

Evaluation of the Free Maternal Health Care Initiative in Ghana

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Evaluation of the free maternal health care initiative in Ghana

Draft report

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The Evaluation Team
Reet & Accra, May 2013

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LIST OF ABBREVIATIONS

CHAG	Christian Health Association of Ghana
CHPS	Community-based Health Planning Services
DALY	Disability-Adjusted Life Year
DHS	Demographic and Health Survey
DMHIS	District Mutual Health Insurance Scheme
DOCFR	Direct Obstetric Case Fatality Rate
EmONC	Emergency Obstetric and Neonatal Care
G-DRG	Ghana Diagnosis Related Groups
GBP	British Pound Sterling
GDP	Gross Domestic Product
GHC	New Ghana Cedi
GHS	Ghana Health Service
GOG	Government of Ghana
GSS	Ghana Statistical Service
HIPC	Heavily Indebted Poor Countries
HIS	Health Information System
IMMPACT	Initiative for Maternal Mortality Programme Assessment
iMMR	Institutional Maternal Mortality Ratio
MDG	Millennium Development Goal
MICS	Multiple Indicators Cluster Survey
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
NHIA	National Health Insurance Authority
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
PMTCT	Prevention of Mother to Child Transmission of HIV
PPME	Policy, Planning, Monitoring & Evaluation Unit
SVD	Spontaneous vaginal delivery
UK	United Kingdom
USAID	United States Agency for International Development
WHO	World Health Organization

1 EXECUTIVE SUMMARY

We evaluated the impact of the Free Maternal Health Care Initiative in Ghana on the utilisation of skilled assistance at delivery and on the quality of maternal health services. The initiative was introduced in July 2008 and is implemented through a health insurance premium waiver programme for pregnant women. The evaluation was conducted between January and April 2013. It included:

- A systematic review of published and unpublished documents and databases;
- Key informant interviews with 128 stakeholders in the Ghana health sector;
- A review of maternity registers from 2007 to 2012 in 21 hospitals in 10 Regions;
- A review of 2,420 individual maternity records in the same 21 hospitals;
- 13 community group discussions in 11 different communities.

We experienced a number of constraints because critical data on the profile of women and on the cost of services were not available as anticipated.

1.1 Findings

The Free Maternal Health Care Initiative provides subsidised health insurance to pregnant women, giving them access to a range of insurance benefits that includes comprehensive maternity care with some notable exceptions such as ambulance service and post partum family planning counselling. The initiative was introduced in 2008 in the media as a programme supported by the UK Government, but there is no record nor any possibility for direct external funding. It is supported from the general pool of resources of the National Health Insurance Fund, which includes contributions from international partners via health sector budget support.

Since inception of the initiative in 2008, there has been a steady increase in the number of facility-based deliveries from about 300,000 in 2007 to about 500,000 in 2011. The utilisation rate reported by the Ghana Health Service in 2011 was about 66% although this rate is calculated on incomplete data. The institutional maternal mortality ratio reported by the Ghana Health Service declined from 230 per 100,000 in 2007 to 170 in 2011. Equity in the utilisation of health facilities for deliveries increased as documented by successive population surveys. There are, however, still persistent regional and social disparities in access.

Our survey of hospitals and maternity records confirmed the national trend of increasing use of health facilities for delivery. The 21 hospitals sampled were making an effort to cope with the growing number of maternity clients. Their main constraint was a shortage of human resources. Drugs were generally available and the supply chain was working well. Since the national assessment of emergency obstetric and neonatal care in 2010, efforts have been made to improve the quality of services and they have had some results. Assisted deliveries and Caesarean sections were still not available in all hospitals. The majority of hospitals faced challenges in providing an acceptable level of privacy and confidentiality for women during delivery. Constant availability of water was not assured in 5 of the 21 hospitals. The referral system was affected by shortages and/or user fees for ambulance services. Supervision was not well documented and not conducted with the expected frequency. Most hospitals did not have regular plans or programmes for up-grading or refreshing the knowledge and skills of their staff.

The cost of the Free Maternal Health Care Initiative to the health system in Ghana has four elements:

- Foregone revenue to the NHIS because of the premium exemption of pregnant women
- Increased human resource costs
- Increased investment costs in infrastructure and equipment
- Increased recurrent costs of delivering services

The cost of foregone revenue due the premium exemption is insignificant. The human resource costs are considerable but have not yet been estimated nor have they been met. They are, for now, primarily born by existing staff through an increase in their workload. Investment costs for infrastructure and equipment are primarily covered with contributions from international partners which are currently on the decline. The main cost to the system is the increased recurrent cost reflected in increasing cost of insurance claims. We have estimated this cost in the year 2011 at approximately GH¢ 31 M, representing about 5.8% of the value of all claims to the NHIS.

Health facilities carry some of the costs of the initiative. NHIA tariffs for claim reimbursement were initially quite low, but were adjusted in 2013 to approach real costs. However major costs to facilities are generated by the time lag between service provision and claims payment. System inefficiencies to close this gap are being addressed, but there is still the issue of liquidity of the NHIF which is beyond the control of the NHIA.

Patients ultimately are asked to close the gap between cost and income of service providers. We did not find evidence of direct user charges levied by hospitals, however it is a widespread practice to require patients to purchase supplies that should be part of the basic service package for pre- and post partum care.

Groups of women met in community discussions knew about the initiative and generally expressed the intention to deliver in a health facilities. Barriers to facility-based deliveries cited were the distance and cost of transport, the attitudes and perceived hostility of maternity staff, a variety of local cultural practices and beliefs, and the cost of supplies requested by facilities from clients.

Interviews with 128 key informants in the health sector found an overwhelming support for the initiative and the NHIS. Respondents frequently remarked on the close links between the two. Cost effectiveness, efficiency and sustainability of the initiative were essentially linked to the same parameters of the NHIS. Most were of the opinion that as long as the NHIS was functioning, the free maternal health care initiative could be maintained. Many respondents added that the NHIS was too important to fail.

