# Access to maternal health services under the free maternal health policy in the Kassena-Nankana municipality of Northern Ghana

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A thesis submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy

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June 2018

## Certificate of original authorship

I hereby certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the thesis.

I also certify that the thesis has been written by me. Any assistance that I have received in my research work and the preparation of the thesis itself has been acknowledged in full. I declare that all information sources and literature used are indicated in the thesis.

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## Dedication

To the memory of my late mother, who saw the start of this journey, but could not see the end.

## Acknowledgements

This is the one moment I have been yearning for, to show appreciation to all the people who made this journey possible for me. I cannot find enough words to thank my primary supervisor, Professor Caroline Homer. She played a key role from the time of my application for admission to the last moment of the thesis submission. “How did you get to know your supervisor?” people would always enquire. It all started with just an email I sent to her from Ghana, after coming across her profile and email address on the University’s website. Her response to my email was very swift, indicating that she was willing to be my supervisor and the process began from there. Thank you very much for your guidance, encouragement and support, and for the immense knowledge I have acquired from the field of midwifery.

To my secondary supervisor, Associate Professor Alex Wang, I am equally thankful for accepting me as your student when the invitation was extended to you. Your attention to detail is incredible; this has greatly perfected this thesis. From you, I have acquired the skills required of a public health specialist. I can comfortably say that, I am now a blended product of both midwifery and public health, given the expertise of my two supervisors. I will ever remain grateful.

My thankfulness goes to the Australian Government’s Research Training Programme and the Graduate Research School, University of Technology Sydney (UTS) for the award of two scholarships for the PhD training. My dream of pursuing a PhD would not have materialised without these awards. I also received travel support for my data collection in Ghana from the UTS WHO Collaborating Centre for Nursing, Midwifery and Health, and was awarded Health Services and Practice Research Degree Development funding for a conference presentation of my thesis in Portugal. I appreciate the support. I wish to thank the Research Office Team, Faculty of Health (UTS) as well, for providing the necessary support and congenial environment for us, research students. The Research Student Fora are a great platform for learning. I have benefitted greatly from the fortnight meetings by the nursing and midwifery group.

A big thank you to the director of the Navrongo Health Research Centre, Ghana, Dr Abraham Oduro, for the support, right from the time I got the admission to pursue the PhD, up to date. You provided technical and logistical support for my data collection in Ghana, I am grateful. To the staff of the centre, especially Dr Raymond Aborigo, Mr Isaiah Agorinya, Mr Charles Adjei Manful, Mr Victor Adoctor, Mr Timothy Augose, Mr Moro Ali and Mr Peter Wontuo. You played key roles in my data collection, many thanks!

I wish to also thank Dr John Koku Awoonor-Williams and Dr Kofi Issah, both former regional directors of the Ghana Health Service, Upper East region. Dr Koku Awoonor-Williams was very instrumental in my coming for the PhD programme in Australia. Dr Issah also gave approval for the conduct of the data collection in the health facilities in the study area. I also wish to register my gratefulness to the District Director, Ghana Health Service, Kassena-Nankana Municipality; all in-charges of the health facilities; and the midwives and nurses who participated in the study. To all the women who took part in the study, I say thank you! I am very optimistic that maternal health services in Ghana will be improved for you in the near future.

Mr Alexander Laar, I have known you for over twenty years. You are more than a brother. Many thanks for the support and encouragement throughout these years. You are partly responsible for this accomplishment.

My family, I am guilty of always being a “runaway” man. In the last ten years, I have not been stable, but out there pursuing knowledge. Thank you for the patience and endurance. To my late mother especially, you did your best to send me to school, despite all the hardships you faced. You saw the start but could not live to see the completion. You are a hero! You will forever remain in my heart.

# Images

**Image 1: Focus group discussion with women**

**Image 2: An in-depth interview with a midwife**

## List of Abbreviations

ANC: Antenatal Care

CHPS: Community-based Health Planning and Services

DMHIS: District-based Mutual Health Insurance Schemes

FGDs: Focus Group Discussions

GH₵: Ghana Cedis

GHS: Ghana Health Service

GSS: Ghana Statistical Service

HIV/AIDS: Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome

IDIs: In-depth Interviews

KNEDA: Kassena-Nankana East District Administration

MDGs: Millennium Development Goals

MMR: Maternal Mortality Rate

MOH: Ministry of Health

NHDSS: Navrongo Health and Demographic Surveillance System

NHIA: National Health Insurance Authority

NHIS: National Health Insurance Scheme

OOP: Out of pocket

SDGs: Sustainable Development Goals

UHC: Universal Health Coverage

UN: United Nations

UNICEF: United Nations Children's Fund

UTS: University of Technology Sydney

WASH: Water, Sanitation and Hygiene

WHO: World Health Organization

## Publications arising from the thesis and authors' contributions

### Peer-reviewed articles

Philip Ayizem Dalinjong, Alex Y. Wang and Caroline S. E. Homer, Has the free maternal health policy eliminated out of pocket payments for maternal health services? Views of women, health providers and insurance managers in Northern Ghana, *PLoS ONE (2018) 13(2): e0184830. https://doi.org/10.1371/journal.pone.0184830.*

Philip Ayizem Dalinjong, Alex Y. Wang and Caroline S. E. Homer, The operations of the free maternal care policy and out of pocket payments during childbirth in rural Northern Ghana, *Health Economics Review (2017) 7:41 DOI 10.1186/s13561-017-0180-4.*

Philip Ayizem Dalinjong, Alex Y. Wang and Caroline S. E. Homer, The free maternal health policy: acceptability and satisfaction with quality of maternal health services during pregnancy in rural Northern Ghana (*accepted 03 January 2018*, *Journal of Public Health in Developing Countries*).

Philip Ayizem Dalinjong, Alex Y. Wang and Caroline S. E. Homer, Demand- and supply-side factors affecting the use and provision of maternal health services under the free maternal health policy: Views and perceptions of women and health providers in rural Northern Ghana (*under review, Journal of Health Economics Review*).

Philip Ayizem Dalinjong, Alex Y. Wang and Caroline S. E. Homer, Are health facilities well equipped to provide basic quality childbirth services under the free maternal health policy? Findings from rural Northern Ghana (*Revised and submitted, 29 March 2018*, *BMC Health Services Research*).

**Conference presentation**

14th International Conference on Urban Health (ICUH 2017), "*Has the free maternal health policy eliminated out of pocket payments for maternal health services? Views of women, health providers and insurance managers in Northern Ghana*", Coimbra, Portugal, September 26-29, 2017.

**Authors' contributions**

Study conceptualisation: Philip Ayizem Dalinjong, Alex Y Wang and Caroline SE Homer

Data collection and analysis: Philip Ayizem Dalinjong

Write up: Philip Ayizem Dalinjong

Critical review and supervision: Alex Y Wang and Caroline SE Homer

## Abstract

### Introduction

Ghana implemented the National Health Insurance Scheme (NHIS) in 2005 to improve access to health services, for the achievement of universal health coverage. A free maternal health policy was implemented under the NHIS to enhance access for pregnant women. It is unknown if the policy has reduced access barriers regarding affordability, availability, acceptability and quality of care. Therefore the aim of the study was to explore factors affecting access in the form of affordability, availability, acceptability and quality of care under the NHIS policy.

### Methods

A cross-sectional survey was conducted in the Kassena-Nankana municipality of the Upper East region of Ghana. The study used parallel mixed methods; it collected and combined quantitative and qualitative data. Questionnaires were administered to women (n=406) who gave birth in facilities (n=353) and at home (n=53). In-depth interviews (IDIs) were carried out with health providers (n=25) and insurance managers (n=3), while focus group discussions (FGDs) were held with women (n=10). Descriptive statistics were used for the quantitative data. The qualitative data were analysed using a thematic analysis process.

### Results

*Affordability*

Women made out of pocket payments (OOP) under the policy, averaging GH¢17.50 (US$8.90) and GH¢33.50 (US$17.00) respectively, during pregnancy and childbirth. About 36% (n=145/406) of women incurred what was classified as ‘catastrophic’ OOP payments over 10% threshold of household income, affecting their welfare.

*Availability*

Distance and time were barriers to care seeking. Infrastructure, laboratory services, accommodation, equipment, basic drugs and supplies were limited and often inadequate. The community-based health planning and services compounds were particularly challenged. Of

the 14 study facilities, only two (14%) had a source of clean water, and five (36%) had a regular power supply. Emergency transport for referral was also unavailable.

*Acceptability*

Women perceived facilities to be clean despite the limitations in infrastructure. Providers were perceived to be respectful and friendly. Eighty-nine percent (n=314/353) of women revealed a lack of privacy at childbirth, which was confirmed in IDIs.

*Quality of care*

Overall, 74% (n=300/406) and 77% (n=272/353) of women were very satisfied or satisfied with quality of care during pregnancy and at childbirth respectively, which was supported in FGDs. Providers reported being dissatisfied, due to the challenges associated with service provision.

**Conclusion**

Despite the policy, findings showed that out of pocket payments still existed and one third of women were significantly disadvantaged by the payments. Nevertheless, most women were satisfied with their care, although this could be because they were unaware of what high quality care might include. Providers were aware of the limitations of care provision and many reported being dissatisfied with the service they could provide. The government of Ghana, the National Health Insurance Scheme and other stakeholders should embark on resourcing facilities as well as infrastructural improvements. These would improve access to services and staff satisfaction, for the achievement of universal health coverage.

# CHAPTER 1: INTRODUCTION

The chapter begins by exploring the impact of out of pocket payments on the use of health services, particularly for women. It also explores the definition and importance of universal health coverage (UHC) as well as a brief overview of the health system and health financing in Ghana. The implementation of the National Health Insurance Scheme (NHIS) and the free maternal health policy for increased use of health services for women especially, are also examined. The section concludes with the main aim, research question and objectives of the study.

## 1.1 Introduction

Direct out of pocket (OOP) payments challenge the use of health services in all countries, especially low and middle income countries. Evidence exists that OOP payments are a barrier to the utilisation of health services (Saksena, Hsu & Evans 2014; Shahrawat & Rao 2012; WHO 2010b). Even for people who are able to afford to use health services, some face financial hardships or become impoverished as a result. Annually, an estimated 150 million people globally face financial hardships, while about 100 million people are pushed into poverty as a result of making OOP payments for health services (WHO 2010b). The problem is more aggravated in low income countries, where OOP payments account for nearly 50% of the total health expenditure (Mills 2014).

For women in particular, OOP payments create financial barriers for the use of maternal health services (Danilovich & Yessaliyeva 2014). Women are unable to utilise the needed health services when they have to make direct payments (Leone et al. 2016). Rural, poor and uneducated women are particularly affected when OOP payments are required for health services (Akalu et al. 2012; Mukherjee, Singh & Chandra 2013). Urban poor women are challenged as well in their use of health services (Matthews et al. 2010). There is the urgent call for the elimination of OOP payments, especially for these vulnerable groups.

Many countries have tried to address OOP payments in different ways. One mechanism to increase utilisation of health services is through the implementation of prepayments and risk

pooling schemes. These (prepayments and risk pooling schemes) provide financial protection to households when confronted with high cost health services. Prepayments and risk pooling schemes are also known as health insurance schemes. Health insurance schemes allow for the use of health services without people having to make direct payments at the point of consumption. In addition, health insurance permits cross subsidisation between rich and poor individuals as well as between the healthy and unhealthy (Carrin et al. 2008; Goudge et al. 2012). Different health insurance schemes exist, comprising national health insurance, social health insurance, community-based health insurance and private health insurance (OECD 2004). National/social health schemes are considered as mandatory and recommended for countries who wish to embark on the path of achieving universal health coverage (UHC).

The study outlined in this thesis explores access challenges in Ghana's bid to promote UHC especially for maternal services. The study is set in a rural region in Northern Ghana in the context of the implementation of a free maternal health policy under a health insurance scheme more than a decade ago. The aim of the study was to explore access to maternal health services under the free maternal health policy of the National Health Insurance Scheme (NHIS).

## 1.2 Definition and importance of UHC

The World Health Report defined UHC as all people having full access to needed promotive, preventive, curative, rehabilitative and palliative health services which should be of a standard quality, without having to suffer any financial hardship or impoverishment (WHO 2010b). Simply put, UHC specifies coverage with quality health services, ranging from health promotion to prevention, restoration, rehabilitation and palliation. It also includes coverage in terms of financial risk protection, as well as coverage for everyone. Evans et al. state that "UHC cannot be attained unless both health services and financial risk protection systems are accessible, affordable and acceptable" (Evans, Hsu & Boerma 2013, p546) .

UHC is an explicit expression of the fact that health is a fundamental human right which was captured in the WHO constitution of 1946 (WHO 1946). Health services should be equitably available for all, for the promotion of good health. The WHO definition of UHC (WHO 1946)

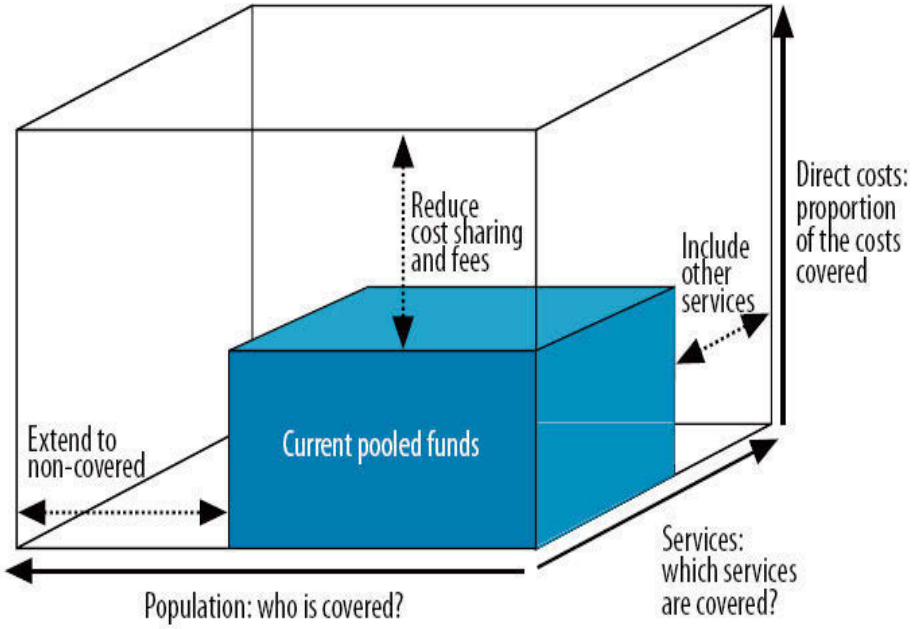
serves as a guide for countries to follow, in their drive to promote the welfare of their populations. UHC is seen as an effective tool for financial protection and for the promotion of increased utilisation of essential health services by poor and vulnerable groups (Moreno-Serra & Smith 2012). This is due to the fact that OOP payments are not required at the point of service use, though it is acknowledged that cost is not the only factor determining the use of health services. By eliminating OOP payments through prepayments and risk pooling schemes, achieving UHC is possible, and will lead to improved affordable use of health services and subsequent reduction of poverty (Evans, Marten & Etienne 2012; WHO 2012).

Given its importance, UHC has been included as one of the targets for the Sustainable Development Goals (SDG target 3:8), stating that by 2030, all countries should have achieved UHC for their populations, including financial risk protection as well as the availability of essential quality health services, medicines and vaccines (UN 2016).

## 1.3 Dimensions of UHC

The WHO developed a framework to aid countries decide on how to accelerate towards achieving UHC (WHO 2010). The framework is grounded in three principal areas comprising the proportion of total population coverage, health services coverage and financial cost coverage. This is illustrated in Figure 1.

**Figure 1: Dimensions of Universal Health Coverage**




Source: WHO 2010b

The breadth of the blue box in Figure 1 illustrates the proportion of the total population receiving health insurance cover, the depth is the proportion of health services available to beneficiaries and the height refers to the proportion of financial cost covered, with no co-payments or deductibles. To measure and monitor UHC, these three dimensions are the yardstick (Kutzin 2013). Both rich and poor countries are strongly encouraged to make as much progress in these dimensions as possible. But countries on their own will have to decide on which of these dimensions to prioritise, given their context, political commitment and available resources. Particularly, UHC is a political choice (Ghebreyesus 2017). Political leaders have the ultimate decision on whether to embark on health sector reforms for the achievement of UHC. With a strong political will and commitment, UHC is possible.

In pursuing UHC, Ravindran has argued that certain key factors, such as affordability, availability and access, must be addressed to promote the use of health services by women in particular (Ravindran 2012). Failure to address these key issues would likely exclude more women than men from UHC (Ravindran 2012). Among other things, the author suggested the institution of social or national health insurance schemes, with partial or no premium

payments required for women and the provision of a comprehensive benefit package to address the sexual and reproductive health needs of women, as well as the use of demand-side financing mechanisms such as cash transfers to benefit those from poor communities (Ravindran 2012).

The Government of Ghana implemented the NHIS and incorporated in it the free maternal health policy to enhance the utilisation of health services for women in particular. The policy serves to promote the uptake of health services for women. This will be further explained in this thesis.

## 1.4 Brief overview of Ghana

Ghana is a West African country with a total land area of approximately 239,000 square kilometres and a population of about 27 million people in 2016 (World Bank 2016) . It is the first country in sub-Saharan Africa to gain independence from the British in March 1957. Ghana is bordered by three countries, Togo to the east, Ivory Coast to the west, and Burkina Faso to the north. In the south, Ghana borders the Gulf of Guinea and the Atlantic Ocean. The country has ten administrative regions, with Accra as the administrative capital city. Figure 2 shows the map of Ghana and its location in Africa on a global map.

**Figure 2: Map of Ghana and its location in Africa on the global map**

Source: WHO 2015b

Ghana is well endowed with natural resources: gold, manganese, bauxite, diamonds, timber, rubber and oil. The country is also a top producer of cocoa. Table 1 presents the key developmental indicators for Ghana.

**Table 1: Key developmental indicators for Ghana 2014**

| Indicator | Percent/rate |
|---|---|
| Population (millions) | 26.8 |
| Population growth (% per annum) | 2.4% |
| Surface area (1,000 sq. km) | 239,000 sq. km |
| Gross Domestic Product ($ billions) | $38.6 billion |
| Population living below $1.90 a day (%) | 25.2% |
| Life expectancy at birth (years) | 61 |
| Total fertility rate (births per woman) | 4.2 |
| Births attended by a skilled health provider (% of all births) | 71% |
| Under-five mortality rate (per 1,000 live births) | 62 |
| Access to improved water source (% total pop.) | 89% |
| Access to improved sanitation facilities (% total pop.) | 15% |
| Electricity use per capita (kilowatts-hours per annum) | 382 |
| Human Development Index Rank (2014) | 140 |
| Total expenditure on health as a percentage of gross domestic product | 3.56% |
| Private expenditure on health as a percentage of total expenditure on health | 40.15% |
| General government expenditure on health as a percentage of total government expenditure | 6.82% |

Source: World Bank 2016; WHO 2016a

In Ghana, the top ten causes of death are lower respiratory infections, stroke, malaria, ischaemic heart disease, human immunodeficiency virus/ acquired immunodeficiency syndrome (HIV/AIDS), preterm birth complications, diarrhoeal diseases, birth asphyxia and birth trauma, meningitis and protein-energy malnutrition (WHO 2015b). The country had a physician density (per 1,000 population) of 0.096 in 2010, while the nursing and midwifery workforce (per 1,000 population) was 0.926 for the same year (WHO 2016a). These statistics

are considered to be very low. For instance, Cuba had a physician density of 67 per 10,000 population in 2013 (WHO 2017b).

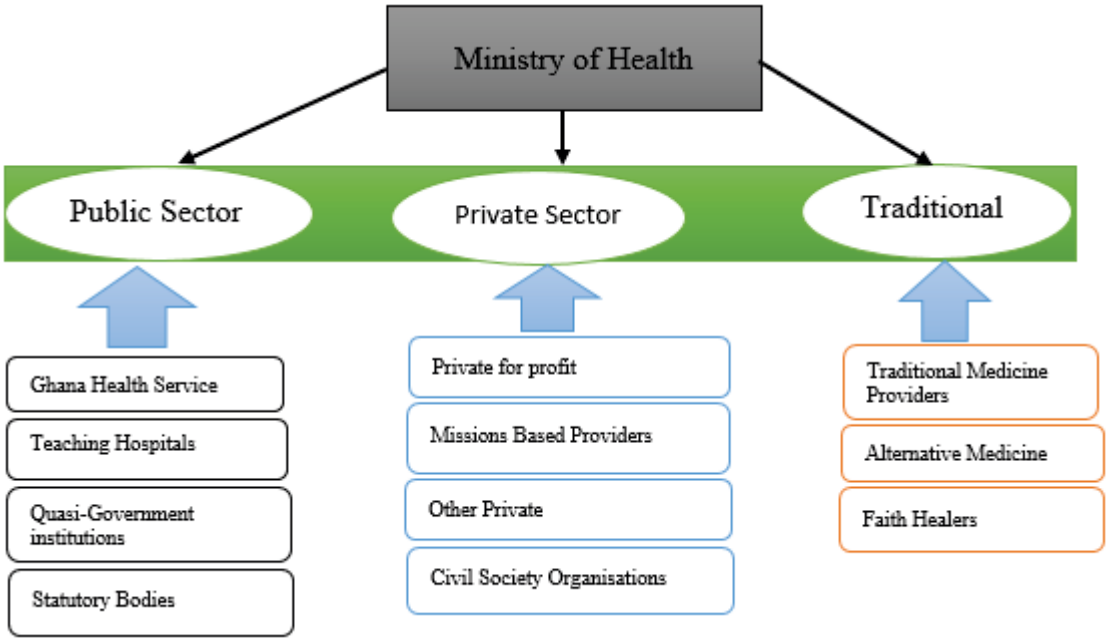
## 1.5 Brief overview of the health system in Ghana

### 1.5.1 Ministry of Health

In Ghana, the Ministry of Health (MOH) is responsible for policy direction, resource mobilisation, and the monitoring and evaluation of health and related services. The MOH supervises three broad sectors, the first of which is the public health sector. This sector comprises the Ghana Health Service, the teaching hospitals, quasi-government institutions and other statutory bodies. The public health sector has the highest number of health facilities, hospital beds and health providers (Saleh 2013). The other two broad sectors are the private and traditional health sectors.

The Government of Ghana recognises the importance of the private health sector and therefore implemented the Private Health Sector Policy in 2003. The policy sought to streamline and improve the activities of the private health sector, since the private health institutions provide over 40% of health services in Ghana (Saleh 2013). The traditional health sector is also well patronised and recognised by Ghanaians. Herbal medicine practitioners and spiritualists are involved in the traditional health sector. Some Ghanaians would prefer to utilise these practitioners first, before the use of the formal health system. In some cases, there is a concurrent use of herbal medicine and the formal health system. Ghanaians also believe in the spiritual realm and consult that when confronted with illness. Figure 3 is a demonstration of the organisation of the MOH, highlighting the three broad sectors and their sub-divisions.

**Figure 3: Organisation of the Ministry of Health**




Source: MOH 2015

### 1.5.2 Ghana Health Service

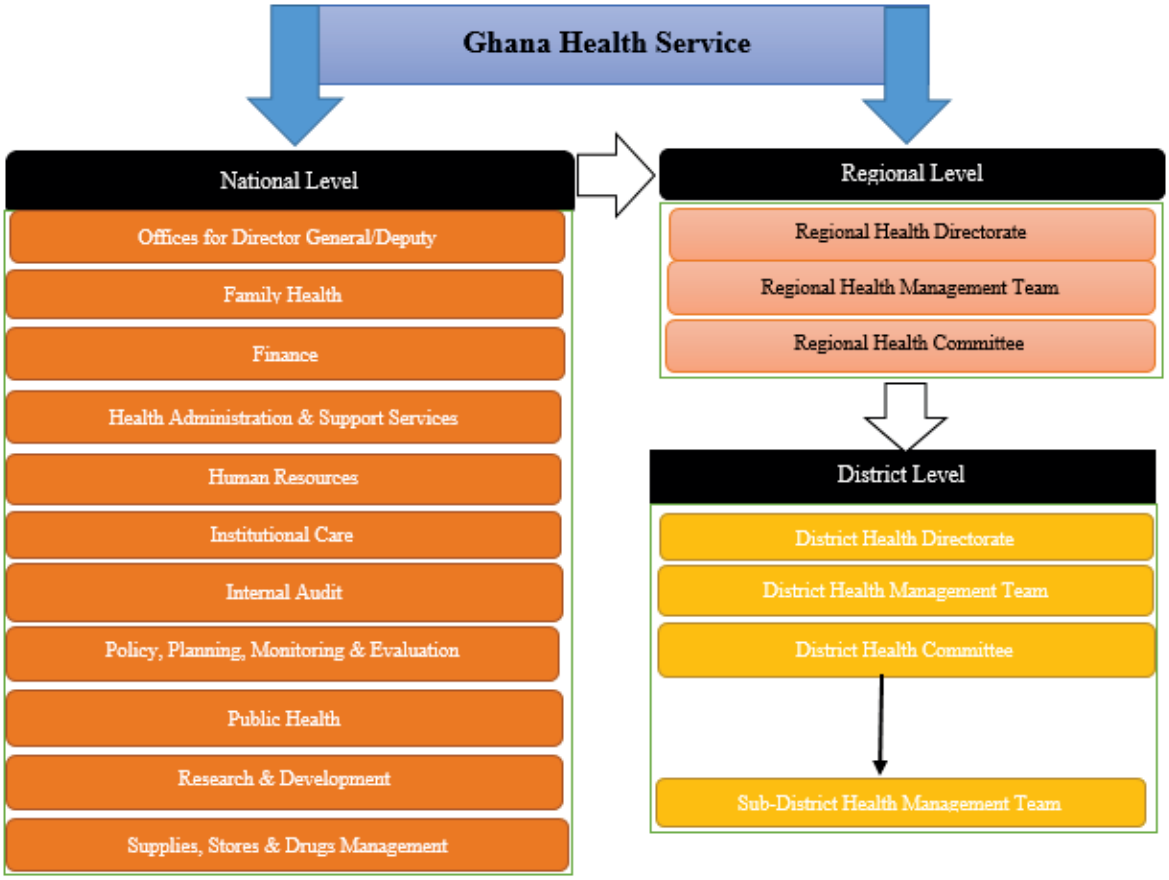
The promulgation of Act 525 (the Ghana Health Service and Teaching Hospitals Act) in 1996 saw the establishment of the Ghana Health Service (GHS) and granted autonomy to the teaching hospitals. The Act separated health policy formulation from the management of health services. Officially, the GHS began operations in February 2003. The service is responsible for the implementation of public sector health services. It is administratively supervised by the MOH. The GHS operates to ensure access to health services at the community, sub-district, district and regional levels. Following this, the GHS is organised at five levels: community, sub-district, district, regional and national. Thus health facilities under the coordination and supervision of the GHS include the Community-based health planning and services (CHPS); sub-district health centres and clinics; district hospitals; regional hospitals; and specialised tertiary hospitals.

### 1.5.3 Organisation of the Ghana Health Service

At the national level, the GHS has eleven directorates. These include: offices of the director general and deputy director general; family health; finance; health administration and support services; human resources; institutional care; internal audit; policy, planning, monitoring and

evaluation; public health; research and development and supplies, stores and drugs management. Each of these sub-divisions is headed by a national divisional director. There is also the Ghana Health Service Council operating at the national level acting as an advisory and coordinating body to the GHS. At the regional level, there are ten health directorates which are located in each of the ten regions of the country and headed by regional health directors. The regional health directorates are supported by regional health management teams and regional health committees. Figure 4 shows how the GHS is organised.

**Figure 4: Organisation of the Ghana Health Service**



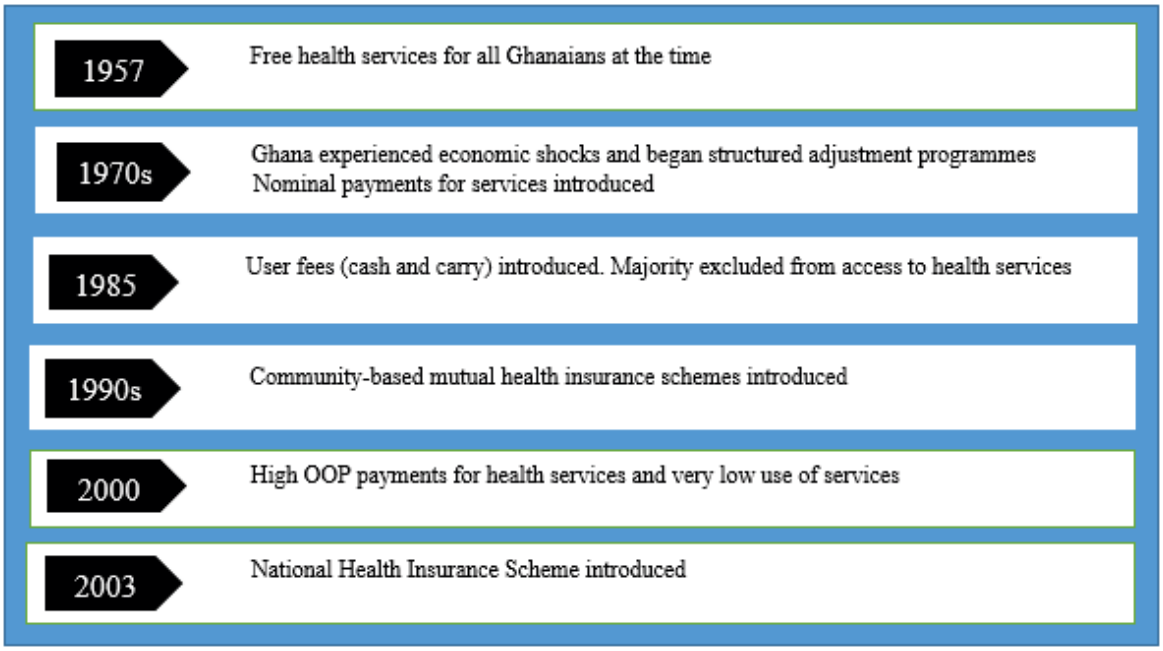

Source: GHS 2017

There are one hundred and ten district health directorates led by district health directors. The district health directorates are also supported by district health management teams, district health committees and sub-district health management teams. The GHS working under the auspices of the MOH, aims to guarantee good health care for all Ghanaians.

## 1.6 Historical overview of health financing in Ghana

Health financing in Ghana has been associated with an initial general tax funding, user fees, donor funding and finally the introduction of a national health insurance scheme (Saleh 2013). After Ghana attained independence in 1957, health services were provided free for all Ghanaians who visited public health facilities. Health services were funded solely by the Government of Ghana, derived from general taxation. Ghana had a booming economy at the time and hence it was possible to pay for the cost of health services for all citizens to attend public health facilities. The population of Ghana at the time was about 6.7 million (1960 figure) (GSS 2004), and thus all Ghanaians could enjoy free health services. Figure 5 demonstrates the trend of health financing from the period of independence up to the year 2003, when Ghana implemented the NHIS.

**Figure 5: Brief historical overview of health financing in Ghana**




Source: Mensah 2013

Between the 1970s and 1980s, the economy of Ghana experienced a continued stagnating growth with a decrease in general tax earnings, coupled with several military upheavals.

Financing health services from tax revenues became a significant challenge, thus crippling the health sector (Saleh 2013).

A military government at the time, acting on the advice of the World Bank and the International Monetary Fund, introduced user fees in 1985, the purpose of which was to generate revenue and to discourage the abuse of health services. Full cost recovery was further implemented in 1992, called the "cash and carry" system, by which all health services were to be paid for at the point of consumption. The policy created a financial barrier to the use of health services and substantially reduced the use of health services by people who were poor and/or vulnerable (Arhinful 2003; Dzikunu & Thorup 2003). The annual number of visits to public health facilities reduced from 4.5 million to 1.6 million as a result of the implementation of the user fees (Dzikunu & Thorup 2003).

In the face of this, the community-based mutual health insurance schemes emerged around the 1990s, which were not widespread, given the nature of their operations and coverage. In 2003, the community-based mutual health insurance schemes covered only one percent of Ghana's population (Sulzbach, Garshong & Owusu-Banahene 2005). This necessitated the need to search for yet an alternative health financing mechanism, leading to the implementation of the NHIS.

## 1.7 The National Health Insurance Scheme (NHIS) in Ghana

To promote the use of health services and move towards UHC for all Ghanaians, the Government of Ghana set up the NHIS in 2003 under NHI Act 650, revised in Act 852 in 2012. The NHIS became fully operational in 2005. The operations of the NHIS replaced the payment of direct user fees for health services. Under the Act, three different types of health insurance schemes operated, consisting of the district-based mutual health insurance schemes (DMHIS), private mutual insurance schemes and private commercial insurance schemes. However, the focus is on the DMHISs, coming under the umbrella of the NHIS and operating in all metropolitan areas, municipalities and districts in Ghana. The Government of Ghana supports and supervises the operations of the DMHISs through the National Health Insurance

Authority (NHIA). Every Ghanaian is mandated to belong to an insurance scheme that would take care of his or her health needs.

### 1.7.1 Financing of the NHIS

The source of funding for the NHIS includes premium contributions from both formal and informal sectors of the economy. For the formal sector, a monthly deduction of 2.5% is made from the Social Security and National Insurance Trust Fund for workers. Individuals in the informal sector makes a contribution of between GH¢7.2 (minimum) and GH¢48.00 per year, depending on their ranking on the socio-economic scale. The payment is usually made at the NHIS office or through NHIS registration agent. Other sources of funding for the NHIS consist of 2.5% national health insurance levy (value added tax) on certain categories of goods and services, funds from the Government of Ghana and returns from investments made by the NHIA. The funding source for the NHIS therefore combines tax funding, social security and informal sector contributions.

### 1.7.2 Exemptions under the NHIS

The NHIS has granted exemption from premium payment for various categories of individuals in the country. These are: children under 18 years of age, elderly people who are 70 years and above, pensioners of the Social Security and National Insurance Trust, the indigent (poor and vulnerable) who must meet a certain criteria, pregnant women and recently, persons with mental disorders. Pregnant women, indigents and persons with mental disorders are not required to make any payment of processing fees before being registered into the NHIS; however, the other exempt groups must pay a processing fee.

### 1.7.3 Success story of the operations of the NHIS

The implementation of the NHIS has led to a steady increase in the utilisation of both outpatient and inpatient health services. According to the MOH, outpatients per capita rate had doubled since the introduction of the NHIS, with over 80% of total outpatient attendance made by the insured (MOH 2014c). In the same vein, the NHIA reported that outpatient health service utilisation had increased over forty-fold from 0.6 million in 2005 to 25.5 million in 2011 (NHIA 2012). During the same time, inpatient utilisation also increased over

fifty-fold from 28,906 in 2005 to 1,451,596 in 2011 (NHIA 2012). The NHIS had a total active membership of 36.8% of the Ghanaian population as at the end of December, 2013 (MOH 2014c).

### 1.7.4 Challenges under the NHIS

Despite the fact that the NHIS has been praised as a success, there are challenges. Chiefly, there are delays in the reimbursement of health facilities (Fusheini, Marnoch & Gray 2017). Health facilities are not paid promptly by the NHIS as stipulated, which is within one month following claims submission by health facilities to the NHIS. Secondly, the rising coverage of the population and subsequent increase in health service utilisation continues to impact adversely on the health workforce (Fusheini, Marnoch & Gray 2017). Health workers are increasingly overwhelmed with patients' attendance. This is a significant issue, especially in rural and distant areas, where health workers do not accept postings. About 67.9% of the health workforce is located in urban areas compared to about 32.1% in rural settings (MOH 2011).

## 1.8 The free maternal health policy

In Ghana, an initial fee exemption for pregnant women was introduced in 2003. This was to help promote the use of skilled attendance at childbirth and reduce maternal and child deaths. For instance, in 2000, Ghana had a very high maternal mortality rate (MMR) of 467 maternal deaths per 100,000 live births (WHO 2015c). At the onset of the exemption, only women in the Central, Northern, Upper East and Upper West regions were covered. These regions were considered as the poorest in Ghana. In 2005, the exemption was extended to cover all women in the country. The goal was to reduce financial barriers involved with the use of maternal health services. Public health facilities provided health services to women, for which they were reimbursed by the various metropolitan, municipal and district assemblies. However, the exemption could not be sustained due to funding constraints (Witter & Adjei 2007).

In July 2008, the Government of Ghana took another bold step by introducing a new initiative to provide free health services to pregnant women. It was called the free maternal health policy. The policy sought to promote the use of health services (antenatal, childbirth and

postnatal) by all pregnant women for the reduction of maternal deaths and the achievement of UHC. Women are required to register and obtain a NHIS card to be able to benefit from these services. A pregnancy confirmation letter from a medical officer, midwife or nurse has to be submitted as proof for registration with the NHIS.

### 1.8.1 Benefits under the free maternal health policy

The benefit package starts from the period the woman is certified to be pregnant up to three months after childbirth. The free maternal health policy provides the following benefit package for women and their babies: exemptions from payment of the NHIS premium and processing fee, zero waiting times between registration and use of health services, and free health services and drugs during the periods of antenatal and childbirth. Health services and drugs are also given free of charge to women and their newborn babies up to 90 days postpartum.

## 1.9 Rationale for the study

The free maternal health policy is considered an important boost to the utilisation of health services including skilled attendants at childbirth and for the achievement of universal access to health services. As at the end of 2012, a cumulative total of 2,549,177 pregnant women had membership with the NHIS (NHIA 2012). In addition, skilled attendance at childbirth increased by 6.7% from 2011 to 58.5% in 2012 (MOH 2012).

Health policies, particularly fee exemption policies, are often poorly implemented in low and middle income countries (Bohren et al. 2014; Witter, Brikci, et al. 2016). This is a result of challenges in and outside of the health system, which invariably are the factors affecting access to health services. These factors include: affordability, availability, accessibility, acceptability and quality of health services (Filippi et al. 2006; Sachs 2012). The factors affecting access to health services (which are both health system and client) have not been comprehensively studied under the free maternal health policy in Ghana, particularly in a rural setting. Studies documenting such factors affecting access to maternal health services under the policy are scant. A study in South Africa demonstrated that the utilisation of

obstetric services was impeded by affordability, availability and acceptability barriers (Silal et al. 2012).

In the drive to reduce maternal deaths as well as achieving UHC, it is crucial to study and understand the key factors affecting access to maternal health services such as affordability, availability, acceptability and quality of health services. It is essential that the needed health services are available and of good quality; that the health workforce required to provide the services are well trained, motivated, and approachable; and that the needed drugs and equipment are available and distributed equitably for the reduction of maternal deaths and the attainment of UHC (Evans, Marten & Etienne 2012; Koblinsky et al. 2016). In the midst of these enumerated challenges, policy objectives are difficult to achieve. Given Ghana's implementation of the free maternal health policy under the NHIS, it is pertinent to explore the factors that affect access to maternal health services such as affordability, availability, acceptability and quality of care.

## 1.10 Main aim and research question for the study

The aim of this study therefore was to explore the factors that affect access to health services in terms of affordability, availability, acceptability and quality of care under the free maternal health policy. Thus the research question for the study was **"**what factors affect access to maternal health services under the free maternal health policy of the NHIS in Northern Ghana?" Both barriers and facilitators to access to services under the policy were explored (quantified and explained). This was done from the perspective of demand (client side) and supply (health system).

### 1.10.1 Specific objectives

From the viewpoint of health providers and women, the study specifically explored factors affecting access to maternal health services, taking into consideration the affordability, availability, acceptability and quality of maternal health services at pregnancy and childbirth. The findings which reflects the study objectives have been categorised explicitly under pregnancy and childbirth.

### 1.10.2 Justification for the study

The study explored factors that affect access to maternal health services under the free maternal health policy. In the era of UHC, it is important to investigate access, since UHC and universal access to health services are complementary concepts; without universal access, UHC becomes an unattainable target (Evans, Hsu & Boerma 2013). The views and perceptions of health providers and women were sought concerning the facilitators and barriers of health service use and provision (Tanahashi 1978). Thus the study provided an analysis and insights into the systemic deficiencies affecting access to maternal health service at the micro-level. The study improved our understanding of the facilitators and barriers to access to maternal health services, requiring policy redirection for the achievement of policy objectives. The findings provided lessons to promote the successful operation of the free maternal health policy and other similar initiatives. The findings would serve as useful lessons for countries with similar settings who have implemented or are planning to implement fee free policies.

In addition, the study would contribute to on-going debates on whether Ghana is on track to the achievement of the SDGs, particularly SDG 3 (good health), targets 3.1 (maternal health) and 3.8 (universal health coverage). The findings would inform ongoing policy analyses of the effectiveness of the free maternal health policy and assist to highlight the strengths and limitations of the current system.

## 1.11 Structure of the thesis

The thesis is guided by the main research question and the specific objectives which are outlined in chapter 1. The findings are structured around the specific objectives of the study as well as along the lines of pregnancy and childbirth. In the study, the period of pregnancy covers the day a woman would be confirmed as pregnant by a health provider, covering the entire period, excluding the day of childbirth. The period of childbirth covers the day of labour, birth, and up to the day the woman and her newborn are discharged from the health facility. The findings are presented in the form of papers that are either published/accepted for publication or are under peer review. Each paper is presented as a distinct chapter in the

thesis. Chapters 4-6 contain the papers which are published/accepted in international peer reviewed and open access journals. Chapters 7 and 8 consist of papers which are under peer review in similar journals.

Chapter 2 undertakes a review of the literature in relation to maternal mortality, providing insights into its measurement, impact, as well as important and necessary strategies for its mitigation. In addition, the chapter highlights the need to reduce maternal deaths globally and especially in Ghana. The chapter explains the development of a study framework. The framework directed the conduct of the study and the reporting of its findings.

