention of Mother to Child Transmission of HIV – 2010 Annual Report. Harare: MOH&CW.

[24] Munjanja S, Nystrom L, Nyandoro M and Magwali T. Ministry of Health and Child Welfare Zimbabwe Maternal and Perinatal Mortality Study 2007. Harare: MOH&CW.

[25] MOH&CW, 2011. The National Strategic Plan for Elimination of New Paediatric HIV Infections: 2011 – 2015. Eliminating New Paediatric HIV Infections and Keeping Children and Parents Alive. October 2011. Harare: MOH&CW.

[26] Map of Mashonaland Central Zimbabwe. From http://en.wikipedia.org/wiki/Mashonaland_Central_Province Accessed: Nov 16 2011.

[27] Kuonza LR, Tshuma CD, Shambira GN, Tshimanga M. Non-adherence to the single dose nevirapine regimen for the prevention of mother-to-child transmission of HIV in Bindura town, Zimbabwe: a cross-sectional analytic study. BMC Public Health. 2010 Apr 28;10:218.

[28] Nhindiri P, Munjanja S, Zhanda I, Lindmark G, Nystrom L. A community-based study on utilisation of maternity services in rural Zimbabwe. Afr J Health Sci. 1996 Nov;3(4):120-5.

[29] Mugweni E, Ehlers VJ, Roos JH. Factors contributing to low institutional deliveries in the Marondera district of Zimbabwe. Curationis. 2008 Jun;31(2):5-13.

[30]van den Heuvel OA, de Mey WG, Buddingh H, Bots ML. Use of maternal care in a rural area of Zimbabwe: a population-based study. Acta Obstet Gynecol Scand. 1999 Nov;78(10):838-4

[31] UNFPA/IOM, Sexual and Reproductive Health (SRH) needs assessment among Mobile and Vulnerable Population (MVP) communities in Zimbabwe study report. New Dimension Consulting, Harare, April 2008.

[32] Waiswa P, Kallander K, Peterson S, Tomson G, Pariyo GW. Using the three delays model to understand why newborn babies die in eastern Uganda. Trop Med Int Health. 2010 Aug;15(8):964-72.

[33] Magoma M, Requejo J, Campbell OM, Cousens S, Filippi V. High ANC coverage and low skilled attendance in a rural Tanzanian district: a case for implementing a birth plan intervention. BMC Pregnancy Childbirth. 2010 Mar 19;10:13

[34] Kruk ME, Paczkowski M, Mbaruku G, de Pinho H, Galea S: Women's Preferences for Place of Delivery in Rural Tanzania: A Population-Based Discrete Choice Experiment. Am J Public Health 2009, 99:1666-1672.

[35] Hill Z, Tawiah-Agyemang C, Okeyere E, Manu A, Fenty J, Kirkwood B. Improving hygiene in home deliveries in rural Ghana: how to build on current attitudes and practices. Pediatr Infect Dis J. 2010 Nov;29(11):1004-8.

[36] Hill Z, Tawiah-Agyemang C, Manu A, Okyere E, Kirkwood BR. Keeping newborns warm: beliefs, practices and potential for behaviour change in rural Ghana. Trop Med Int Health. 2010 Oct;15(10):1118-24. doi: 10.1111/j.1365-3156.2010.02593.x.

[37] Anya SE, Hydara A, Jaiteh LE. Antenatal care in The Gambia: missed opportunity for information, education and communication. BMC Pregnancy Childbirth. 2008 Mar 7;8:9.

[38] All Provincial-level population data provided by the Central Statistics Offices (CSO), May 2011.

[39] Robinson WT, Risser JM, McGoy S, Becker AB, Rehman H, Jefferson M, Griffin V, Wolverton M, Tortu S. Recruiting Injection Drug Users: A Three-Site Comparison of Results and Experiences with Respondent-Driven and Targeted Sampling Procedures. J Urban Health. 2006 Nov;83(6 Suppl):i29-38.

[40] Ministry of Health and Child Welfare of Zimbabwe, 2010. The Village Health Worker Strategic Direction: Ministry of Health and Child Welfare, Zimbabwe. Harare, MOHCW, April 2010.

[41] Collaborating Centre for Operational Research and Evaluation (CCORE). Apostolic Religion, Health, and Utilization of Maternal and Child Health Services in Zimbabwe: Research Report 2011. CCORE, Harare, 2011.

[42] Karcher H, Omondi A, Odera J, Kunz A, Harms G. Risk factors for treatment denial and loss to follow-up in an antiretroviral treatment cohort in Kenya. Trop Med Int Health. 2007 May;12(5):687-94.

[43] Hargreaves JR, Bonell CP, Boler T, Boccia D, Birdthistle I, Fletcher A, Pronyk PM, Glynn JR. Systematic review exploring time trends in the association between educational attainment and risk of HIV infection in sub-Saharan Africa.

[44] Magadi M, Desta M. A multilevel analysis of the determinants and cross-national variations of HIV seropositivity in sub-Saharan Africa: evidence from the DHS. Health Place. 2011 Sep;17(5):1067-83. Epub 2011 Jun 22.

[45] Salihu HM, Nnedu ON, Karita E, Vyankandindera J, Jolly PE. Predictors of HIV seropositivity following intrapartum voluntary counseling and testing among Rwandan women. J Obstet Gynaecol. 2003 Nov;23(6):632-6.

[46] Delvaux T, Elul B, Ndagije F, Munyana E, Roberfroid D, Asiimwe A. Determinants of nonadherence to a single-dose nevirapine regimen for the prevention of mother-to-child HIV transmission in Rwanda. J Acquir Immune Defic Syndr. 2009 Feb 1;50(2):223-30.

[47] Demas PA, Webber MP, Schoenbaum EE, Weedon J, McWayne J, Enriquez E, Bamji M, Lambert G, Thea DM. Maternal adherence to the zidovudine regimen for HIV-exposed infants to prevent HIV infection: a preliminary study. Pediatrics. 2002 Sep;110(3):e35.

[48] El-Khatib Z, Ekstrom AM, Coovadia A, Abrams EJ, Petzold M, Katzenstein D, Morris L, Kuhn L. Adherence and virologic suppression during the first 24 weeks on antiretroviral therapy among women in Johannesburg, South Africa - a prospective cohort study. BMC Public Health. 2011 Feb 8;11:88.

[49] van den Akker T, Radge G, Mateyu A, Mwagomba B, Bemelmans M, Reid T. Can non-monetary incentives increase health facility deliveries? The experience in Thyolo District, Malawi. International Health - March 2011 (Vol. 3, Issue 1, Pages 66-68, DOI: 10.1016/j.inhe.2010.11.001)

[50] van den Heuvel OA, de Mey WG, Buddingh H, Bots ML. Use of maternal care in a rural area of Zimbabwe: a population-based study. Acta Obstet Gynecol Scand. 1999 Nov;78(10):838-46.