1.2 Analysis

Eliminating user fees as a financial barrier to maternal health care was clearly a relevant policy option, especially in the context of an expanding social health insurance system that could assure the continued payment of service providers through a third party payment system. But there are other relevant options that can and should be addressed at the same time. These include the gradual expansion of delivery services to the health centre and CHPS level; increased availability of ambulances and the inclusion of ambulance costs in the NHIS benefits package; increased in-service

training and supervision of maternity staff to assure better client relations and communication; and increased access and promotion of family planning services.

The initiative has been effective in increasing the utilisation of health facilities for deliveries, although our evaluation was not able to measure the attributable portion of the documented increase. Under the assumption that all increases in facility-based delivery over the annually adjusted baseline were due to the initiative, we estimated that the initiative saved more than 3,000 maternal lives over a four year period from 2008 to 2011. Depending on what is included in the cost calculation, we estimate the cost per maternal DALY gained through the initiative in the range of GH¢ 30.00 to 333.00. This indicates that it is a highly cost-effective intervention even at the high end of the estimate.

Providing universal access to maternity services through the national health insurance system is highly efficient because it avoids the establishment and maintenance of a number of dedicated structures for administration and management. However, health care workers and administrators of hospitals had a predominately negative view on operational efficiency of the NHIS. Low tariffs, delayed claim payments, unexplained cancellations of claims and an unmanageable increase in work load were cited. The NHIA has embarked on an ambitious project of streamlining the claims process, but the effects have not yet been felt in most of the hospitals visited.

The free maternal health care initiative is as sustainable as the NHIS. It can be maintained as long as the NHIS is healthy. There are justified reasons for concern about the NHIS. A study of the World Bank projected that the National Health Insurance Fund risked insolvency as early as 2013. There are clear signals that the social health insurance model and with it the free maternal health care initiative cannot be sustained without an increase in domestic fiscal space for health in Ghana.

2 RECOMMENDATIONS

Based on the evaluation findings, we recommend that the Ministry of Health, its agencies and partners, including the NHIA, the GHS and CHAG:

1. Continue the insurance premium exemption for pregnant women while further streamlining the registration process, for instance through creating registration points in all health facilities.
2. Consider to expand the list of insured services that can be claimed by all women registered with the NHIS, for instance by including transport vouchers for access to delivery services, ambulance transport for referral services, and post-partum family planning services;
3. Develop a programme of clearly communicating to communities their entitlements as NHIS subscribers in order to prevent providers charging for insured services, and in order to prevent users from demanding free provision of uninsured services;
4. Reach out to the women who are still not accessing health facilities for deliveries, for instance by creating a system to identify women at 34 week gestation in the ANC register and organise a home visit by the Community Health Nurse to encourage the delivery at the health facility;
5. Address the human resource bottlenecks for maternity care in order to match the service supply to the increasing demand created by the initiative;
6. Further decentralise maternity services in order to bring them closer to communities by building the capacity of health centres and CHPS compounds to provide skilled assistance for normal deliveries;
7. Continue to build the capacity of hospitals to provide comprehensive emergency obstetric and neonatal care by assuring that they have the appropriate infrastructure, equipment and human resources;
8. Increase the efficiency of the NHIS claims process, minimise the payment delays, and frequently review and negotiate tariffs in order to assure adequate and timely payment of providers for their services;
9. Institute tighter and more frequent joint supervision by NHIA and GHS staff, and sanction providers who are passing costs of insured services on to clients;
10. Increase the client-friendliness of maternity services through increased attention to privacy and confidentiality, accommodation of deep-rooted cultural preferences (such as delivering in a squatting position), and through training and supervision to improve client communications by maternity staff.
11. Implement a national plan to improve the medical record systems in all health facilities, assuring that standardised information is collected, reported and accessible for verification and quality control.
12. Improve the collection, management and analysis of claims data by the NHIS to provide solid and timely evidence for the further development of the national social health insurance system.

3 INTRODUCTION

3.1 Context of the evaluation

Fully publicly financed health care through a national health service in Ghana came to an end with the overthrow of the First Republic in 1966. In the succeeding years, out-of-pocket payments by patients gained increasing importance in health care financing. Eventually this became known as the “Cash and Carry” system. In 2004, social health insurance was introduced to replace out-of-pocket payments. This process of moving towards a third party demand-based financing of health care is still on-going. By the end of 2011, the National Health Insurance Authority (NHIA) reported an active membership of 8.2 million, representing about 33 percent of the Ghanaian population. *[NHIA 2012]* The survey of 10,000 women during the 2011 Multiple Indicator Cluster Survey (MICS) found that 70 percent of them had ever registered with the NHIS. *[GSS 2012]*

Between 1990 and 2005, the Maternal Mortality Ratio (MMR) in Ghana remained largely unchanged in the range of 500 to 600 deaths for 100,000 live births. The estimates during this period varied widely and had large confidence margins. The Ghana Maternal Health Survey of 2007 estimated the pregnancy-related maternal mortality during the five years preceding the survey at 580 per 100,000. *[GSS 2009-2]* Progress towards achieving the target of the 5th Millennium Development Goal (MDG5) to reduce the MMR by three-quarters between 1990 and 2015 was clearly threatened.

In 2003, the Ministry of Health exempted obstetric deliveries from the cash and carry system, initially in four Regions, later extended country-wide. Facility-based deliveries in Ghana increased, but the policy was not funded adequately and consistently. *[Witter 2007-3]* As a result, most health facilities reintroduced user charges for obstetric deliveries. The 2008 Demographic and Health Survey (DHS)¹ indicated that even the modest initial increase in facility-based deliveries bypassed the poorest segment of the population. Almost half of the women interviewed cited the lack of money as the reason for not accessing health services. *[GSS 2009-1]*.