Chapter 3 discusses the study settings and design. Sample size determination as well as the overall procedure leading to the recruitment of participants are reported. Data collection, analysis and interpretation, and the assurance of data quality are also discussed. The process of ethical approval and consent for participation in the study is documented in the chapter. Some of this chapter is repeated in the findings chapters as a brief method is included in each of the papers for publication.

The next five chapters are the findings; each presented as a paper for publication. Given they are all in relation to the one study, there is some duplication of the background, methodology and limitations sections across the papers. Permission from the journals has been granted to reproduce the papers in the thesis.

Chapter 4 explores the affordability of maternal health services during pregnancy. Specifically, the views of women, health providers and health insurance managers/directors on costs and actual OOP payments at pregnancy were reported. This article has been published in *PLoS ONE*.

Chapter 5 presents the views of women and health providers on OOP payments (affordability) at childbirth. The estimated OOP payments and the financial impact on women during childbirth were also examined. The chapter is published as a paper in *Health Economics Review*. The difference in the two papers is that the paper in chapter 4 determines

OOP payments during pregnancy, while the paper in chapter 5 is solely on OOP payments during the period of childbirth.

Chapter 6 reports the findings relating to the acceptability and satisfaction with quality of maternal health services during pregnancy. The chapter explores women's views and perceptions about the attitudes and behaviours of health providers as well as overall satisfaction with quality of services during pregnancy. The views and perceptions of health providers are also represented. The paper has been accepted for publication in *Journal of Public Health in Developing Countries.*

Chapter 7 presents findings on the availability of maternal health services during pregnancy. It assessed demand- and supply-side factors affecting the use and provision of maternal health services during pregnancy. The chapter is an article under peer review, *Journal of Health Economics Review.*

Chapter 8 reports the findings on the availability, acceptability and satisfaction with quality of maternal health services at childbirth. The availability of basic essential inputs including drugs, supplies and equipment in health facilities providing childbirth services are assessed. Women and health providers' perceptions of privacy and satisfaction with quality of care at childbirth are also explored. The chapter is an article under revision for *BMC Health Services Research*.

Chapter 9 presents a synthesis of the findings and brings the thesis together in relation to the main aim and research question. The chapter also highlights lessons learnt from the findings, the limitations and areas for future research.

## 1.12 Summary of the chapter

This chapter explored the definition and importance of UHC. The chapter also covered an overview of Ghana's health system and health financing. The implementation and operations of the NHIS in Ghana was also discussed as well as the free maternal health policy. The main

aim and research question including the objectives were also captured in the chapter. The chapter concludes with the justification for carrying out the study.

The next chapter is a literature review, which was conducted in 2015. This informed the development of the study. The chapter documents the measures, burden and impact of maternal deaths globally and in Ghana. The dimensions of access to health services are also discussed, forming the basis for the study (study framework).

# CHAPTER 2: LITERATURE REVIEW

This review was carried out to inform the development of the study. This initial review was conducted in 2015. It is an overview of the literature relating to maternal deaths globally, including Ghana. The review starts with a definition of maternal death, following with measures, burden and impact of maternal deaths. Strategies adopted for the reduction of maternal deaths globally are also discussed, as are Ghana's efforts to reduce maternal deaths. The review also examines the dimensions of access as well as the framework on which the study hinges. In addition to this chapter, each of the papers (chapters 4-8) contain a brief literature, to address the specific issues pertinent to that paper.

## 2.1 Search strategy

For the review, a thorough search in the health databases yielded the required information. The databases *CINAHL, MEDLINE, ProQuest Health and Medicine, Scopus* were used as well as G*oogle Scholar*. The website for the WHO and other international bodies involved in the promotion of women and children's health especially, were also searched. Different search terms were used or combined to get the requisite information, categorising them into headings and subheadings (MeSH). The search terms *"universal health coverage, health insurance, access, affordability, availability, acceptability, quality of care, maternal health"* were grouped as headings. "*Skilled attendance, free maternal health policy, fee exemption, maternal health services, out of pocket payments, health expenditure, barriers* and *facilitators"* were also grouped as subheadings. The search was for studies carried out in low and middle income countries, the purpose of which was to match them to the context of the study area and Ghana, as a developing country. Review journal articles and primary studies were prioritised. However, relevant reports, theses and online textbooks were also utilised. The reference lists of selected journal articles were further examined for studies matching the topics to be included in the review. The review begins with an overview of maternal deaths and their impact on family members and the society as a whole.

## 2.2 Measures of maternal deaths

The International Classification of Diseases (revised ICD-10) defined maternal death as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" (cited in WHO 2004, p98). Deaths from pregnancy and related causes pose a serious public health challenge; an approximate 800 women lose their lives daily as a result of complications from pregnancy or childbirth (WHO 2014b).

Approaches used in the determination of maternal deaths include the maternal mortality ratio (MMR) and the maternal mortality rate (MMRate). These are determined taking into account the risk of dying during a single pregnancy or a single live birth as well as the number of times a woman faces this risk, taking cognisance of her fertility level (WHO 2014d; Wilmoth et al. 2012).

The MMRate encapsulates both the risk of maternal death per pregnancy or per total birth (live birth or stillbirth) and the level of fertility in the given population. Overall, MMR is mostly used in studies for the determination of maternal deaths, since it captures the occurrence of maternal deaths in relation to their risk pool, as determined by the number of live births (Wilmoth et al. 2012). However, measuring MMR and MMRate accurately has been a big challenge globally due to data unavailability. Especially in low income countries**,** data are hampered by the lack of vital registration systems for births and deaths, no budgetary support for mortality data collection, and the occurrence of deaths outside of health facilities (AbouZahr 2013; Immpact 2007; Say et al. 2014; WHO 2014d; Wilmoth et al. 2012).

## 2.3 Causes of maternal deaths

There are direct and indirect maternal deaths, with direct maternal deaths resulting from obstetric complications of pregnancy (including birth and 42 days postpartum). Between 2003 and 2009, almost 73.0% of all maternal deaths globally were caused by direct obstetric complications (Say et al. 2014). Haemorrhage was determined to be the leading direct cause

of maternal deaths (27.1%), followed by hypertensive disorders (14.0%) and sepsis (10.7%) (Say et al. 2014). Indirect causes were responsible for 27.5% of maternal deaths between 2003 and 2009 globally (Say et al. 2014). The indirect causes occur from diseases exacerbated by the process of pregnancy (WHO 2014d; Wilmoth et al. 2012). Some of these indirect causes are attributable to HIV infection, mental health disorders and diabetes, which are on the rise recently, but yet to be given the needed attention, compared to the focus given to the direct causes of maternal deaths (Filippi et al. 2016; Storm et al. 2014). There is an urgent need to focus on the indirect causes of maternal deaths as well (Storm et al. 2014).

## 2.4 Burden and impact of maternal deaths

Globally, the burden of maternal deaths is seen to be on the decline. For instance, the overall number of maternal deaths decreased by 43% from 532,000 in 1990 to 303,000 in 2015 (Filippi et al. 2016). But low and middle income countries are still disproportionally affected by maternal deaths. These countries alone accounted for 99% (300,000) of the global maternal deaths, which is 14 times higher than countries considered as high income (Filippi et al. 2016). Sub-Saharan Africa is particularly affected, accounting for 66% of the global burden (Filippi et al. 2016). This highlights the fact that poor countries and poor women are at increased risk of maternal death. Even within countries, there is a significant difference in maternal death between women depending on age, socio-economic status, education and location (AbouZahr 2013; WHO 2014b). For example, it has been reported that adolescents under 15 years of age have a high risk of maternal deaths compared to other age groups (Conde-Agudelo, Belizan & Lammers 2005; Patton et al. 2009; WHO 2014b). It is argued that the bodies of adolescents are not fully developed to support childbirth, accounting for the poorer outcomes (Conde-Agudelo, Belizan & Lammers 2005).

The impact of maternal deaths is enormous for surviving children, especially infants who survived after the death of their mothers, the immediate and extended family, and the community as a whole (Tulloch 2015; WHO 2017a). Several studies in Africa and elsewhere have explored the effect of maternal deaths. For example, studies in rural Kenya, South Africa and Ethiopia demonstrated that babies who survived after the death of their mothers, had an increased risk of dying compared with babies whose mothers survived after childbirth

(Houle et al. 2015; Moucheraud et al. 2015; Pande et al. 2015). This is explained by the fact that the families are unable to provide for the required physiological, nutritional and health service needs of the surviving child. Older surviving children either drop out of school or miss school in order to cater for the survived sibling or to perform household chores in place of the deceased mother (Bazile et al. 2015; Knight & Yamin 2015; Pande et al. 2015). This is particularly true for girls, who in addition may face sexual exploitation, pregnancy and early marriage due to lack of motherly care and supervision (Bazile et al. 2015; Knight & Yamin 2015; Yamin et al. 2013).

The economic and financial impact of maternal deaths is also great for families who encounter a maternal death (Wang et al. 2013). Firstly, the cost of seeking health care for complications in pregnancy and childbirth can take considerable resources from families, given that women who experience complications may require multiple visits to health facilities, thus compounding the cost of transport, drugs and hospitalisation (Yamin et al. 2013). For example, a study in Western Kenya reported that households who had a maternal death spent about one-third of their annual per capita consumption expenditure on health services compared to about 12% for households who had a healthy pregnancy and childbirth (Kes et al. 2015). The study added that the funeral cost for a maternal death was even higher than the cost of seeking health services and hence households end up exhausting their savings, selling assets and borrowing (Kes et al. 2015), thus leading to further impoverishment. In addition, income from a working mother or her usually unpaid services are lost to the family after her death (Pande et al. 2015; Yamin et al. 2013).

Finally, the death of a woman through childbirth distracts community life, especially for closely-knit communities. Community members will forgo their economic activities to be able to offer support for the spouse and family that experienced the death. In some cases, community members or close relations will forgo their economic activities in order to take care of the surviving children (Knight & Yamin 2015; Yamin et al. 2013). From the analysis, the health and survival of women is crucial for the welfare and wellbeing of their children, family and the community. Indeed the health and lives of women are not only essential for themselves but for the overall health and socio-economic development of society.

## 2.5 Strategies for the reduction of maternal deaths

Given the gravity of the problem of maternal deaths, it was included as one of the Millennium Development Goals (MDG 5) by the United Nations (UN). The goal had two main objectives to achieve. The first was the reduction of maternal deaths by 75% between the years 1990 and 2015. A stipulated 5.5% annual reduction in the global maternal mortality ratio was envisaged for the achievement of MDG 5 by 2015. However, between 1990 and 2015, only a yearly reduction of 2.6% was achieved (WHO 2014d). This is attributed to the fact that most countries, especially in sub-Saharan Africa and Southern Asia, are not making the required progress in the reduction of maternal deaths (Zureick-Brown et al. 2013). For some of these countries, this objective was unattainable.

The second objective of MDG5 was the achievement of universal coverage of skilled attendance at childbirth by 2015. The objective borders on universal access to reproductive health for all women by 2015, covering antenatal care (ANC), contraceptive use, family planning and the reproductive health service needs of adolescents, which was also unattainable for some low income countries. At the end of 2015, the MDGs were replaced by the Sustainable Development Goals (SDGs). Perinatal outcomes are included in the SDGs. These SDGs are being monitored keenly by the United Nations, the WHO and other international organisations to determine whether countries, especially low and middle income ones are on track (UN 2016).

Skilled attendance at childbirth including the availability of emergency obstetric care, ANC and family planning are among the key strategies listed for the reduction of maternal deaths (Carlough & McCall 2005; Harvey et al. 2004; Koblinsky et al. 2006; Renfrew et al. 2014). Using the Lives Saved Tool, Homer et al demonstrated that skilled birth attendance (that is, midwifery services including family planning and other interventions for maternal and newborn health) could prevent a total of 83.3% of all maternal deaths, stillbirths, and neonatal deaths (Homer et al. 2014). Importantly, health system strengthening with emphasis on quality is key for the utilisation of maternal health services leading to reduced maternal deaths (Van Lerberghe et al. 2014).

Antenatal attendance is also shown to promote the health of pregnant women and ensure better childbirth outcomes (AbouZahr 2013). WHO previously recommended that women with normal pregnancies should make up to four focused visits for ANC (Villar et al. 2001). However, the recently released WHO guidelines now recommend a minimum of eight visits for ANC by pregnant women. This is to reduce prenatal deaths and generate a positive experience for pregnant women (WHO 2016d). There are concerns that the new recommendation would require more resources and in already resource constrained settings, there might be some challenges to implement that (Weeks & Temmerman 2016). It is important to understand the resource implication of the previous recommendation and policy as the new recommendation of eight ANC visits is considered and implemented.

In seeking ANC, pregnant women are counselled, educated and encouraged to seek skilled attendance during childbirth, particularly for women who are assessed to be at high risk (AbouZahr 2013; Campbell & Graham 2006; WHO 2016c). A systematic review to explore the relationship between antenatal attendance and skilled attendance at childbirth in low income countries found that women who attended ANC had more than seven times the chance of using skilled attendance during childbirth (Berhan & Berhan 2014).

Eliminating OOP payments is considered one of the best options for promoting access to health services, including skilled attendance at childbirth and ANC (Lagarde & Palmera 2008; Leone et al. 2016). The removal of OOP payments could also prevent impoverishment among households (Xu et al. 2005). Evidence points to a link between OOP payments and health outcomes in terms of maternal deaths. For example, a study by Alvarez et al on sub-Saharan Africa reported a direct significant correlation between OOP payments and the MMR. The authors showed that countries with higher OOP payments are more likely to record higher MMRs (Alvarez et al. 2009).

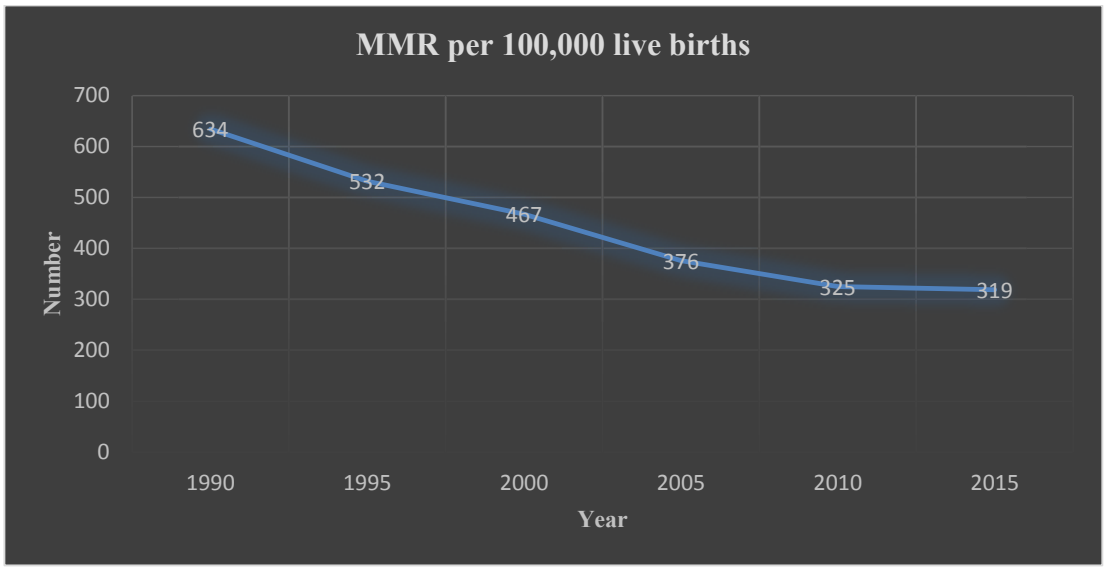
International organisations including the World Bank and UNICEF have called on low income countries to transition to prepayments, or embark on policies of fee exemptions for certain categories of health services. There exists a strong positive relationship between the

provision of fee exemptions and the use of skilled attendance at childbirth (Dzakpasu, Powell-Jackson & Campbell 2013; Hatt et al. 2013). A study comparing fee exemption (intervention) and control (no fee exemption) areas in the Laos People's Republic indicated a threefold increase in use of skilled attendance at childbirth in the intervention areas, compared to an increase of only 40% in the control areas (Boudreaux, Chanthala & Lindelow 2014). Particularly, fee exemptions are found to significantly benefit poor, uneducated and rural women (Leone et al. 2016). However, there is weak evidence of the impact of fee exemptions on maternal and neonatal mortality (Dzakpasu, Powell-Jackson & Campbell 2013; Hatt et al. 2013).

## 2.6 Maternal mortality in Ghana

Ghana also faces the daunting problem of too many maternal deaths. In 2015, the country recorded a MMR of 319 per 100,000 live births, with women facing a lifetime risk of 1 in 74 of dying from complications from pregnancy and childbirth (WHO 2015c). Figure 6 compiles the trend of MMR for Ghana from 1990 to 2015. Although, the MMR for Ghana continues to fall, it is still unacceptably high.

**Figure 6: Trend of MMR for Ghana (1990-2015)**




Source: WHO 2015c

The occurrence of maternal deaths in Ghana follows the pattern from other low income settings. Studies show that maternal deaths occur mostly among rural, poor and uneducated women. For instance, an analysis of data from the 2007 Ghana Maternal Health Survey illustrated that maternal death was generally higher for women living in rural locations compared with urban settings as well as those with no educational background (Asamoah et al. 2011; MOH 2011).

Haemorrhage and hypertensive disorders have been identified as the leading causes of maternal deaths in Ghana (Der et al. 2013; Gumanga et al. 2011; Lee et al. 2012). Ghana is thus making considerable efforts towards the reduction of maternal deaths, especially through the use of ANC and skilled attendance at childbirth, promoted through the implementation of the NHIS and the free maternal health policy.

As described in chapter 1, Ghana implemented the NHIS in 2003 and provided a number of exemptions for poor and vulnerable groups. These exempt groups include: the poor, children below 18 years, persons above 70 years, and pregnant women. After the confirmation of pregnancy by a medical officer or midwife/nurse, a woman is exempted from the payment of any fee for registration with the NHIS. Following registration, a pregnant woman is immediately entitled to free health services for the whole period of pregnancy and three months after giving birth.

The next section is a review of studies carried out in different locations in Ghana, using different approaches and methodologies in the era of the free maternal health policy. The overview is to help identify essential knowledge gaps requiring attention. Filling the knowledge gaps would help inform policy and practice. It would also aid the successful achievement of the goals of the free maternal health policy in the long run.

## 2.7 Brief review of studies and knowledge gaps

Both health system and client (supply and demand) factors determine the success of a policy in terms of affordability, availability, acceptability and quality of care. These factors individually or altogether affect the level of access to health services. Health system factors

refer to a myriad of factors emanating from the supply side of health services, including the affordability, availability, acceptability and quality of health facilities, health work force, drugs and supplies, equipment and behaviour of health providers. Client factors comprise demand-side influences in terms of affordability, availability, acceptability and quality of health services. These demand-side factors take account of cost, distance and time taken to get to health facilities, OOP payments, respect accorded clients and perception of quality of health service. These issues are important to explore in different contexts to inform policy and practice.

Since the implementation of the free maternal health policy in Ghana, a number of studies have evaluated the policy in terms of the above-mentioned attributes in different study areas, using different approaches and methodologies. Some studies concentrated on only health system factors (supply-side), while others focused on client factors (demand-side). Using the Tamale Metropolis in the Northern Region as a case study, Banchani and Tenkorang designed a qualitative study exploring the challenges of health providers (health system factors) in the provision of maternal health services. Their study revealed inadequate in-service training and lack of knowledge of health policies by midwives, increased workloads, lack of supplies, poor motivation, inadequate labour wards and transport challenges for health workers (Banchani & Tenkorang 2014). Similarly, Ganle et al used a qualitative study, conducted in two districts of the Ashanti and Northern regions, to explore health system barriers to skilled attendance at childbirth. The study reported long waiting times for clients, lack of recognition and respect for clients' diverse backgrounds, inadequate supplies and equipment, poor quality of care and difficulty in referral system as factors impeding access to maternal health services and skilled attendance at childbirth (Ganle et al. 2014).

Some studies focus specifically on one or two attributes of the dimensions of access (either on availability, affordability, acceptability or quality of care from the perspective of health system or clients). For example, Gething et al used spatial data to determine geographical access to maternal health services in Ghana (availability attribute from client perspective). The authors discovered that there is generally poor geographical access to health services, especially for rural dwellers (Gething et al. 2012).

Following this review, there appear to be few comprehensive studies on health system and client factors (demand and supply) affecting access to maternal health services, especially using mixed methods approach. This is particularly lacking for rural settings. This PhD study fills this gap, by carrying out a comprehensive study of the factors (both demand and supply) affecting access to maternal health services under the free maternal health policy of the NHIS. It is a mixed methods approach, using the Kassena-Nankana municipality as its study area. The municipality has the same characteristics as other rural and poor districts in Ghana, where health service delivery is problematic. The study aimed to help unearth issues that impede or facilitate access to maternal health services at the micro-level. This allows for lessons to be learnt and for making policy recommendations to increase the uptake of health services by women, eventually leading to the reduction of maternal deaths. Finally, it also aimed to help determine whether Ghana is on track to the achievement of UHC.

## 2.8 The concept of access

The goal of UHC is the assurance that all people have timely access to the needed health services without the risk of suffering financial hardship or burden. Universal access is key to the achievement of UHC (Evans, Hsu & Boerma 2013). Access is an important concept with different definitions given by different authors. For example, Penchansky and Thomas (1981) refer to access as the "degree of 'fit' between the client and the health system" (Penchansky & Thomas 1981, p128) . Their definition describes a set of specific attributes of fit between the client and the health system; and the better the fit, the better the access to health services. According to Culyer and Wagstaff, access involves the use of health services, given the need for them (Culyer & Wagstaff 1993). This definition emphasises the use of health services according to need. Once an individual's need for health service is met, then access is granted. A review of the literature on access by Levesque et al conceptualised access as the inter-link between would-be users and health resources, this being affected by demand and supply factors (Levesque, Harris & Russell 2013). Essentially, most authors seem to agree that access involves the ability to use health service as and when needed. Hence, access will be defined in this thesis as the relationship between the demand and supply of health services,

with regards to health service needs, that is, the interaction of demand and supply to satisfy the need for health services.

### 2.8.1 Dimensions of access to health services

Access is broad and multidimensional (Gulliford et al. 2002). It comprise a constellation of factors inherent in the health system as well as at the individual, household and community level (Hunter & Killoran 2004; Jacobs et al. 2011). Individually or collectively, these factors determine access to health services. The health system factors constitute the supply-side inputs of health service delivery, while the individual, household and community level factors are grouped together as client factors, also known as demand-side factors (Ensor & Cooper 2004).

Health system factors are embedded in the health system that either serve to incentivise or impede the uptake of health services by individuals, households or communities. Some of these factors include the availability of health facilities and certain health services, opening hours of health facilities, the cost of health services, drugs and equipment, etc. Client factors affect the capacity of people to use health services when needed (Jacobs et al. 2011). Examples of client factors include attributes of clients such as age, gender, income, cultural and religious beliefs; distance and transport cost to health facilities, waiting times, cost of treatment, and attitude of health providers towards clients. However, health system and client factors are not mutually exclusive. There is a consensus among authors in the field that it is difficult to strictly compartmentalise health system and client factors (demand- and supply-side factors). Overall, health system and client factors determine whether a health system or intervention will achieve the desired effect or impact. To effectively achieve access, these factors must be taken into account (McIntyre, Thiede & Birch 2009).

Health outcomes ultimately depend on the degree of fit between the health system factors, client factors and the health service needs of the individual, household and the community. However, the terms access, utilisation, availability and coverage are often used interchangeably to demonstrate the uptake or otherwise of needed health services (Culyer & Wagstaff 1993; Jacobs et al. 2011; Tanahashi 1978) and will be used as such in this thesis.

### 2.8.2 Frameworks for access

Various frameworks examining the dimensions of access to health services vary little in the use of terminology. A number of authors concur on a commonality of terms for describing the dimensions of access. For instance, Tanahashi examined five dimensions consisting of availability, accessibility, acceptability, contact and effectiveness coverage (Tanahashi 1978). Similarly, Penchansky and Thomas presented the dimensions of access in terms of affordability, accessibility, availability, and acceptability of health services (Penchansky & Thomas 1981). The framework developed by Peters et al. also outlined the dimensions of access as geographic accessibility, availability, financial accessibility, acceptability and quality of health services (Peters et al. 2008).

In addition, Akweongo captured information as one of the dimension of access, alongside affordability, availability, and acceptability (Akweongo 2005). She argued that, having knowledge or information about health and health services promotes access and that communication between health providers and persons generate a positive experience for the improvement of health (Akweongo 2005). Saurman also argued for the inclusion of awareness as one of the dimensions of access; that awareness facilitates the fit between the client and the health service (Saurman 2016). The dimension of information and awareness seem to mean the same thing, given the arguments of these two authors. It is evidenced that in the conceptualisation of the dimensions of access, authors have either "omitted, expanded, mislabelled or combined" the dimensions (Saurman 2016, p37) .

The various dimensions of access attempt to account for the array of factors from both health system and client sides which serve to influence access to health services (Shengelia et al. 2005). It is important to note that some of the indicators proposed by the various authors for the measurement of each of the dimensions of access are varied. Table 2 summarises some dimensions of access as well as the set of indicators used for measuring them.

**Table 2: Summary of selected frameworks of access and indicators**

| Tanahashi 1978 | Penchansky & Thomas 1981 | Peter et al. 2008 | McIntyre, Thiede & Birch 2009 | Levesque, Harris & Russell 2013 |
|---|---|---|---|---|
| Availability coverage<br>-Health facilities<br>-Health workforce<br>-Drugs | Availability<br>- Health facilities<br>-Health workforce (types and adequacy)<br>-Specialised services like mental health etc. | Availability<br>-Appropriate health work force<br>-Drugs and equipment<br>-Demand for health services<br>-Hours of operation<br>-Waiting times | Availability<br>-Location of health facilities<br>-Transportation<br>-Health work force<br>-Hours of operation<br>-Type, range, quantity and quality of health care<br>-Health care needs of clients | Availability and accommodation<br>-Living environment<br>-Transport<br>-Mobility<br>-Social support |
| Accessibility coverage<br>-Location of health facilities etc. | Accessibility<br>-Location of health facilities<br>-Transportation resources<br>-Travel time<br>-Distance<br>-Cost | Geographic accessibility<br>-Clients' location, distance travelled<br>-Location of health facilities | Acceptability<br>-Type of client and provider, age, gender, race or ethnicity, language<br>-Expectations of providers and clients<br>-Beliefs and perceptions | Approachability<br>-Health literacy<br>-Health beliefs<br>-Trust and expectations |
| Acceptability coverage<br>-Cost of the service<br>-Religion | Affordability<br>-Cost of health services<br>-Health insurance<br>-Deposit requirements<br>-Clients' income | Financial accessibility<br>-Costs and prices of health services<br>-Clients' resources and willingness to pay<br>-Protection from health cost burden etc. | Affordability<br>-Cost of health services e.g. consultation cost, cost of drugs, laboratory cost, admission cost, and other costs.<br>-Transportation<br>-Feeding cost<br>-Opportunity cost<br>-Ability and willingness to pay<br>-Health insurance | Affordability<br>-Income<br>-Assets<br>-Social capital<br>-Health insurance |
| Contact coverage<br>-Contact between health providers and clients | Accommodation<br>-Appointment systems<br>-Hours of operation<br>-Walk-in facilities,<br>-Telephone facilities | Acceptability<br>-Clients' attitudes and expectations<br>-Characteristics of health services<br>-Meeting cultural needs | | Acceptability<br>-Personal and social values<br>-Culture<br>-Gender<br>-Autonomy |

| | | | | |
|---|---|---|---|---|
| | -Clients' accommodation of the above factors<br>-Clients' perception of appropriateness of services<br>-Ability to pay | | | |
| Effective coverage<br>-Satisfactory services | Acceptability<br>Clients' preferred attitudes for health providers:<br>-Age<br>-Sex<br>-Ethnicity<br>-Type of health facility<br>-Neighbourhood of health facilities<br>-Religious affiliation of health facility or health worker<br>-Providers' preferred attributes for clients:<br>-Welfare patients | Quality of health services | | Appropriateness<br>-Empowerment<br>-Information<br>-Adherence<br>-Caregiver<br>-Support |

Table 2 showed that the various dimensions for measuring access can be complex and sometimes interlinked. The level of access to be achieved depends on the interactions of these dimensions and the set of indicators (McIntyre, Thiede & Birch 2009). For instance, the quality of health services will be greatly affected by a lack of staff, drugs and necessary equipment for health providers. Therefore together or individually, these significantly help to describe the degree of fit between the health system and the health service needs of the target client. Affordability, availability, acceptability and quality of health services which forms the framework of this PhD study are discussed further in the next sections.

## 2.9 Affordability

Affordability relates to the ability and willingness of clients to meet health expenditure in the use of health services. The concept is measured by several indicators including the direct and indirect cost of health services, clients' income as well as assets. It has been referred to as financial accessibility (Peters et al. 2008). Importantly, the health financing

system in place influences the affordability dimension (McIntyre, Thiede & Birch 2009). But in low income settings, OOP payments form a greater part of the health financing mechanism. For example, OOP payments contribute on average, about 50% of health financing in low income countries, as against 30% and 14% in middle and high income countries respectively (Mills 2014). Given this background, populations in low income settings are greatly affected when seeking needed health services, hence the call for the implementation of prepayments and risk pooling schemes.

The use of prepayments or tax-funded schemes help to minimize direct OOP payments for health services and hence empower consumers to use such services when needed. Prepayments or tax-funded schemes prevent consumers of health services from making catastrophic OOP payments. OOP payments become catastrophic when they exceed a set threshold (for example, 5%, 10%, 15%, 20%, or 40%) of household resources; that is, income, expenditure or consumption. Households' consumption patterns (for essential goods) are greatly distorted when they make catastrophic OOP payments.

Thus the institution of prepayments or health insurance schemes are essential for the welfare of consumers of health services. For instance, the introduction of the health insurance programme in Mexico led to an increase in the uptake of health services. The programme also reduced catastrophic expenditure (health expenditure beyond 40% of disposable income) among the population (Knaul et al. 2012). Similar findings were reported in Rwanda, where insured women with the mutual insurance schemes were more likely to seek skilled attendance at childbirth than those women who were not enrolled (Lu et al. 2012). Likewise in the Philippines, an analysis of 2013 Demographic Health Survey data demonstrated that insured women are 5 - 10% more likely to use health facilities for childbirth compared to uninsured women (Gouda et al. 2016). The study also found a profound effect of health insurance on the use of health services for childbirth by rural and poor women (Gouda et al. 2016).

However, a study in Bangladesh revealed that, in the midst of fee exemptions, women were incurring substantial expenditures on transportation, hospital admissions, drugs, laboratory examinations, feeding and payment of unofficial fees (Khan 2005). According to the author, clients should have made payments for only transportation and hospitalisation costs, as these were not covered by the health insurance programme. In

rural Ethiopia as well, about three-fifths of households made OOP payments in excess of 20% of their monthly household expenditure for free maternal health services (Akalu et al. 2012). These studies highlight the fact that, users of health services can still face financial hardships, in spite of the existence of health insurance or fee exemptions.

## 2.10 Availability

Availability is measured from both demand- and supply-sides to include the availability of health facilities, health workforce with appropriate skill mix, drugs and equipment, distance travelled and time taken to reach health facilities, hours of operation of health facilities, and waiting times (McIntyre, Thiede & Birch 2009; Penchansky & Thomas 1981; Peters et al. 2008; Tanahashi 1978). Levesque et al. combined availability and accommodation to signify transport to health facilities, living environment and the social support system (Levesque, Harris & Russell 2013). Accessibility has been reported as a separate dimension by some authors (Penchansky & Thomas 1981; Peters et al. 2008; Tanahashi 1978), while others have combined it with availability (McIntyre, Thiede & Birch 2009).

Accessibility is considered as part of availability, representing the ease with which women can reach health facilities when in need of health services. Studies on availability have identified lack of transportation, drugs and supplies, and increased workloads on health workforce to have adversely affected the use and delivery of quality health services to clients (Banchani & Tenkorang 2014; Jat et al. 2015; Tsawe & Susuman 2014). For instance, a cross-sectional study of health facilities in Napak and Moroto districts, Uganda, revealed the unavailability of essential infrastructure, equipment, supplies, drugs and staff for maternal and neonatal care, especially in health centres (Wilunda et al. 2015).

Distance has been found to be a serious barrier to the use of maternal health services as well. A study in Ghana revealed that about 34% of the study participants were living beyond two-hour travel time to health facilities offering emergency obstetric and neonatal care which affected their use of such services (Gething et al. 2012).

## 2.11 Acceptability

Acceptability is a subjective concept and covers the socio-psychological state of both health providers and clients (WHO 2008). Acceptability explores the responsiveness of health providers to the socio- cultural expectations and needs of clients and vice versa (Peters et al. 2008). Age, gender, ethnicity, belief systems, religion, culture, and type of health facility and providers including their attitudes and behaviours towards clients are some of the set of indicators used for measuring acceptability.

Health providers' attitudes and behaviours are particularly important determinants of utilisation of maternal health services. Disrespect and abuse are common for women during childbirth and have been well documented (Bowser & Hill 2010). A review classified disrespect for women at childbirth into seven categories, consisting of "physical abuse, non-consented clinical care, non-confidential care, non-dignified care (including verbal abuse), discrimination based on specific patient attributes, abandonment of care, and detention in facilities" (Bowser & Hill 2010, p9). The presence of one or more of these categories is enough to deter women from the use of maternal health services.

Culture and religion are other chief determinants of service uptake. The extent to which the cultural and religious needs of women are met influences their use of services. In Afghanistan for instance, despite complaints of disrespect from providers, and unofficial fee payments, women were happy for the opportunity to utilise antenatal and obstetric services from female health providers (Rahmani & Brekke 2013). A similar study in the Northern region of Ghana demonstrated that Muslim women were not willing to access skilled attendance at childbirth because of their religious doctrine against body exposure to strangers, especially men (Ganle 2015). In order to promote access among this group, there is the need to make available a health workforce that is acceptable and sensitive to the needs of the group.

## 2.12 Quality of health services

For some of the frameworks, the recognition of quality of care as a separate dimension has been subtle. But Peter et al. incorporated quality of care as an integral component of their framework (Peter et al 2008). Tanahashi used effective coverage to refer to the quality of health services (Tanahashi 1978). Quality of health care is critical in

determining health outcomes and hence will be considered as a distinct dimension of access in this work. The other dimensions of access are pre-conditions for quality of care (WHO 2008).

The WHO stipulates that every woman is provided with high quality care at the time of pregnancy, childbirth and around the postnatal period (Tunçalp et al. 2015). Following this, the organisation proposed a framework for the improvement of quality of care, to assure a positive experience for women, particularly at the time of childbirth. The framework contains eight standards (derived from eight domains) of quality of care and 31 quality statements, which are to be "assessed, improved and monitored" in all health systems (WHO 2016b, p1). The standards and quality statements serve as guidelines for health facility administrators, managers and health providers to be able to monitor and evaluate the existing resources, work performance and all necessary inputs for the achievement of high quality care (WHO 2016c). These guidelines are also to be used for assessing the effect of health interventions, with the focus on improving quality. It is important to note that these standards and quality statements by the WHO mirror issues relating to availability and acceptability of health services, thus overlapping the dimensions of access.

In addition, in the drive to improve quality of care and to provide efficient services for women and babies, a framework was developed by Renfrew et al., highlighting the important contributions that "educated, trained, licensed and regulated midwives" could make to the overall use and provision of maternal and child health services (Renfrew et al. 2014, p1129) . The framework is considered essential in the planning and analysis of health services for women and their babies (Renfrew et al. 2014).

Overall, quality of care is considered to have two attributes: technical and interpersonal/perceived quality (Donabedian 1981). The technical aspect of quality of care is a function of clients' health outcomes, while perceived quality of care affects service usage, which ultimately affects health outcomes as well (Shengelia et al. 2005). For instance, Jat et al. found in rural central India that clients' perception of low quality of care prevented or delayed their use of such services leading to the eventual death of some women (Jat et al. 2015). Other studies have showed that inappropriate distribution of health facilities offering basic emergency obstetric care, inappropriate staff, drugs and

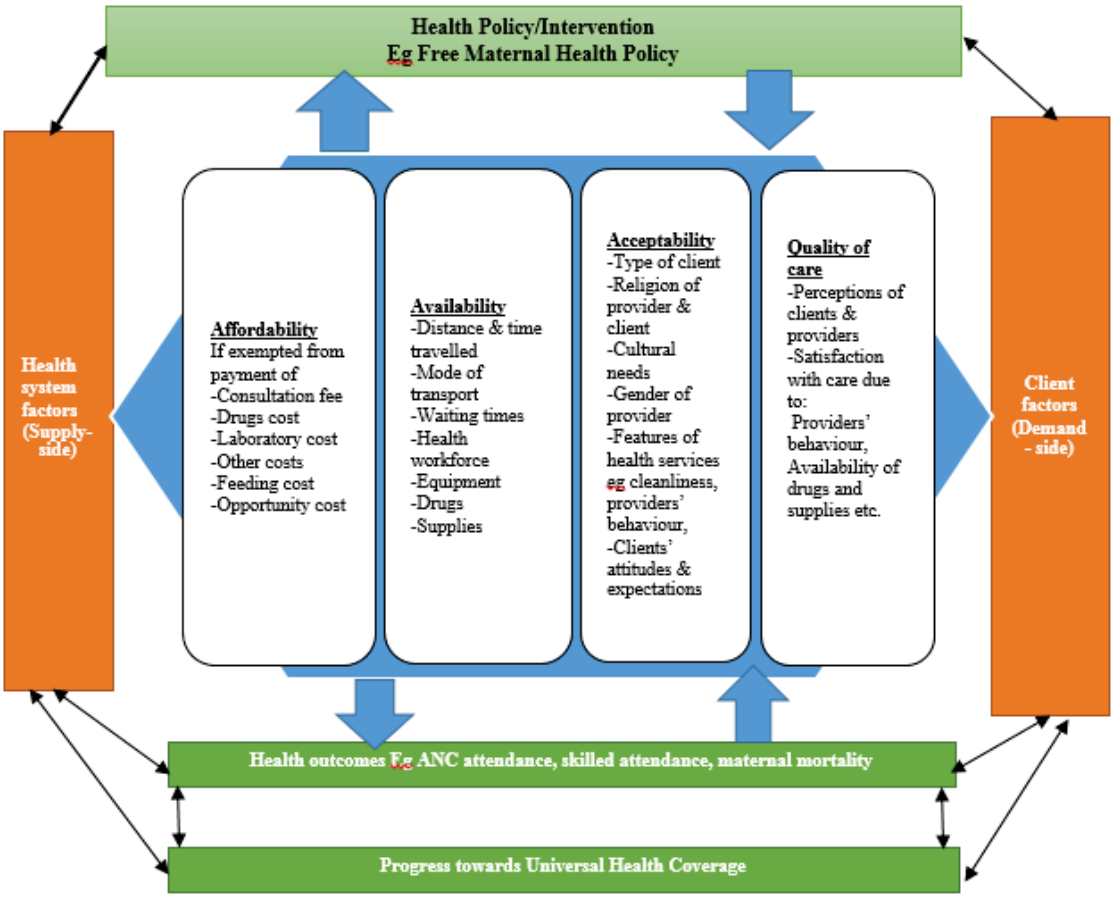
equipment adversely affected the quality of health services provided to clients and thus their use (Islam et al. 2015; Mir & Gull 2012).

In this thesis, quality of care is examined from the viewpoint of both women and health providers based on attributes within the health system in the use and provision of health services (Raven et al. 2012)**.** This is drawn from the access framework as well from the WHO quality statements. The study used affordability, availability, acceptability and quality of care from the perspectives of both demand and supply to measure access to maternal health services under the free maternal health policy of the NHIS in Northern Ghana.

## 2.13 Framework for the study

The study aimed to explore the affordability, availability, acceptability and quality of maternal health services under the free maternal health policy in Northern Ghana. The study of these dimensions would help identify the facilitators or barriers to the use and provision of maternal health services under the free maternal health policy. In the study, access was examined as the "degree of fit" between the health service needs of pregnant women up to childbirth and the health system factors. Various sets of indicators were used to gauge the affordability, availability, acceptability and quality of care dimensions. Figure 7 illustrates the framework for the study.

**Figure 7: Study framework**




From Figure 7, access to services under the free maternal health policy is affected by both health system and client factors, encompassing the affordability, availability, acceptability, and quality of care. The interactions of these dimensions of access and their set indicators ultimately affect health outcomes in terms of antenatal attendance, skilled attendance at childbirth, and maternal mortality under the policy. In addition, the use or non-use of these services will help determine progress made towards achieving UHC, especially in the area of maternal health services. It must be emphasised that the whole process of the framework is cyclical as each dimension or indicator influences and in turn is influenced by other factors. The various dimensions of access and their indicators are interlinked in examining access to health services. Thus measuring access using a single dimension or indicator would not suffice for assessing the success of an intervention or policy like the free maternal health policy. Both health system and client (demand- and supply-side) factors are employed for the determination or measurement of access to maternal health services under the free maternal health policy.

## 2.14 Summary of chapter

This chapter reviewed the literature on measures, impact and burden of maternal deaths globally and in Ghana as well. The chapter also discussed knowledge gaps in relation to the review and proposed the access framework for carrying out the study.

The next chapter contains the methods used for carrying out the study. The chapter provides an overview of the study settings and design, sample size determination, procedure for recruitment of participants, data collection, analysis and interpretation. Ethical considerations are described in the chapter as well.