[51] WHO, 2010. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants: recommendations for apublic health approach. – 2010 version. Geneva: WHO, 2010.

[52] Mthole T, Lindmark G, Majoko F, Ahlberg BM. A qualitative study of women's perspectives of antenatal care in a rural area of Zimbabwe. Midwifery. 2004 Jun;20(2):122-32.

[53] Delva W, Yard E, Luchters S, Chersich MF, Muigai E, Oyier V, Temmerman M. A Safe Motherhood project in Kenya: assessment of antenatal attendance, service provision and implications for PMTCT. Trop Med Int Health. 2010 May;15(5):584-91. Epub 2010 Mar 10.

[54] Mirkuzie AH, Hinderaker SG, Sisay MM, Moland KM, Mørkve O.Current status of medication adherence and infant follow up in the prevention of mother to child HIV transmission programme in Addis Ababa: a cohort study. J Int AIDS Soc. 2011 Oct 21;14:50.

[55] Hove I, Siziya S, Katito C, Tshimanga M. Prevalence and Associated Factors for Non-Utilisation of Postnatal Care Services: Population-Based Study in Kuwadzana Peri-Urban Area, Zvimba District of Mashonaland West Province, Zimbabwe. Afr J Reprod Health. 1999;3(2):25-32

[56] Witter S, Khadka S, Nath H, Tiwari S. The national free delivery policy in Nepal: early evidence of its effects on health facilities. Health Policy Plan. 2011 Nov;26 Suppl 2:ii84-91.

[57] O'Donnell O. Access to health care in developing countries: breaking down demand side barriers. Cad Saude Publica. 2007 Dec;23(12):2820-34.

[58] Chandramohan D, Cutts F, Millard P. The effect of stay in a maternity waiting home on perinatal mortality in rural Zimbabwe. J Trop Med Hyg. 1995 Aug;98(4):261-7.

[59] van Lonkhuijzen L, Stekelenburg J, van Roosmalen J. Maternity waiting facilities for improving maternal and neonatal outcome in low-resource countries. Cochrane Database Syst Rev. 2009 Jul 8;(3):CD006759.

[60] MOHCW. The Zimbabwe Maternity Waiting Homes Study 2009. Harare, MOHCW, 2009.

[61] Majoko F, Nystrom L, Munjanja S, Mason E, Lindmark G. Does maternity care improve pregnancy outcomes in women with previous complications? A study from Zimbabwe. Trop Doct. 2005 Oct;35(4):195-8.

[62] Vu A, Tran N, Pham K, Ahmed S. Reliability of the Marlowe-Crowne social desirability scale in Ethiopia, Kenya, Mozambique, and Uganda. BMC Med Res Methodol. 2011 Dec 2;11:162.

[63] Mavhu W, Langhaug L, Manyonga B, Power R, Cowan F. What is 'sex' exactly? Using cognitive interviewing to improve the validity of sexual behaviour reporting among young people in rural Zimbabwe. Cult Health Sex. 2008 Aug;10(6):563-72.

[64] Mavhu W, Langhaug L, Pascoe S, Dirawo J, Hart G, Cowan F. A novel tool to assess community norms and attitudes to multiple and concurrent sexual partnering in rural Zimbabwe: participatory attitudinal ranking. AIDS Care. 2011 Jan;23(1):52-9.

[65] World Health Organisation (WHO). Standard precautions in healthcare. Global alert and response: Aide-Memoire. Geneva, WHO: October 2007.

[66] Byrne A, Morgan A. How the integration of traditional birth attendants with formal health systems can increase skilled birth attendance. Int J Gynaecol Obstet. 2011 Nov;115(2):127-34. Epub 2011 Sep 14.

[67] MOHCW. The Village Health Worker Handbook. MOHCW, Harare, April 2010.

[68] Mathole T, Lindmark G, Ahlberg BM. Dilemmas and paradoxes in providing and changing antenatal care: a study of nurses and midwives in rural Zimbabwe. Health Policy Plan. 2005 Nov;20(6):385-93. Epub 2005 Sep 23.

[69] Majoko F, Nyström L, Munjanja SP, Lindmark G. Effectiveness of referral system for antenatal and intra-partum problems in Gutu district, Zimbabwe. J Obstet Gynaecol. 2005 Oct;25(7):656-61.

[70] MOHCW. The village health worker handbook. MOHCW, Harare, April 2010.

[71] Mathole T, Lindmark G, Ahlberg BM. Competing knowledge claims in the provision of antenatal care: a qualitative study of traditional birth attendants in rural Zimbabwe. Health Care Women Int. 2005 Nov-Dec;26(10):937-56.

[72] Brocklehurst P, French R. The association between maternal HIV infection and perinatal outcome: a systematic review of the literature and meta-analysis. Br J Obstet Gynaecol. 1998 Aug;105(8):836-48.

[73] Chivonivoni C, Ehlers VJ, Roos JH. Mothers' attitudes towards using services preventing mother-to-child HIV/AIDS transmission in Zimbabwe: an interview survey. Int J Nurs Stud. 2008 Nov;45(11):1618-24. Epub 2008 May 27.

[74] Webb KA, Engelsmann B, Patel D. Oral Presentation: *Prevention of Mother to Child Transmission in the Context of High Rates of Home Delivery: A Priority Area for Achieving Virtual Elimination.* Zimbabwe National HIV and AIDS Conference, 2011.

[75] Ciaranello AL, Perez F, Keatinge J, Park JE, Engelsmann B, Maruva M, Walensky RP, Dabis F, Chu J, Rusibamayila A, Mushavi A, Freedberg KA. What will it take to eliminate pediatric HIV? Reaching WHO target rates of mother-to-child HIV transmission in Zimbabwe: a model-based analysis. PLoS Med. 2012 Jan;9(1):e1001156. Epub 2012 Jan 10

[76] Zimbabwe Vulnerability Assessment Committee(ZimVAC). Rural Livelihoods Assessment Report: July 2011. SIRDC: Harare, 2011.

Appendix 1 – Home Delivery Study Questionnaire

Home Delivery in Mashonaland Central, Zimbabwe: Who? Why? And How? A descriptive retrospective study describing the cohort of women delivering at home, their reasons for home delivery and what happens during the home delivery process

Questionnaire for Mothers Who Delivered at Home

IDENTIFICATION PANEL	**ID**
ID1. Record Number: Interviewer ID: ☐☐ Interview Code: ☐☐	ID2. Province: _____
ID3. District: _____	ID4. Village: _____
ID5. Health Facility:_____ _____	ID6. Interviewer Name and Initials: ☐☐☐ _____
ID7. Day/Month/Year of Interview: D D M M **2 0 1 1**	

INTRODUCTION

My name is ----------. I am currently working for OPHID (Organization for Public Health Interventions and Development), who is conducting a study on women who have delivered their babies at home in collaboration with the Ministry of Health and Child Welfare (MOHCW) and the Elizabeth Glaser Pediatric Aids Foundation (EGPAF).