In April 2008 the Minister of Health declared the high maternal mortality in Ghana a national emergency. *[MoH 2008-2]* In May 2008, during a visit to the UK to attend the “Business Call to Action” conference, the President of the Republic announced that maternal deliveries in Ghana would be free of charge, supported by a UK grant of GBP 42.5 M. Implementation guidelines for this new “free maternal health care initiative”² were issued in June *[MoH 2008-4]* and implementation started on the 1st of July 2008. Pregnant women obtained the right to on-the-spot registration in the NHIS without a waiting period and without premium payment for one year. This gave them access to general medical benefits covered by the NHIS, and a comprehensive maternal benefit package covering ante-natal, peri-natal and post-natal care as well as neonatal care for the infant for a period of three months. In 2011, about 490,000 pregnant women registered in the NHIS under the initiative, representing about 65 percent of the estimated number of pregnant women in Ghana. *[NHIA 2012; MoH PPME Health Sector Indicator Database]*

¹ covering the period of 2003 to 2008

² The premium exemption is sometimes referred to as a “policy” and sometimes as an “initiative”. For reasons of consistency we have used the term “initiative” throughout the report except when quoting directly.

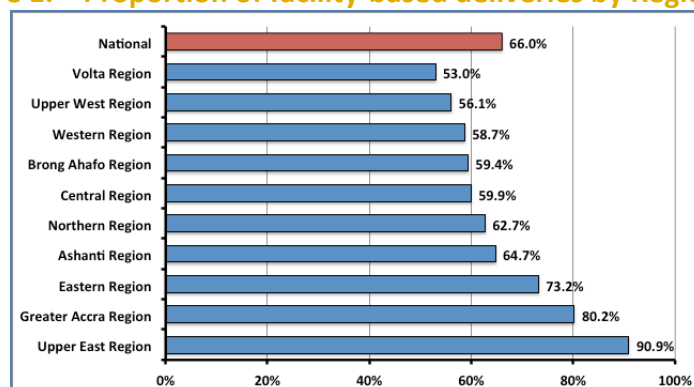
3.2 Maternal health care in Ghana

Public sector reproductive health services at the community level are delivered by Community-based Health Planning Services (CHPS). The CHPS compounds are not designed to provide obstetric delivery services except in emergency situations. Basic obstetric care, including the management of complications of pregnancy not requiring a blood transfusion or the use of an operating theatre, is offered at the level of health centres located at the sub-district level. Comprehensive obstetric care, including Caesarean sections and blood transfusions, is offered in hospitals at the district, regional and national reference level. Religious organisations own 172 health facilities in Ghana, 5.3% of the national health infrastructure. They are operating under the umbrella of the Christian Health Association of Ghana. [CHAG 2012] Twenty of the facilities are designated district hospitals. A further 55 health facilities are classified as quasi-governmental. They include facilities operated by the police, the military, state companies or universities. They are all considered to be in the public sector. In 2010/11, the public sector accounted for about 84 percent of all facility-based deliveries. [GSS 2012]

Reproductive health services in the private sector are provided by for-profit and not-for-profit maternity homes, health centres and hospitals offering a range of service similar to public sector facilities. Many private sector facilities are accredited by the National Health Insurance Authority. In 2010/11 they accounted for about 16 percent of facility-based deliveries. [GSS 2012]

Updated information from the Ghana Health Service obtained from the Ministry of Health Policy, Planning, Monitoring & Evaluation Unit (MoH PPME) in March 2013 showed a steady increase in the number of facility-based deliveries in Ghana until 2006. There was a rapid drop in 2007 and an equally rapid recovery in 2008, coincidental with the launching of the free maternal health care initiative. According to the same data, about 61% of births in Ghana were delivered in health facilities in 2010, increasing to 66% in 2011.³ The Caesarean section rate according to these data increased from 7.4% in 2010 to 9.3% in 2011. There is, however, a high level of uncertainty in these estimates as the numerator does not include deliveries in quasi-governmental and private facilities, and the denominator of expected pregnancies was estimated at 3% of the total population which is controversial and probably too low. Nevertheless, serial data show a trend of increasing facility-based deliveries, but they also show the continuing challenge of regional disparities.

Figure 1. Proportion of facility-based deliveries by Region in 2011

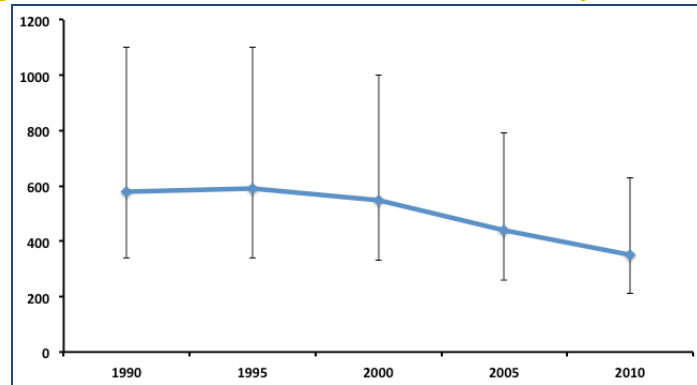


Source: GHS data provided by the MoH PPME Unit, March 2013

³ In 2010: 444,976 of 729,833 expected deliveries; in 2011: 494,158 of 748,426 expected deliveries.

The WHO Global Health Observatory reports a decrease in the Maternal Mortality Ratio (MMR) in Ghana from 590 per 100,000 in 1995 to 350 in 2010.⁴ These data are based on estimates and have wide error margins. The strongest evidence-based information on maternal mortality was provided by the 2007 Maternal Health Survey. [GSS 2009-2] It reported MMRs of 378 and of 580 per 100,000 for the five year period from 2002 to 2007 obtained by two different methods of estimation. About one quarter (24%) of the deaths were due to haemorrhage. Obstructed labour, hypertension and sepsis accounted for about 20 percent, and 11 percent occurred in relation to a therapeutic abortion. The remaining causes of mortality were not specified.