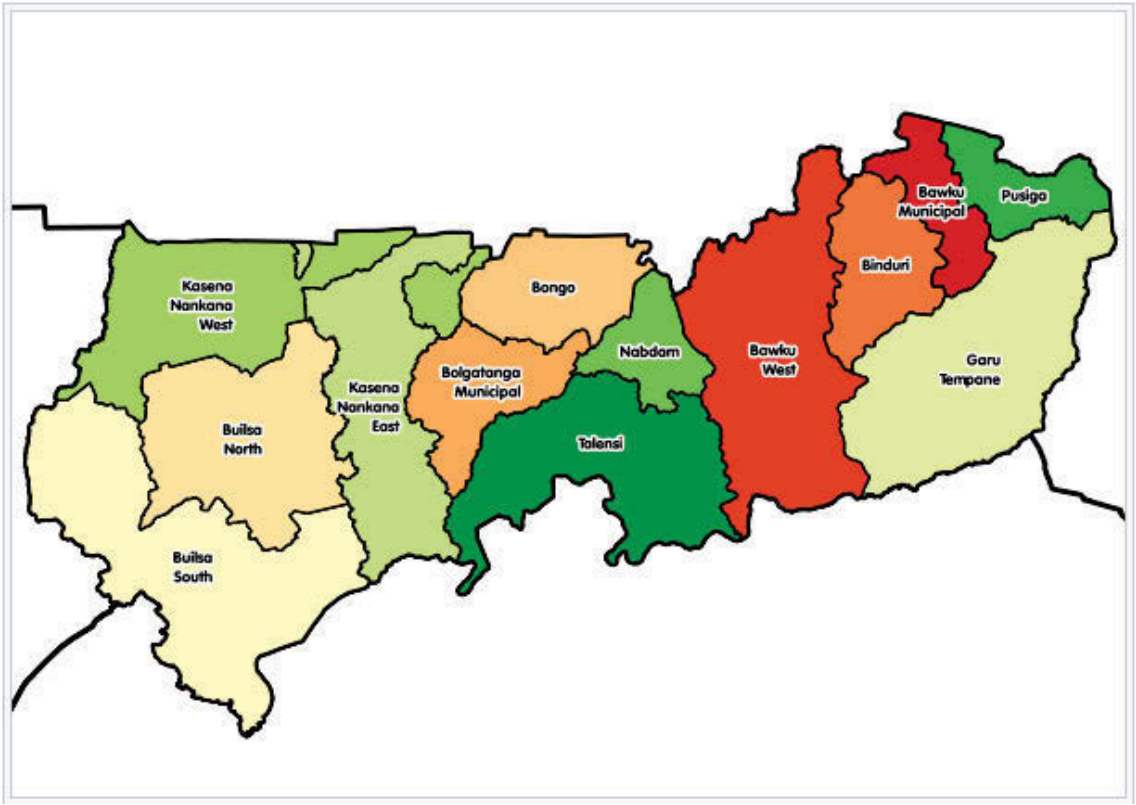
# CHAPTER 3: METHODS

The chapter describes the study area as well as the study design used for conducting the research. Sample size determination, procedure for participant recruitment, data collection, analysis and interpretation as well as consent process for study participants are reported.

## 3.1 Study area

From the perspective of health providers and women, this study explored issues affecting access to maternal health services in terms of affordability, availability, acceptability and quality of care under the free maternal health policy of the NHIS in Ghana. The study was conducted in the Kassena-Nankana East district, also known as the Kassena-Nankana municipality, which is located in the Upper East region of Ghana. The region is one of the ten regions of Ghana. The Upper East region has fifteen districts including the Kassena-Nankana municipality. Originally, the municipality was part of the Kassena-Nankana district which was divided into the Kassena-Nankana East and West in 2006. Navrongo is the capital town of the municipality. Figure 8 is the map of the Upper East region showing the Kassena-Nankana East (municipality) in light green.

**Figure 8: Map of the Upper East region showing districts including Kassena-Nankana East (municipality)**




Source: https://en.wikipedia.org/wiki/Upper_East_Region

Geographically, there are two main seasons prevailing in the municipality namely the dry and wet seasons. The dry season is influenced by the north -east trade winds blowing from the Sahara desert, occurring between late November and early March every year. The period is marked by cold, dry and dusty conditions usually referred to as *harmattan*. The wet season comes between May and October every year, brought by south west winds generated from the South Atlantic Ocean.

From the 2010 Population and Housing Census, the municipality had a total population of about 108,000, with females constituting 51.2% (GSS 2014a). The major economic activity in the municipality is agricultural, involving 82.7% of households (GSS 2014a). Crops grown include millet, sorghum, rice, groundnuts, leafy vegetables, cowpea, bambara beans, okro, cotton, tomatoes and onions. Cattle, sheep, goat, pigs, guinea fowls, and poultry are also reared. Table 3 compiles key developmental indicators for the Kassena-Nankana municipality.

**Table 3: Developmental indicators for the Kassena-Nankana municipality**

| Indicators | Percent/rate |
|---|---|
| Proportion of population living in rural areas | 72.7% |
| Proportion of household using bore-hole water | 64.4% |
| Proportion of households using electricity as source of lighting at home | 28.8% |
| Proportion of households with toilet facilities | 16.7% |
| Proportion of households using wood as source of fuel for cooking | 59.2% |
| Proportion of housing units built with mud/mud bricks or earth | 73.4% |
| Literacy (proportion of people 11 years and above) | 56.3% |
| Economically active (proportion of people 15 years and above) | 70.2% |
| Total Fertility Rate | 3.4 |
| Crude Birth Rate | 23.1 per 1,000 population |
| Crude death rate | 11.1 per 1,000 population |

Source: GSS 2014a

The municipality hosts the only hospital in the Kassena-Nankana East and West districts as well as the Navrongo Health Research Centre. The Navrongo Health Research Centre is one of the three main research centres mandated by the Ghana Health Service to carry out research for policy formulation in Ghana and beyond. The municipality has been mapped out by the Navrongo Health Research Centre for research and this partly explains the decision to use the municipality as the study area, since the study was limited in terms of time and resources. Besides, the municipality bear resemblance in terms of social-economic standing to other districts and municipalities in the region. The region is fairly homogeneous in terms of socio-economic standing, as reported in the Ghana Living Standards Survey Report of the sixth round (GSS 2014b). Thus findings from the Kassena-Nankana municipality could be generalised for the region and other similar settings elsewhere. This constituted another reason for the use of the municipality as the study area.

The municipality has one hospital, two health centres, seventeen functional Community-based health planning and services (CHPS) compounds, one private clinic and one health post (mission). These health facilities have different functions and levels of health service provision in the municipality. The hospital is the main referral point for the health centres and the CHPS compounds in the municipality. Most of the health facilities provide at least basic maternal health services, for example, immunisations to women and their babies. The top ten diseases afflicting the residents of the municipality are malaria, acute respiratory infection, skin diseases, diarrhoea, acute eye infection, rheumatism, intestinal worms, hypertension, acute ear infection and upper track infection (KNEDA 2013).

## 3.2 Study design

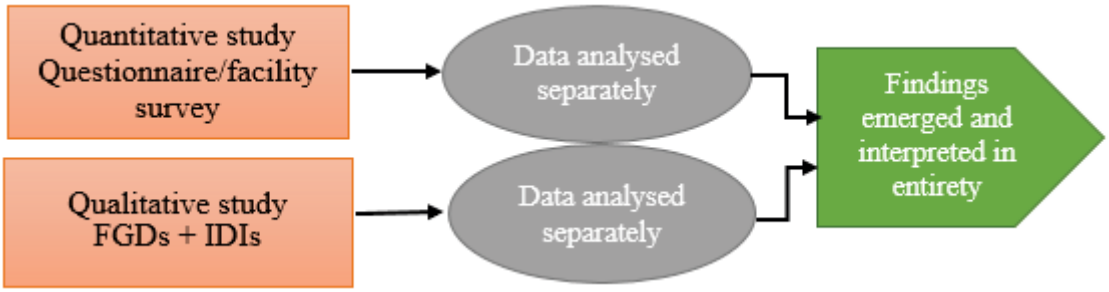
The study used mixed methods. A mixed methods study involves the use of both quantitative and qualitative methods for data collection. Some authors have argued that combining quantitative and qualitative methods helps reduce the weaknesses involved with the use of only one methodology (Creswell & Plano Clark 2011; Johnson, Onwuegbuzie & Turner 2007). Additionally, mixed methods research affords the opportunity to address a variety of research questions since the investigator is not limited to using a single method of investigation. Increasingly, mixed methods research has come to be an accepted approach, especially in health science research (O'Cathain, Murphy & Nicholl 2007a). Thus a mixed methods approach was used to obtain a clearer understanding of the issues affecting access to maternal health services. Findings from the two methods serve to complement each other and allow for validation through triangulation (Curry & Nunez-Smith 2015).

Triangulation in mixed methods research permits the integration of quantitative and qualitative datasets to explore for agreements or disagreements (Mertens & Hesse-Biber 2012). It also allows for the positioning of the datasets in a more comprehensive explanatory framework, referred to as conjunctive (Mertens & Hesse-Biber 2012). The use of mixed methods for triangulation is crucial in the study of complex issues, since different perspectives can be investigated (Mertens & Hesse-Biber 2012). Access to health services is a complex phenomenon to investigate (Gulliford et al. 2002) and hence the need to triangulate the methods.

The study design was a convergent parallel mixed methods. According to Creswell, convergent parallel mixed methods is a form of mixed methods design in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem (Creswell 2014). At the data collection and analysis stages, the two studies are independent of each other, but the findings are merged or mixed at the point of interpretation. It must be stressed that in the convergent parallel mixed method, the studies are given equal weighting or priority; that is, both studies play a significant equal role in answering the research question. The approach permits the simultaneous use of different methods to obtain different but complementary data on the same research question (Morse 1991). There is an increased confidence in the study findings if they demonstrate convergence (Small 2011). The convergence of findings within this approach gives the investigator the opportunity to explore the two distinct datasets for divergence, contradictions or relationships.

The reason for the use of the convergent parallel mixed approach for this PhD study is to help get a comprehensive understanding of the research question through the collection of different but complementary data. The two datasets would serve to validate each other. Thus the study used a structured questionnaire as well as focus group discussions (FGDs) and in-depth interview (IDIs) to obtain quantitative and qualitative data respectively, for a complete understanding of the factors affecting access to maternal health services under the free maternal health policy of the NHIS. Figure 9 outlines the design of the convergent parallel mixed method.

**Figure 9: Design of the convergent parallel mixed method**

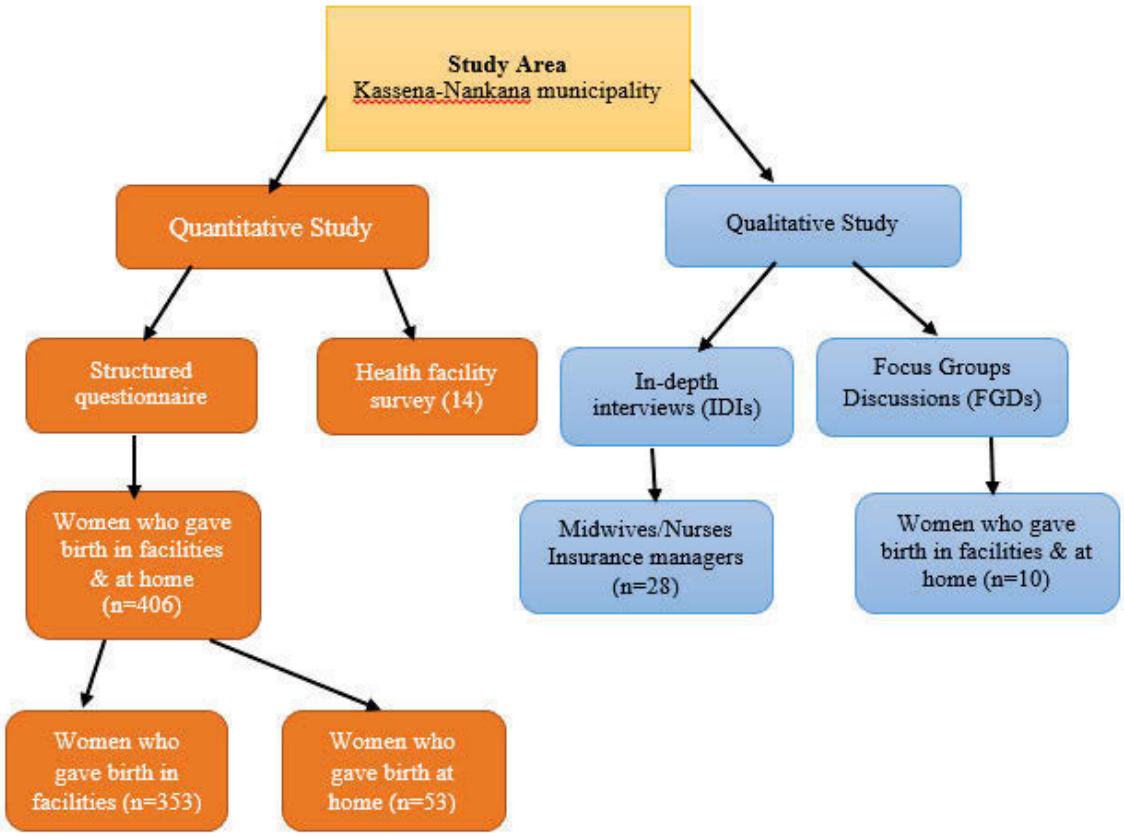



Source: Curry & Nunez-Smith 2015

The quantitative method involved structured interviews with women who gave birth in health facilities and at home. This measured the experiences of women along the continuum of care seeking from antenatal to childbirth. To support and enrich the quantitative data, a checklist was generated to collect information on health workforce, availability of drugs, supplies and equipment from the health facilities (facility survey). The qualitative component used IDIs with frontline health providers (midwives and nurses) as well as health insurance managers. IDIs were chosen as they offer the chance to record the experiences of health providers in the provision of maternal health services to women under the free maternal health policy. It was an opportunity for health providers to discuss the challenges or otherwise of service provision. IDIs are considered the most effective and best way to achieve the objectives of the study.

In addition, FGDs were held with women who gave birth in health facilities and at home, as an appropriate health science research method (Leung & Savithiri 2009). The choice of FDGs stems from the fact that participants in the group are able to reflect on their lived experiences as well as build on each other's experiences in the course of the discussion (Leung & Savithiri 2009). In the study, the discussions offered the women the opportunity to expand on the issues captured in the quantitative study. Figure 10 illustrates a summary of the design of the entire study and more detail is provided in the next sections.

**Figure 10: Summary of the study design**




## 3.3 Ethical approval and considerations

The study was approved by the Human Research Ethics Committee, University of Technology Sydney, Australia (approval number *ETH16-0263*), and from the Institutional Review Board (IRB) of the Navrongo Health Research Centre, Ghana (approval number *NHRCIRB217*). Permission was also received from management of the health facilities where data were collected. Informed consent was taken from all participants at the beginning of each interview or discussion. This was done in a dialect chosen by the participant. Before consent, all participants were briefed on the aim and objectives of the research, procedures, and potential risks and benefits. Participants were also assured of the confidentiality of any information provided to the study team. Women especially were informed that they were free to refuse participation in the study or to opt out of the study process at any given time without any consequence on the provision of services to them (details of information and consent procedure are found in Appendix C).

## 3.4 Quantitative study (structured interviews)

The data collection was carried out over a period of six months (March-August, 2016). A structured questionnaire was designed and used for the interviews. The interviews were carried out at two levels: (1) with women who gave birth in health facilities and (2) those who gave birth at home. Interviews were conducted with the women after they were discharged from health facilities to go home, which is usually two to three days postpartum. For women who gave birth at home, the study took a listing of such women from the database of the Navrongo Health and Demographic Surveillance System (NHDSS). This is a database that collects data and other updates on a quarterly basis, for pregnancies, births, morbidity, deaths, migration and marriages for all households in the Kassena-Nankana East and West districts. Postnatal registers found in health facilities were also utilised to fetch information on homebirths. It was a challenge obtaining information on homebirths and hence the decision to utilise these two available sources.

The interviews collected data on the affordability (exemption from payment, transportation cost, consultation cost, laboratory cost, cost of drugs, feeding and other payments) and availability (travel time and distance to health facility, mode of transport, and waiting times to see health workers) of health services. Data were also collected on acceptability (religious/cultural factors, gender and features of the health system/providers) and quality of services received (satisfaction with care received) at pregnancy and childbirth or the health facility experience during pregnancy for women who gave birth at home. The study measured perceptions about travel and waiting times of participants, since the majority of the participants were illiterate and may not accurately recall the distance travelled as well as waiting times at the health facilities. The questionnaire also captured the demographic characteristics of the women including age, marital status, religious background, educational status, employment, and number of children.

The structured questionnaire was developed in English, drawing on questions from similar studies (Jat 2014; Shrestha 2010; Silal et al. 2012). The questions were translated into the two dialects (Kasem and Nankam) spoken in the study area. The translation was carried out by experts in the field. Back translation was carried out as well to ensure that

the meanings of the questions were not lost out during the process of translation. The author is a native speaker of Kasem, with a good working knowledge of Nankam. This background permitted the author to have a good appreciation of the translated questionnaire, as well as the interactions with the women. Besides, the research assistants who collected the quantitative data were native speakers of the two dialects. All interviews were carried out in the participant's dialect of choice. It took about 30-45 minutes to complete each questionnaire with a woman.

### 3.4.1 Sample size calculation

The study population for the interviews using the structured questionnaire was all women, 15 years and above who had either given birth in health facilities or at home. A sample size each was calculated for the women who gave birth in health facilities and at home. Each sample size was calculated based on the formula proposed by Gorstein et al. for the determination of sample size for a proportion in a single cross-sectional survey (Gorstein et al. 2007). The formula is shown below:

$$n = \frac{1.96^2\, p(1-p)(DEFF)}{d^2}$$

Where 1.96 = 95% confidence interval, p = expected proportion, DEFF = estimated design effect and d = desired level of absolute precision. For births in health facilities, a recent study reported a proportion of 60.5% who had skilled attendance at childbirth in Ghana (Amoakoh-Coleman et al. 2015). Thus, this study used a proportion of 60% skilled attendance at childbirth for calculating the sample size for women who gave birth in health facilities. With a 95% confidence interval with a width of $\pm$10 (level of absolute precision), design effect of 2, and 60% proportion of skilled attendance at childbirth, the calculated sample was 185. But allowing for a non-response and refusal rate of 5%, the sample size used for the interviews with women who gave birth in health facilities was 194.

Applying the same parameters to the formula, but with a proportion of 40% for women who gave birth at home, the sample size was also 194. Overall, a minimum of 388 women were required for the quantitative study, but 406 women were finally recruited to allow for withdrawals. It was important to include women who gave birth at home to ensure sample representativeness. The exclusion of such women might introduce some biases as socio-cultural barriers to the use of skilled attendance at childbirth may be missed (WHO

2008). However, at the time of data collection, women who gave birth at home were very difficult to find. Out of the total 406 women recruited for the quantitative study, 53 gave birth at home.

### 3.4.2 Recruitment of women who gave birth in health facilities

Recruitment of participants was carried out on a daily basis (covering all days of the week) in the study health facilities. This continued until the required sample size was achieved. All women who had live births and had been discharged from health facilities to go home were eligible for interviewing after providing consent. Woman who had stillbirths were permitted to participate in the study, if they willingly offered to do so. It was initially planned to allow family members to represent women who were either weak or distressed in the study. However, during the actual data collection, all the women were able to respond to the questionnaire. Women freely participated in the study, as they were told that their refusal to partake would not affect services rendered to them. All women who were approached consented to participate in the study. To ensure data quality, the investigator made time after every interview to check for accuracy and completeness of the questionnaire.

### 3.4.3 Recruitment of women who gave birth at home

As indicated earlier, the Navrongo Health Research Centre, Ghana, operated the NHDSS. The surveillance system involved quarterly collection of data and updates on pregnancies, births, morbidity, deaths, migration, and marriages for all households in the two districts (Kassena-Nankana East and West). A list of women who gave birth at home was generated from the NHDSS database. In addition, the study used the records for postnatal attendance to trace women who gave birth at home. Households for the sampled women were visited for the interviews. An inclusion criterion for the participation of women who gave birth at home was that the women should have utilised maternal health services during pregnancy; to be able to report their experience. Women should have also given birth between 1$^{st}$ January and 31$^{st}$ August 2016, that is, at most three months before the commencement of the data collection. This was to minimise recall bias.

### 3.4.4 Pre-testing of data collection tools

The data collection tools were initially tested with women and health providers for their appropriateness to capture the required data. Ambiguous questions were revised following the pretesting. The revised tools were used for the actual data collection.

### 3.4.5 Data collection and analysis

The quantitative data were collected electronically using SurveyCTO Collect v2.10 application, which works on hand-held gadgets allowing for the capture, processing and transport of data for analysis. Thus tablets were used for the data collection. The quantitative data collection was done independently of the qualitative data, but the two studies ran concurrently. Two trained research assistants were responsible for the quantitative data collection. The research assistants were trained by the main researcher on the aim and objectives of the study and the data collection tools. All women who were approached, agreed and consented to participate in the study.

The data analysis was also carried out separately, using STATA 14. Data were thoroughly cleaned through the running of frequencies and cross tabulations. Descriptive statistics were used to report the findings of the study. Cross tabulations were also carried out to help understand relationships, especially for categorical variables. Means and standard deviations were determined and used for reporting the OOP payments in particular. The OOP payments were classified as direct medical and direct non-medical expenditure. The direct medical and direct non-medical costs were estimated by aggregating the costs from which the means and standards deviations were calculated.

The impact of OOP payments was also determined for the women or households, using an average annual household income of GH¢7,240.5 (US$ 3,673.8) for the Upper East region (GSS 2014b). Household income data were not available for the municipality and hence the reason to use that for the region. The region is fairly homogeneous in terms of socio-economic standing, as indicated in the Ghana Living Standards Survey Report of the sixth round (GSS 2014b). Catastrophic OOP payments were estimated using 5% and 10% thresholds as has been done in other studies (Amaya-Lara 2016; Borghi et al. 2006; Dalaba et al. 2015; Hoque et al. 2015). The cost data for the study were reported in Ghana cedis, but converted into US$, using an exchange rate of US$1=GH¢1.9708

(2013 exchange rate) as existed in the Ghana Living Standards Survey Report of the sixth round.

## 3.5 Qualitative study

Semi-structured and open-ended questions with probes were developed based on the issues in the questionnaire. Data collection was carried out over a period of six months (March-August, 2016). The interview guide for the health providers and health insurance managers was in English as all interviewees could speak English. Questions in the guide centred around health providers' views on the affordability (cost of services not covered by the free maternal health policy and any other costs); availability (opening hours, number of health work force, drugs and equipment); acceptability (utilisation and the free maternal health policy); and quality (health providers' overall satisfaction with the quality of care they could provide).

The interview guide for the FGDs with women who gave birth in health facilities and at home was developed in English and translated into the two dialects (Kasem and Nankam) spoken in the study area. The open-ended questions sought to add details to the findings from the quantitative study. It was an opportunity for women to openly share their health care experiences during pregnancy and childbirth. The questions also concentrated on issues on availability, affordability, acceptability and quality of maternal health services under the free maternal health policy.

All the interviews (except one with a health insurance manager who refused recording) and discussions were recorded with the permission of all participants. Field notes were also written during and after the interactions. All the IDIs and FGDs were conducted by the main investigator. Each FGD or IDI lasted between 45-120 minutes.

### 3.5.1 Participants for the in-depth interviews from health facilities

The study was carried out in health facilities rendering childbirth services. In all, fourteen health facilities were involved. Health providers directly in charge of providing maternal health services to women were interviewed. Having an in-depth knowledge of the operations of the free maternal health policy in the health facilities was another criterion

for participation in the in-depth interviews. All health providers who were approached for participation agreed to do so.

### 3.5.2 Participants for the focus group discussions

Participants for the FGDs were recruited among women who gave birth in health facilities and at home. This allowed women to expand on ideas captured in the quantitative study. Five to twelve women were in each focus group. A total of ten FGDs were held, seven with women who gave birth in health facilities and three with women who gave birth at home. The study was constrained with time and resources and thus the decision to conduct only ten FGDs, although this number was sufficient to reach data saturation given that there is homogeneity of cultural and social standing of the participants.

### 3.5.3 Data collection and analysis

Generally, the facilitation of the FGDs and IDIs was flexible. All emerging issues were probed in detail to ensure that important issues were not left out. In the FGDs particularly, the facilitator ensured that all participants were active discussants, that all women had the opportunity to present their views. Though it was not uncommon for some women to simply concord with what their colleagues said. In such instances, the facilitator probed further for any additional information. There were also situations where one or two women in the groups dominated the discussions. This was particularly older women who felt they have all the experiences in the process of childbirth (as young and older mothers were grouped together). The dominance of older women in some of the discussions could also be explained by the fact that, in the study settings, adults were assumed to know everything and should be the first to talk before younger ones. This had to be managed cautiously to avoid such women feeling that they were being asked to shut up. Overall, the homogeneity of the study area allowed for the grouping of women across communities for the discussions.

At the end of the discussion or interview, issues were summarised and presented back to participants to ensure they were as expressed, and new issues that emerged were incorporated into the guides for the next discussion or interview. The discussions and interviews ended when there was saturation after prompts from the facilitator.

The audio data for the qualitative study were transcribed or translated verbatim into English by experts. The transcripts and field notes were read several times to immerse the researcher in the data. For validity and accuracy purposes, the main investigator listened to a number of recordings, comparing them to the transcripts and correcting any discrepancy before coding. All transcripts and interview notes were read and reviewed further with hand written notes on each transcript highlighting key issues. A coding structure was then developed and applied to identify themes and sub-themes which were presented using tables. For assurance that the themes reflected the data, the particular data section(s) for each theme was re-examined with alterations made when necessary. The findings therefore reflected the themes and included essential key quotes from the participants.

Finally the findings generated from both methods were integrated in interpretation, as per the requirements of the convergent parallel mixed methods (Curry & Nunez-Smith 2015). Specifically the factors affecting access to maternal health services were quantified and explained by the quantitative and qualitative studies respectively. In addition, the study elaborated or further investigated similar or dissimilar findings emanating from the two methods.

## 3.6 Summary of chapter

The chapter provided insights into how the study was carried out (methods). The study settings, design, sample size and recruitment procedure were reported. Data collection, analysis and interpretation were also highlighted, including the process of ethical approval and consent.

The next five chapters report the findings of the study in the form of published/publishable papers. The published or accepted papers have not been rewritten and thus are presented in the format in which they were accepted by the various journals. Chapters 7 and 8 are under peer review. As explained previously, there is a repetition of some sections of the introduction, literature review and methods (chapters 1-3) in the published/publishable papers (chapters 4-8), given that these papers were fashioned out from the same study.

The next chapter (chapter 4) presents findings on affordability of maternal health services during pregnancy in rural Northern Ghana, a paper published in *PLoS ONE*. The chapter explores whether the free maternal health policy has eliminated OOP payments for maternal health services during pregnancy.

# CHAPTER 4: FINDINGS (AFFORDABILITY OF MATERNAL HEALTH SERVICES DURING PREGNANCY)

(Publication 1)

**Reference**: Dalinjong, P.A., Wang, A.Y. & Homer, C.S.E. 2018, 'Has the free maternal health policy eliminated out of pocket payments for maternal health services? Views of women, health providers and insurance managers in Northern Ghana', *PLoS ONE* 13(2): e0184830. https://doi.org/10.1371/journal.pone.0184830

This chapter comprises the findings on affordability of maternal health services during pregnancy. It is a paper published by *PLoS ONE*. The paper explored views on costs and actual OOP payments made by women during pregnancy. The paper also documented the source of funding for the payments. It is presented here in the form published by the journal.

## 4.1 Abstract

**Introduction**

The free maternal health policy was implemented in Ghana in 2008 under the National Health Insurance Scheme (NHIS). The policy sought to eliminate out of pocket (OOP) payments and enhance the utilisation of maternal health services. It is unclear whether the policy had altered OOP payments for services. The study explored views on costs and actual OOP payments during pregnancy. The source of funding for payments was also explored.

**Methods**

A convergent parallel mixed methods design, involving quantitative and qualitative data collection approaches. The study was set in the Kassena-Nankana municipality, a rural area in Ghana. Women (n=406) who utilised services during pregnancy were surveyed. Also, 10 focus groups discussions (FGDs) were held with women who used services during pregnancy as well as 28 in-depth interviews (IDIs) with midwives/nurses (n=25) and insurance managers/directors (n=3). The survey was analysed using descriptive statistics, focussing on costs from the women's perspective. Qualitative data were audio

recorded, transcribed and translated verbatim into English where necessary. The transcripts were read and coded into themes and sub-themes.

**Results**

The NHIS did not cover all expenses in relation to maternal health services. The overall mean for OOP cost during pregnancy was GH¢17.50 (US$8.60). Both FGDs and IDIs showed that women especially paid for drugs and ultrasound scan services. Sixty-five percent of the women used savings, whilst twenty-two percent sold assets to meet the OOP cost. Some women were unable to afford payments due to poverty and had to forgo treatment. Participants called for payments to be eliminated and for the NHIS to absorb the cost of emergency referrals. All participants admitted the benefits of the policy.

**Conclusion**

Women needed to make payments despite the policy. Measures should be put in place to eliminate payments to enable all women to receive services and promote universal health coverage.

## 4.2 Introduction

Ghana is a West African country with a population of about 24 million (GSS 2012). In 2012/13, the country had a mean annual gross household income of GH¢16,645 (US$ 8,446), with a mean per capita income of GH¢5,347 (US$2,713), translating to GH¢14.65 (US$7.4) per person per day (GSS 2014b). Of the ten regions of Ghana, the Upper East region had the lowest mean annual gross income of GH¢7,240.5 (US$3,673.8) and a mean annual per capita income of GH¢1,801.9 (US$914), approximated to be GH¢4.6 (US$ 2.5) per person per day (GSS 2014b). Agriculture, forestry and fishing employs about 65% of Ghanaians (dominated by rural population) aged 15 years and above (GSS 2014b). The average health facility cost for one outpatient visit in Ghana was estimated to be GH¢14 (US$4) at a maternity clinic and GH¢33 (US$10) at a regional referral hospital in 2011 (IHME 2015). Overall, Ghana's per capita expenditure on health was US$32.8 in 2014 (MOH 2014b).

Maternal mortality is a significant concern for Ghana. In 2015, the maternal mortality ratio was 319 per 100,000 live births (UN 2015). Haemorrhage, abortion, hypertensive

disorders, infections and ectopic gestation are recorded as the main causes of maternal deaths in the country (Der et al. 2013; Gumanga et al. 2011; Lee et al. 2012). However, effective and timely antenatal care (ANC) has the capacity to contribute to saving lives of pregnant women and their babies. ANC offers the opportunity for provision of health services, including health education, testing and diagnosis of health problems for treatment and rendering of essential interventions to prevent diseases among pregnant women and their unborn babies (WHO 2016d). In addition, ANC provides opportunities for communication and support for women, their families and communities during pregnancy and childbirth (WHO 2016d).

Given the benefits, the World Health Organization (WHO) outlined some recommendations to be carried out during ANC (Table 4).

**Table 4: WHO recommendations for improving health of pregnant women**

| **Essential** | **Situational** |
|---|---|
| Confirmation of pregnancy<br>Monitoring of progress of pregnancy and assessment of maternal and fetal well-being<br>Detection of problems complicating pregnancy (for example, anaemia, hypertensive disorders, bleeding, malpresentations, multiple pregnancy<br>Respond to other reported complaints<br>Tetanus immunisation, anaemia prevention and control (iron and folic acid supplementation)<br>Information and counselling on self-care at home, nutrition, safer sex, breastfeeding, family planning, healthy lifestyle<br>Birth planning, advice on danger signs and emergency preparedness<br>Recording and reporting<br>Syphilis testing | HIV testing and counselling<br>Antimalarial Intermittent preventive treatment and promotion of insecticide treated nets<br>Deworming<br>Assessment of female genital mutilation |

Source : WHO 2007

The recently released WHO guidelines now recommend a minimum of eight visits for ANC by pregnant women, instead of the four previously recommended. This is to reduce prenatal deaths and generate a positive experience for pregnant women (WHO 2016d). The new policy, however, is likely to require significant resources and to present human resource challenges in many low to middle income countries and potentially may contribute to further costs for families (Weeks & Temmerman 2016). An understanding of the implications of the previous recommendation and policy therefore is important as the new recommendation for eight ANC visits are considered and implemented.

In Ghana, there has been a steady decline in the proportion of pregnant women attending ANC visits (4+) from 98.6% in 2011, to 92.2% in 2012, to 90.8% in 2013 and down to 86.7% in 2014 (GHS 2014). The downward trend had been attributed to lack of funds for outreach programmes in the communities as well as poor data capture (GHS 2014). Some studies in Ghana show that women who are uneducated, poor and live in rural areas tend to access fewer ANC visits compared to their counterparts who are educated, wealthy and are urban dwellers (Arthur 2012; Dixon et al. 2014). This again shows the need to better understand the cost implications for families utilising ANC.

### 4.2.1 Implementation of the National Health Insurance Scheme (NHIS)

Eliminating out of pocket (OOP) payments is considered one of the best options for promoting the utilisation of health services, including ANC and skilled attendance at childbirth (Lagarde & Palmera 2008; Saksena, Hsu & Evans 2014; Shahrawat & Rao 2012; WHO 2010b). The removal of OOP payments also assists to reduce impoverishment among households (WHO 2010b; Xu et al. 2005). To address the burden of OOP payments and enhance utilisation, in 2003 the Government of Ghana established the National Health Insurance Scheme (NHIS) under the National Health Insurance Act 650 (revised to Act 852 in 2012). The activities of the NHIS are supervised by the National Health Insurance Authority (NHIA).

The implementation of the NHIS is a major step towards universal health coverage for all Ghanaians as the NHIS grants exemptions for various categories of individuals to promote their use of health services. These categories include: pregnant women, children under 18 years of age, elderly people 70 years and above, pensioners under the Social Security and National Insurance Trust, the indigent (poor and vulnerable) who must meet

certain criteria, and recently, those with mental health disorders. Pregnant women, indigents and persons with mental health disorders are not required to make any payment as processing fees before being registered into the NHIS; however, the other exempt groups must pay a processing fee.

### 4.2.2 The free maternal health policy under the NHIS

In 2008, the exemption for pregnant women was repackaged and branded as the 'free maternal health policy'. The policy sought to enhance the utilisation of ANC, skilled attendance at childbirth and postnatal care. Under the policy, following confirmation of pregnancy by a medical officer or midwife/nurse and registration into the NHIS, a pregnant woman is immediately entitled to free health services for the pregnancy, during labour and birth and up to three months postpartum.

Empirical evidence showed a strong positive relationship between the provision of fee exemptions or health insurance coverage and the use of ANC and skilled attendance at childbirth leading to positive health outcomes (Dzakpasu, Powell-Jackson & Campbell 2013; Hatt et al. 2013). In Malawi, for instance, fee exemption in mission health facilities brought about a 15% increase in the mean proportion of participants who had at least one ANC visit during pregnancy (Manthalu et al. 2016).

On the other hand, studies have established that households still incur costs despite fee exemptions. For example, a study in Bangladesh showed that the majority of women incurred direct OOP payments for registration, consultation, laboratory test, drugs, transportation, and other related expenses in the course of seeking maternal health services (Rahman et al. 2012). Similarly, some households in India were found to have made significant OOP payments for maternal health services, even though these services were meant to be free (Leone, James & Padmadas 2013). A previous study in the Kassena-Nankana municipality, Ghana, where this study was undertaken, revealed that cost of transport alone accounted for about 32% of the total expenditure incurred by families for the treatment of maternal complications during childbirth (Dalaba et al. 2015). Thus, direct OOP payments in whichever form could still be a serious barrier to the use of health services (Saksena, Hsu & Evans 2014; Shahrawat & Rao 2012; WHO 2010b).

It is unclear whether the free maternal health policy in Ghana altered OOP payments during pregnancy. Internationally, several quantitative studies have examined costs for pregnancy and childbirth combined. For example, a quantitative study in Ghana has previously estimated the cost of maternal complications during childbirth in Northern Ghana (Dalaba et al. 2015). Our mixed methods study was focused on care during pregnancy. The aim was to explore views on costs and actual payments made during pregnancy under the free maternal health policy. In addition, the source of funding for the payments was also explored. Views of women, midwives and nurses, as well as health insurance managers/directors were studied.

## 4.3 Methods

### 4.3.1 Study design

A convergent parallel mixed methods design was used, involving quantitative and qualitative data collection approaches (Creswell 2014). In a convergent parallel mixed methods design, data collection and analysis for the quantitative and qualitative studies are carried out in parallel, that is, at the same time. The findings are then integrated to ensure a comprehensive analysis of the research question (Creswell 2014). The quantitative component used a structured questionnaire among women who had given birth in health facilities and at home. The qualitative component involved focus group discussions (FGDs) and in-depth interviews (IDIs), using semi-structured interview guides with similar groups of women. The FGDs were held with women who gave birth in health facilities and at home after the use of maternal health services. The IDIs were held with midwives, nurses and health insurance managers/directors. The FGDs and IDIs were considered appropriate for capturing the participants' views on the operations of the free maternal health policy. Data collection was carried out over a period of six months (March-August 2016).

The study received ethics approval from the Ethical Review Board of the Navrongo Health Research Centre in Ghana (*NHRCIRB217*) and the Human Research Ethics Committee of the University of Technology Sydney, Australia (*ETH16-0263*). All participants provided consent to participate. Written permission was also obtained from the district and regional directors of health services representing the Kassena-Nankana

municipality and the Upper East regional health directorate, as well as from the management of the health facilities where the study was conducted.

### 4.3.2 Study area

The study was conducted in the Kassena-Nankana municipality of the Upper East region of Northern Ghana. The study area was selected as it is considered one of the poorest in Ghana. In 2010, around one fifth of the population of 108,000 were declared as poor. Agricultural activities (65.4%) dominate the economy (GSS 2015).

The municipality has one main hospital and two health centres. In addition, there are 17 community-based health planning and services (CHPS) compounds, one private clinic and one health post (mission-based). The CHPS compounds are relatively small health facilities located in deprived and remote communities. The CHPS compounds provide basic health services to members of the communities in which they are located (Nyonator et al. 2005). Apart from the resident nurse, some of the CHPS compounds are staffed with midwives to provide antenatal, childbirth and postnatal services. A few of the CHPS compounds in the municipality are provided with basic laboratories, delivery rooms, pharmacies, electricity and water. The majority are without these facilities. At the time of the study, none of the CHPS compounds had ultrasound equipment. The midwives and nurses stationed in the CHPS compounds without the above-mentioned facilities do their best to provide whatever services are available and then refer pregnant women to the main hospital and private laboratories and pharmacies for other required services. Some health centres also provide maternal health services.

### 4.3.3 Sample size determination for the survey

The study sought to ensure representativeness for women who gave birth in health facilities and at home. In this region, most women attended ANC services although not all attended a health facility to give birth. Therefore, both groups of women were needed to provide a representative sample. For the survey, the formula proposed by Gorstein et al. was used to calculate the sample size for a proportion in a single cross-sectional survey (Gorstein et al. 2007). The formula is shown below, where 1.96 = 95% confidence interval, p = expected proportion, DEFF = estimated design effect and d = desired level of absolute precision:

$$n = \frac{1.96^2\, p(1-p)(DEFF)}{d^2}$$

The proportion of skilled attendance at childbirth in Ghana was estimated to be 60.5% (Amoakoh-Coleman et al. 2015) and this was used to determine the sample size for women who gave birth in health facilities. Given a 95% confidence interval with a width of $\pm$10 (level of absolute precision), design effect of 2, 60% proportion of skilled attendance at childbirth, and a non-response rate of 5%, the calculated sample size for women who gave birth in health facilities was found to be 194. The same parameters were assumed for determining the sample size for women who gave birth at home, but with a proportion of 40% instead, leading to a sample size of 194. Thus two groups of women were recruited for the survey: women who gave birth in health facilities and women who gave birth at home after utilising ANC and other health services. Overall, 388 women were required, but the study recruited a total of 406 women to accommodate withdrawals.

### 4.3.4 Participants for the qualitative component

Ten FGDs were carried out with women who gave birth in health facilities (n=7) and at home (n=3). Each discussion group comprised 5-12 members. Twenty-eight IDIs were conducted, constituting 25 IDIs with midwives and nurses and one IDI each with the district manager of the NHIS, the regional director of the NHIA and a deputy director at the headquarters of the NHIA. The selection of the participants for the IDIs was purposive, interviewing frontline health providers as well as leaders of the NHIS/NHIA.

### 4.3.5 Recruitment of study participants

All health facilities in the study area providing antenatal, childbirth and postnatal services were visited daily to identify women who had recently given birth. Women were recruited only after they had been discharged home from the health facilities. A list with contact details for women who gave birth at home was generated from the database of the Navrongo Health Surveillance System located at the Navrongo Health Research Centre, Ghana. That list was used to trace and recruit the women who gave birth at home. In addition, the study used the records for postnatal attendance to trace women who gave birth at home. Because the survey recruited women who had already given birth at home, 1st January 2016 was set as the starting date for inclusion in the survey. Women who gave birth earlier were ineligible to participate in the survey. This

was done to help minimise recall bias. It took about 30-45 minutes to complete each questionnaire for the survey. Research assistants administered the survey and were supervised by the main investigator.

With the assistance of midwives and nurses at the health facilities, women who gave birth and had come for postnatal services were invited to participate in the FGDs. The lists kept by the health facilities of women who gave birth at home as well as that generated from the database of the Navrongo Health Surveillance System were used for inviting women to participate in the FGDs. The FGDs were conducted at the premises of health facilities, without health providers present. This enabled privacy and free expression of views.

The midwives and nurses who were directly involved in the provision of maternal health services in the various health facilities were identified and invited to take part in an in-depth interview. The interviews with the midwives and nurses were held in secured rooms in the health facilities in which they worked. The health insurance manager responsible for the Kassena-Nankana municipality, the director for the NHIA Upper East regional office and a deputy director at the headquarters of the NHIA also participated in the IDIs. The IDIs were held in the offices of the managers/directors. All the IDIs were conducted one-on-one basis. Each FGD or IDI lasted 45-120 minutes. The main investigator conducted all the FGDs and IDIs.