We would like to learn more about why you delivered at home, how you delivered at home, and how we could improve delivery services for mothers. Please be assured that there is no right/wrong or good/bad answer to any of the following questions.

I would be grateful if you could spare time to respond to a few questions. None of the information collected will be linked to your name and will only be used for the purposes of this survey.

Kindly go through this consent form which outlines important issues you may want to know about the study.

(**Enumerator**: give woman time to read and understand the consent form. Do not proceed until it has been signed and dated.)

May I proceed with the questions? (Circle appropriate response) 1. Yes

2. No

If no, please state reason for refusal?

……

……

INTERVIEWER CAPTURE INFORMATION	
ID8. Result of Woman's Interview	a. Completed b. Not at home c. Refused d. Partly Completed e. Incapacitated f. Other (specify)_____
ID9. Was questionnaire administered in privacy?	a. Yes b. No If No (specify who was present):_____

ID10. Record the time the interview lasted.	Hour and minutes:_____ H H : M M

Interviewer Notes
(to be filled in after completing the interview):

Comments about the respondent or interview environment: Use this space to record notes about the interview with this mother, such as call-back times, number of attempts to re-visit, impression of the general feeling of the mother during interview (e.g., friendly/suspicious/tense/relaxed/nervous), where the interview was conducted (in hut, under tree, outside next to building), what kind of environment (comfortable, clean, cool, hot, busy, etc.), or any other information about the interviewee or environment you feel is relevant.:

Comments on specific questions:

Any other comments:

SECTION 1: COHORT CHARACTERISTICS	CC
A. GENERAL DEMOGRAPHICS	
CC1. Respondent's age (in years): ☐☐	CC2. Type of permanent residential settlement: 1. Urban high density 2. Urban low density 3. Peri-urban 4. Old resettlement 5. New resettlement 6. Communal lands 7. Large commercial farm 8. Others (specify)……
CC3.a. What is your marital status? (*Circle only one response*) 1. Never married 2. Married monogamous 3. Married polygamous 4. Divorced or separated 5. Widowed 6. Others (specify)……	CC4.a. Level of education 1. None 2. Primary 3. Form 1 and 2 4. Form 3 and 4 5. Form 5 and 6 CC4.b. Tertiary level qualifications (*specify the training*) 1. None 2. Non-formal training_____ 3. Certificate_____ 4. Diploma_____ 5. Degree_____
CC5. What is your religious affiliation? 1. Apostolic (specify which one)…….. 2. Catholic 3. Protestant (specify which one)…… 4. Pentecostal (specify which one)…….. 5. Atheist 6. Traditional 7. Moslem	CC6. What is your main source of income? 1. Formally Employed as _____ 2. Self- employed (in market gardening, maricho, barter trade, petty trading etc) 3. Subsistence Farmer 4. Remittances (including family and friends abroad) 5. Cross boarder trading 6. None (unemployed)

8. Others (specify)……	7. Dependent on partner 8. Other (specify)_____
CC7. What is your partner's main source of income? 1. Formally Employed as _____ 2. Self- employed (in market gardening, maricho, barter trade, petty trading etc) 3. Subsistence Farmer 4. Remittances (including family and friends abroad) 5. Cross boarder trading 6. None (unemployed) 7. Partner does not contribute to household income 8. Other (specify)_____	CC8. Approximately how far away is your residence from the nearest health facility offering delivery services? 1. Less than 1km 2. 1 – 3 km 3. 3 – 5 km 4. 5 – 10km 5. 10+ km 6. Don't know___(in this case, for analysis cross ref. with distance of village from health facility)
B. HOUSEHOLD CHARACTERISTICS	
CC9. Who is the head of the household in which you are staying? 1. Husband 2. Self 3. Father 4. Mother 5. Father in law 6. Mother in law 7. Others (specify)_____	CC10. Please indicate how often do you stay with your partner in the same household (approximately): 1. Never 2. Once per month or less 3. Once per week/on weekends 4. Most days/nights
CC11. Are you currently staying with any in-laws who are older than you in the same household? 1. Yes 2. No	CC12. Are you currently staying with any of your relatives who are older than you in the same household? 1. Yes 2. No
CC13. a. How many **children** (0 – 16 yrs) would you say are currently living in your household? Both your own and others? 1. 0 2. 1 – 3 3. 3 – 5 4. 5 +	CC13. b. How many **adults other than yourself** (16 + yrs) would you say are currently living in your household? 1. 0 2. 1 – 3 3. 3 – 5 4. 5 +

C. OBSTETRIC HISTORY

CC14. What is the total number of pregnancies you have ever had (*including miscarriages and stillbirths)*? ☐☐

CC15. Please provide the following information for all children you have ever given birth to (including latest child):

Child	Age(in years)	Sex (M/F)	Place of Birth 1. Home 2. Health Facility 3. On route to facility (Born Before Arrival – BBA)	Birth Complications (Y/N) If yes please specify.	Alive Today (Y/N)
1.					
2.					
3.					
4.					
5.					
6.					
7.					

Please provide the following information about your **latest pregnancy:**

CC16.a. Were you booked for ANC care?
1. Yes
2. No
3. Don't know => If YES – go to CC17.

CC16.b. If NO, why not?
1. Couldn't get permission to go to health facility
2. No money for ANC cervices
3. Distance to health facility
4. Ability to access/pay for transportation

CC17. How many weeks pregnant were you when you booked for ANC?
1. Less than 12 weeks
2. 12-16 weeks
3. 16-20 weeks
4. 20 weeks +
5. Don't know/don't remember

5. Did not want to travel alone 6. Other (specify)_____ Go to CC20	
CC18. Where were you booked for ANC? 1. Nearest Clinic to your Residence 2. Other Clinic (specify)_____ 3. District Hospital 4. Other (specify)_____	CC19. Approximately how many ANC appointments did you attend? 1. 0 2. 1-2 3. 3-4 4. 4+
CC20. Did you receive an HIV test while you were pregnant? 1. Yes =>If YES, go to CC22 2. No =>If NO/DON'T KNOW go to CC21 3. Don't Know/No response	CC21. If you did **NOT test** for HIV during pregnancy, why not? 1. Because I did not book for ANC 2. I went for testing but the centre could not do the test 3. I was referred for testing but did not go 4. I booked for ANC, but counselling and testing was never offered to me 5. I refused to test 6. Other (specify)_____ 7. Don't Know/No response =>go to CC27
CC22. What was the result of the HIV Test? 1. Positive =>If Positive, go to CC23 2. Negative =>If Negative, go to CC27 3. Don't Know/No response	CC23. Were you enrolled in a PMTCT programme? 1. Yes =>If YES, go to CC24 2. No =>If NO, go to CC27 3. Don't Know/No response
CC24.a. Did you find it difficult to follow the procedures for your PMTCT programme? 4. Yes 5. No 6. Don't Know/No response CC24.b. If yes, please indicate the challenges you faced.	CC25.a. Did you receive any medication for **you (mother) to take** to prevent mother to child transmission of HIV? 1. Yes 2. No 3. Don't know/Cannot remember CC25.b. If YES, which medication was dispensed? 1. sdNVP only 2. AZT(from 28 weeks) + sdNVP (labour), combivere (after) 3. Other (specify)_____ 4. Don't know/cannot remember CC25.c. Did you receive any medication for **your baby to take** to prevent mother to child transmission?