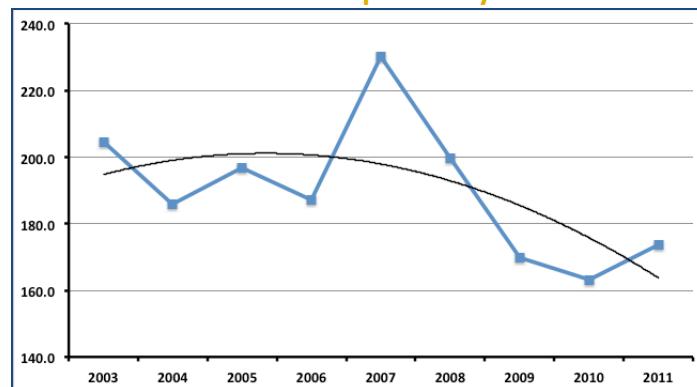
Figure 2. Evolution of the Maternal Mortality Ratio in Ghana



(Estimates with error margins) Source: www.who.int/gho/data

Although the MMR is the most informative indicator about the situation of maternal health care, the high level of uncertainty in the data, differences in the methodology of estimation and low frequency of measurements do not make it a useful indicator for the short-term monitoring of access and quality of maternal health services. The Institutional MMR is reported annually and can be monitored with greater precision. The Ghana Health Service has been reporting a declining trend in the iMMR since 2007. The database of the MoH PPME, however, shows higher institutional maternal mortality ratios for 2010 and 2011 when excluding deliveries by traditional birth attendants from the denominator and including the deliveries in the teaching hospitals in the numerator. Because of these differences, the published trend should be interpreted with caution.

Figure 3. Trend in the iMMR reported by the Ghana Health Service



Sources: GHS 2009; 2010; 2011; 2012

⁴ www.who.int/gho/data (accessed March 2013)

Detailed information on the quality of maternal health services in Ghana is provided by the *National Assessment for Emergency Obstetric and Newborn Care*, a cross-sectional survey of about 1,268 health facilities conducted in 2010. [MoH 2011-4] The survey found an important gap in the availability of emergency obstetric and neonatal services in Ghana when assessed against international standards. Major deficits were found in the capacity of health facilities to provide assisted deliveries and to administer anticonvulsant therapy for eclampsia and severe preeclampsia. Lack of training and equipment were the most common reasons cited for capacity gaps.

The survey calculated the Direct Obstetric Case Fatality Rate (DOCFR) which is the most precise indicator of quality of maternity services since it links maternal deaths to obstetric complications. The survey found 486 maternal deaths due to direct obstetric causes in 2010 among 38,437 women who suffered a direct obstetric complication. The calculated DOCFR ranged between 1% and 2% nationally and in all but two Regions⁵. There are no comparable statistics to analyse trends, but according to international standards, an acceptable level is below 1%. [WHO 2010]

3.3 History of the free maternal health care initiative

The first fee exemption for obstetric deliveries was introduced in September 2003 in four Regions of the country⁶ and rolled out country-wide in April 2005. It was funded with resources from the Highly Indebted Poor Country (HIPC) debt relief fund. Obstetric deliveries performed in public and private facilities were reimbursed by the district authorities at set rates. The policy was evaluated in 2006 by the Initiative for Maternal Mortality Programme Assessment (IMMPACT), a research partnership funded by the Bill & Melinda Gates Foundation, the UK Department for International Development, the European Commission and USAID. Evaluation studies were conducted in six districts of the Central Region and six of the Volta Region that were matched according to a number of criteria. They generated several scientific papers, four of them published in the September 2007 edition of the Ghana Medical Journal. Some of the key findings and publications of the IMMPACT evaluation were:

- A household survey was conducted among 1,300 women who delivered before and 1,700 women who delivered after the introduction of the fee exemption programme. [Penfold 2007] The study reported an increase in skilled assistance at deliveries of 12 percentage points in the Central Region and 5 in the Volta Region. It also found that the uptake of skilled assistance at deliveries was highest among poor women although the difference was not statistically significant. The representativeness of the sample is questionable, especially since national surveys such as the DHS and MICS did not show a similarly large increase during the period when the fee exemption programme was operational.
- A household cost survey was conducted among 750 women in the Volta Region who delivered before the introduction of the fee exemption, and 1,500 women in the Volta and Central Regions who delivered after introduction. [Asante 2007] Among the study population, home deliveries decreased by 2 percentage points after introduction of the exemption. Household out-of-pocket payments for obstetric deliveries in health facilities decreased by about 20 percent. The fee exemption programme had some effect on reducing catastrophic health care costs for the

⁵ It was 0.7% in the Central Region and 0.9% in the Northern Region.

⁶ The Central, Northern, Upper West and Upper East Regions

extreme poor, but overall, richer households benefitted more from the fee exemption than poorer households.

- A qualitative study of 65 key informant interviews was conducted at the national, regional, district and facility level of the 12 districts included in the evaluation. [Witter 2007-2] The study confirmed that the fee exemption was widely supported by communities and health staff, and that it did raise the coverage of skilled attendance at deliveries. It was, however, severely under-funded. After the first year of operation, payments to facilities became irregular, incomplete and not transparent. The net effect was the reintroduction of user fees and a general erosion of confidence in the health system at all levels, among patients, health care providers, and district and regional authorities.