### 4.3.6 Study variables

Questions for the study covered topics ranging from socio-demographic characteristics of participants to challenges of the health system that affected the use and provision of maternal health services. Table 5 outlines the topics covered and the particular study components.

**Table 5: Topics covered for the study**

| Topics covered | Study component |
|---|---|
| Socio-demographic characteristics | Survey with women |
| Type of health facility visited during pregnancy | Survey and FGDs with women |
| Health and related services received at the facility | Survey and FGDs with women |
| Direct OOP payments for outpatient health services | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| Direct OOP payments for food and transportation | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| OOP payments for hospitalisation | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| Source of financing payments | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| Workings of the free maternal health policy | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| Suggestions for improving health services | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |
| Challenges of the health system | Survey and FGDs with women, IDIs with midwives/nurses and health insurance managers |

OOP payments in this context refers to direct payments made by women or their partners/family members for the use of health services. The OOP payments for the survey were classified as direct medical and direct non-medical expenditure. Table 6 explains the cost components captured under direct medical and direct non-medical expenditure.

**Table 6: Direct medical and direct non-medical expenses**

| **Outpatient** | **Hospitalisation (Inpatient)** |
|---|---|
| **Direct medical expenses** | **Direct medical expenses** |
| Antenatal folder fee (i.e. antenatal record) | Laboratory test |
| Consultation | Drugs |
| Laboratory test | Blood transfusion |
| Drugs | Bedding |
| Blood transfusion | |
| **Direct non-medical expenses** | |
| Feeding | |
| Transport | |

Direct medical and direct non-medical costs were estimated by aggregating the costs from which means and standard deviations were determined. Hospitalisation was defined as admission to a health facility for longer than 12 hours and the costs were a summation of medical costs, laboratory costs, and bed costs paid by either the woman or partner/ family member during the admission. The recall period for the cost component covered the entire period of pregnancy (7-9 months). Indirect costs (for example, opportunity costs due to time spent at health facilities) were not explored for the survey as this was beyond the scope. Women were the main respondents in the survey but where a particular woman could not provide the needed information, especially on cost, her partner/family members could assist.

The study determined the impact of the OOP payments on the women by estimating the payments as a proportion of the average annual household income of the Upper East region, which was obtained from the Ghana Living Standards Survey Report of the sixth round (GSS 2014b). Data were not available for the study area itself. We used 9/12th of the average annual household income to correspond to the duration of a normal pregnancy (7-9 months), with the assumption that all women attended ANC at the recommended time. A 9/12th average annual income for the region was estimated to be GH¢5,430.40 (US$2,755.40) for 2012/13. The study determined catastrophic OOP payments as well for the women. OOP payments are considered to be catastrophic if they are equal to or above a predetermined cut-off point or threshold of household

resources in terms of income, expenditure or consumption. Catastrophic OOP payments affect the welfare of households as they have to forfeit the consumption of certain essential goods and services as a result of the payments. Studies have used different thresholds such as 5%, 10%, 15%, 20%, and 40% for the determination of catastrophic OOP payments (Amaya-Lara 2016; Borghi et al. 2006; Dalaba et al. 2015; Hoque et al. 2015). This study used 5% threshold of 9/12 average annual household income. If the total OOP payments (direct and direct non-medical expenses) exceeded that threshold (5%), it was considered to be catastrophic.

The costs data for the study was reported in Ghana cedis, but converted into US$, using an exchange rate of US$1=GH¢1.9708 (2013 exchange rate) as existed in the Ghana Living Standards Survey Report of the sixth round.

### 4.3.7 Study process for the qualitative component

The semi-structured interview guides for both the FGDs and the IDIs were developed in English. The questions for the FGDs were later translated into the two dialects (Kasem and Nankam) spoken in the study area. The guides for the IDIs were not translated because all the midwives and nurses, and managers/directors spoke and understood English. All questions for the FGDs and IDIs were piloted and changes were made accordingly. The discussions and interviews were audio-recorded with the permission of participants, with the exception of one interview by a health insurance manager who asked not to be recorded. Extensive field notes were taken for all the discussions and interviews alongside the recordings.

The FGDs and IDIs took a flexible approach. Emerging issues were probed further to ensure that pertinent issues were not left out. During the FGDs, the facilitator made an effort to ensure all participants, particularly those seen not to be active discussants, were able to present their views. At the end of the discussion or interview, issues were summarised and presented back to participants to ensure they were as expressed, and new issues that emerged were incorporated into the guides for the next discussion or interview. The discussions and interviews ended when there was saturation after prompts from the investigator.

### 4.3.8 Data analysis and management

Survey data were collected electronically using SurveyCTO Collect v2.10 application. Data analysis was carried out using STATA 14. Data were cleaned by checking frequencies to identify outliners as well as missing data. Descriptive statistics were used to describe the background characteristics of the participants and other variables.

The audio recordings for the qualitative study were transcribed or translated verbatim into English. The transcripts and field notes were read several times to immerse the researcher in the data. For validity and accuracy purposes, the main investigator listened to a number of recordings, comparing that to the transcripts and any discrepancy was corrected before coding. All transcripts and interview notes were read and reviewed further with hand written notes on each transcript highlighting key issues. A coding structure was then developed and applied to identify themes and sub-themes which were presented using tables. For assurance that the themes reflected the data, the particular data section(s) for each theme was re-examined with alterations made when necessary. The findings therefore reflected the themes and included essential key quotes from the participants.

## 4.4 Results

### 4.4.1 Socio-demographic characteristics

A total of 406 women participated in the survey. The mean age for the women was 27 years; a majority (66.7%) were under 29 years. Most were married (95.1%), more than 70% had only basic education (that is, up to completion of junior high school) or no formal education, and 38.2% were involved in farming. About one third of the participants (31.5%) were first time mothers (Table 7).

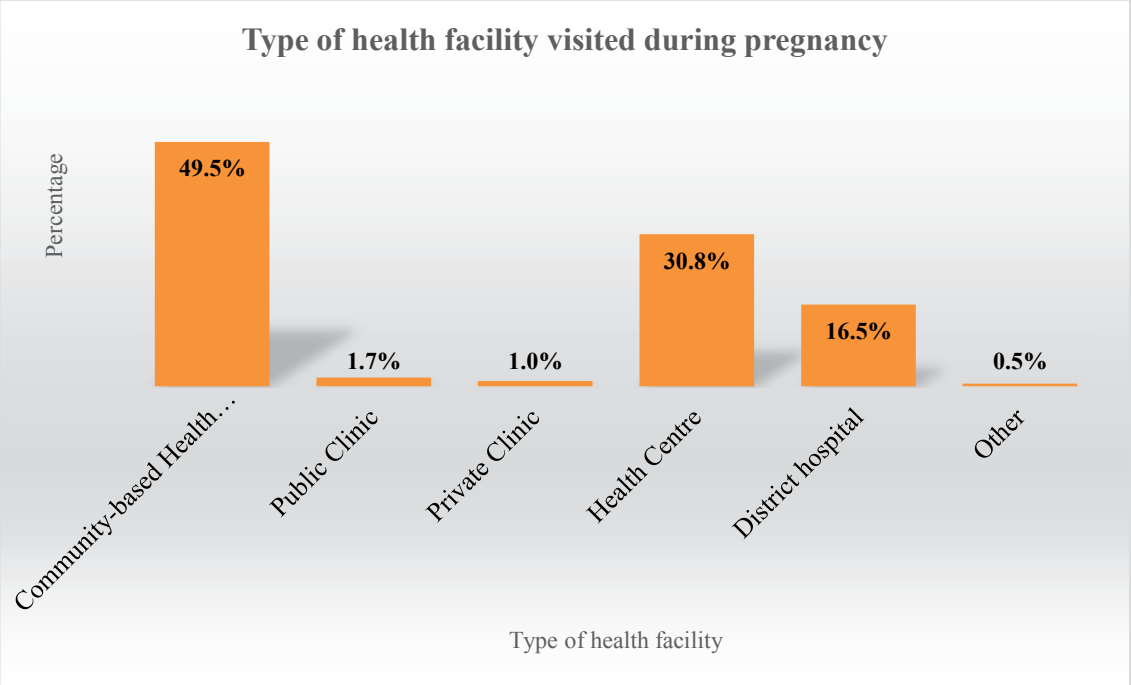
**Table 7: Socio-demographic characteristics of participants**

| Variable | | Number | Percent (%) |
|---|---|---|---|
| | **Overall total** | **406** | **100** |
| **Age** | <20 | 41 | 10.0 |
| | 20 – 24 | 103 | 25.4 |
| | 25 -29 | 127 | 31.3 |
| | 30- 39 | 120 | 29.6 |
| | 40+ | 15 | 3.7 |
| **Marital status** | Single | 20 | 4.9 |
| | Married | 386 | 95.1 |
| **Highest educational level** | No formal education | 64 | 15.8 |
| | Basic education (up to junior high school) | 226 | 55.7 |
| | Senior high/technical education | 67 | 16.5 |
| | Tertiary | 49 | 12.0 |
| **Occupation** | Unemployed | 29 | 7.1 |
| | Trader | 79 | 19.5 |
| | Farmer | 155 | 38.2 |
| | Public/civil servant | 46 | 11.3 |
| | Student | 42 | 10.3 |
| | Other | 55 | 13.6 |
| **Religious background** | Traditional | 20 | 4.9 |
| | Catholic | 164 | 40.4 |
| | Protestant | 192 | 47.3 |
| | Muslim | 30 | 7.4 |
| **Ethnicity** | Kasem | 239 | 58.9 |
| | Nankam | 135 | 33.2 |
| | Other | 32 | 7.9 |
| **Number of births** | 1 | 128 | 31.5 |
| | 2 | 103 | 25.4 |
| | 3 | 79 | 19.5 |
| | 4 or more | 96 | 23.6 |

### 4.4.2 Type of health facility visited during pregnancy

Almost half of the participants (49.5%) utilised services from the CHPS compounds (Figure 11). About a third of the women also used services from health centres (30.8%).

**Figure 11: Type of health facility visited during pregnancy**




From the FGDs, most of the participants indicated that they were utilising the CHPS compounds for ANC and other services during pregnancy. A participant said:

> *"We always go to the … clinic (referring to CHPS compound) for ANC and other health issues"* (FGD, woman).

### 4.4.3 Health and related services received during pregnancy

All the women (100%) had undergone physical examination (including weight, blood pressure, and heart rate). Also, 95.0% and 98.5% of the women respectively, had received obstetrical examinations and ultrasound scans (Table 8).

**Table 8: Health and related services received during pregnancy**

| Services received during pregnancy | | Number | Percent (%) |
|---|---|---|---|
| Physical examination (including weight, blood pressure, heart rate) | Yes | 406 | 100 |
| Obstetrical examination (abdominal palpation and vaginal examination) | Yes | 386 | 95.0 |
| Ultrasound scan | Yes | 400 | 98.5 |
| HIV/STD testing | Yes | 377 | 92.9 |
| | Don't know | 6 | 1.5 |
| Blood test | Yes | 397 | 97.8 |
| Nutritional supplements | Yes | 392 | 96.5 |
| Tetanus vaccine | Yes | 396 | 97.5 |
| | Don't know | 10 | 2.5 |

### 4.4.4 Coverage of expenses by the free maternal health policy during pregnancy

From the quantitative aspect, 90% of the women felt that the free maternal health policy under the NHIS did not cover all expenses. Findings from the FGDs and the IDIs with the midwives and nurses also supported this opinion. A participant in the FGD said:

> *"We pay for other services, except for ANC and delivery services that the health insurance covers"* (FGD, woman).

A midwife also said:

> *"These women make payments for some of the health services, especially for drugs and laboratory services. And then buying rubber, pads; some of those small, small things that they will have to use during the delivery, they are not covered"* (IDI, midwife).

However, the managers/directors of the NHIS/NHIA felt that the free maternal health policy under the NHIS did cover all expenses for maternal health services. A manager stated that:

> *"All health services and approved drugs are provided for free for pregnant women in NHIS accredited health facilities"* (IDI, manager).

The managers/directors reported that only the cost of transportation to and from health facilities was not covered under the maternal health policy. One of the directors said:

> *"No, transport is not covered. I am told if even when an ambulance takes a patient from one place to the other, the patient incurs that cost"* (IDI, director).

The midwives and nurses concurred that the cost of transportation was borne by the women and their relatives. A nurse indicated:

> *"Transportation like this I'm aware is not covered. Like if you are going to refer somebody, it's not covered – they (women) will have to pay"* (IDI, nurse).

### 4.4.5 Actual OOP payments incurred during pregnancy

The majority of the women made direct OOP payments for laboratory tests and drugs, representing 87.4% and 50.0% respectively (Table 9). The mean for total direct medical expenses was GH¢18.0 (US$9.10) and GH¢16.50 (US$8.40) for direct non-medical expenses. The combined mean for direct medical and direct non-medical expenses was GH¢17.50 (US$8.90) for outpatient attendance. The mean OOP expenditure for hospitalisation was GH¢24.50 (US$12.40). Overall, the mean OOP expenditure incurred during pregnancy was GH¢17.50 (US$8.90), reflecting as 0.32% of 9/12th average annual household income of GH¢5,430.40 (US$2,755.40) for the Upper East region in 2012/13. Approximately 2% (n=9) of the women spent more than 5% of 9/12th average annual household income and thus faced catastrophic OOP payments.

**Table 9: OOP expenditure incurred during pregnancy**

| **OOP expenditure incurred during pregnancy** | | | **Mean** | **Std dev.** |
|---|---|---|---|---|
| | **Number** | **GH¢ (US$)** | **GH¢ (US$)** | **GH¢ (US$)** |
| (1) Direct medical expenses (outpatient) | | | | |
| -Folder fee | 5 | 1.2 | 11.60 (5.90) | 11.30 (5.70) |
| -Consultation | 1 | 0.2 | 20 (10.10) | - |
| -Laboratory test | 355 | 87.4 | 38.60 (19.60) | 46.80 (23.70) |
| -Drugs | 203 | 50.0 | 35.70 (18.1) | 67.70 (34.40) |
| -Blood transfusion | 7 | 1.7 | 64.30 (32.60) | 36.90 (18.70) |
| **Total direct medical expenses** | | | **18 (9.10)** | **22.80 (11.60)** |
| (2) Direct non-medical expenses | | | | |
| -Feeding | 50 | 12.3 | 15.30 (7.80) | 11.50 (5.80) |
| -Transport | 44 | 10.8 | 18.70 (9.50) | 30.50 (15.50) |
| **Total direct non-medical expenses** | | | **16.50 (8.40)** | **16 (8.10)** |
| Total direct and direct non-medical expenses (1+2) | | | **17.50 (8.90)** | **18.60 (9.40)** |
| (3) Hospitalisation expenses (inpatient) | 8 | 2.0 | **24.50 (12.40)** | **32 (16.20)** |
| **Total direct expenses (1+2+3)** | | | **17.50 (8.90)** | **18.50 (9.40)** |

*Exchange rate of GH¢1.9708 = US$1*

The women attended the health facilities with the understanding that all the expenses would be covered by the NHIS. For example, one woman said:

> *"On my first attendance, I didn't know I had to pay for the testing, so when I got there I was asked to pay GH¢15 (US$7.60) and I went home, the next day I went back and they said the same thing, it was on the third day that I was able to raise the money to pay"* (FGD, woman).

The midwives and nurses recognised that women visited the health facilities with the expectation that they would not be paying for services and drugs. Explaining this, a midwife said:

*"…because she (the pregnant woman) thinks that she is under health insurance, she is covered under everything, she comes here and you tell her to buy something, she is not prepared for that…"* (IDI, midwife).

### 4.4.6 OOP payments for anti-malarial drugs and ultrasound scan

In the FGDs, women explained that they were required to buy anti-malarial drugs as well as paying for ultrasound scans. A quote from one of the participants was:

*"There were some drugs that they say they are for malaria, first it was for free but now when you attend the facility, they will ask you to go and buy at GH¢1.50 (US$0.80)"* (FGD, woman).

The midwives and nurses also recognised that women were often required to buy anti-malarial drugs as well as pay for ultrasound scan services. A midwife reported:

*"And the other thing too is the SP drug (Pyrimethamine-sulfadoxine) which we were giving free; now we have to ask some of them to go and buy because it's currently not available, but beneficial… We also request the women to go outside for scanning services and other tests, which they've to pay for"* (IDI, midwife).

Some of the women could not afford payment for the drugs and ultrasound scans. For example, a midwife said:

*"I can remember I asked one client to go and buy the SP drug, she didn't tell me whether she had money or she didn't have money. She just quickly went back home, remained there; for 2 months she didn't come back for weighing. So later on I traced up only for her to tell me that, the drug I asked her to buy she couldn't afford it. So she's waiting, when she's able to buy the drug, then she will come for weighing again…"* (IDI, midwife).

In addition, because of the need to make direct OOP payments, some of the women did not undergo an ultrasound scan despite this being recommended. A midwife made the following statement:

*"I have a client who has never taken the scan… until delivery, upon referrals – she'll never go"* (IDI, midwife).

The midwives and nurses understood that poverty meant some women could not afford the health services required. A midwife explained;

*"…the poverty level is very high, we all know that. Some we have pity for them – when you see them and follow them up to their houses, you'll see what is happening under the ground. It's not their making. Even the flour water for them to take is a problem"* (IDI, midwife).

Some women felt that the payments they had made in terms of drugs and other services was more than what the NHIS had paid for on their behalf for use of maternal health services. A participant said:

*"What we go to buy is more than what the NHIS offers us"* (FGD, woman).

Due to the payments that the women were still making for the use of maternal health services, midwives and nurses questioned the effectiveness of the free maternal health policy in the elimination of OOP payments. A midwife reported:

*"They (policy makers) have come out that free maternal health… but how free is it?"* (IDI, midwife).

A midwife explained further:

*"… there are certain "peti-peti" things that we still ask the women to buy, like the SP drugs… under the free maternal health policy"* (IDI, nurse).

Notwithstanding, most of the women were positive about the benefits of the free maternal health policy. A participant in the FGDs said:

*"They used to give flour, I will not lie, and I received it once. It was flour and oil but I received the flour and bed nets and also the routine drugs. These are all free and we are happy with that"* (FGD, woman).

The flour and oil are usually given to supplement the nutritional needs of women and their babies. These food products are donated by the World Food Programme and the United Nations Children's Fund.

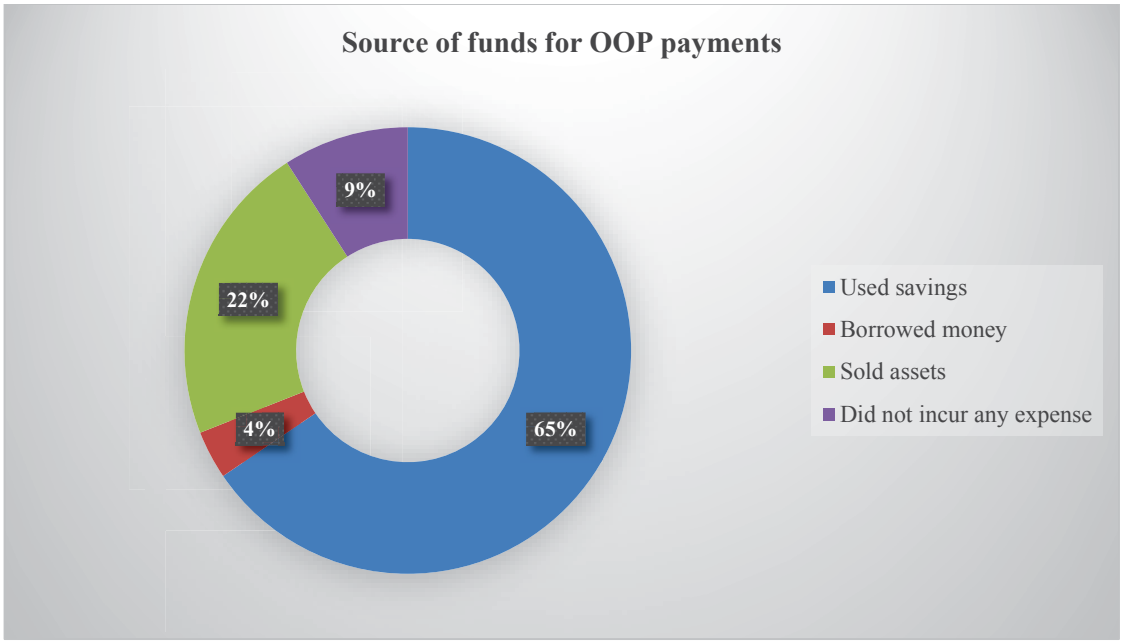
Despite all the concerns, the managers/directors were optimistic about the benefits of the free maternal health policy to health service delivery. A director said:

*"The free maternal health policy is one of the major policies under the NHIS which has helped improve maternal health care and reduced infant deaths or child mortality. Health providers have also benefitted a lot from our reimbursement, the only challenge is the late reimbursement of health facilities. For this we are helpless"* (IDI, director).

### 4.4.7 Source of financing health expenses

Women used various sources of funding to meet the expenses incurred during pregnancy (Figure 12). In the survey, nearly two-thirds (65%) of the women said they had to use their savings to finance the expenditure, whilst 22% indicated that they sold assets to meet the expenditure.

**Figure 12: Source of funds for OOP payments**



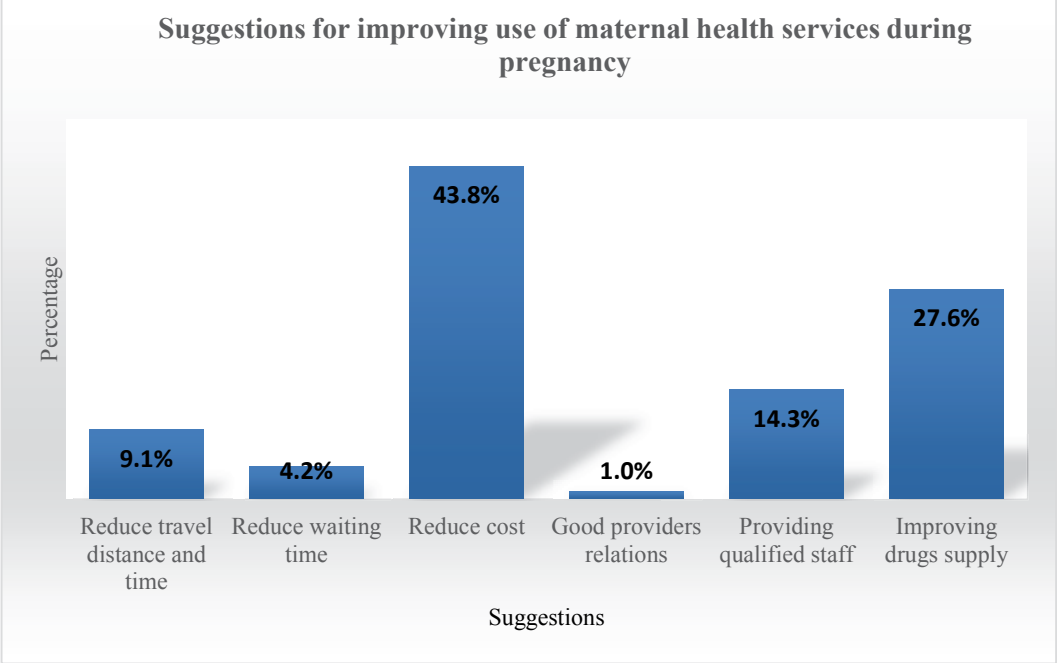

Women also explained how their families sold assets in order to finance the payments for drugs and ultrasound scans. These assets included domestic animals like sheep, goats, guinea fowls and fowls, and foodstuffs. A participant said:

> *"My husband took an animal to the market to sell so that I can get money to pay for the scan"* (FGD, woman).

### 4.4.8 Suggestions for improving maternal health services during pregnancy

The survey asked women for suggestions on how to improve access to maternal health services under the free maternal health policy. The leading response was the reduction of cost (43.8%), followed by improvement in drugs supplies (27.6%) (Figure 13). Health providers' relationship with women, travel distance and waiting times were not serious issues hindering the use of maternal health services.

**Figure 13: Suggestions for improving use of maternal health services during pregnancy**




The women in the FGDs said efforts should be directed at reducing OOP payments for use of maternal health services. For example:

> *"The payment for the scanning and drugs should be looked at…"* (FGD, woman).

In the IDIs, midwives and nurses expressed concerns about the inability of the NHIS to cover the cost of transportation to and from health facilities. They felt that the NHIS benefit package should include the cost for referral of emergency cases to higher level health facilities. A nurse said:

> *"And if the health insurance can also help so that when we are referring them (women) like this, the ambulance, it should be free – they should not be requesting money from them – It would have also helped"* (IDI, nurse).

## 4.5 Discussion

The study showed that the women, midwives and nurses felt the free maternal health policy did not cover all expenses associated with the use of maternal health services.

Proportionally, 87.4% and 50.0% of the women made direct OOP payments for laboratory tests and drugs respectively. A mean OOP cost of GH¢17.50 (US$8.90) was incurred for use of maternal health services during pregnancy. The FGDs and IDIs indicated that anti-malarial drugs and ultrasound scan services were paid by OOP too, but some of them were unable to afford paying due to poverty. The women who made the payments used savings as well as selling assets. In contrast, the managers/directors of the NHIS/NHIA argued that the NHIS did cover all basic health expenses, except the cost of transport. Both women and insurance managers/directors, however, acknowledged the benefits of the policy.

The mean OOP payments for use of maternal health services during pregnancy was GH¢17.50 (US$8.90) and estimated as 0.32% of 9/12th average annual household income of the region. Besides 2% of the women faced catastrophic OOP payments which could affect their consumption of basic goods and services in the midst of the free maternal health policy. The low proportion of OOP payments share of the average annual household income as well as the low proportion of the women who faced catastrophic OOP payments might be explained by the fact that some of the women were unable to afford payment for some services and simply did not use them. Most individuals in the study area are not formally employed; instead they are engaged in peasant agricultural activities (65.4%) with limited cash income, with one fifth of the population of 110,000 declared as poor (GSS 2015). Thus OOP payments of any magnitude might be unaffordable and to some extent, adversely affect the economic fortunes of some of the households.

The NHIS's benefit package covers 95% of disease conditions in Ghana, whilst the free maternal health policy purports to allow for the free utilisation of maternal health services including drugs, ANC, childbirth (normal and assisted), caesarean section and postnatal care (NHIA 2015). However, the finding on OOP payments were a consequence of the unavailability of drugs and other essential supplies in the health facilities, as found elsewhere (Kerketta 2015; Leone, James & Padmadas 2013). The NHIS is required to make timely payments for claims submitted by health facilities for use of health services by registered clients. Unfortunately, at the time of the study, health facilities had not been reimbursed for the last seven months and this had affected their ability to procure drugs especially. The phenomenon depleted the stock of drugs in the health facilities, explaining

why health providers had to write out prescription forms for women to buy drugs outside health facilities.

Another systemic challenge was the lack of well-equipped laboratories and qualified personnel, particularly in the lower level health facilities (Bates, Bekoe & Asamoa-Adu 2004; IHME 2015) in the study area. The main hospital is the only facility with a standard laboratory. Even the district hospital, due to lack of funds resulting from the delay in reimbursement by the NHIS, is unable to procure the necessary test kits and reagents for use. For these reasons, women were consistently referred to private laboratories for tests and scans, triggering additional OOP payments.

In the study area, a cross-sectional study on cost of maternal complications during pregnancy revealed that households spent a median of US$32.03 for the treatment of maternal complications (Dalaba et al. 2015). Three reasons might account for the difference in OOP expenditures between that study and ours. Generally, the cost of treatment for maternal complications is usually higher than that for pregnancies without complication. Secondly, the previous study added productivity costs, which was not captured for this study. Lastly, that study reported OOP expenditure using the median, while our study used the mean. Nationally, our finding is consistent with a recent report released by the Ghana Statistical Service on the purchase of drugs outside health facilities under the NHIS. The report highlighted average OOP payments for drugs outside health facilities to be GH¢34.32 (US$ 17.40) versus GH¢33.84 (US$17.10) for drugs obtained from health facilities (GSS 2014b). It is important to note that the reported averages represent the use of health services by the general population including pregnant women.

Similarly, a study in a rural setting in Nigeria, West Africa, showed that women and their families spent between US$9 and US$99 for use of maternal health services (Kalu-Umeh et al. 2013). In India too, a recent study reported that households incurred a mean OOP expenditure of US$26 in public health facilities for the utilisation of maternal health services (Govil et al. 2016). These studies bear resemblance to our study, given that the mean OOP costs were for use of maternal health services in public health facilities in the midst of fee exemptions or health insurance.

The finding on payments made by the women violates the core principle for implementing the free maternal health policy. As a result of the OOP payments, some women were unable to buy anti-malarial drugs as well as undergo ultrasound scans in particular. This may have serious implications for the health of the women involved and their unborn babies. The women's inability to utilise maternal health services as a result of OOP payments would set back the agenda of reducing maternal mortality in the country. It would also stall the process for the achievement of universal health coverage as envisioned in the sustainable development goals (UN 2016). The NHIS should endeavour to make early payments for claims submitted by health facilities. It is also suggested for the NHIS to include the cost of transportation for emergency cases in its benefit package to assist reduce the financial burden of women who would require referral. On the part of government and donors, we recommend increased funding to the health sector, especially support for infrastructural and logistical improvement in the health facilities.

If these suggestions are acted upon, payments for maternal health services during pregnancy might be reduced or eradicated altogether. This will enable all women to be able to use maternal health services when required, leading to improved health outcomes including reduced maternal mortality. It will also provide universal health coverage for all women at the long run.

### 4.5.1 Study limitations

The combination of quantitative and qualitative methods ensured an in-depth analysis for the achievement of the research goal (Creswell 2014). The findings from each component of the study helped shed light, especially the qualitative study which helped illustrate the findings of the quantitative through the use of key quotes. However, the following should be noted. The women were interviewed after the use of ANC and other health services; thus there is the chance of their inability to remember all details of their health seeking experience during pregnancy. Even though the quantitative component was conducted within eight months after giving birth, recall bias cannot be eliminated completely. The study did not examine the full costs related to pregnancy, since the loss of productivity was not determined and included. So the mean OOP payments might be an underestimations of the actual cost incurred during pregnancy.

## 4.6 Conclusion

The study showed women made OOP payments under the free maternal health policy. Women paid for drugs, especially anti-malarial drugs, and ultrasound scan services out of health facilities during pregnancy, potentially leading to inadequate care and health implications for women and their unborn babies. The NHIS should make timely payments for claims submitted by the health facilities, to assist reduce or eliminate the payments associated with the utilisation of maternal health services. The NHIS should also support women on emergency referral to higher level health institutions to help reduce their financial burden. In addition, government and donors should increase funding for infrastructural and logistical improvement in health facilities. These measures when adopted will enable all women to use maternal health services when needed, thus improving health outcomes including the reduction of maternal deaths. It could also enhance the move towards universal health coverage.

# CHAPTER 5: FINDINGS (AFFORDABILITY OF MATERNAL HEALTH SERVICES AT CHILDBIRTH)

Publication 2

**Reference**: Dalinjong, P.A., Wang, A.Y. & Homer, C.S.E. 2017, "The operations of the free maternal care policy and out of pocket payments during childbirth in rural Northern Ghana", *Health Economics Review,* vol. 7, no. 1, p. 41 DOI 10.1186/s13561-017-0180-4

The chapter consists of findings on the affordability of maternal health services at childbirth. It is a paper published in *Health Economics Review*. The paper explored out of pocket payments and their financial impact on women during childbirth. It is presented in the form published by the journal.

## 5.1 Abstract

**Introduction**

To promote skilled attendance at births and reduce maternal deaths, the government of Ghana introduced the free maternal care policy under the National Health Insurance Scheme (NHIS) in 2008. The objective was to eliminate financial barriers associated with the use of services. But studies elsewhere showed that out of pocket (OOP) payments still exist in the midst of fee exemptions. The aim of this study was to estimate OOP payments and the financial impact on women during childbirth in one rural and poor area of Northern Ghana: the Kassena-Nankana municipality. Costs were taken from the perspective of women.

**Methods**

Quantitative and qualitative data collection techniques were used in a convergent parallel mixed methods study. The study used structured questionnaires (n=353) and focus group discussions (FGDs, n =7) to collect data from women who gave birth in health facilities. Quantitative data from the questionnaire were analysed, using descriptive statistics. Qualitative data from the FGDs were recorded, transcribed and analysed to determine common themes.

**Results**

The overall mean OOP payment during childbirth was GH¢33.50 (US$17), constituting 5.6% of the average monthly household income. Over one-third (36%, n=145) of women incurred OOP payments which exceeded 10% of average monthly household income (potentially catastrophic). Sixty-nine percent (n=245) of the women perceived that the NHIS did not cover all expenses incurred during childbirth, which was confirmed in the FGDs. Both survey results and FGDs demonstrated that women made OOP payments for drugs and other supplies. The FGDs showed women bought disinfectants, soaps, rubber pads and clothing for newborns as well. Seventy-five percent (n=264) of the women used savings, but 19% had to sell assets to finance the payments; this was supported in the FGDs.

**Conclusion**

The NHIS policy has not eliminated financial barriers associated with childbirth impacting the welfare of some women. Women continued to make OOP payments, largely as a result of a delay in reimbursement by the NHIS. There is need to re-examine the reimbursement system in order to prevent shortages of funding to health facilities and thus encourage skilled attendance for the reduction of maternal deaths as well as the achievement of universal health coverage.

## 5.2 Introduction

Skilled attendance at childbirth has been recommended for the reduction of maternal and newborn deaths (Campbell & Graham 2006; IMCIBO 2003; UNICEF 2016). A 20% reduction in stillbirths or maternal deaths is expected when skilled attendants are utilised during childbirth, given the availability of equipment, drugs and supplies (UNICEF 2016). In Ghana, uptake of skilled attendance at childbirth is a challenge, especially for rural populations and poor families. While urban areas and rich families had a skilled attendance coverage of 87.4% and 90.5% respectively, rural areas and poor families had a coverage of 57.2% and 42.1% respectively (UNICEF 2016). Financial barriers largely explain this phenomenon, as a quarter of Ghanaians are poor, especially rural populations (GSS 2015).

Making direct out of pocket (OOP) payments can prevent poor households from using maternal health services, including skilled attendance at childbirth (Saksena, Hsu & Evans 2014; Shahrawat & Rao 2012; WHO 2010b). Poor households are likely to forgo essential health services when they have to make direct OOP payments. In addition, some households are pushed further into poverty through their use of health services (WHO 2010b). Empirical evidence points to the positive effects of risk pooling programmes, including fee exemption policies on the use of maternal health services. For example, the implementation of fee exemption policies in particular have led to a decrease in OOP payments for maternal health services (Asante et al. 2007; Masiye, Kaonga & Kirigia 2016; Ridde et al. 2015; Witter, Boukhalfa, et al. 2016; Xiao et al. 2010). Fee exemption policies have also improved the utilisation of skilled attendance at childbirth and reduced maternal deaths (Hatt et al. 2013; Witter, Boukhalfa, et al. 2016).

To promote skilled attendance at childbirth and reduce maternal deaths in Ghana, a fee exemption policy to cater for pregnant women in the four poorer regions of Central, Northern, Upper East and Upper West was initially implemented in 2003. In 2005, the exemption was extended to the rest of the country. The prime aim of the policy was to remove direct OOP payments associated with the use of maternal health services. Under the policy, metropolitan, municipal and district assemblies were responsible for the reimbursement of health facilities after the provision of maternal health services to women. Nevertheless, governmental budgetary constraints affected the successful implementation of the initiative (Witter & Adjei 2007). The initiative was reintroduced in July 2008 and referred to as the free maternal care policy, operating under the National Health Insurance Scheme (NHIS). Under the policy, pregnant women are entitled to free of charge registration with the NHIS, and free of cost health services and drugs up to the time of childbirth and 90 days after. Following the implementation of the policy, studies have shown an increase in coverage for skilled attendance at childbirth (Brugiavini & Pace 2016; Dzakpasu, Powell-Jackson & Campbell 2013; Dzakpasu et al. 2012; Leone et al. 2016; Singh et al. 2015).

However, studies in Africa and Asia have shown that OOP payments still persisted in the midst of fee exemptions policies, especially affecting skilled attendance at childbirth (Acharya 2016; Acharya et al. 2016; Issac et al. 2016; Kruk et al. 2008; Masiye, Kaonga & Kirigia 2016; Nahar & Costello 1998; Prinja et al. 2015). This phenomenon is attributed

to systemic challenges (Witter & Adjei 2007). In Ghana, the benefit package of the NHIS does not cover the cost of transport and thus pregnant women and expectant mothers would have to pay for transport to and from health facilities under the free maternal care policy. But transport cost is reported to be a major cost driver for the use of maternal health services (Dalaba et al. 2015; Kruk et al. 2008). Given this background, there is limited knowledge on costs associated with the utilisation of skilled attendance at childbirth under the free maternal care policy in Ghana. This study therefore aimed to estimate OOP payments during childbirth and the financial impact on women under the free maternal care policy of the NHIS in poor rural Northern Ghana. OOP payments were determined from the perspective of women.

## 5.3 Methods

### 5.3.1 Study design

Both quantitative and qualitative data collection techniques were used through a convergent parallel mixed methods design (Creswell 2014). Convergent parallel mixed methods allows for the convergence or combination of quantitative and qualitative data to ensure a comprehensive analysis of a research question (Creswell 2014). The study is descriptive in nature. The quantitative component of the study was carried out among women who had given birth in health facilities. A structured questionnaire was designed to collect quantitative data including information on OOP payments.

Focus group discussions (FGDs) collected qualitative data among women who had given birth in health facilities. A semi-structured interview guide was developed and used for the FGDs. The quantitative and qualitative data collection took place from March to August 2016.

### 5.3.2 Study area

The Kassena-Nankana municipality is one of three municipalities in the Upper East region of Northern Ghana where the study took place. Over two-thirds of the population are rural, with the majority involved in agricultural activities (GSS 2014b). The municipality has similar characteristics as other poor areas in other regions of Ghana and Africa. A number of health facilities exist in the municipality including Community-based health planning and services (CHPS) compounds, clinics, and health centres. The

highest point of referral within the municipality is the district hospital located in the capital town, Navrongo. Specifically, the study took place in the district hospital, two health centres and eleven CHPS compounds. These health facilities had at least one midwife and were providing childbirth services in the municipality at the time of the study.

### 5.3.3 Study population and sampling

The study population was women who gave birth in health facilities in the study area. The sample size was determined through the formula given by Gorstein et al. for a proportion in a single cross-sectional survey (Gorstein et al. 2007). The processes of sample determination for the study has been shown in Dalinjong, Wang & Homer (2018). This paper used data from 353 women who gave birth in health facilities.

### 5.3.4 Data collection

The survey data were captured through structured questionnaire. The data were electronically collected with the use of SurveyCTO Collect v2.10 software application. SurveyCTO Collect allows for data capture, transport and processing on hand-held electronic gadgets like tablets and smart mobile phones. Women were identified and recruited daily as they gave birth and were discharged to go home from the study health facilities. Administering of the questionnaire took between 30-45 minutes. The main investigator supervised the data collection which was carried out by research assistants.

### 5.3.5 Questionnaire instrument

The questionnaire collected data on the socio-demographic characteristics of the women. Questions included OOP payments including payments to acquire the antenatal record folder, attend antenatal consultation, have laboratory testing, drugs, and blood transfusion. Women were asked about expenditure on food and transportation to and from health facilities. Expenditure for inpatient health services (admissions) were also solicited. An admission was taken to be a stay in a health facility for a period longer than 12 hours. Finally, the study collected data on the source of funding for OOP payments. Indirect costs (that is, opportunity costs due to time lost at health facilities) were not assessed due to the challenges associated with the capturing of such data.

### 5.3.6 The qualitative study

The study developed and used a semi-structured interview guide for the conduct of the focus group discussions (FGDs) with the women. The guide was initially developed in English, focusing on the utilisation of skilled attendance and OOP payments. The guide was translated by experts into the Kasem and Nankam languages spoken in the study area. Back translations were carried out to ensure accuracy of the translations. Overall, seven FGDs were held among women who gave birth in health facilities. To ensure women felt free to speak in the FGDs, health providers were not allowed to be present during the discussions. Membership of the FGDs ranged between 5 and 12.

Permission was obtained from all women for the recording of the discussions and field notes were taken. The FGDs were flexible, allowing the facilitator to follow up specific areas as well as seek clarifications on emerging issues. Particularly, all participants were encouraged to contribute to the discussions. To validate the data, issues discussed were presented back to participants for their confirmation or rejection at the end of the discussion. In addition, new issues emerging from the discussions were added to the guide for the next round of discussions. The discussions ended when participants had no further responses despite prompts and probes from the investigator (signifying data saturation). Each FGD lasted 45-120 minutes. All the FGDs were moderated by the main investigator.

### 5.3.7 Data analysis and management (quantitative study)

The analysis was carried out in STATA 14, using descriptive statistics to assist understand participants' background characteristics and other study variables. The OOP payments were classified as direct medical, direct non-medical and hospitalisation (inpatient). The direct medical expenses (outpatient) comprised the cost of the antenatal folder, consultation charge, laboratory tests, cost of drugs and blood (for cases of blood transfusion). Direct non-medical expenses included the cost of meals and transportation to and from health facilities. The hospitalisation expenses were for costs incurred as a result of hospital admission (inpatient). The expenditure for inpatient health services comprised a summation of the costs for medical services, laboratory testing, drugs and bedding during admission. The estimation of the overall mean OOP payments was expressed as $M = a + b + c$, where M = overall mean OOP payments, a = direct medical expenses, b = direct non-medical expenses, and c = hospitalisation cost. The denominator

was the number of women who incurred such expenditure. The direct medical, direct non-medical and hospitalisation costs were estimated by aggregating the costs from which means and standard deviations were determined.