	1. Yes 2. No 3. Don't know/cannot remember CC25.d. If YES, which medication was dispensed? 1. sdNVP only 2. sdNVP (at birth) + AZT (7-28 days after birth) 3. Other (specify)_____ 4. Don't know/cannot remember =>If YES to any, go to CC26 =>If NO to all, go to CC27
CC26.a. Did **you** swallow the medicine(s)? 1. Yes 2. No 3. Cannot remember CC26.b. Did **your baby** swallow the medicine(s)? 1. Yes 2. No 3. Cannot remember	CC27.a. Were you booked for delivery? 1. Yes 2. No 3. Cannot remember CC27.b. If YES, please indicate where you booked: 1. At the health center nearest to my place of residence 2. District Hospital 3. Other (specify)_____ 4. Cannot remember
CC28. Where was your baby born? 1. At my place of residence 2. On route to the health facility 3. At friend/relatives in the same catchment area as my home 4. At friend/relative's outside of my catchment area 5. Other (specify)_____ 6. Don't know/Cannot remember	

Instructions for completing this table:

First – REASONS for HOME DELIVERY: Ask participant questions in the left hand REASONS FOR HOME DELIVERY column and tick 'Yes' column for each affirmative response provided.

Second – PREFERENCES for INSTITUTIONAL DELIVERY: If the participant answers YES, then go to the right hand column PREFERENCES FOR INSTITUTIONAL DELIVERY for yes/no. Do not conduct ranking exercise at this point.

Third – OPEN-ENDED QUESTIONS: At end of each sub-heading (i.e., A. Access; B. Perceptions of Quality of Services or Provider; C. Past Use of Health Care Services;,etc) ask **open-ended questions** probing for any other reasons/preferences.

Fourth – RANKING REASONS and PREFERENCES: Ask mother to indicate from all 'Yes' answers (A. – F.), which 5 reasons she considers played the greatest role in the reason for her home delivery AND which preferences for institutional delivery among those chosen. (re-read all 'yes' responses from all parts A. Access to F. Other of Section 2 to assist in this process). Ask mother to rank with 1 = most important; 5 = least important.

SECTION 2: REASONS FOR HOME DELIVERY AND PREFERENCES							**RP**
A. ACCESS: ISSUES RELATED TO ABILITY TO MAKE USE OF MATERNITY SERVICES							
REASONS FOR HOME DELIVERY				**PREFERENCES FOR INSTITUTIONAL DELIVERY**			
"Would you say the following factor played a role in the reason you delivered your baby at home?"	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**	***"Which of the following actions do you think would have helped you to overcome this challenge and made you more likely to deliver your baby at a health facility?"***	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**
RP1.You did not have enough money to pay for delivery services.				1. Vouchers/coupons given to you ANC appointments for payment of maternity services			
				2. Ability to pay for maternity services over time through monthly instalments			
				3. Ability to 'pay' for maternity services using commodities (maize, chickens, goats etc.).			
				4. None			
				5. Other (specify)_____			
RP2.a.You live too far away from the nearest health facility offering maternity services. (**distance**)				1. **Transport voucher/coupon** given to you from ANC service near time of delivery			
				2. Community system where individual with car is paid to provide **free transportation** to mothers in labour			
				3. Use of suitable **Waiting Mothers Shelter**			

RP2.b. If YES, please describe why this was a problem: 1. **Access:** I could not reach the transport (i.e., combi stop/neighbour with vehicle/oxcart/mule too far away from my house to walk while in labour) 2. **Pay:** I did not have enough money to pay for transport **3. Support:** I did not have anyone to accompany me to the health facility/I did not want to travel to the health facility alone **4.** Other (specify)					4. None 5. Other(specify)_____			
RP3.a.You could not make use of a **Waiting Mothers Shelter** near the time of your delivery.					1. Increase number of shelters available 2. Improvements in the structure of existing Waiting Mothers Shelters (repair, clean, make other necessary improvements)			
RP3.b. If YES, please describe why this was a problem 1. There was no Waiting Mothers Shelter available for me to use. 2. I did not know how to arrange to make use of Waiting Mothers Shelter. 3. I was unable to arrange to get into the Waiting Mothers Shelter (i.e., could not reach the required person, or the shelter was locked up/closed) 4. I had concerns about the safety (i.e., locking up at night, access by strangers, no one there such as my partner to protect me). 5. I had concerns about the cleanliness or hygiene. 6. I had concerns about the condition of the structure I would be staying in (i.e., cold, leaking roof, nowhere to sleep).					3. Assistance by VHW/ANC staff to assist with booking shelter near time of delivery 4. Able to approach known community member to open/arrange staying at Waiting Mothers Shelter. 5. Known community member (such as VHW or TBA) tasked with running Waiting Mothers Shelters and assisting mothers staying there. 6. Cash/credit transfer provided for maintenance during stay at shelter 7. None 8. Other (specify)_____			

7. I could not afford to buy food, soap, or bring needed supplies such as blankets that would be needed during my stay.					
8. Other (specify)					

RP4. ACCESS: OPEN-ENDED REASONS FOR HOME DELIVERY: *"Is there anything else you would like to tell me about how your **ABILITY TO MAKE USE OF MATERNITY SERVICES** that you feel influenced the reasons for your home delivery?"*
If yes, please explain:

RP5. ACCESS: OPEN ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: *"Is there anything else you would like to tell me **YOUR ABILITY TO MAKE USE OF MATERNITY SERVICES** that you feel would have helped you to give birth in a health facility?"*
If yes, please explain:

B. HEALTH CARE SERVICES AND PROVIDERS: ATTITUDES AND PERCEPTIONS INFLUENCING HOME DELIVERY

REASONS FOR HOME DELIVERY				**PREFERENCES FOR INSTITUTIONAL DELIVERY**			
"Would you say the following factor played a role in the reason you delivered your baby at home?"	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**	***"Which of the following actions do you think would have helped you to overcome this challenge and made you more likely to deliver your baby at a health facility?"***	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**
RP6.a. I **did not feel it was necessary** to give birth in a health facility.				1. Information provided to you by VHWs or other community members about the benefits and risks of both home and facility birth.			
RP6.b. If YES, please describe why you did not feel it was necessary: 1. Because my **other children were delivered at home**.				2. Incentive provided to you for delivering your baby in a health facility (such as free nappies, swaddling blanket or other (if specific incentive mentioned please indicate here _____			
				3. None			
				4. Other (specify)			

2. I felt I would be **more comfortable** giving birth at home than in a health facility. 3. I felt I could get **as good or better care** at home as I would at a health facility. 4. Other (specify)							
RP7.a. Anything about the **conditions** at the nearest health centre.				Improvements in conditions of nearest health facility offering maternity services: 1. Improvements in the quality of waiting rooms			
RP.7.b. If YES, please describe what your concern was: 1. Availability of waiting rooms				2. Improvements in availability/quality of hospital beds/bed linens			
				3. Improvements in quality/availability of equipment required for delivery			
2. Availability/quality of hospital beds/bed linens				4. Improvements in availability of required medications			
				5. Improvements in availability of water			
3. Quality/availability of equipment required for delivery (intravenous equipment, resuscitation masks)				6. Improvements in availability of food			
				7. Improvements in cleanliness/hygiene of facility			
4. Availability of required medications				8. Improvements in privacy			
5. Availability of water				9. Ability to choose to give birth in a facility where you think conditions are better			
6. Availability of food				10. None			
7. Cleanliness/hygiene				11. Other (specify)			
8. Privacy during delivery							
9. Other (specify)							
RP.7.c. Can you tell me what made you think this about the conditions at the health facility? 1. Own experience:							

2. Experience of family member/friend:							
3. Told about experience of someone in the community you don't know personally:							
4. Media (newspaper/radio/TV/other):							
5. Other (specify)							
RP8.a. Concerns about the **staff** at the health facility.				1. Increasing the number of staff trained to provide maternity services at nearest health centre offering maternity services.			
RP8.b. If YES, please describe what your concern was: 1. Concern about the **availability of skilled providers** for conducting delivery (i.e., person with required skills may not be there when you present for delivery) Is there a specific type of skilled provider you are concerned would not be present (i.e., Dr., trained nurse/midwife, male or female provider)?				2. Improvements in the training of existing staff to provide maternity services 3. Providing training to improve staff attitudes and friendliness			
2. Concern about **level of skill of existing staff** for conducting delivery (i.e., existing staff aren't trained with skilled needed for delivering babies) What skills do you think the staff lack?				4. Better procedures for making complaints about staff. 5. Ability to choose to give birth in another facility where you think staff do not have the same problems. 6. None 7. Other (specify)			

3. Concerns about the **attitudes or friendliness** of existing staff. What is your concern regarding staff attitudes or friendliness?							
4. Other (specify)							
RP.8.c. Can you tell me why you feel this about the staff at the health facility? 1. Own experience							
2. Experience of friend or family member							
3. Told about experience of someone in community you don't know personally							
4. Media (newspaper/radio/TV/other)							
5. Other (specify)							
RP9.a. Concerns that staff at the health facility will discuss your personal information with others (**confidentiality**). (i.e., confidentiality of HIV test results, provision of sNVP)				1. Provision of training to improve confidentiality of patient information.			
				2. Disciplinary procedures for staff who disclose confidential patient information to others.			
RP9.b. If YES to this question:							

Please describe your concern about confidentiality: 1. **Lack of privacy** at the health facility (i.e., no counselling rooms/private hospital rooms to discuss confidential information)				3. Ability to choose to give birth in another facility where you feel there is greater anonymity (no one knows who you are) or greater confidence your information will be kept confidential.			
2. Concerns that staff will talk about you to others in the hospital or community (**staff disclosure**)							
3. Other (specify)							
RP9.c. Can you tell me why you have concerns about confidentiality at the health facility? 1. Own experience				4. None			
				5. Other (specify)			
2. Experience of friend or family member							
3. Told about experience of someone in community you don't know personally							
4. Media (newspaper/radio/TV/other)							
Other (specify)							
RP10.a. You were not permitted to have important people to you with you at the time of delivery. I.e., not able to have **non-medical, people present at the time of birth** (traditional, religious, or non-immediate family such as in-laws).				1. Freedom to have one non-medical advisor present at time of birth in the health facility.			
				2. None			
RP10.b.If YES to this question: Please indicate who you would have liked to be present: 1. Traditional Birth Attendant				3. Other (specify)			

2. Other traditional advisor (i.e. THP)					
3. Spiritual advisor (religious person)					
4. Friend					
5. Non-immediate family (in-laws, aunt, cousin, etc).					
6. Other (specify)					

RP11. HEALTH CARE SERVICES OR PROVIDER: OPEN-ENDED REASONS FOR HOME DELIVERY: *"Is there anything else you would like to tell me about your feelings about the **AVAILABILITY, QUALITY OR FRIENDLINESS OF HEALTH SERVICES** that you think influenced the reasons for your home delivery?"*
If yes, please explain:

RP12. HEALTH CARE SERVICES OR PROVIDER: OPEN ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: *"Is there anything else you would like to tell me your feelings about the **AVAILABILITY, QUALITY OR FRIENDLINESS OF HEALTH SERVICES** about that you believe would have helped you to give birth in a health facility?"*
If yes, please explain:

C. UTLISATION: INFLUENCE OF HEALTH CARE SEEKING BEHAVIOURS DURING LATEST PREGNANCY ON HOME DELIVERY

"Would you say the following factor played a role in the reason you delivered your baby at home?"	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**	***"Which of the following actions do you think would have helped you to overcome this challenge and made you more likely to deliver your baby at a health facility?"***	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**
RP13.a. Because I did not make use of health services during my pregnancy.				1. **Financial or voucher assistance** provided to help ensure you are able to attend all ANC/PMTCT appointments (i.e., transport money or vouchers).			
RP13.b. If YES, please indicate which service you did not make use of (or attend all appointments for):				2. VHW or other community-based worker to provide **reminders** for ANC/PMTCT appointments.			
1. ANC				3. Staff training to ensure **no judgement** for missed appointments.			
2. HIV Testing							
3. PMTCT				4. More **options to receive HIV testing** from different service points.			
RP13.c. Please tell me why not using this service during							

pregnancy made you want to delivery at home/not want to deliver at a health facility: 1. Because I was not booked for delivery. 2. I was afraid I would be judged for not registering and/or for missed appointments. 3. I did not want to take an HIV test. 4. Other (specify)				5. None 6. Other (specify)_____			