In 2007, the Ghana Maternal Health Survey [GSS 2009-2] was conducted. Preliminary data became available in the beginning of 2008, showing that Ghana was off-track in achieving the maternal health targets of MDG5. A rapid series of events followed in 2008:

- On April 23, during the annual health summit, the Minister of Health emphasised the low coverage of skilled deliveries and the high institutional maternal mortality rate in his speech. He declared it a national emergency that demanded action. [MOH 2008-2] A task team was established, and the possibility of subsidising the enrolment of pregnant women in the National Health Insurance Scheme (NHIS) was first raised.
- On May 16, while attending the “Business Call to Action” conference in the UK, President Kuffour announced the signing of a grant agreement over GBP 42.5M with the UK Government to finance an initiative for free maternal health care. The free registration of pregnant women in the NHIS was already mentioned in the Ghana News Agency bulletin covering the announcement.⁷
- On June 17, the Ministry of Health issued “Implementation guidelines for financing free delivery through NHIS”. [MoH 2008-4]
- On July 1, implementation of the free maternal health care initiative started country-wide.
- On July 8, a national consultation on the reduction of maternal mortality in Ghana was organised. [MOH 2008-1] The consultative meeting issued recommendations for increased financial investment in maternal health. It heard a presentation about the complexity of the health financing architecture in Ghana, but, surprisingly, the report of the consultation does not mention the free maternal health care initiative, nor any reference to a discussion about using the NHIS as a financing instrument.

Ghana’s National Health Insurance Scheme was established in 2003 through the National Health Insurance Act. [GOG 2003] It provided a national licencing and regulatory framework for the many mutual and commercial health insurance schemes in the country, with the goal of achieving universal health insurance coverage in Ghana within five years. The approach was considerably modified through the National Health Insurance Bill of 2011, which placed the semi-independent District Mutual Health Insurance Schemes (DMHIS) under the administration of the National Health

⁷ <http://www.modernghana.com/news/165816/1/free-medical-care-policy-should-not-lead-to-uncont.html>

Insurance Authority. Private mutual and private commercial health insurances continue to be recognised, but they were placed under the regulatory authority of the NHIA. [GOG 2011-1]

An external evaluation of the early years of the NHIS from 2004 to 2007 found that its introduction resulted in significant increases in the use of health services for illnesses, significant decreases in self-treatment and informal care-seeking and a major reduction in out-of-pocket expenditure for outpatient and inpatient care. The evaluation, however, found that the introduction of the NHIS had no effect on increasing utilisation of maternal health services. [ABT 2009] One study even suggests that the introduction of national health insurance had a negative effect on the utilisation of skilled attendance at delivery. [Seddoh 2011]

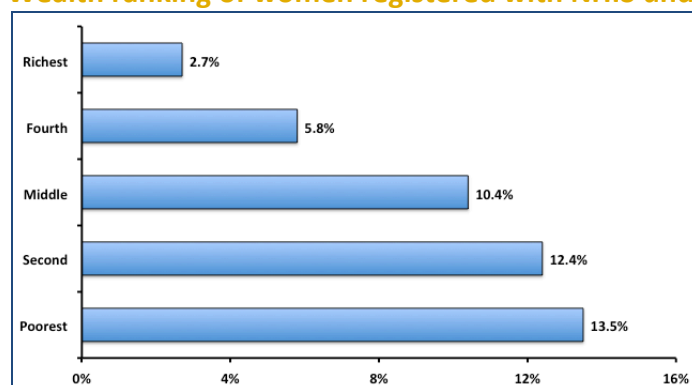
With the launch of the free maternal care initiative in July 2008, NHIS coverage became available to all pregnant women with immediate effect. For this purpose, additional funds from the health sector budget were channelled to the National Health Insurance Fund. In the local news coverage this was linked to a UK contribution of GBP 42.5 M to the health sector budget, although the link is at best indirect.

Under the initiative, pregnant women obtained the right to join the NHIS for one year without waiting period and without paying registration and processing fee. This gave them access to the full NHIS benefit package consisting of:

- Antenatal care: Free services and medicines including six visits and two ultrasounds;
- Delivery services: Free service and medicines with an accredited provider including normal and assisted deliveries, episiotomies and caesarean section;
- Post-natal care: Free services and medicines for two post-natal visits;
- Neonatal care: 3 months of services for the new-born under the mother's card;
- Any other general medical services covered by NHIS benefit package. [Asenso-Boadi 2011]

The 2011 MICS recorded a major increase in the proportion of women delivering in health facilities. Since the last MICS in 2006, the proportion had increased from 48.7% to 67.4%. [GSS 2006; GSS 2012] The 2011 survey also found that about 8 percent of women who had ever registered with the NHIS had obtained their registration through the free maternal health care initiative with a clear pro-poor bias.

Figure 4. Wealth ranking of women registered with NHIS under the initiative



(Among all women who ever registered in the NHIS) Source: GSS 2012

3.4 Aims and objectives of the evaluation

The evaluation of the free maternal health care initiative in Ghana follows almost five years after it was launched in 2008. It is part of the 2012 MoH Programme of Work. [MoH 2012-2] The terms of reference (see Volume II) list the following two principal and five additional objectives:

1. *To evaluate the impact of the MoH's free maternal health care policy on utilisation of skilled delivery services in Ghana; and*
2. *to evaluate the impact of the free maternal health care policy on quality of maternal health services.*

Additional objectives:

1. *To ascertain the profile of beneficiaries of the free maternal health care policy. Indicate the profile of net beneficiaries in terms of geographical location and distance to nearest health facility, income and educational levels and how these variables influenced their health seeking behaviours.*
2. *To describe the process and challenges in the implementation of the guidelines on free maternal health care policy at all levels of service delivery.*
3. *To describe the process and challenges in the implementation of the guidelines on the free maternal health care policy within the NHIS and the MoH.*
4. *To ascertain the perspectives of the beneficiaries (pregnant women and other stakeholders) of the policy including understanding reasons why women do not or are not able to take advantage of the policy.*
5. *To draw lessons that will feed into the revision of the policy and for future initiatives.*

Limitations in meeting these terms of reference due to the evaluation design were discussed and agreed with the Steering Committee during the inception phase. They are primarily related to limitations in the sampling of health facilities and of clients. Additional limitations due to availability and accessibility of data are outlined under paragraph 2.6.