To estimate the impact of OOP payments on women/households, the overall mean cost was calculated as a percentage of the mean monthly household income of the Upper East region (region of study). Income data were not available specifically for the Kassena-Nankana municipality. The average annual household income for the region was GH¢7,240.5 (US$3,673.8) as reported in the Ghana Living Standards Survey Report Round 6 (GSS 2014b). This translated to an average monthly household income of GH¢603.4 (US$306.2), which was used for the determination of the impact of OOP payments on income of households. OOP payments that are considered to be catastrophic for families were also estimated using the same average monthly household income (GH¢603.4=US$306.2). Catastrophic OOP payments are those which disrupt the consumption patterns of households, particularly essential goods and services. Catastrophic OOP payments were considered to have occurred when health expenditure for a given episode were equivalent to or exceeded a set threshold for a household's resource (income or expenditure). Thresholds often vary, ranging from 5% to 40% (Amaya-Lara 2016; Borghi et al. 2006; Dalaba et al. 2015; Hoque et al. 2015). This study used a 10% threshold for the determination of catastrophic OOP payments, as done in other studies (Adam 2008; Goli et al. 2016; Hoque et al. 2015). Women whose OOP payments exceeded 10% of the average monthly household income were classified as having made catastrophic OOP payments.

The costs data for the study was reported in Ghana cedis, also converted into US$, using an exchange rate of US$1=GH¢1.9708 (2013 exchange rate) as existed in the Ghana Living Standards Survey Report of the sixth round (GSS 2014b). This is to ensure conformity with the data used from that survey (the Ghana Living Standards Survey).

### 5.3.8 Data analysis and management (qualitative study)

All audio taped FGDs were translated verbatim into English. Transcripts and field notes were read a number of times to help understand the patterns in the data before coding. The main investigator also reviewed a number of the original audio recordings, comparing to their transcripts. Any difference observed was corrected before the

coding. This activity sought to ensure validity and accuracy in the data collected. A further review of the transcripts was carried out, including hand written notes on the transcripts to bring out important findings. Importantly, a coding structure was adopted based on identified themes and sub-themes in the data which were presented in tabular form. The identified themes were reviewed, in comparison with the data sections from which these themes emerged to further ensure validity and accuracy. Changes were made where necessary. Thus the presentation of the findings reflect the themes and relevant quotes from the women.

## 5.4 Results

### 5.4.1 Socio-demographic characteristics and OOP payments by women

Three hundred and fifty-three women who gave birth in health facilities took part in the quantitative aspect of the study. The mean age of the women was 27 years, with the youngest being 16 and the oldest 45 years. The majority of the women were married (96.3%, n=340), practised Catholicism (49.3%, n=174) and belonged to the ethnic group “Kasem” (62.6%, n=221). The age group 20-24 had the highest percentage of women (10.9%, n=10) who reported incurring OOP payments (Table 10). Incurring OOP payments was also common among women who were married (9.1%, n=31), had no formal or basic education (23.7%, n=27), farmers (14.9%, n=18) and first time mothers (8.4%, n=10). A majority of the women (68%, n=240) gave birth in the district hospital. This was followed by CHPS compounds (19.5%, n=69) and health centres (11.9%, n=42).

**Table 10: Socio-demographic characteristics and OOP payments by women**

| Variable | | Incurred OOP Payments? N=353 | | |
|---|---|---|---|---|
| | | Yes N=32 | No N=321 | Total |
| | | n (%) | n (%) | n (%) |
| **Age** | <20 | 3 (8.3) | 33 (91.7) | **36 (10.2)** |
| | 20 – 24 | 10 (10.9) | 81 (89.1) | **91 (25.8)** |
| | 25 -29 | 8 (6.8) | 110 (93.2) | **118 (33.4)** |
| | 30- 39 | 7 ( 7.0) | 93 (93.0 ) | **100 (28.3)** |
| | 40+ | 4 (50.0 ) | 4 (50.0 ) | **8 (2.3)** |
| **Marital status** | Single | 1 (7.7) | 12 (92.3) | **13 (3.7)** |
| | Married | 31 (9.1) | 309 (90.9) | **340 (96.3)** |
| **Highest educational level** | No formal education | 6 (12.8) | 41 (87.2) | **47 (13.3)** |
| | Basic education | 21 (10.9) | 172 (89.1) | **193 (54.7)** |
| | Secondary/ technical education | 2 (3.1) | 62 (96.9) | **64 (18.1)** |
| | Tertiary | 3 (6.1) | 46 (93.9) | **49 (13.9)** |
| **Occupation** | Unemployed | 1 (4.2) | 23 (95.8) | **24 (6.8)** |
| | Trader | 8 (11.3) | 63 (88.7) | **71 (20.1)** |
| | Farmer | 18 (14.9) | 103 (85.1) | **121 (34.3)** |
| | Public/civil servant | 2 (4.4) | 44 (95.6) | **46 (13.0)** |
| | Student | 1 (2.6) | 37 (97.4) | **38 (10.8)** |
| | Other | 2 (3.8) | 51 (96.2) | **53 (15.0)** |
| **Religious background** | Traditional | 4 (6.7) | 13 (93.3) | **17 (4.8)** |
| | Catholic | 9 (6.0) | 170 (94.0) | **174 (49.3)** |
| | Protestant | 16 (12.6) | 118 (87.4) | **134 (37.9)** |
| | Muslim | 2 (7.1) | 26 (92.9) | **28 (8.0)** |
| **Ethnicity** | Kasem | 15 (6.8) | 206 (93.2) | **221 (62.6)** |
| | Nankam | 15 (14.2) | 91 (85.8) | **106 (30.0)** |
| | Other | 2 (7.7) | 24 (92.3) | **26 (7.4)** |
| **Number of births** | 1 | 10 (8.4) | 109 (91.6) | **119 (33.7)** |
| | 2 | 8 (8.3) | 88 (91.7) | **96 (27.2)** |
| | 3 | 4 (5.7) | 66 (94.3) | **70 (19.8)** |

| | | | | |
|---|---|---|---|---|
| | 4 or more | 10 (14.7) | 58 (85.3) | **68 (19.3)** |

### 5.4.2 Coverage of health expenses by the NHIS during childbirth

In total, 69.4% (n=245) of the women who gave birth in health facilities perceived that the NHIS did not cover all the expenses incurred during childbirth. The women in the FGDs reported that they had made OOP payments for drugs and other supplies during childbirth despite these being covered by the NHIS. A woman said:

> *"I paid for my injection during pregnancy and when I delivered the drugs for the baby they wrote it for me to go and buy"* (FGD, woman).

Apart from payments for drugs and other supplies, women were often given a prescribed list of items by health providers to purchase in preparation for childbirth. These items were to be used during childbirth and after, comprising disinfectants, soaps, rubber pads, and clothing for newborns as the facilities lacked funds to purchase these items. Most of the women indicated that they bought these items for use during childbirth. A woman reported:

> *"They let you buy pad so that when you deliver they will use it, they will also let you buy Dettol (disinfectant) and all those things are not free. The pad is GH¢10 (US$ 5.10) and the Dettol is GH¢5 (US$2.50), meanwhile when you are pregnant you don't work"* (FGD, woman).

Women underwent financial strain to buy the prescribed items in preparation for childbirth. Women needed to exhaust their savings they would have made before pregnancy or rely on either their husbands or other relatives to purchase the items.

### 5.4.3 Estimated OOP payments during childbirth

The study estimated the OOP payments made for childbirth. The majority of women (91.8%, n=324) incurred an OOP payment for drugs with a mean payment of GH¢ 48.60 (US$24.70) (Table 11). The mean for direct and direct non-medical expenses was GH¢42.85 (US$21.80) and GH¢21.82 (US$11.10) respectively. Hospitalisation cost averaged GH¢4 (US$2). The total OOP payments during childbirth was a mean of GH¢33.50 (US$17).

**Table 11: Estimated OOP payments during childbirth**

| **OOP expenditure incurred during childbirth** | | | **Mean** | **Std dev** | **Min** | **Max** |
|---|---|---|---|---|---|---|
| | **No.** | **% of women** | **GH¢ (US$)** | **GH¢ (US$)** | **GH¢ (US$)** | **GH¢ (US$)** |
| **(a) Direct medical expenses (outpatient)** | | | | | | |
| Folder fee (antenatal record) | 2 | 0.6 | 11.50 (5.80) | 3.53 (1.80) | 9 (4.60) | 14 (7.10) |
| Consultation | - | - | - | - | - | - |
| Laboratory test | 63 | 17.8 | 22.73 (11.50) | 45.35 (23) | 5 (2.50) | 300 (152.20) |
| Drugs | 324 | 91.8 | 48.64 (24.70) | 88 (44.70) | 3 (1.50) | 876 (444.50) |
| Blood transfusion | 9 | 2.5 | 31.27 (15.90) | 23.16 (11.80) | 5 (2.50) | 70 (35.50) |
| **Total direct medical expenses** | 332 | 94.1 | **42.85 (21.80)** | **74.08 (37.60)** | **3 (1.50)** | **876 (444.48)** |
| **(b) Direct non-medical expenses** | | | | | | |
| Food (meals) | 264 | 74.8 | 22.30 (11.30) | 22.22 (11.30) | 1 (0.50) | 110 (88.51) |
| Transport | 105 | 29.7 | 23.44 (11.90) | 19.02 (9.60) | 2 (1.01) | 100 (50.74) |
| **Total direct non-medical expenses** | 274 | 77.6 | **21.82(11.10)** | **20.17 (10.20)** | **1 (0.50)** | **110 (88.51)** |
| **Total direct and direct non-medical expenses (a+b)** | 343 | 97.2 | **34.23 (17.40)** | **57.04 (28.90)** | **4.5 (2.28)** | **876 (444.48)** |
| (c) Hospitalisation expenses (inpatient) | 33 | 9.3 | 3.96 (2) | 3.56 (1.80) | 2 (1.01) | 18 (9.13) |
| **(M) Overall direct expenses (a+b+c)** | 343 | 97.2 | **33.53 (17)** | **56.98 (28.90)** | **3.5 (1.77)** | **876 (444.48)** |

*Exchange rate of GH¢1.9708 = US$1*

### 5.4.4 Impact of OOP payments on average monthly household income

The mean for total direct medical expenses was estimated to be 7.1% of the average monthly household income of the region (Table 12). The overall mean for direct expenses associated with childbirth was 5.6% of the average monthly household income of the region. In addition, an estimated 36% (n=145) of the women incurred catastrophic OOP payments, using a 10% threshold of the average monthly household income.

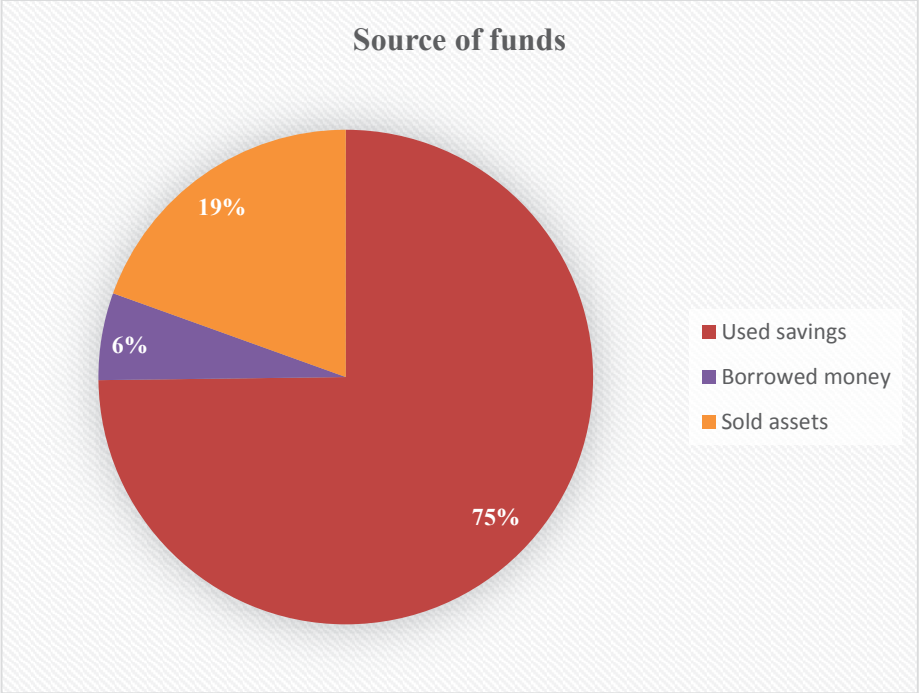
**Table 12: OOP payments as a percentage of average monthly household income**

| **Average OOP payments** | **% of monthly household income** |
|---|---|
| Total direct medical expenses | 7.1% |
| Total direct non-medical expenses | 3.6% |
| Hospitalisation expenses | 0.7% |
| Overall direct OOP payments | 5.6% |

### 5.4.5 Source of funds for OOP payments during childbirth

Seventy-five percent (n=264) of the women used savings for the payment of the expenses associated with childbirth, whilst 19.0% (n=69) sold assets to finance the payments (Figure 14).

**Figure 14: Source of funds for OOP payments during childbirth**




The findings from the FGDs confirmed that household savings were used to meet the expenditure incurred during childbirth and in some cases, assets in the form of domestic animals and chicken were sold to finance the payments. A woman said:

> *"We used all our savings to pay for the cost when I went to the hospital for delivery"* (FGD, woman).

The depletion of savings and sale of assets by women and their families would affect their economic welfare, especially the consumption of essential commodities.

## 5.5 Discussion

More than two-thirds (69%, n=245) of women who gave birth in health facilities perceived the NHIS did not cover all the expenses incurred during childbirth. They had made OOP payments for drugs and other supplies during childbirth. The women had also bought items consisting of disinfectants, soaps, rubber pads and clothing for newborns. The overall mean for OOP payments during childbirth was GH¢33.50 (US$17) and constituted 5.6% of the average monthly household income for the Upper East region. Approximately, 36% (n=145) of the women incurred catastrophic OOP payments, given a 10% threshold of the average monthly household income. Furthermore, seventy-five

percent (n=264) of the women used savings and 19% (n=69) sold assets to finance the payments.

### 5.5.1 Buying of drugs and other supplies during childbirth

Over two-thirds (69%) of the women indicated that the NHIS did not cover all expenses and that direct OOP payments were made for drugs and other supplies. Findings from recent studies are consistent with our findings (Boukhalfa et al. 2016; Lange et al. 2016). A qualitative study in Morocco demonstrated that women and their families paid for drugs and other supplies during childbirth in three public hospitals, despite the existence of a fee exemption policy (Bennis & De Brouwere 2012). In Ghana, under an earlier fee exemption policy implemented in 2003, women and their families were found to have made payments for drugs and other services during childbirth (Witter & Adjei 2007). Inadequate government budgetary allocations affected the operations of the previous fee exemption policy (Witter & Adjei 2007). However, the current policy is suffering a similar fate.

The OOP payments occurred largely due to stock-outs of drugs and supplies caused by a delay in the reimbursement of health facilities by the NHIS. Consequently, health facilities were unable to procure drugs for dispensation and hence prescription forms were given out to women to purchase drugs out of health facilities. This problem is compounded for the smaller health facilities like the CHPS compounds and health centres with smaller budgets and limited internally generated funding. Another factor triggering the OOP payments is the prescription of drugs outside the essential drug list of the NHIS requiring women and their families to pay. Generally, any OOP payments affected the use of skilled attendance for childbirth (Saksena, Hsu & Evans 2014; Shahrawat & Rao 2012; WHO 2010b).

### 5.5.2 Buying of other items for childbirth

Women and their families were prescribed items comprising disinfectants, soaps, rubber pads and clothing for newborns to be acquired for use during childbirth. Other studies of expenditure under fee exemptions policies have had similar findings (Acharya et al. 2016; Women's Dignity & CARE International 2008). Since these prescribed items are not covered by the NHIS, women and their families would have to provide them from their own resources. Their procurement could affect the utilisation of skilled attendance at

childbirth, especially for poor women. Women, especially the poor who cannot afford to buy such items, may not be motivated to visit formal health facilities for childbirth and would prefer to give birth at home or elsewhere not requiring the purchase of such items (Women's Dignity & CARE International 2008). This might explain why poor women were underutilising maternal health services in Ghana as compared to rich ones (Johnson, Frempong-Ainguah & Padmadas 2016).

### 5.5.3 Mean cost for OOP payments during childbirth

The estimated mean for OOP payments during childbirth was GH¢33.50 (US$17), conforming to previous studies (Adamu, Isa & Zubairu 2013; Boukhalfa et al. 2016; Issac et al. 2016; Kalu-Umeh et al. 2013; Kruk et al. 2008; Sidney et al. 2016). For instance, in rural Tanzania, Kruk et al. reported that 73.3% of women still incurred OOP payments despite a free childbirth policy (Kruk et al. 2008). The average cost incurred during childbirth in her study was US$5.00 (Kruk et al. 2008). Another study in North Western Nigeria showed that women and their families spent an average of US$3.00 for normal childbirth (Kalu-Umeh et al. 2013). The high costs of drugs might help explain the high mean cost for childbirth in our study. A mean cost of GH¢48.6 (US$24.7) was recorded for drugs alone in our study. Compared with most countries in the world, the cost of drugs are very high in Ghana (Saleh 2013). Given this background, women and their families may be discouraged from using skilled attendance at childbirth, if consistently they have to buy drugs at a very high cost.

Additionally, the overall mean OOP payments recorded during childbirth is considered high, in the midst of the free maternal care policy. The finding confirmed a study in three African countries which demonstrated that OOP payments for maternal health services constituted a significant percentage of household income, despite some interventional policies being in place in those study areas (Perkins et al. 2009). A 5.6% expenditure for childbirth alone, could adversely affect the welfare of households in terms of their expenditure on other necessities. This is further supported by the finding that 36% of the women incurred catastrophic OOP payments. The women and their families would have to forgo the consumption of some essentials, for using skilled attendants. This is a de-motivator for the utilisation of skilled attendance for childbirth and the drive for achieving universal health coverage. But universal health coverage is taken as a top priority for the new Director-General of the World Health Organization, Tedros Adhanom Ghebreyesus,

who declared in his first press conference that "All roads should lead to universal health coverage" (Murphy 2017).

### 5.5.4 Use of savings and sale of assets for the OOP payments

Despite the existence of the free maternal care policy, our study indicated that 75% of the women who made OOP payments used savings, with 19% of them selling assets to finance the payments. The finding is consistent with literature (Akalu et al. 2012; Bennis & De Brouwere 2012; Boukhalfa et al. 2016; Hoque et al. 2015; Kruk et al. 2008). In rural Ethiopia, households resorted to borrowing from relatives and friends and the sale of assets to meet health expenditure for childbirth (Akalu et al. 2012). Households in rural Bangladesh also used income and savings to make payments for childbirth services (Hoque et al. 2015).

Given the implementation of the policy, women are exempted from paying some of the costs associated with the use of maternal health services. However, the recorded payments are seen as burdensome since some coping strategies (savings and sale of assets) had to be adopted. The use of savings as well as sale of assets by women and families for payment of maternal health services could erode the asset base of families. It could also increase the vulnerability of such households to more economic challenges. Thus the systemic challenges requiring the need for OOP payments by the women and families has to be re-examined in order to prevent the perpetuation of the OOP payments. There is the need for health facilities to be adequately resourced, especially under the NHIS. This would minimise or eliminate OOP payments and subsequently promote the use of skilled attendance at childbirth, leading to reduced maternal mortality.

### 5.5.5 Study limitations

The study has shown that OOP payments existed during childbirth despite the operation of the free maternal care policy. However, some limitations of the study must be noted. Firstly, since the interviews were carried out after the discharge of women and family members from health facilities to go home, there is the possibility of recall bias, especially on costs. Details of health payments might not be accurately recollected and given out during the interviews. Secondly, the study did not measure the opportunity cost (lost income for time spent seeking health care) associated with the use of skilled attendance during childbirth. These costs were not determined due to the challenges involved in their

quantification. The exclusion of opportunity cost affects the overall mean for OOP payments and this should be noted when reading this paper. The study was conducted in only one municipality. There are a total of 216 metropolitan, municipal and district areas in Ghana. As such, the results might not be generalisable to the rest of Ghana, although they would be reflective of many similar regions in Ghana and across Africa.

## 5.6 Conclusion

The free maternal care policy has not been fully effective in eliminating financial barriers associated with the utilisation of skilled attendance at childbirth. Women and their families continued to make OOP payments for drugs, supplies and other prescribed items during childbirth. This comes in the face of systemic challenges, particularly the delay in reimbursement by the NHIS, leading to stock-outs of drugs and supplies at health facilities. The OOP payments impacted the welfare of the women and households as they used savings and sale of assets to meet the payments. There is the need to re-examine the reimbursement of health facilities by the NHIS in order to prevent shortage of funding to health facilities. When health facilities are well resourced, OOP payments would be reduced or eliminated, leading to increased utilisation of skilled attendance at childbirth and ultimately reducing maternal mortality and achieving universal health coverage in the long-term.

# CHAPTER 6: FINDINGS (ACCEPTABILITY AND QUALITY OF MATERNAL HEALTH SERVICES DURING PREGNANCY)

Publication 3

| |
|---|
| Philip Ayizem Dalinjong, Alex Y Wang, Caroline SE Homer, The free maternal health policy: acceptability and satisfaction with quality of maternal health services during pregnancy in rural Northern Ghana (*Accepted for publication in Journal of Public Health in Developing Countries*) |

The chapter is composed of findings on acceptability and satisfaction with quality of maternal health services during pregnancy. The findings have been accepted for publication by the *Journal of Public Health in Developing Countries*. Specifically, the paper explores women's views and perceptions about attitudes and behaviours of providers. It also examined women and health providers' satisfaction with quality of services during pregnancy. This chapter presents the form in which the paper was accepted.

## 6.1 Abstract


**Introduction**

Ghana introduced a maternal health policy in July 2008 to provide free maternal health services. The utilisation of services depends not only on their affordability, but acceptability as well, particularly attitudes and behaviours of health providers and women's satisfaction with quality of care. The study aimed to explore women's views and perceptions about attitudes and behaviours of providers as well as overall satisfaction with quality of services during pregnancy under the maternal health policy. The views and perceptions of providers were also studied.

**Methods**

A convergent parallel mixed methods study was conducted. The study was conducted in Kassena-Nankana municipality; a rural poor setting in Ghana. A structured quantitative questionnaire was distributed among women (n=406) who gave birth in health facilities and at home. Focus group discussions (FGDs) with women (n=10) and in-depth

interviews (IDIs) with midwives and nurses (n=25) were undertaken. Quantitative data were analysed using descriptive statistics, while the qualitative data were recorded, transcribed, read and coded thematically.

**Results**

Women perceived facilities to be clean, especially the smaller facilities. Nearly eighty-five percent of the women 88.4% (n=359/406) perceived providers to be respectful or friendly and this was mostly confirmed in the FGDs. More than two-thirds of the women (74%, n=300) were also very satisfied or satisfied with quality of care due to the respect accorded them by providers. Equally, midwives and nurses were satisfied with the quality of care they provided. Nonetheless, providers believed that the unavailability of drugs and supplies, laboratory services, accommodation and transportation for emergencies reduced women's satisfaction with services and the quality of care they could provide.

**Conclusion**

The services provided to women during pregnancy were acceptable under the free maternal health policy. There remain challenges in addressing a lack of infrastructure and commodities that affects the quality of care.

## 6.2 Introduction

In 2000, the United Nations adopted and ratified the Millennium Development Goals. Goal 5 related specifically to maternal health. The goal was to achieve a three-quarters reduction in the 1990 global maternal mortality rate by year 2015, as well as achieve universal access to reproductive health services (UN 2015).

Following this, the government of Ghana implemented the free maternal health policy under its National Health Insurance Scheme (NHIS) in July 2008. The NHIS aimed to enhance the utilisation of health services for all Ghanaians, whilst the free maternal health policy sought to improve the use of maternal health services through the elimination of direct cost at the point of utilisation. Pregnant women are registered into the scheme without any payment of premium or processing fee. Once registered, women are entitled to free maternal health services and drugs throughout pregnancy, at childbirth and up to three months postpartum. It was envisioned that the implementation of the policy would

lead to the reduction of maternal deaths in the country as well as helping attain universal health coverage.

Health policies or interventions such as the free maternal health policy in Ghana, depend on their acceptability by implementers (health workers, policy makers) and beneficiaries (consumers) for their success (Diepeveen et al. 2013; Sekhon, Cartwright & Francis 2017; Stok et al. 2016). Acceptability by consumers and providers is key in the design, evaluation and implementation (Sekhon, Cartwright & Francis 2017). A recent review of reviews defined acceptability as a "multi-faceted construct that reflects the extent to which people delivering or receiving a health intervention consider it to be appropriate, based on anticipated or experienced cognitive and emotional responses to the intervention" (Sekhon, Cartwright & Francis 2017, p3). If acceptability is absent, services will not be utilised despite the policies or interventions.

A number of factors affect acceptability including the attitudes and expectations of clients and health providers**,** their personal and social values, religion, culture, gender, autonomy, and the characteristics of the health service as a whole (Levesque, Harris & Russell 2013; Peters et al. 2008). In maternal health care, studies have identified other factors affecting acceptability negatively. These include disrespect, physical and verbal abuse, humiliation, rudeness, negligence, poor communication, absenteeism and lack of empathy for women by health providers (Bohren et al. 2014; Bowser & Hill 2010; Grigoryan, Ruzanna & Sacci 2008; Holmes 2012; Mannava et al. 2015). For instance, a recent study in Lao People's Democratic Republic revealed that some women were humiliated by health providers and hence they chose not to visit or recommend such facilities to other women (Ngan et al. 2016). Apart from bad attitudes and behaviours, the physical environment, cleanliness of health facilities, privacy, comfort and emotional support also affect the acceptability of maternal health services (Grigoryan, Ruzanna & Sacci 2008; Srivastava et al. 2015). For instance, Srivastava et al reported in a review that cleanliness was a significant determinant of satisfaction for maternal health services (Srivastava et al. 2015).

Importantly, quality of care determines the uptake and utilisation of maternal health services too (Hutchinson, Do & Agha 2011; Osariemen 2011). It is a fundamental human right to which all women are entitled (FIGO 2015; WHO 2016b). As part of this, the

World Health Organization (WHO) advocates for the provision of quality health services for all women during pregnancy, childbirth and postpartum (WHO 2016b). Consequently, WHO developed a framework for the improvement and monitoring of quality of care. The framework outlines eight domains classified under two dimensions: the provision and experience of care (Table 13).

**Table 13: Domains for improving and monitoring quality of maternal health services**

| **Provision of care** | **Experience of care** |
|---|---|
| 1. Evidence-based practices of routine care and management of complications<br>2. Actionable information systems<br>3. Functional referral systems | 4. Effective communication<br>5. Respect and preservation of dignity<br>6. Emotional support |
| 7. Competent, motivated human resources<br>8. Essential physical resources available | |

Source: WHO 2016b

The experience of care is critical to meeting these domains, that is, communication and interactions with women and families, respect and preservation of the dignity of women, emotional support, the availability of competent health staff and necessary physical resources including water, electricity, drugs, equipment and the general environment of health facilities (Srivastava et al. 2015). Health providers' satisfaction with quality of care is also affected by those domains under provision of care (Kiguli et al. 2009; Mosadeghrad 2014; Penfold et al. 2013; Tunçalp et al. 2015). Given the key role that quality of care plays in the provision and use of health services, there is the need for it to be advocated for, promoted and monitored (Gupta & Rokade 2016; Tooker 2005; WHO 2016b).

Under the free maternal health policy in Ghana, limited studies exist on issues relating to acceptability particularly with regards to the attitudes and behaviours of health providers towards women during pregnancy. Promoting access to maternal health services, especially to reduce maternal deaths, is not just about affordability, but whether these

services address the health needs, rights, dignity, beliefs and cultural values of pregnant women, including those from poor and minority groups.

As a way to understand the impact that the free maternal health policy in Ghana has on acceptability of services, the aim of this study was to examine attitudes and behaviours of health providers towards clients as well as overall satisfaction with quality of maternal health services during pregnancy. The study explored the views and perceptions of women, midwives and nurses.

## 6.3 Methods

### 6.3.1 Study design

A convergent parallel mixed methods study was conducted (Creswell 2014). Convergent parallel mixed methods allows for the researcher to converge or combine both quantitative and qualitative data together to ensure a comprehensive analysis of a research question (Creswell 2014). The quantitative and qualitative data were collected in parallel and analysed independently. The results were finally integrated to answer the study question on acceptability and quality of care.

The quantitative part of the study consisted of a survey with women who used maternal health services and either gave birth in health facilities or at home. The qualitative aspect involved focus group discussions (FGDs) with women who gave birth in health facilities or at home. In-depth interviews (IDIs) were also held with health providers.

Ethical approval for the conduct of the study was obtained from the ethics review boards of the Navrongo Health Research Centre and the University of Technology Sydney (approval numbers *NHRCIRB217* and *ETH16-0263* respectively). Informed consent was received from all participants of the study. Written permission was also taken from directors of the Ghana Health Service in charge of the study district and the region. Health facility managers gave their approval for the study to be carried out in the health facilities.

### 6.3.2 Study area

The study was carried out in the Kassena-Nankana municipality. It is one of the 13 districts and municipalities in the Upper East region of Northern Ghana, with Navrongo as its capital. The municipality was purposefully selected due to financial constraints to conducting the study elsewhere. It had an estimated population of 109,944, with a population density of 92 persons per square kilometre (GSS 2015). Economically, the municipality is considered rural and poor, bearing resemblance to other poor districts and municipalities in Ghana and across Africa (GSS 2015).

The municipality has a total of 24 health facilities providing various health services to the people. These health facilities include one hospital, two health centres, three clinics and seventeen community-based health planning and services (also known as CHPS compounds). The CHPS compounds are the lower level health facilities located in distant and remote communities. A small number of the CHPS compounds have been provided with basic infrastructure in terms of a laboratory, delivery room, dispensary, etc. for the provision of maternal health services. Most CHPS compounds are without these facilities and thus tend to refer women when the need arises, especially for blood testing and scans.

### 6.3.3 Study participants

Gorstein's et al (2007) formula for sample size calculation using a proportion in a single cross-sectional survey was adopted and used. This gave a required sample size of 388 women who gave birth in health facilities and at home. We recruited women who gave birth in health facilities and at home to ensure representativeness of the sample. A total of 406 women were recruited to account for possible withdrawals. For the qualitative aspect of the study, 10 FGDs and 25 IDIs were held with women and health providers respectively. Women were invited to participate in the FGDs. The IDIs were held with midwives and nurses who provided maternal health services to women.

### 6.3.4 Data instruments

The questions for the survey focussed on factors affecting acceptability, comprising cleanliness of health facilities, and respectfulness/friendliness of health providers towards clients. Overall satisfaction with quality of care on the part of clients and health providers was also captured. The survey instrument was developed specifically for this study.

Quality of care has two attributes, technical and interpersonal/perceived quality (Donabedian 1981). Perceived quality of care was measured, since increased utilisation of maternal health services not only depends on technical quality but on acceptability and patient-centredness across the continuum of care (Hanefeld, Powell-Jacksona & Balabanovaa 2017). Women were asked to state their overall satisfaction with quality of care by selecting one of the options "very satisfied", "satisfied", "normal", "dissatisfied" and "very dissatisfied".

Interview guides were developed for the FGDs and IDIs. These also focused on attitudes and behaviour of health providers and the overall satisfaction with quality of care. Midwives and nurses were asked to indicate their overall satisfaction with the quality of care and the reasons for their rating. Both interviews guides were developed in English, but the one for the FGDs was translated by language experts into the two local dialects (Kasem and Nankam) spoken in the municipality. The translated version was used for the FGDs with the women. The guide for the IDIs was not translated because the midwives and nurses spoke and understood English. All questions were piloted among women and health providers and changes made where necessary. Data were collected from March to August, 2016.

### 6.3.5 Recruitment of study participants

Women were recruited for the quantitative part of the study in health facilities as well as in their homes. All health facilities offering maternal health services in the study area were visited daily by research assistants. Women who had given birth were identified. With their consent, women were interviewed for the study. The contact details of women who had given birth at home recently were retrieved from the Navrongo Health Research Centre and also from registers of postnatal services. These contact details were used to trace the women at their various homes for the interviews to be carried out. Each interview lasted 30-45 minutes.

Women were also recruited for the FGDs. These women were recruited at health facilities when they visited for postnatal services. The contact details for women who gave birth at home which were obtained from the Navrongo Health Research Centre, were used to invite women to participate. The FGDs were carried out in health facilities, but midwives

and nurses were not permitted to be present. Each FGDs contained between 5 and 12 women.

Midwives and nurses were contacted and invited to participate in the IDIs. After consent was received, the IDIs were carried out in the health facilities in which the midwives and nurses worked. To promote privacy in the interviews, all interviews were held in rooms without the presence of other health workers. All FGDs and IDIs were recorded with the permission of the participants. Field notes were also taken. All FGDs and IDIs were conducted by the main investigator.

The investigator made a summary of the pertinent issues after each discussion or interview and submitted these back to participants for their approval or rejection. The investigator also continuously updated the interview guides with new key issues that emerged in previous discussions or interviews. Each discussion or interview ended when participants agreed that they had nothing further to discuss after prompts from the investigator. This was considered as the point of data saturation for each discussion or interview. It took about 45-120 minutes to conduct each discussion or interview depending on the number of participants (in the FGDs) as well as the depth of the discussion.

### 6.3.6 Data analysis and management

The survey data were electronically collected using the SurveyCTO Collect v2.10 application. The SurveyCTO Collect application works on hand-held gadgets allowing for the capture, processing and transport of data for analysis. The cleaning and analysis of the data was done in STATA 14. The findings were presented using descriptive statistics.

The recordings of the FGDs and IDIs were translated and transcribed verbatim. An initial reading of the transcripts and field notes was done to become acquainted with the data. Audio tapes were also selected and listened to, in comparison with their transcripts to ensure validity and accuracy of the transcription. Any observed difference between the audio recordings and the transcripts were corrected prior to the coding of the data. Subsequently, all transcripts were thoroughly reviewed for the identification of key issues. A coding system was then developed based on the review, highlighting themes

and sub-themes relating to providers' behaviour and quality of care. The themes and sub-themes were written out in text tables including essential quotes from participants. The presentation of the findings follows the themes and sub-themes that emerged from the data.

## 6.4 Results

### 6.4.1 Characteristics of participants and number of antenatal visits during pregnancy

Four hundred and six women completed the survey. They had a mean age of 27 years. Just under one-third of women (31.3%, n=127) were aged between 25 and 29 years. One in three women (31.5%, n=128) had experienced childbirth for the first time. Almost all (99%, n=402) women had four or more antenatal visits during pregnancy.

### 6.4.2 Perception of cleanliness of health facility during pregnancy

The majority (93.6%, n=380) of the women stated the health facilities were clean or very clean. In the FGDs, the women perceived the smaller health facilities (CHPS compounds) to be cleaner than the main larger hospital. A woman said:

> *"Yes, here [CHPS compound] there is no more dirt like in the hospital"* (FGD, woman).

Helping to explain why the smaller health facilities are cleaner than the main hospital, a nurse indicated:

> *"Our facility is small, so it is easy to manage and keep it neat"* (IDI, nurse).

### 6.4.3 Respectfulness and friendliness of health providers towards clients

The study measured respectfulness and friendliness of health providers towards the women. Approximately 88.4% (n=359) of the women surveyed rated health providers to be both friendly and respectful (Table 14). Twenty-six women thought health providers were disrespectful or very disrespectful as well as unfriendly or very unfriendly.

**Table 14: Respectfulness and friendliness of health providers towards clients**

| **Respectful** | **Friendliness** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Very friendly | | Friendly | | Normal | | Unfriendly or very unfriendly | | Total | |
| | n | % of total | n | % of total | n | % of total | n | % of total | **N** | **% of total** |
| Very respectful | 42 | 97.7 | 3 | 0.9 | 0 | 0.0 | 0 | 0.0 | **45** | **11.1** |
| Respectful | 1 | 2.3 | 313 | 97.8 | 1 | 5.9 | 0 | 0.0 | **315** | **77.7** |
| Normal | 0 | 0.0 | 1 | 0.3 | 15 | 88.2 | 0 | 0.0 | **16** | **3.9** |
| Disrespectful/ very disrespectful | 0 | 0.0 | 3 | 0.9 | 1 | 5.9 | 26 | 100 | **30** | **7.4** |
| **Total** | **43** | **10.6** | **320** | **78.8** | **17** | **4.2** | **26** | **6.4** | **406** | **100** |

The FGDs with the women confirmed this finding. The women reported that health providers were friendly during their encounter. A woman reported:

> *"They respect us [here], there are some clinics that when you go they will not respect you because they are nurses and we are nothing"* (FGD, woman).

Equally the IDIs with the midwives and nurses confirmed the positive attitude and behaviour of health providers in some of the health facilities. A nurse said:

> *"Because I think in this facility, some women even come from far to attend their antenatal care and postnatal here not because everything is here, but the environment to some extent is friendly here"* (IDI, nurse).

The midwives and nurses explained that the number of clients attending a health facility largely depends on the attitude and behaviour of health providers. If the health providers' attitude and behaviour in a particular health facility are friendly or welcoming, more women would attend that health facility. A midwife explained:

*"....to be able to know whether you are behaving well or not will depend on the number of people who come to see you. If you are not behaving well towards clients you wouldn't get clients, they will walk away because the facilities are now many so they don't need to be forced at a place, they have plenty choices to make"* (IDI, midwife).

A few of the women in the FDGs indicated that they had experienced a hostile behaviour from some health providers. This is especially the case in the smaller health facilities (CHPS compounds) where the women had to receive health services from other health providers in the absence of the main midwife. A woman reported:

*"When I was pregnant I came with a complaint and the midwife ask me to go for scan. On my return she was absent but asked me to see those nurses, but they only took the results and laugh and threw the results at me, so I call the midwife and she told me I should go and come the next day because she was on leave, and when I came the next day the nurses treated me the same way. So I left the centre"* (FGD, woman).

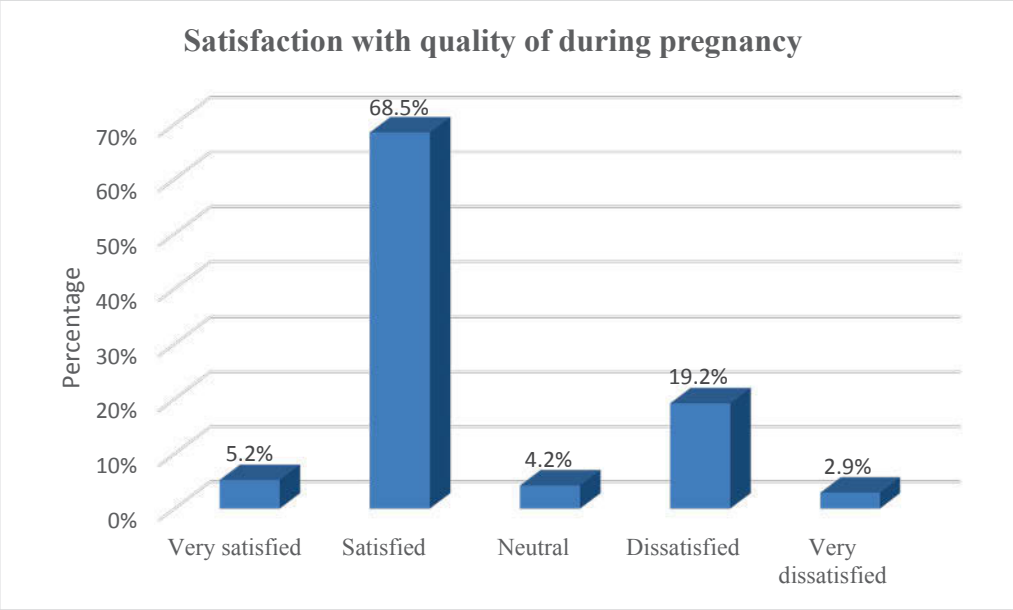
Some midwives and nurses also attested to the unfriendliness of some of the health providers. A nurse said:

*"In my view, talking of staff attitude, some of us, we're very horrible. So it scares some mothers away from us"* (IDI, nurse).

### 6.4.4 Women's overall satisfaction with quality of services during pregnancy

The women were asked about their overall satisfaction with the quality of maternal health services received during pregnancy. Seventy-four percent (n=300) of the women were very satisfied or satisfied with the quality of maternal health services (Figure 15). A small number of the women (2.9%, n=12) reported that they were very dissatisfied with the quality of maternal health services.

**Figure 15: Women's overall satisfaction with quality of services during pregnancy**




The FGDs with the women supported these perceptions. Overall, the women reported being satisfied with the quality of maternal health services received during pregnancy. This is due to the fact that health providers had respect and showed empathy. A woman said:

> *"I am satisfied because she [midwife] is respectful and has sympathy for human beings"* (FGD, woman).

Most women would recommend that their relatives and other people make use of maternal health services in the health facilities. A woman reported:

> *"I will also advise my relatives to come to this facility"* (FGD, woman).

Additionally, the midwives and nurses concurred that the women who sought their services were satisfied. A midwife explained:

> *"But I can boldly say some [women] are really satisfied and they keep reminding us of the good things that we have done"* (IDI, midwife).

### 6.4.5 Providers' overall satisfaction with quality of maternal health services during pregnancy

In the IDIs, most of the midwives and nurses indicated that they were satisfied with the quality of maternal health services they were able to provide to women. A midwife said:

> *"I'm satisfied with the services provided to the women, because it's not that bad. It's not very bad at all"* (IDI, midwife).

There remain challenges that affect the provision of health services during pregnancy. These included the unavailability of drugs and supplies, laboratory services, accommodation and transportation for emergency referrals. A midwife stated:

> *"We've problems with regards to accommodation, drugs and supplies, labs, and all that – we are not very happy providing maternal health services with these challenges"* (IDI, midwife).