RP14. UTLISATION: OPEN-ENDED REASONS FOR HOME DELIVERY: *"Is there anything else you would like to tell me about your **PREVIOUS EXPERIENCE OR USE OF HEALTH SERVICES** that you think influenced the reasons for your home delivery?"*
If yes, please explain:

RP15. UTILISATION: OPEN ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: *"Is there anything else you would like to tell me your **PREVIOUS EXPERIENCE OR USE OF HEALTH SERVICES** that you believe would have helped you to give birth in a health facility?"*
If yes, please explain:

D. BELIEFS AND PRACTICES: CULTURAL, RELIGIOUS and FAMILY INFLUENCES ON HOME DELIVERY

"Would you say the following factors played a role in the reason you delivered your baby at home?"	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**	***"Which of the following actions do you think would have helped you to overcome this challenge and made you more likely to deliver your baby at a health facility?"***	**Yes** ✓	**Top 5** ✓	**Rank Top 5 #**
RP16.a. My **partner** would not permit me to give birth in a health facility. 16.b.If YES to this question: What reason did your partner give you?				1. Community outreach by VHW or other community-members to provide information to partners about maternity services in your area/the benefits of facility birth.			
				2. Incentive provided for delivering your baby in a health facility (i.e., free nappies, blanket or other incentive) 3. None			

				4. Other (specify)_____			
RP17.a. **Other family** members placed pressure on me to deliver my baby at home rather than in a health facility. RP17.b. If YES to this question: Which family members preferred you to deliver at home:				1. Community outreach by VHW or other community-members to provide information to family members about maternity services in your area.			
				2. Incentive provided for delivering your baby in a health facility (i.e., free nappies, blanket or other incentive)			
				3. None			
				4. Other (specify)_____			
RP18.a. My **religious practices** or beliefs. RP18.b. If YES to this question: Please describe if you are comfortable, why you would not give birth in a health facility based on your religion.				1. Community outreach by VHW or other community-members to provide information to religious leaders about maternity services in your area/benefits of facility birth.			
				2. Incentive provided for delivering your baby in a health facility (i.e., free nappies, blanket or other incentive)			
				3. None			
				4. Other (specify)_____			
RP19.a.I would prefer to make use of **Traditional Health Services.** RP19.b. If YES, please describe why you prefer Traditional Health Services over the Health Facility for delivery.				1. Community outreach by VHW or other community-members to provide information to traditional leaders and traditional health practitioners about maternity services in your area/benefits of facility birth.			
				2. Ability to choose to have traditional advisors present during a facility birth.			
				3. Incentive provided for delivering your baby in a health facility (i.e., free nappies, blanket or other incentive)			
				4. None			
				5. Other (specify)_____			
RP20. BELIEFS AND PRACTICES: OPEN-ENDED REASONS FOR HOME DELIVERY: *"Is there anything else you would like to tell me about how you think your **CULTURE, RELIGION, PERSONAL BELIEFS OR THE BELIEFS OF OTHERS** influenced the reasons for your home delivery?"* ***If yes, please explain:***							

RP21. BELIEFS AND PRACTICES: OPEN ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: *"Is there anything else you would like to tell me about issues related to your* ***CULTURE, RELIGION, PERSONAL BELIEFS OR THE BELIEFS OF OTHERS*** *that you believe would have helped you to give birth in a health facility?"*
If yes, please explain:

E. CIRCUMSTANCES SURROUNDING LABOUR							
RP22. The baby came too fast for me to travel to the health facility.				1. Use of Waiting Mothers Shelters so that you are closer to the health facility once labour begins.			
				2. Better information provided about the signs of labour provided at ANC appointments or from VHWs.			
				3. None			
				4. Other (specify)_____			
RP23. I did not recognise the **signs of true labour**, so did not know when it was time to travel to the health facility.				1. Use of Waiting Mothers Shelters so that you are closer to the health facility once labour begins.			
				2. Better information provided about the signs of true labour provided at ANC appointments or from VHWs.			
				3. None			
				4. Other (specify)_____			
RP24. The **time of day** during which I went into labour made it impossible for me to get to the health facility.				1. Use of Waiting Mothers Shelters so that you are closer to the health facility once labour begins.			
				2. Develop a birth plan at ANC or with VHW that details what you should do if you go into labour at different times.			
				3. None			
				4. Other (specify)_____			
RP25. I was **staying in a different area** than where I was registered to give birth. (i.e., you were not near the facility where you were registered to give birth and did not know where to present for delivery).				1. Use of Waiting Mothers Shelters so that you are closer to the health facility once labour begins.			
				2. None			
				3. Other (specify)_____			

!! BEFORE YOU PROCEED TO THE NEXT SECTION ENSURE YOU CONDUCT RANKING EXERCISE WITH MOTHER – REGARDING REASONS AND PREFERENCES!!

RP26. CIRCUMSTANCES SURROUNDING LABOUR: OPEN-ENDED REASONS FOR HOME DELIVERY: *"Is there anything else you would like to tell me about* ***THE CIRCUMSTANCES SURROUNDING YOUR LABOUR*** *that you feel influenced the reasons for your home delivery?"*
If yes, please explain:

RP27.CIRCUMSTANCES SURROUNDING LABOUR: OPEN-ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: *"Is there anything else you would like to tell me about the* ***CIRCUMSTANCES SURROUNDING YOUR LABOUR*** *that you believe would have helped you to give birth in a health facility?"*
If yes, please explain:

F. OTHER

RP28. OTHER: OPEN-ENDED REASONS FOR HOME DELIVERY: ***"Is there anything else you would like to tell me about that we have not discussed that you feel influenced the reasons for your home delivery?"***
If yes, please explain:

RP29. OTHER: OPEN-ENDED PREFERENCES FOR INSTITUTIONAL DELIVERY: ***"Is there anything else you would like to tell me about that we have not discussed that you believe would have helped you to give birth in a health facility?"***
If yes, please explain:

SECTION 3: PROCESS OF HOME DELIVERY P

A. OVERALL PERCEPTIONS OF HOME DELIVERY

	Yes	No	Don't know
P1. Would you say that your home delivery was planned?			
P3.a. Would you plan to have a home delivery for future pregnancies?			
P3.b. If yes/no, please explain why.			

	Yes	No	Don't Know
P2.a. Would you say that your overall experience of home delivery was positive?			
P2.b. If yes/no, please explain why.			