3.5 Methodology

3.5.1 Evaluation design

The evaluation included the collection and analysis of information on maternity service delivery organisation, volume, outcome and cost since the inception of the National Health Insurance System in 2003. For the collection of service delivery information at the health facility level, we focused on the period from 2007 to 2012 to cover the history of implementation of the free maternal health care initiative. We collected data from five sources and triangulated them in the analysis. For each component we developed data collection instruments that are annexed to our inception report.

1. The review of documents and databases
2. The review of maternity registers and records
3. The quality assessment of maternity services
4. Key informant interviews
5. Community group discussions

3.5.2 Review of documents and databases

The review of documents and databases served primarily to understand and analyse the history and the institutional and financial context of implementing the free maternal health care initiative. We searched scientific publications on the implementation of the free maternal health care initiative in Ghana using the Google Scholar and the Scopus search engines for the key words Ghana, maternal health, user fees, health insurance. In addition, we obtained copies of annual reports and special surveys and studies from the internet sites of the Ministry of Health, Ghana Health Service and the National Health Insurance Authority. Our inception report was based on the information obtained from these sources.

During the data collection phase, we continued to collect unpublished documents from health facilities, from the Ghana Health Service and from the NHIA at district, regional and national level. In some cases we had access to financial and service data at different levels that we were able to extract with the help of a specially designed data collection form. Some of the statistics and databases provided to us by the GHS and the NHIA were not validated and sometimes contained conflicting information. We based our analysis always on the latest available information provided to us by members of the evaluation Steering Committee.

3.5.3 Review of maternity registers and records

In collaboration with the steering committee, we selected 21 health facilities from a list of primary, secondary and tertiary hospitals accredited by the NHIA in 2009. The sample of selected hospitals had the following characteristics:

- By Region: 2 hospitals in each Region except for 3 hospitals in the Northern Region
- By ownership: 13 government, 5 mission, 2 private, 1 quasi-government
- By level: 19 primary, one secondary, one tertiary
- By urban/rural location: 12 urban, 9 rural

The sampling procedure and the list of selected hospitals are detailed in Volume II.

In each of the hospitals, we selected 20 entries from the maternity registers of each year from 2007 to 2012 using a random selection process. We obtained the maternity records for each of the clients corresponding to the selected entry and transcribed data from the registers and the maternity record to anonymised data collection forms that had been pretested by the team of data collectors in a municipal hospital in Accra. The data collection form for the review of the registers focused on the hospital's annual volume and outcome of obstetric care. The data collection form for the maternity records collected information on the social and demographic characteristics of the client, her pregnancy and delivery, as well as information about NHIS status and payments made. A copy of the data collection forms is included in Volume II.

Through this method, we aimed for a data sample of 2,520 obstetric deliveries, 420 per year for each of the six years from 2007 to 2012. The data were collected by three teams of three researchers, each of them led by one of the core members of the evaluation team. After a three week period of data collection, we transcribed the data to an electronic database using the Epi InfoTM public domain statistical software with which we carried out further analysis.

3.5.4 Quality of service assessments

In each of the 21 hospitals in our sample, one of the core evaluation team members carried out a limited quality assessment of the maternity service. This served to contextualise our questioning of key informants on the effect of the free maternal health care initiative on the quality of services. For this purpose we developed a check-list and pretested it in a municipal hospital in Accra. The check-list focused on a set of selected indicators in seven quality areas:

- Infrastructure
- Hygiene and infection control
- Human resources
- Equipment and drugs
- Obstetric practice
- Record keeping
- Client friendliness and confidentiality

The form used for data collection as well as a list of hospital staff participating in the quality assessment is presented in Volume II. We transcribed the data collected via the check-lists to an Epi Info™ database for analysis.

3.5.5 Key informant interviews

Together with the document review, the key informant interviews were the principal source of information on the institutional history and the context of implementing the free maternal health care initiative. We developed a structured interview guide with 40 questions which we applied in 109 interviews with a total of 128 stakeholders of the health care sector. They included senior staff of the 21 hospitals in our sample, senior staff of the Ghana Health Service and the National Health Insurance Authority at district, regional and national level, and with senior officials of the Ministry of Health and the Christian Health Association of Ghana at national level. We summarised the responses of each interview in an excel database and used the select and sort functions to analyse the frequency of specific responses. All key informant interviews were conducted by the four core members of the evaluation team. The list of persons interviewed is presented in Volume II.

3.5.6 Community group discussions

Although the collection of population-based data was out of the scope of this evaluation, we collected contextual information about the determinants of women's choices about where they deliver their infants in three districts with very low reported rates of facility-based delivery. The districts were located in the three geographic zones of the country, the Northern Zone, the Middle Belt and the Coastal Zone. They each had a district hospital and other health facilities.

Teams of two social science researchers spent five days in each of the districts, consulting with the district health teams, the district assemblies, local churches and community associations to identify communities in which to conduct group discussions with ten participants each. After obtaining written informed consent from the participants, they conducted a total of 13 group discussions with ten women each and 2 group discussions with men according to an established focus group discussion guide. The profiles of the districts, communities and groups are presented in Volume II.

3.6 Ethical considerations

The Steering Committee was charged with obtaining ethical clearance for the evaluation from the Ghana Health Service Ethical Review Committee. All data from maternity records were anonymised before transcription into data collection forms. For the community group discussions, we obtained individual signed consent from each participant after informing the groups of the objectives of the evaluation and the use of the data.