As a result of these challenges, health providers were unable to provide services to clients, especially in some CHPS compounds. Thus the midwives and nurses were not fully satisfied with the quality of maternal health services.

## 6.5 Discussion

The study showed that women perceived health facilities visited during pregnancy to be clean especially the smaller ones (the CHPS compound). About 88.4% (n=359) of the women perceived health providers to be respectful and friendly, which was confirmed in the FGDs and IDIs. A few of the women in the FGDs were not happy with the behaviour of health providers and this would likely impact their future use of services or recommendations to others. Overall, seventy-four percent of the women (n=300) were very satisfied or satisfied with quality of care. The midwives and nurses were also satisfied with the overall quality of care provided. The unavailability of drugs and supplies, laboratory services, accommodation and transportation for emergencies meant that health providers felt that they were not able to provide quality services.

Valuing the cleanliness of health facilities is consistent with other studies. For example, a survey conducted in rural Southern India in government and private health facilities showed that over 80% of the participants were happy with the cleanliness and comfort of health facilities providing maternal health services (Ganguly & Sharma 2014). Similarly in Bangladesh, participants in a mixed methods study indicated they were satisfied with the cleanliness of the health facilities (Islam et al. 2015). Our findings might be explained by the fact that majority of the health facilities where the study took place were small in size and hence easier to keep clean as reported. A level of cleanliness in the health facilities seems to be one of the key indicators for the perception of quality (Grigoryan, Ruzanna & Sacci 2008). Perhaps because it is also easily observed and measured by clients.

Our study demonstrated that health providers were perceived to be respectful and friendly towards women during pregnancy and this drives utilisation. Other studies have reported similar findings (Grigoryan, Ruzanna & Sacci 2008; Mahiti et al. 2015; Ngan et al. 2016). In Nnewi, Nigeria, women were found to be satisfied with the attitudes and behaviours of health providers (Nnebue, Ebenebe, Adinma, et al. 2014). In the Lao People's Democratic Republic, women also expressed happiness with the behaviour of health providers (Ngan et al. 2016). Given that majority of the study health facilities were smaller ones, it was possible to develop interpersonal relationships and continuity of care, necessary for a positive experience of care and satisfaction (Bohren et al. 2014; Bowser & Hill 2010; Grigoryan, Ruzanna & Sacci 2008; Holmes 2012; Mannava et al. 2015; Srivastava et al. 2015).

Over two-thirds of the women (74%) in the survey reported an overall satisfaction with the quality of maternal health services. Findings from the FGDs and IDIs also supported the survey. Women showed overall satisfaction with the services received due to the respect health providers had for them and thus willing to make recommendation to other women. Likewise, studies in Bangladesh and India have found women to be satisfied with the quality of maternal and child health services because of cleanliness, short waiting times and long consultation time with health providers (Das et al. 2010; Islam et al. 2015). In Anambra State, southeast Nigeria, women utilising antenatal care (ANC) services reported a high satisfaction with the quality of maternal health services as a result of the good attitude of health providers (Emelumadu et al. 2014). However, these studies in

Bangladesh, India and Nigeria were not specifically conducted under fee exemption policies and hence differ in context from our study. Our finding is in line with the vision of the WHO that "health care staff treat all women with kindness, compassion, courtesy, respect, understanding and honesty and preserve their dignity" without regard to background (WHO 2016, p48). It seems evident that training and support of staff had considerable success in the provision of respectful care.

Most of the midwives and nurses were satisfied with the quality of maternal health services as well. The midwives and nurses explained that women continuously reminded them of the good work carried out for pregnant women. In addition, pregnant women also showed high patronage for some health facilities, which is indicative of good provider relations and quality of care provision. This finding confirmed a study among midwives in an urban hospital in Southern Ghana, which showed midwives to have rated quality of maternal health services under the focused ANC to be good (Baffour-Awuah, Mwini-Nyaledzigbor & Richter 2015). Although that study and ours were carried out under the free maternal health policy, the study settings were different. That study was conducted in only one urban hospital in Southern Ghana, whilst our study was conducted in one rural hospital and several CHPS compounds and health centres in Northern Ghana. Economically, Southern Ghana is better endowed than Northern Ghana. The documented satisfaction with quality of care by both clients and health providers might be another evidence of the acceptability of maternal health services under the free maternal health policy. Alternately, it might be that the women do not know how good care could be. But the findings might be a good precursor for the achievement of universal health coverage in the future.

Notwithstanding, the midwives and nurses highlighted challenges hindering the full provision of quality services to women. Among these were the unavailability of drugs and supplies, laboratory services, accommodation and transportation for emergencies. The lack of drugs, supplies and laboratory services might make women incur some costs when using services (Chowdhury, Hossain & Halim 2009). Women might be required to buy some drugs as well as carry out certain tests which would require payment. Besides, the unavailability of accommodation within health facilities would not permit providers to stay in and provide services at all times of the day/night for pregnant women. In addition, the lack of transport for emergencies hinders the immediate referral of women

in critical need of emergency obstetric care. This challenge could lead to deaths and bad birth outcomes among women (IMCIBO 2003; Raj, Manthri & Sahoo 2015). Therefore, to fully provide services to women under the free maternal health policy, policy makers and other stakeholders in the health sector need to address these challenges. The Government of Ghana and donors in particular, will have to focus on providing more financial support for the construction and provision of infrastructure and logistics for the provision of maternal health services.

### 6.5.1 Study limitations

The findings for this study might be influenced by the "halo effect", especially for the women who were interviewed in health facilities immediately after their childbirth. The joy of having a live and healthy child may mean that women are less likely to express any negative sentiments against health providers and facilities (Paudel et al. 2015; Seguin et al. 1989). First time mothers might have different perceptions, compared to women with previous history of childbirth in health facilities (Paudel et al. 2015), since 32% of the women in our study were first mothers. Equally if women have not experienced quality care they might not know what it is. Besides, this study was conducted in only one municipality in rural Northern Ghana. There are 216 metropolitan, municipal and district areas in Ghana and hence the findings of the study might not be generalisable to other settings in the country. Thus the findings of the study should be interpreted with these in mind. Nevertheless, the study has demonstrated the acceptability of maternal health services during pregnancy in the study area, which is essential for the success of health policies or interventions like the free maternal health policy (Diepeveen et al. 2013; Sekhon, Cartwright & Francis 2017; Stok et al. 2016).

## 6.6 Conclusion

Health facilities, especially smaller ones, offering maternal health services were perceived to be clean. Health providers were also perceived to be very respectful and friendly to women. Finally, the study documented women's and health providers' overall satisfaction with the quality of maternal health service, despite some challenges such as the lack of drugs and supplies, laboratory services, accommodation and transportation for emergencies. There is acceptability of maternal health services, given the overall satisfaction with quality. These findings are encouraging as they show that a maternal

health policy can be implemented to provide acceptable care. Action is needed to tackle the challenges highlighted by the midwives and nurses affecting the provision of quality care.

# CHAPTER 7: FINDINGS (AVAILABILITY OF MATERNAL HEALTH SERVICES DURING PREGNANCY)

Unpublished paper

| |
|---|
| Philip Ayizem Dalinjong, Alex Y Wang, Caroline SE Homer, Demand- and supply-side factors affecting the use and provision of maternal health services under the free maternal health policy: views and perceptions of women and health providers in rural Northern Ghana (*Under review Journal of Health Economics Review).* |

The chapter document findings on availability of maternal health services during pregnancy. The paper has been submitted to *Journal of Health Economics Review*. The paper examined demand- and supply-side factors affecting the use and provision of maternal health services during pregnancy under the free maternal health policy of the NHIS. This chapter presents the paper in the form submitted to the journal.

## 7.1 Abstract


**Introduction**

Under the National Health Insurance Scheme (NHIS) in Ghana, a free maternal health policy was introduced in 2008, to cater for the health needs of pregnant women for the reduction of maternal deaths. Experiences from other regions and countries show that demand- and supply-side factors often affect the success of such policies although the effect is unknown in this context. The study aimed to assess demand- and supply-side factors affecting the use and provision of maternal health services during pregnancy under the policy.

**Methods**

A convergent parallel mixed methods study was undertaken, collecting quantitative and qualitative data. The study was carried out in the Kassena-Nankana municipality, a rural poor setting in Ghana. A structured questionnaire were used to collect data from women (n=406) who gave birth in health facilities and at home, but utilised health services during pregnancy. Focus group discussions with women (n=10) and in-depth interviews with midwives and nurses (n=25) were also conducted. Quantitative data were analysed and

presented using descriptive statistics. Qualitative data were audio-recorded, transcribed and coded using themes and sub-themes.

**Results**

Both demand- and supply-side factors impacted the use and provision of services. Distance and time to health facilities challenged the use of health services, while waiting times were not seen as such. Supply-side factors such as laboratory services, equipment, drugs and supplies were not adequately available. Antenatal, childbirth and postnatal services were carried out together in the same rooms at the Community-based health planning and services (CHPS) compounds. Emergency transport was also unavailable for referral of emergencies.

**Conclusion**

Demand- and supply-side factors were reported to impede the use and provision of maternal health services. Providers should be paid on time by the NHIS. Government and stakeholders should prioritise building as well as expanding the infrastructure of CHPS compounds. Emergency transport for women should also be provided. These together may contribute to improving the use and provision of maternal health services for pregnant women, leading to a reduction in maternal deaths and achievement of universal health coverage.

## 7.2 Introduction

### 7.2.1 The National Health Insurance Scheme

The enactment of the National Health Insurance Act 650 (2003) brought forth the National Health Insurance Scheme (NHIS) in Ghana, which became fully operational in 2005 (NHIA 2010; Otoo et al. 2014). The NHIS aims to promote the utilisation of health services for all Ghanaians. It is a key strategy for the achievement of universal health coverage. The NHIS has a defined benefit package which covers about 95% of disease conditions in Ghana (NHIA 2010; Otoo et al. 2014). Fee exemptions are granted under the NHIS for vulnerable groups like pregnant women, which comes under the free maternal health policy. Insured women were more likely to use antenatal, childbirth and postnatal services (Browne et al. 2016; Fenny et al. 2016; Khan & Singh 2016; Nketiah-

Amponsah & Arthur 2013), leading to reduced maternal deaths (Alvarez et al. 2009; Bulatao & Ross 2003; Buor & Bream 2004).

### 7.2.2 The free maternal health policy in Ghana

Over the years, Ghana has experienced a consistent reduction in her maternal mortality ratio, from 634 per 100,000 live births in 1990, to 532 in 1995, 467 in 2000 and 376 in 2005 (WHO 2015c). Nonetheless, the rate of reduction was not adequate to meet the target set out in the Millennium Development Goals (target 5A). Ghana like other countries, was tasked to achieve a three quarters reduction in her 1990 maternal mortality ratio by year 2015 (UN 2000). Unfortunately, the country's maternal mortality ratio was 319 per 100, 000 live births in 2015 (WHO 2015c). To accelerate the reduction of maternal deaths, the government of Ghana adopted the free maternal health policy in July 2008, under the operation of the NHIS. The policy aims to increase the use of health services, with the ultimate goal of reducing maternal deaths as well as providing universal health coverage for women and babies.

Under the policy, pregnant women are given free registration with the NHIS, with no payment of premium or processing charges. Health services, including drugs, are provided free of charge during the periods of pregnancy, childbirth and postpartum (NHIA 2015). Following the implementation of the policy, a cumulative total of over 2 million women had benefitted at the end of 2013, which is considered a significant achievement for the NHIS and the country (NHIA 2013). A recent study in the Northern and Central regions of Ghana revealed that, the policy had promoted the use of health services by women (Singh et al. 2015).

The success of health policies in terms of implementation or coverage are often affected by demand- and supply-side factors. Demand-side factors are the individual, household or community level factors which either promote or impede the use of health services among consumers. These generally include distance and time taken to reach health facilities, cost of transport to health facilities, means of transport available, education, information on health services or health providers, community and cultural preferences and household expectations (Ensor & Cooper 2004; Jacobs et al. 2011). Supply-side factors refer to the characteristics of the health system which are beyond the control of consumers of health services, but have an impact on the provision of health services

(Ensor & Cooper 2004; O'Donnell 2007; Peters et al. 2008). These health system factors include opening and closing hours of health facilities, cost of health services, availability of health providers, drugs and supplies, equipment and infrastructure. However, according to Jacobs et al, demand- and supply-side factors are often interrelated (Jacobs et al. 2011).

Collectively or individually, demand- and supply-side factors affect the use and provision of maternal health services. For instance, a study in the Lao People's Democratic Republic reported that cost of transport to health facilities, cultural practices and language were the main demand-side factors which adversely affected the use of services under the maternal, neonatal and child health programme (Sychareun et al. 2013). Supply-side factors identified in the study included the lack of health providers, poor salaries, weak technical support and supervision, and limited equipment which affected the provision of services (Sychareun et al. 2013). In an urban hospital in Southern Ghana, supply-side factors such as lack of drugs and supplies, limited incentives for health providers, high workloads and inadequate staff impeded the provision of focused antenatal care to pregnant women (Baffour-Awuah, Mwini-Nyaledzigbor & Richter 2015). Another study in the Upper West region of Ghana revealed the lack and cost of transport (demand-side factor) challenging the use of maternal health services (Atuoye et al. 2015).

Few studies have examined both demand- and supply-side factors affecting the use and provision of maternal health services in a rural poor setting, such as the Kassena-Nankana municipality in Ghana (Jacobs et al. 2011; Kyei-Nimakoh, Carolan-Olah & McCann 2017; Singh 2016). That aside, a recent study demonstrated that only 14% of women in the Kassena-Nankana area completed a continuum of care, that is, women who made four or more antenatal visits, used a health facility for childbirth and were available for postnatal services within 48 hours, at two weeks, and at six weeks (Yeji et al. 2015). Given these, there is the need to carry out investigations in that direction. Thus the aim of this paper was to assess demand- and supply-side factors affecting the use and provision of free maternal health services during pregnancy in the Kassena-Nankana municipality. The views and perceptions of women who used health services during pregnancy as well as frontline health providers (midwives and nurses) were studied.

## 7.3 Methods

### 7.3.1 Study design

A convergent parallel mixed methods study was adopted, utilising quantitative and qualitative data collection techniques (Creswell 2014). A mixed methods approach was adopted to ensure comprehensiveness and confidence in the study findings (Giddings & Grant 2006; O'Cathain, Murphy & Nicholl 2007b; Onwuegbuzie & Leech 2005). The use of the convergent parallel mixed methods design allowed for data collection and analysis for the quantitative and qualitative studies to be carried out in a parallel form. The findings are integrated to assure a comprehensive analysis of the research question (Creswell 2014); that is, factors affecting the use and provision of maternal health services under the free maternal health policy. The study was cross-sectional and data collection was carried out from March to August, 2016. A structured questionnaire was administered to women who had utilised maternal health services during pregnancy and had either given birth in health facilities or at home. The qualitative aspect utilised focus group discussions (FGDs) with similar women and in-depth interviews (IDIs) with frontline health providers (midwives and nurses) in NHIS accredited health facilities, using semi-structured questions.

The Ethical Review Board of the Navrongo Health Research Centre, Ghana (*NHRCIRB217*) and the Human Research Ethics Committee of the relevant university (*ETH16-0263*) approved for the conduct of the study. Informed consent was obtained from all participants. The study also sought written permission from the regional and district health directors and management of the health facilities in which the study took place.

### 7.3.2 Study area

The study was set in the Kassena-Nankana municipality which is located in the Upper East region of Northern Ghana. The Kassena-Nankana municipality was selected as the study area as it was well mapped out by the Navrongo Health Research Centre for research and hence convenient for the study team. The study was time bound and financially constrained to select other districts or regions for investigation. The population of the municipality was estimated to be 108,000 with males and females constituting 48.8% and 51.2% respectively (GSS 2014b).

The Community-based health planning and services, also known as CHPS compounds, dominated in the provision of basic health services in the municipality (17 in number), followed by clinics (3), health centres (2) and one hospital (GHS 2015). The CHPS compounds are equipped with a community health officer (a nurse) to provide basic health services to members of the communities in which they are located. Lately, midwives have been allocated to some CHPS compounds to provide antenatal, childbirth and postnatal services. CHPS compounds in Ghana are the key to the achievement of universal health coverage. Each CHPS compound was meant to serve a population of around 500 people, but currently they are allocated based on electoral areas, which are 6,135 in number (MOH 2014a; WHO 2014a).

### 7.3.3 Sampling

The formula for a proportion in a single cross-sectional survey was used for the estimation of the sample size for the quantitative study (Gorstein et al. 2007). The processes for the determination of the sample size have been presented elsewhere (Dalinjong, Wang & Homer 2018). In order to achieve representativeness, the study opted to recruit women who gave birth in health facilities and at home. A total of 406 women were recruited representing women who gave birth in health facilities and those who gave birth at home, but had utilised health services during pregnancy.

The qualitative component of the study comprised of ten FGDs and twenty-five IDIs. The FGDs were carried out with women who gave birth in health facilities and at home. Again, the discussions with women who gave birth in health facilities and at home was to ensure representativeness. The IDIs were purposefully carried out among frontline maternal health providers (midwives and nurses) who provided services in NHIS accredited health facilities (the same health facilities where the survey took place). Traditional birth attendants still play a significant role in the provision of maternal health services (Byrne & Morgan 2011; Ganle 2014). In rural Ghana especially, traditional birth attendants are encouraged and rewarded with money and other items when they accompany pregnant women to health facilities for childbirth (Ganle 2014). But traditional birth attendants are not formally recognised and accredited by the NHIS and hence they were not interviewed for this study.

### 7.3.4 Study tools

The tools for the survey, FGDs and IDIs, were developed to address demand- and supply- side factors that are known to affect the use and provision of health services (Jacobs et al. 2011; Jat 2014; Levesque, Harris & Russell 2013; McIntyre, Thiede & Birch 2009; O'Donnell 2007; Peters et al. 2008; Tanahashi 1978). The questions on demand-side factors focused on the perceptions of distance, time and mode of transport used to reach health facilities, as well as waiting times, from the perspective of women. Ensor and Cooper classified waiting times as a demand-side factor (Ensor & Cooper 2004), while Jacobs et al categorised them as a supply-side factor (Jacobs et al. 2011). This paper grouped waiting times under demand-side factors, since women's perception of long waiting times could discourage their use of health services (Hodgson et al. 2014), although this is often as a result of inefficiencies in the health system. The supply-side factors assessed the availability of health facilities (opening and closing hours), basic services including laboratory testing, health workforce, infrastructure, equipment and drugs and supplies for the provision of maternal health services. Cost, as a serious barrier to the use of health services has been captured in other papers (Dalinjong, Wang & Homer 2017; Dalinjong, Wang & Homer 2018). The survey and FGDs with the women mostly addressed demand-side factors, while the IDIs with midwives and nurses addressed supply-side factors. However, some demand-side issues emerged from the IDIs with the midwives and nurses. The survey and FGDs were piloted with women and the IDIs with midwives and nurses. Alterations were made when identified as necessary which were very minimal.

### 7.3.5 Quantitative data collection

The quantitative data was collected electronically using SurveyCTO software. For a health facility to be included in the study, it must have at least a midwife to offer antenatal, childbirth and postnatal services, since the study sought to capture data pertaining to all these aspects of maternal health services. Thus, the study recruited women from the main hospital, two health centres and eleven CHPS compounds across the municipality. Women who gave birth at home were recruited at their homes. Two trained research assistants were responsible for visiting the health facilities on a daily basis for the identification of women who gave birth and were discharged to go home. After consent, the women were surveyed. All women who were invited, agreed to participate in the study.

Using a list with contact details generated from the database of the Navrongo Health Surveillance System hosted by the Navrongo Health Research Centre, the research assistants visited the homes of women who did not give birth in health facilities to invite them to participate. The records of postnatal attendance were also utilised to identify and trace women who gave birth at home. If the women (homebirths) met the inclusion criteria and consented to participate in the study, they were recruited. The inclusion criteria was that women should have utilised maternal health services during pregnancy to be able to report their experiences. Women should have also given birth between 1st January and 31st August, 2016; to minimise recall bias. The recruitment process was supervised by the main investigator on a daily basis. The process of administering the questionnaire to a participant lasted about 30-45 minutes.

### 7.3.6 Qualitative data collection

Semi-structured interview guides were developed in English for both the FGDs and the IDIs. The guide for the FGDs was translated by language experts into the two dialects (Kasem and Nankam) spoken in the study area. Hence the discussions were done in the two dialects. The guide for the IDIs was not translated because all the midwives and nurses spoke and understood English. All the FGDs and IDIs were audio-recorded with the permission of the women, midwives and nurses. Field notes were also taken alongside the recordings.

The women who gave birth in health facilities were invited to participate in the FGDs with the assistance of midwives and nurses. The listings from the database of the Navrongo Health Surveillance System and records of postnatal attendance were also utilised to identify women who had given birth at home for participation in the FGDs. The FGDs were conducted in private rooms in the health facilities, without the presence of health providers. This allowed participants to freely express themselves on the issues discussed. Approximately 5-12 members formed a group for each of the FGDs. All group members were encouraged by the investigator to partake in the discussions.

For the IDIs, the main investigator contacted and invited the midwives and nurses to participate. The IDIs were held in rooms at the health facilities. The interviews were conducted one on one, exclusive to other people. This was to promote privacy. All

FGDs and IDIs lasted between 45 and 120 minutes. The main investigator was responsible for the conduct of the FGDs and IDIs.

After the FGDs and IDIs, a summary of the issues that emerged from the discussions and interviews was made and presented back to the participants for their validation. New issues emerging from the discussions and interviews which were considered to be important were added to the questions on the interview guides for the next round of discussions and interviews. Data saturation was reached in the FGDs and IDIs when discussants and interviewees had nothing further to say or talk about upon prompts and probes from the main investigator (Saunders et al. 2017).

### 7.3.7 Data analysis and management

The data were cleaned and analysed using STATA 14. Descriptive statistics were used to present the findings. The qualitative data were manually analysed. The audio data were transcribed verbatim into English. The transcriptions and field notes were examined to identify patterns in the data. To assure validity and accuracy of the data, a random sample of 5% of the recordings were selected, listened to and compared with the transcriptions, and differences were corrected before coding. However, a negligible difference was observed between the recordings and the transcripts. A follow up reading of the transcripts and interview notes were carried out, noting important issues brought out by the participants. A coding system was then adopted using themes and sub-themes (where necessary) and this was presented in tables. The coding system based on the themes and sub-themes formed the basis for the presentation of the findings, including essential quotes emanating from the participants.

## 7.4 Results

### 7.4.1 Demand-side

**Socio-demographic characteristics of participants**

A total of 406 women completed the survey. The mean age of the women was 27 years. Thirty one percent were 25-29 years of age. A majority of participants were married (95.1%), and with only basic education (55.7%). Over one third of the women were engaged in farming (38.2%) (Table 15).

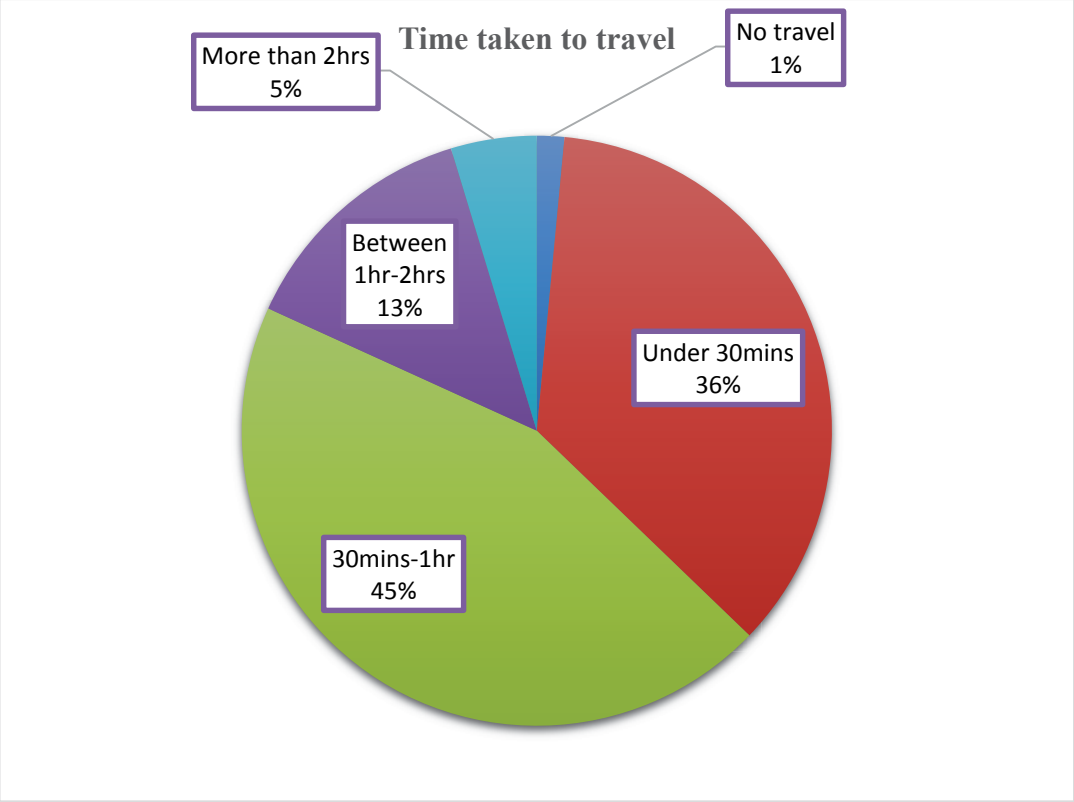
**Table 15: Socio-demographic characteristics of participants**

| Variable | Categories | Total | |
|---|---|---|---|
| | | Number | % |
| | | **406** | **100** |
| **Age** | <20 | 41 | 10.0 |
| | 20 – 24 | 103 | 25.4 |
| | 25 -29 | 127 | 31.3 |
| | 30- 39 | 120 | 29.6 |
| | 40+ | 15 | 3.7 |
| **Marital status** | Single | 20 | 4.9 |
| | Married | 386 | 95.1 |
| **Highest educational level** | No formal education | 64 | 15.8 |
| | Primary/junior high School | 226 | 55.7 |
| | Senior high/technical school | 67 | 16.5 |
| | Tertiary institution | 49 | 12.0 |
| **Occupation** | Unemployed | 29 | 7.1 |
| | Trader | 79 | 19.5 |
| | Farmer | 155 | 38.2 |
| | Public/civil servant | 46 | 11.3 |
| | Student | 42 | 10.3 |
| | Other | 55 | 13.6 |
| **Religious background** | Traditional | 20 | 4.9 |
| | Catholic | 164 | 40.4 |
| | Protestant | 192 | 47.3 |
| | Muslim | 30 | 7.4 |
| **Ethnicity** | Kasem | 239 | 58.9 |
| | Nankam | 135 | 33.2 |
| | Other | 32 | 7.9 |
| **Number of births** | 1 | 128 | 31.5 |
| | 2 | 103 | 25.4 |
| | 3 | 79 | 19.5 |
| | 4 or more | 96 | 23.6 |

**Time taken to reach nearest health facility irrespective of mode of transport**

Most of the women perceived time taken to reach the nearest health facility as a challenge. Altogether, 58% (236/406) of the women reported that they had travelled between 30 minutes and two hours to reach the nearest health facility, without regard to mode of transport (Figure 16). Around 5% (20/406) of the women reported that they had travelled for more than two hours.

**Figure 16: Perceived time taken to reach nearest health facility irrespective of mode of transport**




**Perceived distance and mode of transport to nearest health facility during pregnancy**

Over two-thirds of the women (69.2%; 281/406) reported walking to nearest health facility for maternal health services during pregnancy, with variation by perceived distance (Table 16). More than a quarter of the women (26.1%; 106/406) perceived distance to be either far or very far, using various means of transport to get to the nearest

health facility. Thus distance to health facilities was also a barrier to the use of health services in the study area.

**Table 16: Perceived distance and mode of transport to nearest health facility**

| Perceived distance to nearest health facility | Mode of transport | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Walk | | Bicycle | | Motorbike | | Public transport | | Private car | | Total | |
| | N | % | N | % | N | % | N | % | N | % | N | % |
| Very near | 48 | 17.1 | 1 | 2.8 | 6 | 8.7 | 0 | 0.00 | 1 | 100 | 56 | 13.8 |
| Near | 102 | 36.3 | 12 | 33.3 | 34 | 49.3 | 3 | 15.8 | 0 | 0.00 | 151 | 37.2 |
| Normal | 55 | 19.6 | 13 | 36.1 | 20 | 29.0 | 5 | 26.3 | 0 | 0.00 | 93 | 22.9 |
| Far | 54 | 19.2 | 9 | 25.0 | 8 | 11.6 | 6 | 31.6 | 0 | 0.00 | 77 | 19.0 |
| Very far | 22 | 7.8 | 1 | 2.8 | 1 | 1.4 | 5 | 26.3 | 0 | 0.00 | 29 | 7.1 |
| Total | 281 | 100 | 36 | 100 | 69 | 100 | 19 | 100 | 1 | 100 | 406 | 100 |

But findings from the FGDs and IDIs ran counter to the survey results. Some women indicated that distance to nearest health facility was not a considerable barrier. A woman said:

> *"… it is not far too and that helps us, if you have work to do you can come and go back to do your work"* (FGD, woman).

A midwife also reported:

> *"But if it's distance, I don't think now distance is much [of] a problem – we're living closer to them. And they're familiar with us – they know us; when they meet us anywhere, they're free to talk to us, and we can also talk to them"* (IDI, midwife).

Notwithstanding, health providers pointed out that it was a challenge to refer women from lower to higher level health facilities (that is, from CHPS compounds/health centres to the district or regional hospital). Some of the CHPS compounds were located in rural and remote communities, far away from the only district hospital, thus making referral a

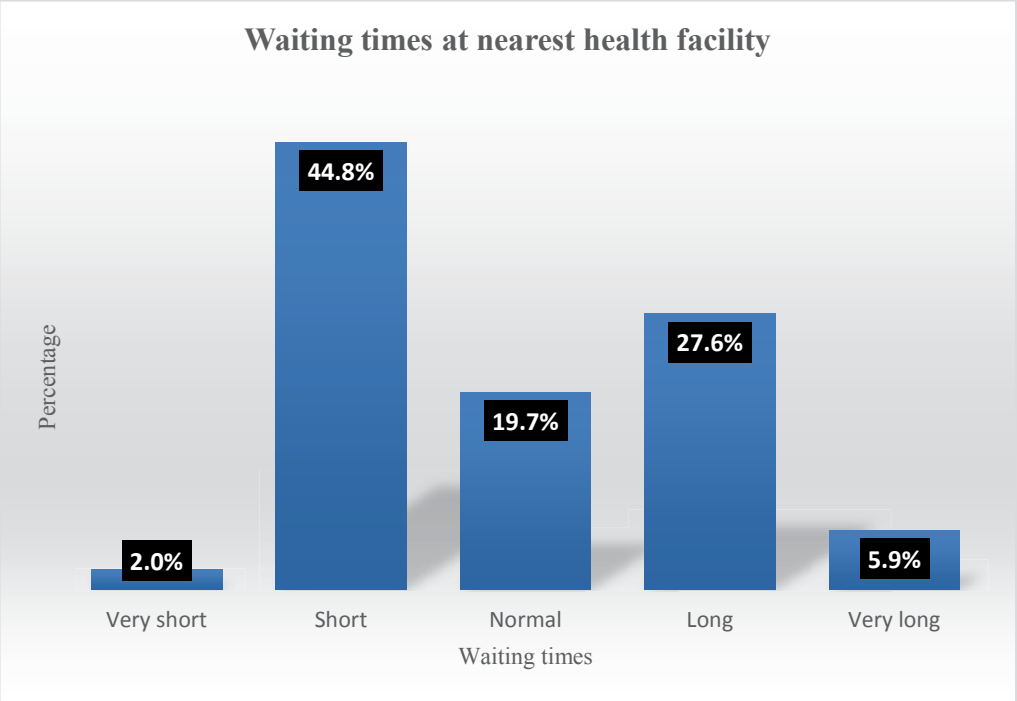
challenge. Referral of women could either be for laboratory testing or for other emergencies like undergoing a caesarean section due to a complication. A midwife said:

> *"In fact, the only problem is when it's necessary for us to refer, particularly emergency cases. It'll take a long time to reach the hospital"* (IDI, midwife).

**Waiting times at nearest health facility during pregnancy**

Over half of the participants perceived waiting times to be either short or normal (Figure 17). Approximately 5.9% (24/406) of the women perceived that their waiting times were 'very long'.

**Figure 17: Perception of waiting times at nearest health facility during pregnancy**




### 7.4.2 Supply-side

**Opening and closing hours of health facilities**

In the IDIs, respondents reported that the main (and only) hospital in the municipality had in place a shift system for health providers, which meant staff were available to provide health services to clients at all times. The hospital is the only referral point for lower level health facilities and hence it had no opening and closing hours. Likewise, those lower

level health facilities with residential staff accommodation were able to provide health services to women, even at night. A nurse said:

> *"For those of us who even stay here, we don't even have an opening and closing time because we operate 24 hours a day. At any time that a sick person comes, we are always there to take care of that person. So we are always there 24 hours"* (IDI, nurse).

Those health facilities without residential accommodation for staff had more restricted opening hours (8:00 am to 5:00 pm). Many of the health facilities though could only close when the last client departed. For example, a midwife said:

> *"By 8:00 we're here, but closing time; it's the clients that determine our closing time. So sometimes, we end up running a 24 hour service. When you're having a woman in labour, you cannot go and leave the client, so you'll be forced to [stay] …until the woman delivers you cannot go"* (IDI, midwife).

From the perspective of health providers, health services were readily available at any time. This was contrary to views of some of the women who felt they could visit health facilities in the night with serious problems, but that health providers (midwives and nurses) would not be available to attend to them. A woman said:

> *"They can go into their rooms or go home and people will come and will not meet any nurse…I remember a woman was brought here and they knocked but no one came out so a man had to come and deliver the woman, afterwards what to use and cut the umbilical cord was not there"* (FGD, woman).

**Availability of basic health services and laboratory testing**

Midwives and nurses felt that most of the health facilities provided all the basic health services required for the care of mothers and their babies. A midwife reported:

> *"We render antenatal services, we do delivery, we do postnatal, we have OPD [Outpatients Department] too … and then child health services; we provide that one too"* (IDI, midwife).

However, the availability of some laboratory services was problematic especially in the lower level health facilities like the health centres and CHPS compounds. A few of the health centres and CHPS compounds were equipped with laboratories to conduct basic tests, like testing for malaria, syphilis, and HIV. A midwife said the following:

> *"We have a laboratory – we provide some lab services – not all but some"* (IDI, midwife).

The lower level health facilities which did not provide laboratory services at all, referred women to other facilities or private laboratories for such test services. Generally, the inadequacy of laboratory services affected the provision of comprehensive maternal health services. Some midwives and nurses indicated that they resorted to asking their clients to first visit the main hospital for the required laboratory testing before coming to the community level. For example, a midwife said:

> *"…so before you even come and I will tell you that this one just go to the hospital and take your card there and do everything then you'll now continue in your community. So even if you come here you'll be referred back to do your lab and examination there. That's why I was talking about the availability of items that we don't have"* (IDI, midwife).

**Availability of health workforce, equipment, drugs and supplies**

Broadly, the health workforce was found to be adequate for the provision of maternal health services. The midwives and nurses considered the staffing numbers to be good, especially with the health centres and CHPS compounds. A midwife responded in relation to the question about whether the health facility had the required staff for the provision of health services:

> *"Really per all standards I would say yes. Yes, because we have two midwives in this facility, one enrolled nurse, one registered general nurse, four community health nurses, one mental health nurse. So with the staffing, it's not all that bad when you compare to years ago"* (IDI, midwife).

It was evident that the necessary equipment, drugs and other supplies were not adequately available and in good condition to aid the provision of quality health services. A nurse made the following observation:

> *"The equipment I wouldn't even say we have… we have no autoclave, the forceps like this, as old as my grandmother. Even if you look at them and you are able to use them to remove a new born baby, you will become disappointed – well rusted, visibly. As for the equipment, it's zero. And the drugs too. From now, since October 2015, we've not gotten drugs. We've not gotten drugs up till now. Apart from these paracetamol and the amoxicillin that they brought the day before yesterday. We prescribe for the women to buy"* (IDI, nurse).

The midwives and nurses attributed the lack of drugs and other supplies to the delay in reimbursement by the NHIS. It was revealed that health facilities were not paid for claims submitted to the NHIS in a period of over seven months. Thus it was difficult for health providers to procure drugs and supplies to take care of their clients. A midwife said:

> *"Because now we have to buy everything, and health insurance is not reimbursing us as it used to do. So it's very difficult to get those logistics – to get money to buy the logistics. Even the medicines are also another problem"* (IDI, midwife).

**Availability of infrastructure (health facility buildings)**

Most of the CHPS compounds rendering maternal health services do not have adequate space to separately carry out the activities of antenatal, childbirth and postnatal services. These activities are carried out together in the same rooms in the health facilities. A midwife said:

> *"It's just the infrastructure that is the problem, because the delivery, if you have a woman in labour and the labour happens in the day time, and it's a weekday, we're definitely running ANC because our ANC is daily – we don't have particular days for ANC, no! it's daily. So in that sense, you have to suspend one to do one. That room in there is the delivery room, the ANC room, and the lying-in room. So in a case where you have a client who has delivered and they're still running ANC; the client is resting in that same room and they're still running the ANC in*

*that same room. So if you happen to get another labour, so meaning those three activities will be carried out in one small single room. So I think the infrastructure is not that good"* (IDI, midwife).

The lack of space meant there was no privacy provided for the women who visited the health facilities. For example, a midwife reported:

*"… there's no privacy so there are certain times they'll like to do this procedure on clients, because there's somebody lying on the bed, you cannot do anything. You cannot also say 'Oh, madam, get up and go out with your baby and I'll attend to this one', and you cannot also tell the other woman that because of this one, go and come later"* (IDI, midwife*).*

The available infrastructure was not properly maintained and thus not in good condition, which affected the provision of health services, including drugs. For instance, a nurse said:

*"Then the storeroom for the drugs is very bad… Very bad. It's leaking, no fan, no AC [air conditioner]. So the drugs, to some extent I can say they're not safe, they're not, because of the heat inside, and you know drugs, the heat should be regulated where they keep drugs. You're supposed to regulate the heat. Put AC there to ensure that temperatures are within normal range"* (IDI, nurse).

**Availability of transport for emergency cases**

The lack of transport for the use and provision of maternal health services was another barrier. Suitable means of transport like ambulances, were not available at the community level to convey women with emergency conditions to higher level health facilities. If even transport was available, women were not always able to afford payment for the service. A nurse said:

*"Transportation is a big challenge for us, especially in times of emergencies. Appropriate transport is not available to carry pregnant women from their communities to this place"* (IDI, nurse).

It was also difficult for lower level health facilities to refer women to higher level health facilities due to unavailability of transport. Most of the lower level health facilities did not have their own means of transport for emergency referrals. A midwife said:

> *"Sometimes you'll call the ambulance, the ambulance will not come. And here, their means of transport is motor-king [tricycle]. How to even get the motor-king to carry a pregnant woman; and you know the motor-king is not comfortable. To carry a pregnant woman to the hospital is a problem. Taxi is a problem. So like if we have our own means of transport it would have helped"* (IDI, midwife).

Some of those health facilities that had their own vehicles (that is, pick-up vehicles used sometimes for conveying women on referral), but they were not functional at the time of the study. A midwife explained:

> *"We have a pick-up [vehicle] but still boils down to the funds, the tyres are worn-out, so it's parked at the office. We have to buy new tyres, we don't have the money"* (IDI, midwife).

Given the challenges, the midwives and nurses felt that policy-makers needed to decide whether they really wanted the CHPS compounds especially, to provide maternal health services.

> *"If they [policy makers] don't want us to deliver babies at the CHPS level, it should be clarified so that women will just go straight to the hospital. But if we're doing it here, the work should be comfortable enough; childbirth is not something we play with – the least delay and you'll have problems"* (IDI, midwife).

## 7.5 Discussion

This study was conducted in a rural part of Ghana, a low resource country in West Africa. The context has many similarities to other predominately rural communities where the provision of maternal health services is challenging. Our study therefore provides evidence of the demand- and supply-side factors affecting the use and provision of maternal health services in many low resource countries.

Both demand- and supply-side factors were perceived as barriers to the use and provision of maternal health services during pregnancy, with the exception of waiting times. For demand-side, distance and time to health facilities were perceived as barriers in the survey, but not for the FGDs and IDIs. Supply-side factors such as laboratory services, equipment, drugs and other supplies were not adequately available or in good condition. Health facilities, particularly CHPS compounds also had challenges with infrastructure. Thus antenatal, childbirth and postnatal services were provided together in the same rooms. Emergency transport between communities and health facilities as well as between lower and higher level health facilities was a challenge as well.

Women in the survey perceived distance and time as barriers to the use of maternal health services. The finding is in line with other studies (Silal et al. 2012; Stekelenburg et al. 2004; Sychareun et al. 2013; Wilunda et al. 2014). In the Upper West region of Ghana, a study showed that women undertake long distances in order to reach health facilities (Atuoye et al. 2015). The finding is surprising, as CHPS compounds were experimented in the study area before their scaling up to other parts of the country. Therefore the municipality has more of such health facilities (17 functional CHPS compounds at the time of the study) than most districts or municipalities in Ghana.

Waiting times at health facilities were perceived by most women not to be a big issue. However, in Anambra state, Nigeria, women had identified long waiting times for the use of maternal health services during pregnancy (Emelumadu et al. 2014). Similarly, in Ghana, some studies showed prolonged waiting times for women who utilised maternal health services (Baffour-Awuah, Mwini-Nyaledzigbor & Richter 2015; Ganle 2015). Probably, the existence of the CHPS compounds in the communities might have reduced congestion in the main hospital and health centres/clinics, leading to reduced waiting times for women.