B. PREPARING FOR DELIVERY: WHAT HAPPENED IN THE PERIOD BEFORE DELIVERY

P4. "Which of the following **materials or equipment** were prepared for your Home Delivery?" (Conversely: if not a 'planned' home delivery, once you were aware you were going to be delivering your baby at home, how many of the following were prepared?)	Yes	No	Don't Know
a. Blankets			
b. Gloves (to be worn by person delivering baby/cleaning up waste afterwards)			
c. Water			
d. Wash cloths			
e. Sterile razor (for cutting cord)			
f. Sterile clamp (for clamping cord)			
g. String for tying cord			
h. Antiseptic for applying to umbilical cord stump (on baby)			
i. Antiseptic cleaning supplies for cleaning blood and waste			
j. Other Preparations for Equipment/Materials Made (specify)			

P5. Which of the **services** were accessed as part of your **preparations for your Home Delivery**? (Conversely: if you planned to deliver at a facility and home delivery was unplanned, please indicate which services you made use of while you were pregnant)	Yes	No	Don't Know
1. Village Health Workers If yes, please describe services or support provided: Was there a charge for services received (cash or in kind)? If yes, please indicate what this charge was:			

Please help me with understanding some of the assistance provided by Traditional Birth Attendants to help you prepare for a delivery:				2. Primary Health Care (i.e., nearest clinic) If yes, please describe services or support provided:			
P6.a.How many weeks pregnant were you when you first made contact with your TBA? 1. Less than 12 weeks				3. Religious support If yes, please describe services or support provided: Was there a charge for services received (cash or in kind)? If yes, please indicate what this charge was:			
2. 12-18 weeks							
3. 18-24 weeks							
4. 25-40 weeks							
5. Don't know/don't remember							
P6.b. Please describe how contact was made with your TBA.							
P6.c. Please tell me about what sort of preparations for delivery or other support your TBA provided during your pregnancy.				4. Family support If yes, please describe services or support provided:			
				5. Other services or support accessed and cost if any (specify)			

				6. Traditional Birth Attendants or other Traditional Health Support If YES => go to P6 If NO =>go to P7			
C. PROCESS OF HOME DELIVERY: WHAT HAPPENED DURING LABOUR AND WHILE THE BABY WAS BEING BORN							
P7.a. Please indicate **where you delivered** your baby (i.e., where you were the moment the baby came out).	Yes	No	Don't Know	P8.a. Please indicate **who was present at the time of delivery**. For those present, please indicate the cost (money or in kind) of their services for being present at the birth, if any.	Yes	No	Don't Know
a. Indoors – On Bed				a. Doctor Cost:			
b. Indoors – On Floor				b. Nurse/Midwife Cost:			
c. Indoors – Other (specify)				c. Trained TBA Cost:			
d. Outdoors – specify_____				d. Untrained TBA Cost:			
e. Other – specify_____				e. Religious/Spiritual Advisor Cost:			
P7.b. Please indicate what position you were in when you gave birth (pushed out the baby)				f. Partner Cost:			
a. On back				g. Relative – specify_____ Cost:			
b. Squatting							
c. On hands and knees				h. Neighbour or Other – specify_____ Cost:			
d. Standing leaning over bed/table							
e. Other (specify)				i. No one If YES, go to P9			
f. Don't know/Don't remember				j. Don't Know If YES, go to P9			

				P8.b. Before delivering the baby, do you know if this person: a. Washed their hands with water			
				b. Washed hands with soap and water			
				c. Washed hands with antiseptic			
				d. Put on any kind of protective clothing (smock, gloves)			
				e. Other preparations made (specify)			
P9.a. Were you given any pain relief during labour or delivery?				P10.a. Were any of the following physical examinations conducted while you were in labour? a. Feeling (palptating) stomach			
P9.b. If yes, please indicate what: a. Paracetemol (Stopain/Panado)				b. Listening to baby's heart beat through your stomach			
				c. Vaginal examination			
b. Aspirin/Dispirin				d. Other – specify_____			
c. Herbs – specify_____				P10.b. If yes to the above, please indicate who conducted the examinations. _____			
d. Other – specify_____							
P11.a. Did anyone attending the delivery do anything to physically assist the baby to come out?				P12.a. Did you have any birth complications?			
				P12.b. If yes, please describe what the complications were. a. Bleeding (more than normal)			
P11.b. If yes, which of the following was done: a. Verbal directions and encouragement				b. Infection (abdominal pain, dishcharge)			
				c. Wound not healing (problems peeing, wound re-opening/bleeding)			
				d. Other (specify)			

				P12.c. Did you seek medical attention for these birth complications?			
b. Pressing on stomach c. Helping the baby to come out and receiving it d. Releasing pressure on the vagina to prevent tearing e. Other (specify)_____				P12.d. Do you think that these complications could have been avoided if you had given birth at a health facility?			
P13. Is there anything else you would like to tell me about what happened during childbirth?							
D. POST DELIVERY: WHAT HAPPENED AFTER THE BABY WAS BORN							
P14.a. Please indicate the condition of your baby when it was born. a. Cried immediately b. Did not cry immediately c. Came out blue d. Other (specify)_____					Yes	No	Don't Know
P14.b. If YES for b.-d. please describe what action was taken:							
P14.c. Who was the person that took this action?							
P15.a. Please indicate what was used to cut the cord a. Razor				P16.a. Please indicate what was used to tie/clamp the cord: a. Plastic clamp			

				b. String			
b. Knife				c. Other (specify)_____			
c. Other (specify)							
d. Don't know what was used				P16.b. Do you know who tied/clamped the cord? If yes, please indicate who._____			
P15.b. Do you know if the cord was cut: a. Before you pushed out the 'afterbirth'/expulsion of the placenta				P16.c. Do you know if anything was applied to the cord stump on the baby to prevent infection?			
b. After the afterbirth was pushed out.				If yes, do you know what was applied?			
P15.c. Do you know who cut the cord? If yes, please indicate who._____							
P17.a. Was your baby dried and wrapped in a blanket immediately after birth?				P18.a. How long after birth did you hold your baby? a. Immediately after birth			
				b. Less than 5 minutes			
				c. 5-10 minutes			
P17.b. If no, please describe what was done.				d. 10-20 minutes			
				e. 20+ minutes			
				P18.b. When you held your baby for the first time was there skin-to-skin contact?			
P19.Approximately how long after birth was your baby washed?				P20.a. Was the afterbirth (placenta) checked by anyone for completeness?			
a. Immediately after birth				P20.b. If yes, who checked it?			
b. 5-10 minutes							
c. 10-30 minutes							
d. 30 minutes – 1 hour							
e. 1 hour +							
f. Don't know							