3.7 Constraints

3.7.1 Limitations related to the evaluation design

One of the key premises of the evaluation design as presented to the Steering Committee was the ability to collect facility-based data on the volume of obstetric services and the profile of the clients pre- and post- introduction of the free maternal health care initiative in order to test the null hypothesis which was formulated as follows: *“The introduction of the NHIS-based free maternal health care initiative has not changed the use of maternal health services in Ghana”*. This was to be achieved by collecting data from 2007 to 2012 in facilities chosen from a list supplied by the Steering Committee of hospitals accredited by the NHIA in 2009. Once we started the interviews and the data collection, we found that there was no link between NHIA accreditation and the participation of the selected facilities in the NHIS. We therefore only had 2007 as a single data point prior to the implementation of the free maternal health care initiative and had to change our approach to data analysis. We were still able to analyse trends in utilisation, but we were no longer able to make direct inferences on a causal relationship to the free maternal health care initiative, especially since we did not gain access to an NHIA database of claims for maternity services (see below).

3.7.2 Limitations related to the availability and access to databases and documents

The reports and studies collected and reviewed during the inception phase were to be complemented with reports and databases collected during the data collection at the facility, district, regional and national level. In order to analyse the evolution of the cost of the free maternal health care initiative, we required access to financial data and to the claims database of the NHIA as specified in our terms of reference. We had planned to collect this information for the period of 2003 to 2012 to be able to conduct a time series cost analysis of claims for obstetric deliveries that could show the effect of the introduction of free maternal health care in 2008. These data were, however, not available.

The majority of the national health insurance claims records are kept in the offices of the former District Mutual Health Insurance Schemes (DMHIS). In the monthly and annual district reports, claims for maternal deliveries were summarised in the claims by the obstetrics and gynaecology departments. The system of claims reimbursement by diagnostic groups (G-DRG) was introduced in 2008. The district offices of the NHIA are theoretically able to generate reports of claims by G-DRG, but these reports were not available at the time of the evaluation. In 2010, the NHIA opened a Claims Processing Centre in Accra. The centre provided us with records of claims for deliveries by G-DRG, but only for four hospitals and for selected months in 2010 and 2011. From some DMHIS we were also able to collect annual reports of 2011 and 2012. This data set was not sufficient to analyse the development of claims payment for maternal care. In neither case did we obtain information on

whether the claims were paid for women who joined the NHIS under the fee exemption initiative. This severely constrained our ability to perform an economic analysis.

In addition, we obtained information on income from obstetric delivery services from about half the hospitals in our sample. This, together with the only two available annual reports of the NHIA (2010 and 2011) and secondary information from the World Bank Health Insurance project [*World Bank 2009*] allowed some cost estimates, and specifically an estimate of the cost of the free maternal health care initiative in 2011. However, it did not allow an estimate of the development of the marginal cost of NHIS premium exemption since its introduction, and we could therefore not make any projections about future costs based on historic trends.

3.7.3 Limitations in the review of the maternity registers and records

We found a great variety of register books⁸ and of systems and procedures for recording and filing maternity records. The spectrum ranged from well kept filing systems for maternity records where it was possible to retrieve a maternity record instantly based on a register number, to systems that were so completely disorganised that records could not be found because they had been discarded or because there was no functioning numbered filing system. In some places the medical record system had changed over the years, in almost all facilities the filing space was inadequate, sometimes resulting in patient records piling up on the floor.

The active maternity register books were kept on the desk in the nursing station. Completed books were under the responsibility of the nurse in charge of the maternity ward. They were kept in a variety of places and could only be located if the in-charge was present. Although there are nationally standardised formats for registers and maternity records, we did not find uniformity across hospitals. In some places register columns were crossed out or new columns added.

There was wide variation in the level and type of information provided in maternity records. Information on the social and economic profile of the maternity clients such as the level of education or the husband's occupation was usually recorded in the maternal health books that were kept by the clients and therefore not available for analysis except in a few exceptional cases. Information on mode of payment and NHIS status was only available in about half of the sampled records. Information about the amount of out-of-pocket payment, HIV status and use of PMTCT services was not recorded in the registers or sampled maternity records.

3.7.4 Limitations in the quality of service assessment

We were able to implement this component of the evaluation as planned without any constraints. As already noted at inception, the available time and resources did not allow us to perform a complete structured quality of service audit, but only an assessment of a limited sample of quality indicators.

⁸ These registers include: delivery register book, admission and discharge books, reports books, maternal death registers, post-natal register, family planning register, post-natal care register, comprehensive abortion care register.

4 EVALUATION FINDINGS

4.1 Service delivery

4.1.1 Profile of women delivering in health facilities

In our review of register books and individual maternity records, we were able to collect data on 2420 obstetric deliveries between 2007 and 2012 in the 21 hospitals in our sample. Among these, we rejected 72 records because the year of delivery was missing. This left us with a data-set of 2348 deliveries for analysis, 93% of our intended sample.

Table 1. Number of maternity records reviewed per year

	2007	2008	2009	2010	2011	2012	Total
Number	344	365	399	411	409	420	2348
Proportion	15%	16%	17%	18%	17%	18%	100%

We analysed this data-set for significant changes in the profile of women attending the selected facilities for obstetric deliveries between 2007 and 2012. Information on the women's education, husbands' education and record of ante-natal care was not available in the registers and individual maternity records. We collected data on the remaining variables: age at delivery, parity, occupation, religion, marital status and distance to the health facility. The availability of data varied, ranging from 99% for age at delivery to 36% for marital status. We calculated proportions on the basis of the subsets of available data for each variable under the assumption that missing data would have a similar distribution.

The distributional profile of women in the sample is presented in Table 2. The distribution is comparable to population-based data reported in the MICS 2011. [GSS 2012] The data do not show any significant trends in the profiles of women attending delivery services over time with the exception of an increasing proportion of Muslim women after 2010. This is likely to be an artefact due to the large increase in the proportion of deliveries in Tamale Teaching Hospital in our sample after 2009.