In relation to supply-side factors, our study reported the unavailability of some laboratory services, equipment, drugs and other supplies in health facilities for the provision of maternal health services. Our finding is not unique. In Uganda, Wilunda et al showed that the provision of maternal health services was hindered by the lack of drugs, supplies, and basic infrastructure (Wilunda et al. 2014). The unavailability of some laboratory services, equipment, drugs and other supplies in health facilities resulted from the delay

in reimbursement of health facilities by the NHIS. To a greater extent, health facilities rely on funds from the NHIS for the procurement of drugs, supplies, and other basic essential items including reagents. There is the need for the NHIS to pay health facilities on time to allow them procure these basic essential inputs for service provision.

In particular, CHPS compounds had infrastructural challenges relating to the availability of adequate space for carrying out antenatal, childbirth and postnatal services compared to health centres/clinics and the main hospital. The initial concept of the CHPS compounds in Ghana was to provide basic health services in a one or two roomed health facility, predominantly carrying out home visits. However, with the introduction of midwifery services, these CHPS compounds were not expanded to provide adequate space for the various activities of maternal health services (antenatal, childbirth and postnatal services). Midwives had to combine different activities in one or two rooms, compromising the privacy of their clients as found in other studies (Ganle et al. 2014; UNICEF 2013). Apart from the construction of more CHPS compounds, there is the need for the existing ones to be upgraded to allow them provide comprehensive maternal health services to women. Comprehensive laboratory services should also be provided alongside.

Our study demonstrated the unavailability of appropriate transport for emergency referrals between communities and health facilities as well as between lower and higher level health facilities. Other studies have found the same. For instance, transport for emergency cases was found to be a major challenge hampering the provision of maternal, neonatal and child health services in the Lao People's Democratic Republic (Sychareun et al. 2013). Likewise, a recent study in the Upper West region of Ghana revealed the lack of emergency transport in the CHPS compounds for the referral of emergency cases (Atuoye et al. 2015). That study focused mainly on how transportation affected the operations of the CHPS compounds. The unavailability of a suitable transport system at the community level for emergencies would not allow women to receive timely treatment and this has the potential to lead to loss of lives, negating the agenda of reducing maternal deaths. In fact, most deaths among pregnant women occur as a result of lack of transport for referral (Jammeh, Sundby & Vangen 2011; Osoro et al. 2014). Thus a transportation strategy is required particularly at the community level to allow for easy movement of

women requiring emergency health services. This will assist reduce maternal deaths in the long run.

### 7.5.1 Study limitations

Our study has shown the factors affecting the use and provision of maternal health services from the viewpoint of women (demand) and frontline health providers (supply) under the free maternal health policy in the study area. However, recall bias cannot be ruled out, since interviews were carried out after the use of maternal health services. Thus the interpretation of the findings should take into consideration the issue of recall bias. In addition, the study was carried out in only one district of Ghana and thus the findings may have limited generalisability to the rest of the country.

## 7.6 Conclusion

Some demand- and supply-side factors affected the use and provision of maternal health services. Factors such as distance and time to health facilities, inadequate or unavailable laboratory services, equipment, drugs and supplies, infrastructure as well as emergency transport affected the use and provision of maternal health services for pregnant women. The NHIS should endeavour to pay health facilities promptly. It is also crucial to build as well as expand the infrastructure of CHPS compounds. Finally, the government of Ghana and other stakeholders should prioritise the provision of emergency transport for women at the community level. These together may contribute to improving the use and provision of maternal health services for pregnant women, leading to a reduction in maternal deaths and the achievement of universal health coverage.

# CHAPTER 8: FINDINGS (AVAILABILITY AND QUALITY OF MATERNAL HEALTH SERVICES AT CHILDBIRTH)

Unpublished paper

| |
|---|
| Philip Ayizem Dalinjong, Alex Y Wang, Caroline SE Homer, Are health facilities well equipped to provide basic quality childbirth services under the free maternal health policy? Findings from rural Northern Ghana (*Under revision BMC Health Services Research*). |

The findings presented in this chapter explored the availability and quality of maternal health services at childbirth. The paper has been submitted to *BMC Health Services Research*. The paper assessed the availability of basic inputs including drugs, supplies, equipment and emergency transport in health facilities. Women and health providers' views on privacy and satisfaction with quality of care were also assessed.

## 8.1 Abstract


**Introduction**

Basic inputs and infrastructure including drugs, supplies, equipment, water and electricity are required for the provision of quality care. In the era of the free maternal health policy in countries like Ghana, it is unclear if such basic inputs are readily accessible in health facilities. The study aimed to assess the availability of basic inputs including drugs, supplies, equipment and emergency transport in health facilities. Women's and health providers' views on privacy and satisfaction with quality of care were also assessed.

**Methods**

The study used a convergent parallel mixed method in one rural municipality in Ghana, Kassena-Nankana. A survey among health facilities (n=14) was done. Another survey was carried out among women who gave birth in health facilities only (n=353). A qualitative component involved focus group discussions (FGDs) with women (n=10) and in-depth interviews (IDIs) with midwives and nurses (n=25). Data were analysed using

descriptive statistics for the quantitative study, while the qualitative data were recorded, transcribed, read and coded using themes.

**Results**

The survey showed that only two (14%) out of fourteen health facilities had clean water, and five (36%) had electricity. Emergency transport for referrals was available in only one (7%) health facility. Basic drugs, supplies, equipment and infrastructure especially physical space were inadequate. Rooms used for childbirth in some facilities were small and used for multiple purposes. Eighty-nine percent (n=314) of women reported lack of privacy during childbirth and this was confirmed in the IDIs. Despite this, 77% of women (n=272) were very satisfied or satisfied with quality of care for childbirth which was supported in the FGDs. Reasons for women's satisfaction included the availability of midwives to provide childbirth services and to have follow-up homes visits. Some midwives were seen to be patient and empathetic.

**Conclusion**

There are limited and inadequate basic inputs and infrastructure for childbirth. Government and international organisations should team up to provide such basic inputs and carry out wider health system improvement as well. These efforts would improve quality service provision and usage, helping to achieve universal health coverage.

## 8.2 Introduction

Water and electricity (modern energy supply) are given prominence in the sustainable development goals (goals 6 and 7 respectively) as key essential inputs for social and economic development (UN 2016). In health service delivery, water and electricity are vital for the provision of quality care (Adair-Rohani et al. 2013; Essendi et al. 2015; Singh 2016; WHO 2015a). The World Health Organization (WHO) recommends the availability of water, sanitation and hygiene (WASH) services in health facilities for the provision of quality, people-centered care (WHO 2014c, 2015d, 2015e, 2016c). WASH increases health providers' morale, efficiency, trust and the use of health services, including a reduction in cost of service delivery (WHO 2015e). Electricity in particular, allows for the effective operations of the cold chain system (Essendi et al. 2015; WHO 2015e).

Nevertheless, a study in 54 low- and middle-income countries reported that 38% and 19% of health facilities respectively lacked access to clean water and sanitation, while 35% did not have water and soap for hand washing (WHO 2015e). In sub-Saharan Africa, 50% of health facilities do not have clean water (WHO 2014c, 2015e). Another review showed that 26% of health facilities in eleven sub-Saharan African countries did not have electricity (Adair-Rohani et al. 2013). Smaller health facilities in rural communities are often disadvantaged in the provision of basic essential inputs compared to bigger health facilities in urban areas (WHO 2015e).

Two of WHO's quality standards (standards 5 and 8) also emphasise the importance of basic drugs, supplies, equipment, privacy and confidentiality in health facilities, especially for maternal and newborn health (WHO 2016c). The absence of such basic essential inputs hamper the provision and use of maternal health services (Khatri et al. 2017; Mkoka et al. 2014). For example, a study in an urban hospital in Tamale, Ghana, revealed the lack of reliable water and electricity supply, essential drugs, manual vacuum aspirators and surgical gloves which negatively impacted the provision of childbirth services (Banchani & Tenkorang 2014). In Mozambique, the unavailability of essential health products such as drugs, supplies and equipment affected the use and provision of health services (Wagenaar et al. 2014). Likewise, the lack of privacy in health facilities in South Central Ethiopia deterred women from utilising health facilities for childbirth (Roro et al. 2014). It is therefore important to examine the availability of basic essential inputs such as water and electricity, basic drugs, supplies, and equipment for service delivery to better understand the drivers of quality of care (WHO 2010a, 2016c).

In Ghana, a free maternal health policy was implemented in July 2008, under the National Health Insurance Scheme (NHIS). The policy provides free of cost maternal health services to Ghanaian women. It seeks to promote the use of skilled attendance for the reduction of maternal and newborn deaths. There are limited studies assessing the availability of basic essential inputs in health facilities for childbirth and how these impacted on women's and health providers' perception of quality care. The Ghanaian study in Tamale did not include health centres and Community-based health planning and services (CHPS) compounds. This study aimed to assess the availability of basic essential inputs including drugs, supplies and equipment in health facilities offering childbirth

services in one rural area in Ghana. Women and health provider's perception of privacy and satisfaction with quality of care at childbirth were also assessed. This paper forms part of a wider study exploring the affordability, availability, acceptability and quality of maternal health services during pregnancy and childbirth under the free maternal health policy in rural Northern Ghana.

## 8.3 Methods

### 8.3.1 Study area

A cross sectional study was carried out in the Kassena-Nankana municipality, a rural poor settings located in the Upper East Region of Northern Ghana, with the capital town as Navrongo. The study was carried out from March – August 2016. The population of the study area was about 109, 944 representing 10.5% of the total population of the region (GSS 2014a). About 72.7% of the people live in rural areas and 96.1% of households engage in crop farming including poultry rearing (GSS 2014a). An estimated 44.8% of the population aged 12 years and above are married, while 56.3% are literate (11 years and beyond) (GSS 2014a). Skilled attendance at childbirth was estimated to be 67% in the municipality (GHS 2013). At the time of the study, 13 of the 14 health facilities studied were publicly owned. The studied health facilities comprise the main district hospital, two health centres and eleven CHPS compounds. The CHPS compounds are the lowest level of health facilities providing services including maternal health in distant and remote communities (Nyonator et al. 2005). The first CHPS compounds were initially pilot-tested in the Kassena-Nankana area, before their scale up nationally.

### 8.3.2 Study design and processes

The study was a convergent parallel mixed methods, using quantitative and qualitative data collection methods (Creswell 2014). The collection, analysis and interpretation of the quantitative and qualitative data were carried out in a parallel form (Creswell 2014). The results of the quantitative and qualitative studies were, however, merged to answer questions on availability of basic essential inputs including basic drugs, supplies and equipment as well as perception of privacy and quality of care.

The formula proposed by Gorstein et al. was used to determine the sample size for a proportion in a single cross-sectional survey for the quantitative component (Gorstein et

al. 2007), recruiting 353 women who gave birth in health facilities. The overall sampling procedure has been captured in Dalinjong, Wang & Homer (2018). Table 17 summarises the study design and processes.

**Table 17: Summary of study design and processes**

| **Study design** | **Methods and numbers** | **Research instruments** | **Respondents and processes** |
|---|---|---|---|
| Quantitative | Facility survey (14 facilities) | Checklist for availability of basic amenities, equipment, drugs and supplies for childbirth | •Midwives and nurses<br>•Survey conducted in same facilities where structured questionnaires were carried out among women |
| | Survey (353 women who gave birth in health facilities) | •Structured Questionnaire developed based on literature and in English<br>•Questions were translated into local dialects (Kasem and Nankam) and back, for validity<br>•Questionnaire piloted with women before actual administration | •Women who gave birth in facilities were interviewed<br>•Women were recruited after discharge from facilities<br>•Interviews took 30-45 minutes |
| Qualitative | Focus Group Discussions (FGDs = 10) | •Interview guide: semi-structured open-ended questions with probes | •Same category of women who gave birth in facilities<br>•Groups of 5-12 women<br>•Discussions took place in facilities without providers presenct<br>•Discussions recorded with permission |

| | | | |
|---|---|---|---|
| | | •Guide developed in English and translated into two local dialects (Kasem and Nankam)<br>•Language experts carried out front and back translation of the guide to ensure accuracy<br>•Piloted with women | •Continuous update of guide with issues emerging from discussions<br>•Took about 45-120 minutes for each discussion |
| | In-depth Interviews (IDIs = 25) | •Interview guide: semi-structured open-ended questions with probes<br>•Developed in English, but not translated; all providers spoke and understood English<br>•Piloted with providers | •Midwives and nurses<br>•Interviews took place in private rooms in facilities<br>•Interviews recorded with permission<br>•Continuous update of guide with issues emerging from interviews<br>•Took about 45-120 minutes for an interview |

The study collected data on the physical availability of basic essential inputs, staff and training, guidelines, basic drugs, supplies and equipment in health facilities providing maternal health services. As indicated earlier, fourteen health facilities were surveyed (same facilities where the survey with women took place), on the basis of the availability of a midwife to provide basic maternal health services, including childbirth. The use of health facility surveys are important for monitoring the availability of resources, performance, areas requiring improvement as well as the impact of health policies or

interventions (WHO 2008, 2010a). A check list was developed and used for the health facility survey.

Ethical clearance for the study was obtained from the Institutional Review Board of the Navrongo Health Research Centre (approval number *NHRCIRB217*) and the Human Ethics Review Committee of the University of Technology Sydney (approval number *ETH16-0263*). All participants consented using a written consent form. Written permission was also obtained from directors of health services as well as managers of health facilities.

### 8.3.3 Study variables

The physical availability of basic essential inputs like clean water and electricity, basic drugs, supplies, and equipment for the provision of quality services were assessed. The WHO proposed six building blocks to assist analyse health systems and as points for interventions. These building blocks included: service delivery; health workforce (staff and training); information, medical products, vaccines and technology (drugs, equipment and supplies); financing; leadership and governance (WHO 2010a). The physical availability of essential inputs was assessed using the service delivery block of the model, specifically the section for availability of basic emergency obstetric and newborn care. Service delivery is considered as the outcome, given the inputs of health workforce, supplies, procurement, financing, etc. into a health system (WHO 2010a). The study was constrained with time and resources to assess the other blocks proposed by the WHO. Table 18 comprised the various indicators as covered under the service delivery block (WHO 2008, 2010a) for the study.

**Table 18: Availability of basic emergency and newborn care**

| **Basic emergency obstetric and newborn care** | |
|---|---|
| Health workforce (staff and training) | •Guidelines for management of pregnancy and childbirth<br>•Staff trained in management of pregnancy and childbirth |
| Basic inputs or amenities | •Clean water<br>•Electricity |
| Equipment | • Emergency transport<br>• Examination light<br>• Suction apparatus<br>• Manual vacuum extractor<br>• Vacuum aspirator<br>• Newborn bag and mask |
| Drugs and supplies | • Partograph<br>• Gloves<br>• Antibiotic eye ointment for newborns<br>• Injectable uterotonic<br>• Injectable antibiotic<br>• Magnesium sulphate<br>• Intravenous solution with infusion set<br>• Skin disinfectant<br>• Sutures (both absorbable and non-absorbable)<br>• Needle holder<br>• Scalpel handle with blade<br>• Retractor<br>• Surgical scissors |

Source: WHO 2008, 2010a

Women's and health providers' views on the availability of privacy in health facilities as well as overall satisfaction with quality of care was also studied, since these determine the use and provision of health services, including outcomes. Satisfaction for quality of care was assessed as "very satisfied", "satisfied", "normal", "dissatisfied" or "very dissatisfied". The study did not delve into the availability of staff in general, since the focus was the provision of maternal health services including childbirth and thus covered

health facilities that had at least one midwife. The paper explored the availability of basic essential inputs as well as other issues relating to childbirth in health facilities.

### 8.3.4 Data management and analysis

SurveyCTO Collect v2.10 application was used for the collection of the quantitative data. The SurveyCTO Collect application works on hand-held gadgets allowing for the capture, processing and transport of data for analysis. STATA 14 was used to clean and analyse the data and the findings are presented using descriptive statistics.

All audio recordings were transcribed verbatim. Some audio recordings were selected, listened to and compared with the transcripts to ensure accuracy in the transcriptions. Differences between the recordings and transcripts were rectified prior to coding. The transcripts were then reviewed a number of times to help identify emerging themes and sub-themes, which reflected insights of the subjective experiences of women especially. Following the review, codes were assigned to the themes and sub-themes identified in relation to childbirth. The results are presented based on the assigned themes and sub-themes as well as the use of key quotes from the participants.

## 8.4 Results

### 8.4.1 Background characteristics of women and use of different health facilities for childbirth

Findings from 353 women who gave birth in health facilities are presented here. The women had an average age of 27 years. Over half of the women (69%, n=243) reported that they used a different health facility for childbirth from antenatal care. The most cited reason for change of health facility was “referral” (40.2%, n=142) by health providers (Table 19). Health providers’ behaviour, distance and time to health facilities as well as quality of care were not found to be major issues for the change of health facility for childbirth.

**Table 19: Reasons for use of different health facility for childbirth**

| Reasons for change of health facility for childbirth | N=353 | % |
|---|---|---|
| Referral by health provider | 142 | 40.2 |
| Childbirth service available | 19 | 5.4 |
| Qualified staff available | 12 | 3.4 |
| Quality services available | 38 | 10.8 |
| Good provider behaviour | 2 | 0.7 |
| Short distance and time | 8 | 2.2 |
| Other | 22 | 6.2 |
| NA (used same facility for pregnancy and childbirth) | 110 | 31.1 |
| **Total** | **353** | **100** |

*"NA" refers to women who used the same health facility for antenatal care and childbirth and their views captured elsewhere.*

### 8.4.2 Availability of basic essential inputs for childbirth

Only two (14%) out of the fourteen health facilities had a source of clean water, and five (36%) had electricity (Table 20). Eleven health facilities (79%) had guidelines for the management of pregnancy and childbirth and in nine (64%), staff had refresher training in the last year preceding the study. Only one health facility (7%) had emergency transport (pick-up vehicle) for the referral of women.

**Table 20: Availability of basic essential inputs in health facilities**

| Basic essential inputs | N=14<br>Yes n (%) |
|---|---|
| Clean water | 2 (14%) |
| Electricity | 5 (36%) |
| **Basic guidelines and staff training** | |
| Guidelines | 11 (79%) |
| Staff training | 9 (64%) |
| **Basic equipment** | |
| Emergency transport | 1 (7%) |
| Gloves | 14 (100%) |
| Delivery bed | 14 (100%) |
| Partograph | 14 (100%) |
| Examination light | 5 (36%) |
| Scissors and blade | 9 (64%) |
| Cord clamp | 8 (57%) |
| Suction apparatus | 3 (21%) |
| Needles and syringes | 10 (71%) |
| Intravenous solution and infusion set | 14 (100%) |
| Suture material/needle holder | 14 (100%) |
| Forceps | 14 (100%) |
| Speculum | 12 (86%) |
| **Basic drugs and supplies** | |
| Antibiotic eye ointment | 8 (57%) |
| Skin disinfectant | 6 (43%) |
| Injectable oxytocin/ergometrine | 9 (64%) |
| Oral antibiotic | 14 (100%) |
| Vitamin K | 9 (64%) |
| Magnesium sulphate/valium | 9 (64%) |
| Injectable antibiotic | 9 (64%) |
| Cotton and gauze | 14 (100%) |

Some of the equipment in the health facilities were found to be outdated and inadequate, particularly beds for childbirth and postpartum care. Most CHPS compounds had just one or two beds for childbirth. In situations where two or three women were in labour, some of these women would have to use the floor. In the IDIs, a midwife said:

*"Infrastructure hmmm, that is where I think the challenge is, it is not so much but at least we are dealing with what we have. This labour ward has a 2-bed capacity but sometimes women coming in can be 4-5 and some will be on the floor and sometimes you can even have 3 women pushing at the same time"* (IDI, midwife).

The IDIs showed that basic drugs and supplies were available, but inadequate in the health facilities. The midwives reported that the quantities of basic drugs and supplies for childbirth especially were insufficient to meet the demand or utilisation. A midwife in a CHPS compound reported:

> *"We've the basic drugs and supplies, but it is always not enough for us. Most of the times, we get out of stock and have to wait for supplies from the District Health Management Team"* (IDI, midwife).

### 8.4.3 Privacy in health facilities during childbirth

Of the 353 women who gave birth in health facilities, 89% (n=314) reported that there was no privacy during childbirth. Only 11% (n=39) stated that there was privacy. The IDIs confirmed that there was no privacy in health facilities at childbirth. A midwife said:

> *"So you see that some of the clients will be sitting here; if you're talking inside and you're talking louder, some of them may hear what you're conversing with the other one"* (IDI, midwife).

The rooms used for childbirth in the smaller health facilities (CHPS compounds) especially, were considered to be small (limited physical space). In some cases, the rooms were used for multiple purposes, that is, abdominal and vaginal examination, childbirth and postpartum care. A nurse reported:

*"… the labour room is like a cubicle – chop box, that's where they deliver women, that's where we do dressing, if we receive an emergency case that's where we put them…There is no privacy in that room at all"* (IDI, nurse).

### 8.4.4 Women's overall satisfaction during childbirth

In order of frequency, 77% of the women (n=272) were very satisfied or satisfied with the quality of care at childbirth, 3% (n=11) normal, 20% (n=70) very dissatisfied or dissatisfied. In the FGDs too, most of the women were found to be satisfied with the overall services provided at childbirth. Some midwives were reported to be patient, empathetic and would not shout or insult women. A woman said:

*"I am satisfied because the midwife is patient for us and does not shout at us and if the baby is coming out, she is also always fighting like she is the one in labour just for you to have a safe labour"* (FGD, woman).

Some other women provided the reason that their midwives were always available, even at night to attend to them, when it was necessary. A woman said:

*"When I was in labour it was in the night but I still told them [family members] to bring me here [health facility] because during ANC the nurse [midwife] treated me well. Even at night, her husband brought her and she came to attend to me here. She struggled before my baby came and she did not insult me talk-less beating me"* (FGD, woman).

Some midwives were able to do home visits after childbirth to check on the welfare of women and their babies and also to encourage women to continue to visit health facilities. This is the case with CHPS compounds located in the communities and was a source of satisfaction. A woman reported:

*"I am happy, she [midwife] treated me nicely during ANC and after I delivered she still followed me home and visited me about 3 times"* (FGD, woman).

However, a few of the women in the FGDs said they were not satisfied with the overall quality because they had experienced an inhumane treatment, abandonment, beatings and insults from some midwives and nurses. A woman who gave birth in the district hospital reported that she was beaten by an elderly midwife. She described:

> *"I delivered at War Memorial [the district hospital]. I had a lot of problems because my baby was coming and I was screaming and an elderly nurse [referring to a midwife] came and beat me"* (FGD, woman).

Another woman said:

> *"When I came to deliver she treated me like I was not human, she kept me in the room and left me there so my baby nearly fell off and she still came and was insulting me"* (FGD, woman).

**8.4.5 Health providers' overall satisfaction with quality of care for childbirth**

Due to challenges with the health system which prevented women from using certain services, health providers indicated that they were not very satisfied with the overall quality of care provided. For instance, a midwife said:

> *"The scan is not covered by health insurance and some women always don't have money but you will really see that they need to take a scan on their pregnancy to be sure of safe delivery. But you cannot do anything to help them so that one if she doesn't take the scan. Where is the quality you are providing because that one you don't know how she is faring but you are agreeing to manage her like that…"* (IDI, midwife).

But the dedication and commitment to duty on the part of some health providers have provided a degree of satisfaction for quality of care rendered. A nurse explained:

> *"Satisfied? Not very satisfied, but satisfied. At least the way I've seen the midwife handle them [women], it's okay; it's commendable. Sometimes she even goes all the way to the houses to look for them. We don't have a lot of midwives who will*

*do that. So for her being here, and me coming to meet her, and within just these 3 weeks, it's very commendable"* (IDI, nurse).

## 8.5 Discussion

The study showed that only two (14%) out of the 14 health facilities had a source of clean water, and five (36%) had power supply. Just one health facility had emergency transport for referrals. Basic drugs, supplies, and equipment including beds were also inadequate for childbirth. Eighty-nine percent (n=314) of the women reported the lack of privacy in health facilities during childbirth. The rooms used for childbirth in CHPS compounds especially, were small in size and used for multiple purposes. Despite these issues, 77% of women (n=272) were very satisfied or satisfied with the quality of care for childbirth. Reasons for women's reported satisfaction were the availability of midwives to provide childbirth services always and to make follow-up visits to women's homes after childbirth. Some midwives were also patient, empathetic, and would not shout or insult women. Health providers indicated that they were not very satisfied with the quality of care provided.

### 8.5.1 Availability of clean water and electricity for childbirth

Two (14%) out of the 14 health facilities had a source of clean water, and five (36%) had power supply. But studies have shown that the availability of clean water, electricity, telephones, and toilet facilities significantly increases the use of skilled attendance at childbirth (Mbonye & Asimwe 2010; Singh 2016). Skilled attendance at childbirth in the study area was 67% (GHS 2013). Our finding is not unique. In Nnewi, Nigeria, Nnebue et al. found that clean water, electricity and a refuse disposal system were not available in most of their health facilities (Nnebue, Ebenebe, Adogu, et al. 2014). Likewise, an urban hospital study in Tamale, Ghana, revealed that water and electricity was intermittently disrupted and thus affected the smooth provision of health services (Banchani & Tenkorang 2014). The availability of clean water and electricity is critical for ensuring the provision of quality maternal health services (Adair-Rohani et al. 2013; UNICEF 2011; WHO 2015a).

Water is required for maintaining hygiene and sanitation (that is, washing of hands and cleaning of equipment) for the prevention of infections, while electricity is needed for refrigeration of blood, vaccines (cold chain system) and the sterilisation of basic equipment for childbirth as well as lighting (Essendi et al. 2015; WHO 2015a). The absence of clean water and electricity in most of our study health facilities compromised quality of care and was an affront to the achievement of universal health coverage and the SDGs.

### 8.5.2 Availability of emergency transport for childbirth

Transport is yet another facilitator for the use of maternal health services, especially in times of childbirth. Unfortunately, our study reported emergency transport was available in only one health facility. The reported mode of emergency transport was a pick-up vehicle which lacked comfort and the necessary accessories to support pregnant women. Studies in Africa and Asia have reported similar findings (Atuoye et al. 2015; Banchani & Tenkorang 2014; Essendi et al. 2015; Vidler et al. 2016). The absence of emergency transport would not permit women to have timely access to health facilities and services, which may have dire consequences, such as deaths of mothers and neonates. For example, a qualitative study in rural Gambia showed the unavailability of transport as the main factor for increased perinatal deaths (Jammeh, Sundby & Vangen 2011). The lack of emergency transport in distant and remote communities is considered one of the reasons why women give birth at home (Kitui, Lewis & Davey 2013). To reduce maternal and child deaths, there is the urgent need to prioritise transport especially for distant and remote communities.

### 8.5.3 Inadequate basic drugs, supplies, equipment and physical space

Our study reported the inadequacy of basic drugs, supplies, equipment and physical space for childbirth as reported in other studies. A recent review reported the inadequacy of equipment, drugs and supplies such as gloves and blood as a global phenomenon (Bohren et al. 2015). A Nigerian study also revealed the inadequacy of equipment, drugs and supplies including physical space for childbirth services (Nnebue, Ebenebe, Adogu, et al. 2014). In resource constrained settings especially, there are reported cases of overcrowding in health facilities where women in labour would have to queue for services and share beds with other women during and after childbirth (Bohren et al. 2015). In some situations, women would have to lie on floors or on bare mattresses soiled with urine,

faeces, blood, vomit, and other fluids after childbirth (Banchani & Tenkorang 2014; Bohren et al. 2015; UNICEF 2011). The inadequacy of basic drugs, supplies, equipment and physical space contravenes the quality statements (statement 8) of the WHO, stipulating a positive experience for all women in the period of pregnancy, childbirth and postpartum (WHO 2016c).

### 8.5.4 Lack of privacy in health facilities during childbirth

Our study recorded lack of privacy in health facilities for women; 89% (n=314) of the women reported the lack of privacy at childbirth and this was confirmed in the IDIs. The lack of privacy for women during childbirth was also reported as a global challenge (Bohren et al. 2015). The review by Bohren et al. showed the lack of privacy in labour wards during vaginal and abdominal examinations with the unavailability of curtains to separate women from other patients (Bohren et al. 2015). A recent review in Nigeria showed the lack of privacy where women in labour were attended to, in the presence of several health workers and trainees (Ishola, Owolabi & Filippi 2017). Lack of privacy is undignifying and shameful for women. Again, the finding infringes quality statement 5.1 of the WHO canvassing for all women and newborns to have privacy, including respect for their confidentiality during and after childbirth (WHO 2016c).

Lack of privacy has several implications. According to Lothian, privacy during childbirth is important for women as it determines to some extent the outcome of the process (Lothian 2004). It also does not promote the use of skilled attendants at childbirth. For instance, in South Central Ethiopia, women and community members indicated that the lack of privacy was one of the main reasons why women would not give birth in health facilities (Roro et al. 2014). Given the importance of privacy, the recently released manual for midwives and doctors and the International Federation of Gynecology and Obstetrics (FIGO) have emphasised the need for privacy during childbirth and postpartum (FIGO 2015; WHO 2017a). Thus, it is important that health facilities are supported to provide privacy for women to promote their dignity.

### 8.5.5 Overall satisfaction with quality of care during childbirth

Interestingly, despite the lack of privacy, our study found high satisfaction with quality of care in both the survey and FGDs. Women's satisfaction was based on the fact that some midwives were caring, respectful and supportive, that is, patient, empathetic, and

would not shout or insult women. Some midwives were available at all times to provide services and would make follow-up visits to women's homes after childbirth. Findings from the Ghana demography and health survey are in line with our finding; 79% of women insured under the NHIS were satisfied with the services received in a health facility (GSS, GHS & ICF 2015). However, the reasons for the satisfaction were different from those found for our study; the women were satisfied due to short waiting times for test results (56%) and cleanliness of health facilities (92%) (GSS, GHS & ICF 2015). Equally, a study in public health facilities in Gamo Gofa Zone, Southwest Ethiopia showed that 79.1% of women were happy with the overall services received during childbirth (Tesfaye et al. 2016). Our findings contradict studies in other resource constrained settings where women were not satisfied with the quality of care due to disrespect, abuse and abandonment by health providers during childbirth (Asefa & Bekele 2015; Bohren et al. 2014; Holmes & Maya 2012; Ishola, Owolabi & Filippi 2017; Ith, Dawson & Homer 2013). Probably our finding of overall satisfaction might be attributed to the fact that the women had never experienced quality care previously. Without the opportunity to make comparisons or know what was possible, women might not know that a better quality of care existed, especially on attitudes and behaviours of providers. Again, given the fact that women had live births might help explain their overall satisfaction with quality of care (halo effect).

### 8.5.6 Strengths and limitations

Combining findings from surveys of facilities and women, FGDs, and IDIs, the study has demonstrated the unavailability of basic essential inputs like water, electricity, emergency transport and privacy in health facilities. It also showed the inadequacy of basic drugs, supplies, and equipment. This is one strength of this study. However, our study measured perceived quality of care from the perspective of women and health providers. Although perceptions are important determinants for the utilisation of health services, measuring technical quality of care might have given different findings, which is beyond the scope of this paper. Hence readers should take note when reviewing this paper.

## 8.6 Conclusion

There are limited and inadequate basic essential inputs including clean water, electricity, emergency transport, drugs, supplies, equipment as well as privacy. These affect the provision of quality childbirth services. Government and international organisations

should team up to ensure the availability of such basic essential inputs and to carry out broader health system improvements. These efforts would improve the provision of quality services and increase the use of skilled attendance for childbirth, leading to the achievement of universal health coverage and the sustainable development goals.

# CHAPTER 9: SYNTHESIS OF STUDY FINDINGS

This final chapter provides an overview of the study and synthesises the findings from chapters 4-8 with regards to demand- and supply-side factors affecting access to maternal health services under the free maternal health policy in Northern Ghana. The chapter briefly revisits the free maternal health policy, the aim, objectives, and methods of data collection for the study. The chapter also discusses lessons to be learnt from the findings, limitations and areas for future research.

## 9.1 Addressing access to services under the free maternal health policy

As described in the first chapter, the free maternal health policy was implemented in Ghana in July 2008 under the NHIS. The core objective of the policy was to enhance the utilisation of maternal health services, including childbirth, by reducing financial barriers to the use of services. Pregnant women are registered with the NHIS free of charge. Women are also entitled to free health services throughout pregnancy, childbirth and three months postpartum. The policy is one of Ghana's key strategies for the achievement of the MDGs and subsequently the SDGs, specifically the reduction of maternal deaths and the attainment of UHC.

The need to achieve the SDGs on maternal and child health as well as the attainment of UHC has provided additional impetus to ensure that the free maternal health policy is effective, particularly for women in rural communities. Rural and remote communities are disproportionally disadvantaged in terms of the distribution of health facilities and health providers (Buchan et al. 2013; Sharma 2015; Snow et al. 2013). Accessing health services is thus problematic for rural women. For example, a South African study reported that rural women encountered several challenges in their bid to utilise maternal health services. These comprised long distances to health facilities, high costs of childbirth and maltreatment from health providers compared to their urban counterparts (Silal et al. 2012). However, Matthews et al. found that urban poor women are equally confronted with challenges affecting their use of health services, in spite of the proximity of health facilities in urban settings (Matthews et al. 2010).

Despite the commitment and renewed enthusiasm, it is not clear whether the free maternal health policy has achieved its desired outcomes in all parts of Ghana. In other resource constrained settings, it has been shown that there are gaps in similar policy implementation, as these policies are often implemented without careful planning as well as inadequate infrastructure and resources, both human and financial (Banchani & Tenkorang 2014; Erasmus et al. 2014; Puchalski et al. 2016). In other words, implementation is usually affected by factors inside and outside the health system (also known as demand- and supply-side factors), which ultimately affect access to services.

Access to health services is considered complex and multidimensional (Gulliford et al. 2002). It entails a configuration of factors found in the health system as well as at the individual, household and community level (Hunter & Killoran 2004; Jacobs et al. 2011). These dimensions of access are classified broadly as affordability, availability, acceptability and quality of health services (the framework of this study which has been described in chapter 2). These affect the use and provision of health services and are key for the successful implementation of health policies. This was, therefore, the focus of the study outlined in this thesis.

## 9.2 Aim and objectives of the study

The main aim of the study was to explore factors affecting access to maternal health services under the free maternal health policy in Ghana. The specific objectives included examining the factors affecting affordability, availability, acceptability and quality of maternal health services for pregnancy and childbirth.

Chapter 3 explained the convergent parallel mixed method approach that was used. The study was cross-sectional. The dimensions of access (affordability, availability, acceptability and quality of care) were measured along the continuum of care from antenatal to childbirth. Both quantitative and qualitative data collection and analysis were carried out in a parallel form, with the merging of the findings to answer the study question. The quantitative and qualitative data serve to complement each other in providing a comprehensive assessment of the factors affecting access.

The study setting was the Kassena-Nankana municipality, in rural Northern Ghana. The Kassena-Nankana municipality is not different from any municipality or district in the Upper East region, in terms of socio-economic or cultural characteristics. The municipality also has similar characteristics as other rural settings across Ghana and elsewhere. Structured interviews, FGDs and IDIs were held with women, health providers and health insurance managers. The study retrospectively collected women's experiences of seeking maternal health services through a detailed recall of their interactions with health facilities and health providers. The views of health providers as well as insurance managers were also collected on service provision to women under the policy.

## 9.3 Synthesis of study findings

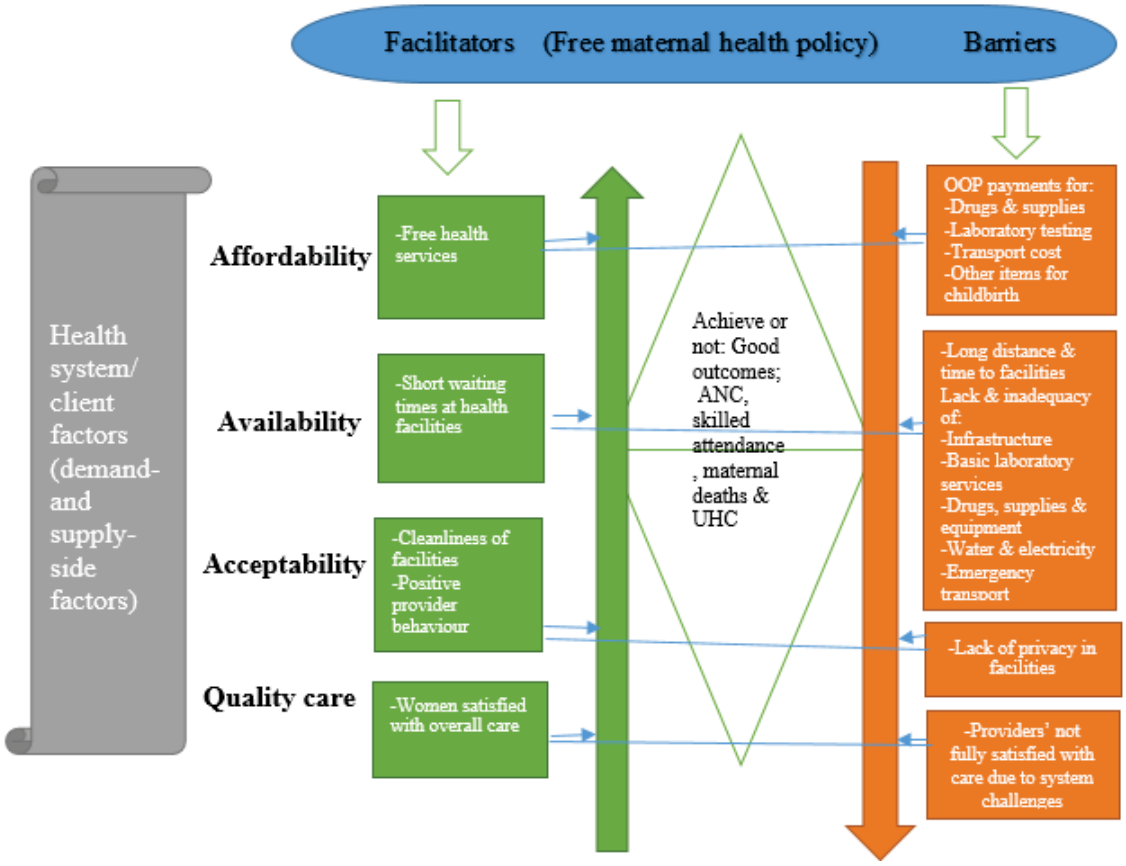
The findings have been synthesised and grouped as facilitators and barriers for access to health services under the free maternal health policy (Figure 18). The facilitators and barriers are further classified along the dimensions of access: affordability, availability, acceptability and quality of health services.

## 9.4 Facilitators of access to maternal health services

All participants (women, health providers and the health insurance managers of the NHIS) acknowledged the benefits of the free maternal health policy, as it promoted the use of maternal health services. Confirming our findings, two reviews in low and middle income settings have reported a significant positive relationship between health insurance including fee exemptions and the use of maternal health services (Comfort, Peterson & Hatt 2013; Hatt et al. 2013).

Interestingly, in our study waiting times were perceived not to impede the use of health services. This is contrary to findings from studies in Kenya (Mason et al. 2015), India (Patel & Ladusingh 2015) and Lao People's Democratic Republic (Ngan et al. 2016). The finding may have been because women in this rural area expected to wait and had very few or limited expectations about what the health service would provide. It is likely that low expectations will mean that less dissatisfaction is reported and if women are used to poor or limited services they are less likely to report a negative experience.

**Figure 18: Synthesis of study findings**




Equally, health facilities were reported to be clean and health providers to be respectful and friendly. The environment of health facilities as well as the attitudes of health providers are important predictors of service usage. Particularly, a review on the determinants of women's satisfaction with maternal health services in low and middle income countries revealed that the interpersonal relationships of health providers dominated factors influencing women's use of health services (Srivastava et al. 2015). It is encouraging that women in our study were positive about their relationships with health providers but this may again be attributed to low expectations.

In addition, women indicated that they were very satisfied or satisfied with quality of maternal health services. This finding is in line with studies conducted in India and Bangladesh where women were reportedly satisfied with services provided under the Chiranjeevi and the Maternal Health Voucher Schemes respectively (Ahmed & Khan 2011; Bhat et al. 2009). However, the finding runs contrary to results from a similar study in Bangladesh where women expressed dissatisfaction with quality of services received

(Chowdhury, Hossain & Halim 2009). Satisfaction is a difficult concept and is dependent on expectations and the outcome (van Teijlingen et al. 2003). For example, many women report being 'satisfied' at the time of care merely because they and their babies survived the experience. However, sometime later, they are likely to articulate a more nuanced, usually negative, experience. This is known as the halo effect of maternity care (Bennett 1985; Jha et al. 2017; Waldenstrom 2003). Overall, the facilitators serve to promote access to health services under the policy, which might lead to good health outcomes and the achievement of UHC.

## 9.5 Barriers for access to maternal health services

The study demonstrated that women still made OOP payments for drugs and supplies, laboratory services including ultrasound scans and transport as well as the purchase of other items for childbirth, despite a policy in place to reduce financial barriers. The findings corroborate results from studies in similar settings. For instance, in spite of a policy such as that in Ghana to provide free maternal health services for women in Ethiopia, 65% of health facilities required women to make payments for some particular services (Pearson et al. 2011). This was also the case in Senegal, where women made payments for transport and drugs under the Free Delivery and Caesarean Policy (Witter, Drame & Cross 2009). Given these payments, poor women are unable to pay. But the implementation of health insurance programmes including fee exemptions especially, is meant to correct inequities in the use of health services.