P21. What was done with the afterbirth? a. Buried				P22.a. Were you provided with any pain relief after your baby was born?			
b. Put in rubbish/garbage pit				P22.b. If yes, please indicate what was taken: a. Paracetemol (Stopain/Panado)			
c. Burned				b. Aspirin/Dispirin			
d. Other (Specify)_____				c. Herbs specify_____			
e. Don't know				d. Other – specify_____			
				e. Don't know			
P23. What was the first thing your baby ingested (fed): a. Breast milk				P24. Approximately how long after birth was the first time you breastfed your baby? a. Immediately after birth			
b. Water				b. Less than one hour after birth			
c. Other (specify)_____				c. 1-3 hours			
d. Don't know				d. 3-5 hours			
				e. 5 hours +			
				f. Don't know			
				g. Didn't breastfeed			
P25.a. Were you provided with any post-natal (after birth) counselling by a birth attendant?				P26.a. Have you (mother) attended any post-natal check-ups at the health facility?			
P25.b. if yes, please indicate who provided the counselling. a. Traditional Birth Attendant (Skilled)				P26.b. If yes, how soon after the birth of your child? a. Within 24 hours (1 day) of baby's birth			
b. Traditional Birth Attendant (unskilled)				b. 1-3 days			
c. Village Health Worker				c. 3-10 days			
d. Other (specify)_____							
P25.c. If yes, did the counselling include: a. Warning signs for child health for which to seek medical assistance				d. 2-6 weeks			
				e. 6 weeks +			
				P26.c. If no, why not?			

b. Warning signs for your own health for which to seek medical assistance				a. No one told me to/Didn't know I should			
				b. Too far to travel			
c. Infant feeding advice				c. Could not afford service fees			
d. Advice on how to prevent mother to child transmission of HIV (PMTCT)							
e. Other (specify)_____				d. Other(specify)_____			
P27.a. Did **your baby** have any birth complications?							
P27.b. If yes, please describe what the complications were. a. Infection (umbilical cord stump, eyes, other)							
b. Injury or disability (from not breathing properly ,							
c. Wound not healing (umbilical cord stump)							
d. Other (specify)							
P27.c. If yes, did you seek medical attention for your baby for birth complications?							
P27.d. If yes, do you think that these complications could have been avoided if you had given birth at a health facility?							
P28.a. Has your baby attended any post-natal check-ups at the health facility?				P29.a. Has your child received any immunisations?			
				P29.b. If NO, why not?			
P28.b. If yes, how soon after the birth? a. Within 24 hours (1 day) of baby's birth							
b. 1-3 days							
c. 3-10 days				P29.c. If YES, please indicate which ones he/she has received: BCG (birth/first contact)			
d. 2-6 weeks							
e. 6 weeks +				DPT1/HPV1/Polio 1 (3 months)			
				DPT2/HPV2/Polio 2 (4 months)			
				DPT3/HPV3/Polio 3 (5 months)			

				Measles (9 months)			
				Other (specify)			
P28.c. If no, why not?							
a. No one told me to/Didn't know I should							
b. Too far to travel							
c. Could not afford service fees							
d. Other(specify)_____							
P30.a. Has the birth of your child been registered?				P31. Is there anything else you would like to tell me about what happened after you delivered your baby?			
P30.b. If yes, where:							
a. Local clinic/hospital (birth record only)							
b. Local Clinic and Local Municipal Office (birth record and birth certificate)							
c. Other (specify)_____							
P30.c. If no, why not:							
a. No one told me to/Didn't know I should							
b. Too far to travel							
c. Could not afford service fees							
d. Other(specify)_____							

E. OTHER: GENERAL

P32. Are there any other thoughts or feelings you would like to tell me about your home birth experience?

SECTION 4: KNOWLEDGE OF RISKS OF HOME DELIVERY K

"Giving birth can sometimes bring health risks for both the mother and for her baby. In this final section I would like to ask you a few questions about some of these risks. Please understand that there are no 'right' or 'wrong' answers. I would like to understand these things from your point of view. I will be providing you with additional information which you can keep on these topics at the end our time together. However, if you have any questions or comments at any point, please do not hesitate to ask me. "

A. PERCEPTION OF RISKS – Home Delivery vs. Health Facility Delivery

	Home	Health Facility	Don't Know
K1.a. Do you feel it is more dangerous to deliver a baby at home or at a health facility?			
K1.b. Please describe why you feel it is more dangerous to deliver there.			

"I will now review some of the risks for mothers and babies during childbirth with you and ask you some questions about these."

B. RISKS TO MOTHER OF DELIVERY

Risk	**Have you ever heard about this? / Did you know about this?** *Yes (Y) or No (N)?*		**Where do you think this risk would be greatest?** *Home (H) or Health Facility (HF)?*		**Please describe would you have done if this happened during your home delivery?** *Self-Treatment or Health Seeking?*
	Yes	**No**	**Home**	**Health Facility**	
Immediate Risks to Mother K2.a. Risk of **injury** to mother. Injury during childbirth can include: • Tearing of skin	Y	N	H	HF	Self-Treatment: Health Seeking:
K2.b. Risk of **bleeding** too much during or after childbirth (haemorrhage)	Y	N	H	HF	Self-Treatment:

					Health Seeking:
Later Risks for Mother K3.a. Risk of **infection** to mother. Infection can include: • Infections of any tears to skin • Infections inside your stomach (uterus) Signs of infection may include: • Fever • Pain in stomach • Unusual vaginal discharge • Inability to urinate, pain when urinating, or not being able to urinate properly	Y	N	H	HF	Self-Treatment: Health Seeking:
K3.b. Problems caused **during healing** (tears not healing, inside bleeding) that can lead to infection. Signs that a wound is not healing properly can include: • Wound opening • Seeping, oozing of wound	Y	N	H	HF	Self-Treatment: Health Seeking:
C. RISKS TO BABY DURING DELIVERY					
Immediate Risks to baby K4.a. Baby is **not coming out**. This may be due to: • Baby facing wrong way • Mother unable to push	Y	N	H	HF	Self-Treatment: Health Seeking:
K4.b. Baby is **not breathing well** (lack of oxygen). This can be caused by:	Y	N	H	HF	Self-Treatment:

• Cord being wrapped around the baby's neck • Mouth or throat being filled with fluids/mucus • Lungs of baby are not fully developed					Health Seeking:
Later risks to baby K.5 Risk of **Infection** (including HIV) to baby This can happen from: • Exchange of blood and other fluids between mother and baby • From outside the body due to use of unsterilized equipment (for example, to cut or wrap cord). • From the environment to any cut or wound on the baby's body (especially the umbilical cord stump)	Y	N	H	HF	Self-Treatment: Health Seeking:

Appendix 2 – Unskilled Birth Attendant Payment Commodity Costing

The following table provides costing information used to calculate a USD value to commodity payments made to Unskilled Birth Attendants for services at home births.

Unless otherwise noted, costs listed are estimates based on current shop prices in March 2012.

Item	**$ Cost (USD)**
Bar of soap	1.50
Zambia (traditional wrap)	7.00
1M Fabric	4.00
Lotion (350mL)	3.00
Vaseline	2.00
Washing Powder	2.00
Cooking Oil (750mL)	2.00
Sugar(2kg)	2.00
Rice (2kg)	3.00
Tennis shoes	5.00
Chicken[viii]	4.00[76]

[viii] Average price for Mashonaland Central ZimVAC 2011.