Distance and time taken to reach nearest health facility were perceived to be impediments to care seeking behaviour. The finding is not isolated. In South Africa and Zambia, women revealed long distances to health facilities which hindered their use of health services (Silal et al. 2012; Stekelenburg et al. 2004). Likewise, basic essential inputs such as infrastructure, laboratory tests, drugs and supplies, equipment, water, electricity and emergency transport were either inadequate or unavailable in many of the studied health facilities. Many women also reported a lack of privacy during labour and birth. While women reported being satisfied with their care, this was not the case for the health providers. Health providers probably recognised that the situation meant that the care they were providing was sub-standard even if the women did not realise this. The views of health providers were critical, as they often know what 'good' care should be even if their

clients are willing to accept less than 'good'. Other studies have highlighted similar issues, for example, in Bangladesh; while women reported satisfaction with maternal health services, health providers were unhappy with care provision due to staff and logistics challenges, the lack of laboratory services, patient-management guidelines, training as well as insufficient supervision (Islam et al. 2015).

The absence or unavailability of basic inputs for the provision of health services reflects the challenges confronting health systems in other developing countries. A study in six countries in Africa and Asia (Kenya, Malawi, Sierra Leone, Nigeria, Bangladesh and India) showed health facilities' inability to sufficiently provide and manage women with obstetric complications (Ameh et al. 2012). Thus, quality of care as well as the attainment of the MDGs (now SDGs) on maternal health were questioned.

## 9.6 Lessons learnt from the findings

Although the Government of Ghana has prioritised maternal health by implementing the free maternal health policy a decade ago, the findings in this thesis raise critical questions about the readiness of health facilities to provide basic essential services. This is particularly the case in the lower level health facilities (CHPS compounds). Until these barriers are tackled, a significant reduction in maternal deaths for the accomplishment of the SDGs might be unachievable. Four useful lessons are enumerated here for policy makers and other stakeholders. These findings could also serve as transferrable lessons for other countries with a similar context, who have implemented or are planning to implement fee free policies for improved use of health services.

### 9.6.1 Lesson number one: OOP payments persisted despite the NHIS

OOP payments are common despite the policy to eliminate financial barriers involved with the use of health services. The availability of free health services, the cost of transport, payments for laboratory services, drugs and supplies, and other items meant that poor women, in particular, were excluded from service usage, thus challenging the achievement of the policy objective. The unavailability of funding for health facilities to purchase drugs or to provide certain services for women greatly accounted for the OOP payments. The lack of funds in health facilities was a result of the delay in payments by the NHIS, partly caused by the claims process and to some extent the lack of adequate

funds for the scheme. The establishment of the electronic claims submission system by the NHIS is a step in the right direction. It is expected that the electronic claims system will reduce fraud and abuse, helping to contain costs and promote the financial sustainability of the NHIS (Nsiah-Boateng et al. 2017; Park et al. 2012). The system also allows for the early settlement of claims to health providers, thereby encouraging them to continue to provide health services to clients of the NHIS.

Sustainable sources of funding should also be identified to make funds available for claims payment within the stipulated time, which is one month following their submission to the NHIS. Currently, the NHIS relies on a 2.5% value added tax (Health Insurance Levy) on some categories of goods and services as one of its main sources of funding (NHIA 2010). An additional 1% increase in the levy has been suggested to raise more money for the smooth operation of the NHIS. But the greatest need is to ensure efficiency, as more funding does not necessarily imply the success of the NHIS. For consumers of health services, measures should be put in place to identify poor women as a priority for the reimbursement of the cost of transport to health facilities. In doing this though, careful consideration should be given to the process of identifying who should be prioritised for reimbursement. A study reported a big challenge in the identification of women to benefit from such programmes (Ahmed & Khan 2011). Reimbursing the transport cost for women who are poor, in addition to the benefit package of the policy, may encourage their use of health services.

### 9.6.2 Lesson number two: A weak health system challenged access

The inadequacy or unavailability of drugs and supplies, equipment, transport and infrastructure meant the health system is weak to support the successful implementation of the policy. This is synonymous with settings in low and middle income countries, where the outbreak of epidemics and other emergencies, for example, the outbreak of the Ebola Virus in West Africa, exposed the vulnerability of the health system (Bitton et al. 2017; Borghi & Chalabi 2017). Strong health systems are required to attain health goals (Mills 2014; Van Lerberghe et al. 2014), provide routine or usual services and to contain disease outbreaks (Cancedda et al. 2016; Regmi, Gilbert & Thunhurst 2015). Particularly, it would be a significant challenge for countries to achieve the SDGs if their health systems are not comprehensively strengthened (Van Lerberghe et al. 2014; WHO 2005).

Thus, the success of the free maternal health policy would require a complete strengthening of the health system.

Generally, strong health systems provide the assurance that the required workforce, equipment, drugs and supplies, transport, information, monitoring and supervision, affordable and responsive health services as well as good provider relations exist in the process of service delivery (WHO 2010a). As an example, Sierra Leone in West Africa strengthened its health system in all aspects, governance, communications, monitoring and evaluation, drugs and supplies, infrastructure, health workforce and financing, during the implementation of its free health care policy (Witter, Brikci, et al. 2016; Witter, Wurie & Bertone 2016). Ghana as a lower middle income country (ahead of Sierra Leone), could learn lessons from that country's experience. Importantly, the success of Ghana's policy would require an ongoing investment in drugs and supplies, equipment and transport as well as improvement in the infrastructure of health facilities.

### 9.6.3 Lesson number three: Lower level health facilities are poorly resourced

Lower level health facilities (CHPS compounds) in the study are poorly resourced for the provision of health services to people living in distant and remote communities. Nevertheless, these facilities play a crucial role, acting as gatekeepers to the health system and as the first point of care for women, including the poor and deprived. These facilities also provide basic preventive and curative health services, helping to save many lives. Thus strengthening peripheral health systems is key to the achievement of good health outcomes as well as the attainment of UHC. The study highlights the need for an expansion in the infrastructure of the CHPS compounds, including the provision of emergency transport at the community level, as well as the provision of water and electricity at health facilities.

Water and electricity are crucial for the effective operation of health facilities in rural settings. Essentially, water helps maintain hygiene and sanitation in health facilities, while electricity facilitates the sterilisation of equipment as well as storage of drugs, vaccines and associated adjuvants (Essendi et al. 2015; WHO 2015a). Given this, the WHO considers WASH (Water, Sanitation and Hygiene) services in health facilities as very necessary for the attainment of the SDGs, especially those relating to maternal and child health (SDG 3:1-2) including UHC (SDG 3:8) (WHO 2017c). This explains the

inclusion of WASH services in the framework for quality of care for maternal and child health. The availability of WASH services promotes the use of maternal health services and optimal performance from health providers as well (WHO 2015d).

### 9.6.4 Lesson number four: Lack of essential inputs and infrastructure impedes quality care

Quality of care has been compromised by the lack of essential inputs and infrastructure in health facilities. However, the success of fee free policies depends on quality of care (Hatt et al. 2013; McPake et al. 2011). Poor quality of health services would not only discourage women from service usage, but would not permit the achievement of good health outcomes. For instance, implementing fee free policies may lead to an increase in the use of health services but maternal deaths may not reduce proportionately if the quality of care is poor (Hatt et al 2013). The WHO envisions that pregnant women and their newborns are provided with quality care at pregnancy, labour, birth and beyond (Hulton et al. 2016; WHO 2016c). This vision led to the development of the framework for quality of care, which stipulates the need for continuous assessment, improvement and monitoring within the health system. This, if meticulously carried out, would provide a positive experience for women at pregnancy and childbirth (WHO 2016c). It is crucial to ensure the availability of the necessary inputs for quality care provision (Hulton et al. 2016), including an adequate workforce as well as skilled, regulated and educated midwives (Renfrew et al. 2014).

## 9.7 Contribution of the thesis to the body of knowledge

The need to reduce maternal deaths as well as achieve UHC has gained global prominence, constituting an integral part of the current SDGs instituted in 2015 (SDG Target 3.1-2, reduction of maternal and child deaths, and Target 3.8, achieving UHC by year 2030). UHC is considered essential to ensure access to needed health services for all people, including vulnerable groups like pregnant women. It has been given top priority by the WHO and its current Director-General, Tedros Adhanom Ghebreyesus, who said "All roads lead to universal health coverage" (Ghebreyesus 2017, np).

There is also a high burden of morbidity and mortality in low and middle income countries. For instance, sub-Saharan Africa and Southern Asia accounted for 62% and

24% respectively, of the global maternal deaths (AbouZahr 2013; WHO 2014d). These regions are being supported and encouraged to prioritise the reduction of maternal deaths and achieve universal access to health services. The implementation of the free maternal health policy under the NHIS is therefore Ghana's official strategy for improving the use of health services by women and now this will be even more critical in achieving the SDGs. Thus, the study adds to knowledge on challenges confronting the achievement of the SDGs, especially for reduced maternal deaths and attainment of UHC.

This study is unique in that it has explored the multidimensional concept of access for maternal health services. The study has shown that there are major barriers at the micro level, which implies that the true benefits of the policy will not be realised at this level. The findings of this study highlight important areas for policy makers in the Government of Ghana, the Ministry of Health and the Ghana Health Service as well as other international agencies to consider as they take up the challenge to improve maternal and newborn health. The findings throw the spotlight on policy implementation gaps in low and middle income countries as well, an addition to the body of knowledge in that direction. The findings provide pathways for improving the use and provision of maternal health services under the policy taking into account the unavailability of financial resources and other infrastructure in health facilities, especially the lower level ones.

## 9.8 Strengths and limitations of the study

One of the major strengths of this study is the use of a combination of both qualitative and quantitative research methods using a large sample of women and health providers. The other key strength is the use of a comprehensive framework (affordability, availability, acceptability and quality of care) which allowed the examination of various dimensions of access to maternal health services. The study has helped to highlight important issues affecting the use and provision of maternal services under the free maternal health policy in a rural setting. The findings are considered to be indicative of the actual situation in the health system at the micro level in a rural context.

The study has its limitations as typical of research of this nature. Firstly, the estimated levels of OOP payments might be underestimated, as productivity losses for women and their caregivers were not determined and included for the events of pregnancy and

childbirth. Secondly, recall bias on the part of the women cannot be ruled out since the interviews and discussions were held after women had given birth. Thirdly, given the descriptive nature of the study, some confounders might exist thus affecting the findings of the study.

The study could only recruit 53 women who gave birth at home, against the planned recruitment of at least 194 women for that category. It was a significant challenge finding women who gave birth at home to recruit. This might indicate that not many women are giving birth at home (showing the breakdown of socio-cultural and other barriers). The findings might not also be generalisable to the rest of the country, since differences existed between Northern and Southern Ghana, as well between urban and rural areas. There are vast differences across Ghana, in terms of culture, socio-economic wellbeing, the distribution of health facilities and health providers, and other physical and social infrastructure. Finally, the study did not measure health outcomes, especially maternal deaths, for the determination of the real impact of the policy.

## 9.10 Future research

Since the study was carried out in only one district of Ghana, a larger study across other regions and districts in Ghana as well as in accredited public and private health facilities may broaden our understanding of the factors affecting access to health services under the free maternal health policy. Good or improved health outcomes are the ultimate measure of the success of health policies, but unfortunately this study was unable to incorporate the study of health outcomes, due to time and financial constraints. Therefore, it is recommended that a study be undertaken to determine the impact of the policy on health outcomes, including maternal mortality rate and perinatal morbidity and mortality. The current study also measured perceived quality of care under the policy. Although perceived quality of care is important for the use of health services, the technical aspect is also key for good health outcomes and therefore, it is recommended to investigate the quality of care as well, including women's experiences.

## 9.11 Summary and conclusion

The chapter has reviewed the aim and objectives of the study, including a brief synthesis of the findings. Lessons learnt from the findings were also discussed to ensure the success of the policy and as guidelines for other countries with similar settings.

The study identified the factors affecting access to maternal health services under the free maternal health policy, which were synthesised as facilitators and barriers. The policy has the potential to reduce maternal deaths and act as a vehicle for the achievement of UHC. The study reported that waiting times, cleanliness of health facilities as well as good interpersonal relationships with health providers were facilitators for the use of health services. Key barriers acting against the effective operation of the policy were the existence of OOP payments for women, the lack of or inadequacy of drugs and supplies, equipment, water, electricity and emergency transport. These barriers are seen to negatively affect the drive towards reducing maternal deaths and attaining UHC. It is therefore suggested that the Government of Ghana, the NHIS and other stakeholders improve the provision of resources to health facilities.

There is the need for timely payment of health providers, to reduce or eliminate OOP payments. Structural improvements in health facilities are also required. Plans should also be put in place for the provision of emergency transport for women who would require referral to health facilities for needed attention. Overall, if these measures are adopted, there is the high likelihood that they would promote the use of health services by women, probably reducing maternal deaths and helping attain UHC, the ultimate goal for health systems in low and middle income countries.

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# APPENDICES

## Appendix A: Ethics approval letter (Institutional Review Board, Navrongo, Ghana)

*In case of reply the number and date of this letter should be quoted*

*My Ref. App/NHISmat/01/2016*
*Your Ref:*


Navrongo Health Research Centre
**Institutional Review Board**
Ghana Health Service
P. O. Box 114
Navrongo, Ghana
*Tel: +233-20-166-0158*

*Email: irb@navrongo-hrc.org*

**27th January, 2016**

Mr. Philip Ayizem Dalinjong
Faculty of Health
University of Technology
Sydney, Australia

**ETHICS APPROVAL ID: NHRCIRB217**

Dear Mr. Dalinjong

**Approval of protocol titled *'The impact of the National Health Insurance Scheme on access to maternal health services and health outcomes in the Kassena-Nankana East District of Ghana'***

I write to inform you that following your satisfactory address of the concerns raised by the Navrongo Health Research Centre Institutional Review Board (NHRCIRB) after its review of the above-mentioned protocol, the Board is pleased to grant you approval.

The following documents were reviewed and approved:

- Completed New Protocol submission form
- Summary of the Protocol
- Study protocol Version 2 dated 13/01/2016
- Participants' information Sheet
- Consent forms – English Version 2 dated 13/01/2016
- Curriculum Vitae of Investigators

Please note that any amendment to these approved documents must receive ethical clearance from the NHRCIRB before implementation.

Should you require a renewal of your approval, a progress report should be submitted two (2) months before the expiration date. This approval expires on **26th January, 2017**.

The Board wishes you all the best in this project.

Sincerely,

Production Note:
Signature removed prior to publication.

Dr. (Mrs.) Nana Akosua Ansah
(Vice Chair, NHRCIRB)

Cc: The Director, NHRC

## Appendix B: Ratification Letter (Human Research Ethics Committee, UTS)

Dear Applicant,

[External Ratification: Navrongo Health Research Centre Institutional Review Board – NHRCIRB217 – 27/01/2016 - 27/01/2017]

The UTS Human Research Ethics Expedited Review Committee Chair have reviewed your application titled, "The impact of the National Health Insurance Scheme on access to maternal health services and health outcomes in the Kassena-Nankana East District of Ghana", and agreed that the application meets the requirements of the NHMRC National Statement on Ethical Conduct In Human Research (2007). I am pleased to inform you that your external ethics approval has been ratified.

Your approval number is UTS HREC REF NO. ETH16-0263.
Approval will be for the period specified above and subject to the provision of annual reports and evidence of continued support from the above-named Committee.

Please note that the ethical conduct of research is an on-going process. The National Statement on Ethical Conduct in Research Involving Humans requires us to obtain a report about the progress of the research, and in particular about any changes to the research which may have ethical implications. This report form must be completed at least annually, and at the end of the project (if it takes more than a year). The Ethics Secretariat will contact you when it is time to complete your first report.

I also refer you to the AVCC guidelines relating to the storage of data, which require that data be kept for a minimum of 5 years after publication of research. However, in NSW, longer retention requirements are required for research on human subjects with potential long-term effects, research with long-term environmental effects, or research considered of national or international significance, importance, or controversy. If the data from this research project falls into one of these categories, contact University Records for advice on long-term retention.

You should consider this your official letter of approval. If you require a hardcopy please contact Research.Ethics@uts.edu.au.

To access this application, please follow the URLs below:
* if accessing within the UTS network: https://rm.uts.edu.au
* if accessing outside of UTS network: https://remote.uts.edu.au , and click on "RMENet - ResearchMaster Enterprise" after logging in.

We value your feedback on the online ethics process. If you would like to provide feedback please go to: http://surveys.uts.edu.au/surveys/onlineethics/index.cfm

If you have any queries about your ethics approval, or require any amendments to your research in the future, please do not hesitate to contact Research.Ethics@uts.edu.au.

Yours sincerely,

Professor Marion Haas
Chairperson
UTS Human Research Ethics Committee
C/- Research & Innovation Office
University of Technology, Sydney
E: Research.Ethics@uts.edu.au

## Appendix C: Information and consent form for women

**Access to maternal health services under the free maternal health policy in the Kassena-Nankana East municipality of Northern Ghana**

**Introduction/purpose of study:** This is a research project being carried out by a student of the Faculty of Health, University of Technology Sydney, Australia. The project seeks to understand the experiences and perceptions of women and health providers under the free maternal health policy in Ghana. The study will document perceptions of distance travelled by women to health facilities, mode of transport, waiting times, availability of drugs and equipment, payments for drugs and other services, behaviour of health providers towards women, quality of health services, etc. You are asked to participate in this study because you are a woman who gave birth in a health facility or at home recently.

**Procedure:** Participation in the study will involve asking you questions on your experiences as well as perceptions about seeking maternal health services. Your responses will either be recorded on a questionnaire form or tape recorded. Your participation in the study will last for about 30-45 minutes (for questionnaire) or 45-120 minutes (for focus group discussion).

**Potential risks/benefits:** Taking part in the study will not put you at any physical risk. It will only take up your time. Participation in the study will permit you to share your experiences when seeking maternal health services under the free maternal health policy. This might help improve the provision of maternal health services to women in Ghana in the future.

**Confidentiality:** The interview will be conducted in a closed place. The information you provide will be available to the investigator only and will be used for the purposes of the research. You will not be identified in any report or publication made on this study.

**Voluntariness and right to withdraw:** Taking part in the study is completely voluntary. You can decide not to participate at any time, or refuse to answer any of the questions without consequence.

**Questions/persons to contact:** The study has been approved by the Institutional Review Board of the Navrongo Health Research Centre, Navrongo, Ghana. For questions relating to the study, please contact Philip Ayizem Dalinjong on +233(0)203838218 or Dr Abraham Oduro of the Navrongo Health Research Centre on +233(0)382122380/+233(0)504698534. Concerning your rights as a research participant, please contact the Administrator of the Institutional Review Board on +233(0)201660158, or irb@navrongo-hrc.org.

***Consent form (participant):*** *I have read or have had someone read all of the above, asked questions, received answers concerning areas I did not understand, and am willing to give consent for participation in the study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records.*

**Name of participant: _____**

**Signature/Thumbprint:**

**Date:** ------/-------/--------

**Name of Witness: _____**
**Signature/Thumbprint:**

**Date:** ------/-------/--------

***Investigator/representative:*** *I certify that I have explained to the above individual(s) the nature and purpose of the study, potential benefits and possible risks associated with participation in this research project. I have answered any questions that have been raised and have witnessed the above signature on the date indicated below.*

**Name of investigator/representative: _____**

**Signature:**

**Date:** ------/-------/--------

## Appendix D: Information and consent form for health providers

**Access to maternal health services under the free maternal health policy in the Kassena-Nankana East municipality of Northern Ghana**

**Introduction/purpose of study:** This is a research project being carried out by a student of the Faculty of Health, University of Technology Sydney, Australia. The project seeks to understand the experiences and perceptions of women and health providers under the free maternal health policy in Ghana. The study will document perceptions of distance travelled by women to health facilities, mode of transport, waiting times, availability of drugs and equipment, payments for drugs and other services, behaviour of health providers towards women, quality of health services, etc. You are asked to participate in this study because you are a health provider who provides maternal health services to women during pregnancy and at childbirth.

**Procedure:** Participation in the study will involve asking you questions on your experiences as well as perceptions about the provision of maternal health services. Your responses will be tape recorded. Your participation in this study will last for about 45-120 minutes.

**Potential risks/benefits:** Taking part in the study will not put you at any physical risk. It will only take up your time. Participation in the study will permit you to share your experiences on the operations of the free maternal health policy. This might help improve the provision of maternal health services to women in Ghana in the future.

**Confidentiality:** The interview will be conducted in a closed place. The information you provide will be available to the investigator only and will be used for the purposes of the research. You will not be identified in any report or publication made on this study.

**Voluntariness and right to withdraw:** Taking part in the study is completely voluntary. You can decide not to participate at any time, or refuse to answer any of the questions without consequence.

**Questions/persons to contact:** The study has been approved by the Institutional Review Board of the Navrongo Health Research Centre, Navrongo, Ghana. For questions relating to the study, please contact Philip Ayizem Dalinjong on +233(0)203838218 or Dr Abraham Oduro of the Navrongo Health Research Centre on +233(0)382122380/+233(0)504698534. Concerning your rights as a research participant, please contact the Administrator of the Institutional Review Board on +233(0)201660158, or irb@navrongo-hrc.org.

***Consent form:*** *I have read or have had someone read all of the above, asked questions, received answers concerning areas I did not understand, and am willing to give consent for participation in the study. I will not have waived any of my rights by signing this consent form. Upon signing this consent form, I will receive a copy for my personal records.*

**Name of participant:**_____

**Signature/Thumbprint:**

**Date:** ------/-------/--------

**Name of Witness: _____**

**Signature/Thumbprint:**

**Date:** ------/-------/--------

***Investigator/representative:*** *I certify that I have explained to the above individual(s) the nature and purpose of the study, potential benefits and possible risks associated with participation in this research project. I have answered any questions that have been raised and have witnessed the above signature on the date indicated below.*

**Name of investigator/representative: _____**

**Signature:**

**Date:** ------/-------/--------

## Appendix E: Summary of objectives and methods of data collection

| Objective 1: Explore the affordability of health services at pregnancy and childbirth | |
|---|---|
| Method of data collection | Data source |
| 1.Structured interviews<br>2.In-depth interviews<br>3.Focus group discussion | 1. Women who gave birth in health facilities and at home.<br>2. Health providers eg nurses, midwives and doctors<br>3. Women who gave birth in health facilities and at home<br>4. Health Insurance managers/Directors |
| Objective 2: Explore the availability of health services at pregnancy and childbirth | |
| Method of data collection | Data source |
| 1.Structured interviews<br>2.In-depth interviews<br>3.Focus group discussion<br>4.Health facility survey | 1. Women who gave birth in health facilities and at home.<br>2. Health providers eg nurses, midwives and doctors<br>3. Women who gave birth in health facilities and at home<br>4. Health facilities |
| Objective 3: Explore the acceptability of health services at pregnancy and childbirth | |
| Method of data collection | Data source |
| 1.Structured interviews<br>2.In-depth interviews<br>3.Focus group discussion | 1. Women who gave birth in health facilities and at home.<br>2. Health providers eg nurses, midwives and doctors<br>3. Women who gave birth in health facilities and at home |
| Objective 4: Explore the quality of health services at pregnancy and childbirth | |
| Method of data collection | Data source |
| 1.Structured interviews<br>2.In-depth interviews | 1. Women who gave birth in health facilities and at home. |

| | |
|---|---|
| 3.Focus group discussion | 2. Health providers eg nurses, midwives and doctors<br>3. Women who gave birth in health facilities and at home |

## Appendix F: Structured questionnaire for interviews with women

Date of interview:

| **Socio-demographic background** | | |
|---|---|---|
| Age | Occupation | Highest educational level |
| (1)<20 | (1)Unemployed | (1)No formal education |
| (2)20-24 | (2)Trader | (2)Basic education |
| (3)25-29 | (3)Farmer | (3)Secondary/technical education |
| (4)30-39 | (4)Public/civil servant | (4)Tertiary education |
| (5)40+ | (5)Student | (5)Other (specify)…… |
| | (6) Other (specify)…… | |
| | | |
| Marital status | Religious background | Ethnicity |
| (1)Single | (1)Traditional | (1)Kasem |
| (2)Married | (2)Catholic | (2)Nakam |
| (3)Divorced | (3)Protestant | (3)Other (specify)…….. |
| (4)Other (specify)…… | (4)Muslim | |
| | (5)Other (specify)…… | |
| | | |
| Number of births | Health insurance status | |
| (1)1 | (1)Insured | |
| (2)2 | (2)Uninsured | |
| (3)3 | | |
| (4)4 or more | | |
| | | |
| **Section A: Access to maternal health services during pregnancy** | | |
| (1)Did you visit any facility for maternal health services during your last pregnancy? | (2)What type of facility did you visit? | |
| (1)Yes | (1)Community-based health planning and services (CHPS) | |
| (2)No | (2)Public clinic | |

| | |
|---|---|
| (8)NA | (3)Private clinic |
| (9)Don't know | (4)Health centre |
| | (5)District hospital |
| | (6)Other (specify) |
| | (8)NA |
| | (9)Don't know |
| | |
| (3)How much time does it take to reach that facility? | (4)What do you think of the time it takes to reach the facility? |
| (1)No travelling needed | (1)Very short |
| (2)Below 30 minutes | (2)Short |
| (3)30 minutes – 1 hour | (3)Normal |
| (4)1 hour – 2 hours | (4)Long |
| (5)More than 2 hours | (5)Very long |
| (6)Other (specify) | (8)NA |
| (8)NA | (9)Don't know |
| (9)Don't know | |
| | |
| (5)What do you think of the distance it takes to reach the facility? | (6)What means of transport did you use to reach the facility? |
| (1)Very near | (1)Walk |
| (2)Near | (2)Bicycle |
| (3)Normal | (3)Motorbike |
| (4)Far | (4)Public transport |
| (5)Very far | (5)Private car |
| (8)NA | (6) Other (specify) |
| (9)Don't know | (8)NA |
| | |
| (7)Does the opening hours of the facility suits your time? | (8)What do you think about the waiting time at the facility? |
| (1)Yes | (1)Very short |
| (2)No | (2)Short |
| (8)NA | (3)Normal |
| (9)Don't know | (4)Long |
| | (5)Very long |
| | (8)NA |

| | |
|---|---|
| | (9)Don’t know |
| | |
| (9)Does the facility have a proper waiting area? | (10)How is the cleanliness of the facility? |
| (1)Yes | (1)Very clean |
| (2)No | (2)Clean |
| (8)NA | (3)Normal |
| (9)Don’t know | (4)Dirty |
| | (5)Very dirty |
| | (8)NA |
| | (9)Don’t know |
| | |
| (11)What do you think about the friendliness of the staff towards you? | (12)What do you think about respectfulness of the staff towards you? |
| (1)Very friendly | (1)Very respectful |
| (2)Friendly | (2)Respectful |
| (3)Normal | (3)Normal |
| (4)Unfriendly | (4)Disrespectful |
| (5)Very unfriendly | (4)Very disrespectful |
| (8)NA | (8)NA |
| (9)Don’t know | (9)Don’t know |
| | |
| (13)Do you think there is privacy provided in the facility? | (14)What health services did you receive when you visited the facility during your pregnancy? (multiple response) |
| (1)Yes | (1)Physical examination (including weight, blood pressure, heart rate) |
| (2)No | (2)Gynaecological examination |
| (8)NA | (3)Ultrasound |
| (9)Don’t know | (4)HIV/STD testing |
| | (5)Blood tests |
| | (6)Nutritional supplements |
| | (7)Tetanus vaccine |
| | (8)Other (specify) |
| | (88)NA |

| | |
|---|---|
| | (9)Don't know |
| | |
| (15)Were any complications detected during your pregnancy? | (16)If yes, were you referred to another facility for treatment? |
| (1)Yes | (1)Yes |
| (2)No | (2)No |
| (8)NA | (8)NA |
| (9)Don't know | (9)Don't know |
| | |
| (17)Does the health insurance cover all expenses in the primary facility? | (18)If no, what expenses does the health insurance not cover? (multiple expenses) **(state total amount if paid by client)** |
| (1)Yes | (1)Folder fee (GH¢……..) |
| (2)No | (2)Consultation (GH¢……..) |
| (8)NA | (3)Laboratory test (GH¢……..) |
| (9)Don't know | (4)Drugs (GH¢……..) |
| | (5)Blood (GH¢……..) |
| | (6)Feeding (GH¢……..) |
| | (7)Hospitalisation (GH¢……..) |
| | (8)Transport (GH¢……..) |
| | (9)Other (specify (GH¢……..) |
| | (88)NA |
| | (99)Don't know |
| | |

| (19)How did you pay for the expenditure in question 18? | (20)Did you pay any unofficial fee for maternal health services during your pregnancy? |
|---|---|
| (1)Used savings | (1)Yes |
| (2)Borrowed money | (2)No |
| (3)Sold assets | (8)NA |
| (4)Other (specify) | (9)Don't know |
| (8)NA | |
| (9)Don't know | |
| | |
| (21)What was the unofficial fee paid for? | (22)Was it demanded or did you pay it on your own? |
| (1)Extra services | (1)Demanded |
| (2)Extra drugs | (2)Paid on my own |
| (3)Other (specify) | (8)NA |
| (8)NA | (9)Don't know |
| (9)Don't know | |
| | |
| (23)How many times did you visit that facility during your pregnancy? | (24)How do you think access to maternal health services during pregnancy can be improved? |
| (1)1 to 3 visits | (1)Reduced travel distance & time |
| (2)More than 3 visits | (2)Reduced waiting time |
| (8)NA | (3)Reduced cost |
| (9)Don't know | (4)Good providers relations |
| | (5)Providing qualified staff |
| | (6)Improving drugs supplies |
| | (7)Other (specify) |
| | (8)NA |
| | (9)Don't know |
| | |
| (25)What is your overall satisfaction for maternal health service received during your last pregnancy? | (26)What was the primary reason for not using a formal health facility for giving birth during your last pregnancy? **(For women who gave birth at home).** |
| (1)Very satisfied | (1)Long distance |

| | |
|---|---|
| (2)Satisfied | (2)Birthing services not available |
| (3)Normal | (3)No qualified staff |
| (4)Dissatisfied | (4)Drugs not available |
| (5)Very dissatisfied | (5)Not satisfied with services received) |
| (8)NA | (6)Bad provider relations |
| (9)Don't know | (7)High treatment cost |
| | (8)Other (specify) |
| | (88)NA |
| | (9)Don't know |
| | |
| **Section B: Access to maternal health services during childbirth**<br>**(Skip section B and move to section C for women who gave birth at home)** | |
| (27)Did you give birth in a facility different from the one you used during your last pregnancy**? (If response is "No", skip to Q 39)** | (28)If yes, why did you change a facility? |
| (1)Yes | (1)Was referred |
| (2)No | (2)Birthing services available |
| (8)NA | (3)Qualified staff available |
| (9)Don't know | (4)Drugs available |
| | (5)Quality services available |
| | (6)Good provider relations |
| | (7)Low treatment cost |
| | (8)Short distance & time |
| | (9)Other (specify) |
| | (88)NA |
| | (99)Don't know |
| | |
| (29)What type of facility did you give birth in? | (30)How much time does it take to reach that facility? |
| (1)Community-based health and planning services (CHPS) | (1)No travelling needed |
| (2)Public clinic | (2)Below 30 minutes |
| (3)Private clinic | (3)30 minutes – 1 hour |
| (4)Health centre | (4)1 hour – 2 hours |
| (5)District hospital | (5)More than 2 hours |
| (6)Other (specify) | (6)Other (specify) |

| | |
|---|---|
| (8)NA | (8)NA |
| (9)Don’t know | (9)Don’t know |
| | |
| (31)What do you think of the time it takes to reach the facility? | (32)What do you think of the distance it takes to reach the facility? |
| (1)Very short | (1)Very near |
| (2)Short | (2)Near |
| (3)Normal | (3)Normal |
| (4)Long | (4)Far |
| (5)Very long | (5)Very far |
| (8)NA | (8)NA |
| (9)Don’t know | (9)Don’t know |
| | |
| (33)What means of transport did you use to reach the facility? | (34)Does the opening hours of the facility suits your time? |
| (1)Walk | (1)Yes |
| (2)Bicycle | (2)No |
| (3)Motorbike | (3)NA |
| (4)Public transport | (4)Don’t know |
| (5)Private car | |
| (6)NA | |
| | |
| (35)How is the cleanliness of the facility? | (36)What do you think about the friendliness of the staff towards you? |
| (1)Very clean | (1)Very friendly |
| (2)Clean | (2)Friendly |
| (3)Normal | (3)Normal |
| (4)Dirty | (3)Unfriendly |
| (5)Very dirty | (4)Very unfriendly |
| (8)NA | (8)NA |
| (9)Don’t know | (9)Don’t know |
| | |
| (37)What do you think about respectfulness of the staff towards you? | (38)Do you think there is privacy provided in the facility? |
| (1)Very respectful | (1)Yes |
| (2)Respectful | (2)No |

| | |
|---|---|
| (3)Normal | (8)NA |
| (4)Disrespectful | (9)Don't know |
| (5)Very Disrespectful | |
| (8)NA | |
| (9)Don't know | |
| | |
| (39)During the birth of your child, which type of health worker attended to you? | (40)Were any complications detected during the birth of your child? |
| (1)Doctor | (1)Yes |
| (2)Midwife | (2)No |
| (3)Nurse | (8)NA |
| (4)Other (specify) | (9)Don't know |
| (8)NA | |
| (9)Don't know | |
| | |
| (41)If yes, were you referred to a higher facility for treatment? | (42)Were all expenses covered by the health insurance during the birth of your child? |
| (1)Yes | (1)Yes |
| (2)No | (2)No |
| (8)NA | (8)NA |
| (9)Don't know | (9)Don't know |
| | |
| (43)If no, what expenses were not covered? (multiple expenses) **(state total amount if paid by client)** | (44)How did you pay for the expenditure in question 43? |
| (1)Folder fee (GH¢……..) | (1)Used savings |
| (2)Consultation (GH¢……..) | (2)Borrowed money |
| (3)Laboratory test (GH¢……..) | (3)Sold assets |
| (4)Drugs (GH¢……..) | (4)Other (specify) |
| (5)Blood (GH¢……..) | (8)NA |
| (5)Feeding (GH¢……..) | (9)Don't know |
| (6)Hospitalization (GH¢……..) | |
| (7)Transport (GH¢……..) | |
| (8)Other (specify) (GH¢……..) | |
| (88)NA | |

| | |
|---|---|
| (9)Don't know | |
| | |
| (45)Did you pay any unofficial fee during the birth of your child? | (46)What was the unofficial fee paid for? |
| (1)Yes | (1)Extra services |
| (2)No | (2)Extra drugs |
| (8)NA | (3)Other (specify) |
| (9)Don't know | (8)NA |
| | (9)Don't know |
| | |
| (47)Was it demanded or did you pay it on your own? | (48)How do you think access to maternal health services during child birth can be improved? |
| (1)Demanded | (1)Reduced travel distance & time |
| (2)Paid on my own | (2)Reduced waiting time |
| (8)NA | (3)Reduced cost |
| (9)Don't know | (4)Good provider relations |
| | (5)Providing qualified staff |
| | (6)Improving drugs supplies |
| | (7)Other (specify) |
| | (8)NA |
| | (9)Don't know |
| | |
| (49)What is your overall satisfaction for maternal health service received during the birth of your child? | |
| (1)Very satisfied | |
| (2)Satisfied | |
| (3)Normal | |
| (4)Dissatisfied | |
| (5)Very dissatisfied | |
| (8)NA | |
| (9)Don't know | |
| **Section C:Access to maternal health services after childbirth at home)**<br>**(For women who gave birth at home)** | |

| (50)Did you visit any facility after the birth of your child at home? | (51)What type of facility did you visit? |
|---|---|
| (1)Yes | (1)Community-based health and planning services (CHPS) |
| (2)No | (2)Public clinic |
| (8)NA | (3)Private clinic |
| (9)Don't know | (4)Health centre |
| | (5)District hospital |
| | (6)Other (specify) |
| | (8)NA |
| | (9)Don't know |
| | |
| (52)How many times did you visit the facility after the birth of your child? | (53)What health services did you receive when you visited the facility after your child's birth? (multiple response) |
| (1)1 to 2 visits | (1)Physical examination |
| (2)More than 2 visits | (2)Counselling on breastfeeding |
| (8)NA | (3)Contraceptives |
| (9)Don't know | (4)Blood test for anemia |
| | (5)Nutritional supplements |
| | (6)Information on warning signs of problems |
| | (7)Other (specify) |
| | (8)NA |
| | (9)Don't know |
| | |
| (54)Did you experience any problem after the birth of your child? | (55)Were you referred to other facility? |
| (1)Yes | (1)Yes |
| (2)No | (2)No |
| (8)NA | (8)NA |
| (9)Don't know | (9)Don't know |

## Appendix G: Checklist for health facility survey

Date:

Name of health facility:

Type of health facility:

**Checklist for basic equipment, drugs and vaccines for maternal and child health services**

| **Basic delivery care** | | | | | |
|---|---|---|---|---|---|
| Staff & training | Y/N | Drugs & vaccines | Qty available | Qty req. | Reasons for shortfall /unavailability |
| Guidelines available? | | Antibiotic eye ointment (newborn) | | | |
| Provider trained (midwife)? | | Skin disinfectant | | | |
| Equipment | | Injectable oxytoxic/ergometrine | | | |
| Emergency transport | | Oral antibiotic | | | |
| Gloves | | Anticonvulsant | | | |
| Delivery bed | | Magnesium sulphate or valium (injectable) | | | |
| Partograph | | Injectable antibiotic | | | |
| Examination light | | | | | |
| Scissors & blade | | | | | |
| Cord clamp | | | | | |
| Suction apparatus | | | | | |
| Needles & syringes | | | | | |
| IV Solution & infusion set | | | | | |
| Suture material & needle holder | | | | | |
| Forcept | | | | | |
| Speculum | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Basic child health services** | | | | | |
| Staff & training | Y/N | Drugs & vaccines | Qty available | Qty req. | Reasons for shortfall /unavailability |
| Guidelines available? | | ORS packet | | | |

| | | | | | |
|---|---|---|---|---|---|
| Provider trained (at least 1 in last 2 years)? | | Vitamin A | | | |
| Equipment | | Amoxicillin | | | |
| Refrigerator | | Cotrimoxazol | | | |
| Child weighing scale | | Paracetamol | | | |
| Thermometer | | Iron tablets | | | |
| Stethoscope | | Me-/albendazole | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **Basic child immunisations** | | | | | |
| Staff & training | Y/N | Drugs & vaccines | Qty available | Qty req. | Reasons for shortfall /unavailability |
| Guidelines available? | | Measles | | | |
| Provider trained? | | DPT-HB | | | |
| Equipment | | Polio | | | |
| Health cards | | BCG | | | |
| Tally sheets & register | | Yellow Fever | | | |
| Needles & syringes | | PCV | | | |
| Cold box & ice packs | | Rotarex | | | |
| Soap & water | | | | | |
| Sharps box | | | | | |

## Appendix H: Interview guide for in-depth interviews with health providers

Date of interview: Type of facility:

Position of interviewee:

Number of years of practice:

What is the opening and closing time for this facility?

What are the health services provided by this facility?

What is the free maternal health policy?

What services are covered under the free maternal health policy for pregnant women?

What services are not covered under the free maternal health policy?

What do you think of the capacity of this facility to provide services under the free maternal health policy? In terms of staff, infrastructure, equipment, drugs and supplies, emergency transport, etc.

What costs are not covered under the free maternal health policy?

What will make pregnant women to be happy/not happy with health services provided from this facility?

Do you think the use of maternal health services is affected by a) culture b) religion c) sex of the provider? How?

How satisfied are you with the quality of maternal health services provided in this facility? Why?

How motivated are you in this era of the free maternal health policy?

As a provider, what challenges confront the provision of maternal health service?

How do you think these challenges can be solved for providers to be able to provide services?

What are the challenges faced by women in accessing maternal health service?

How do you think these challenges can be solved for women to be able to access maternal health services?

## Appendix I: Interview guide for focus group discussions with women

**(For both women who gave birth at health facilities and at home)**

Are health facilities available in this community?

Where do you go for health services?

What do you think of the time/distance it takes to reach facilities providing maternal health services?

What do you think about the attitude of the staff towards you/pregnant women? In terms of friendliness, respectfulness, etc.

Does culture/religion/sex of the provider affect your use of maternal health services? How?

Have you heard of the free maternal health policy?

What is the free maternal health policy?

What health services are covered under the free maternal health policy?

What health services are not covered under the free maternal health policy?

What costs are covered by the free maternal health policy? (Folder fee, consultation, drugs, laboratory tests, admissions, blood, oxygen, feeding on admission)

What costs are not covered by the free maternal health policy? (Feeding, transport, drugs and services not in the essential drugs list).

**(For women who gave birth in health facilities)**

What encouraged you to give birth in a health facility during your last pregnancy?

What is your overall satisfaction for maternal health service received during the birth of your child?

Will you recommend this facility to a relative/friend in the future? Why?

How do you think access to maternal health services during child birth can be improved?

**(For women who gave birth at home)**

Have you given birth in a health facility before?

What made you not to give birth in a health facility during your last pregnancy?

For subsequent pregnancies, what place of birth will you use? Why?

What can be done to encourage pregnant women to give birth in health facilities?

## Appendix J: Interview guide for interviews with health insurance managers

How does the free maternal health policy work?

What health services are covered under the free maternal health policy for pregnant women?

What health services are not covered under the free maternal health policy?

What costs are not covered under the free maternal health policy?

Apart from cost, do you think culture/religion/sex of the provider affect the use of maternal health services? How?

Do you think health facilities are well resourced to provide health services under the free maternal health policy? In terms of staff, infrastructure, equipment, drugs and supplies, emergency transport, etc.

What incentives exist for health facilities/providers under the free maternal health policy?

What challenges are faced by health facilities in the provision of maternal health services?

How do you think these challenges can be solved for health facilities to be able to provide services?

What are the challenges faced by women when using maternal health services?

How do you think these challenges can be solved for women to be able to use maternal health services?

Overall how satisfied are you with the quality of maternal health services provided by health facilities under the free maternal health policy? Why?