Table 2. Profile of women in the sample

	2007	2008	2009	2010	2011	2012	N*
Age at delivery							
<20 years	14%	13%	8%	12%	15%	13%	290
20-34 years	73%	73%	82%	74%	71%	74%	1,734
35-49 years	13%	13%	11%	14%	14%	13%	306
>49 years	0%	0%	0%	0%	0%	1%	3
N*	343	364	395	409	407	415	2,333
Parity at time of delivery							
Para 0	34%	34%	32%	33%	31%	31%	718
Para 1	28%	23%	25%	24%	25%	25%	551
Para 2	16%	18%	17%	16%	17%	18%	372
Para 3 and higher	23%	25%	26%	27%	27%	25%	566
N*	275	332	383	405	399	413	2,207
Occupation							
Trader	37%	38%	43%	37%	38%	36%	635
Farmer	8%	7%	9%	9%	13%	12%	164
Professional	4%	4%	6%	8%	7%	8%	104
Para-professional	16%	22%	15%	21%	21%	18%	311
Other	35%	28%	27%	25%	22%	26%	441
N*	206	250	300	279	305	315	1,655
Marital status							
Married	91%	89%	95%	92%	91%	89%	802
Single	9%	11%	5%	8%	9%	10%	79
Widowed	0%	0%	0%	0%	0%	0%	2
N*	43	81	118	177	233	231	883
Religion							
Christian	85%	90%	87%	74%	79%	71%	708
Moslem	15%	10%	13%	26%	21%	28%	194
Traditional/ Other	0%	0%	0%	0%	0%	1%	4
N*	53	92	115	175	226	245	906
Distance from health facility							
< 1km	22%	20%	20%	21%	23%	19%	383
1-4 km	37%	35%	39%	40%	34%	37%	670
5-9 km	18%	20%	22%	16%	23%	24%	376
>10 km	22%	25%	19%	23%	19%	19%	384
N*	309	298	289	281	315	321	1813

* Total records available for analysis (reviewed records minus missing values)

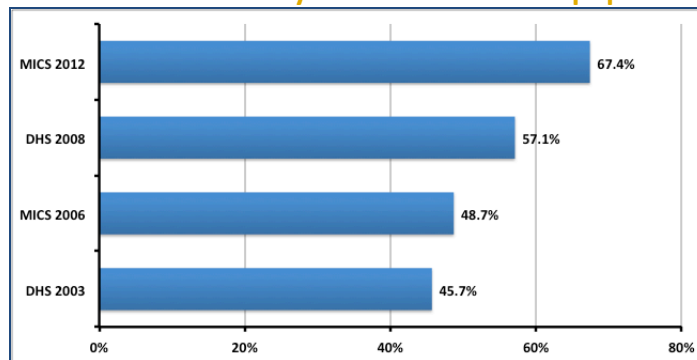
(Proportions in columns do not add to 100% because of rounding)

Over the five years, most women who came to deliver in the 21 hospitals in our sample were between 20-34 years old, approximately four out of ten were traders, three out of ten came for their first delivery and four out of ten came from 5 or more km from the health facility. Our survey, however, lacked the power to analyse trends in social equity of access and utilisation, primarily because proxy information for social status was not captured or only incompletely captured in the hospital records.

4.1.2 Service coverage and utilisation in population surveys

Population-based data from successive surveys show an increasing trend in facility-based deliveries in Ghana since the 2003 Demographic and Health Survey. [GSS 2004-1; 2006; 2009-1; 2012] The data from these surveys are the most reliable sources of information, however each survey covers a time period of two to five years, so they are less sensitive to rapid changes. The most recent national rate of facility-based deliveries reported by the 2011 MICS was 67.4%.

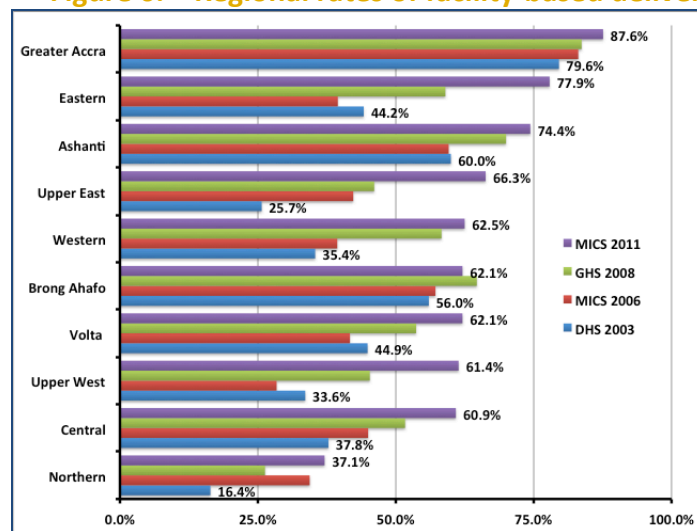
Figure 5. Trends of facility-based deliveries in population surveys



Sources: GSS 2004-1; 2006; 2009-1; 2012

The surveys, however, also show important regional disparities. While national rates of facility-based deliveries increased by more than 20 percentage points between the four surveys, the gap between the Region with the highest rates (Greater Accra) and the Region with the lowest (the Northern Region) decreased by only 13 points.

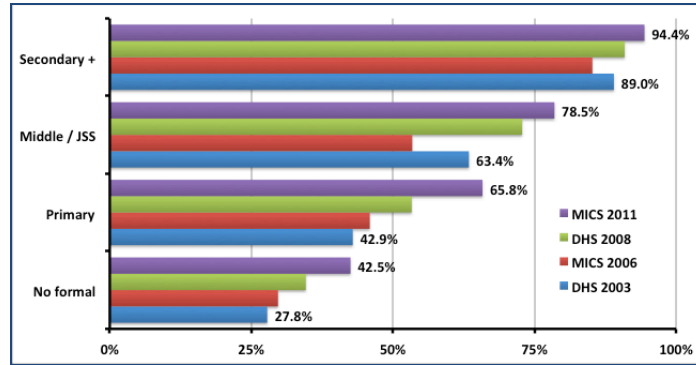
Figure 6. Regional rates of facility-based delivery



Sources: GSS 2004-1; 2006; 2009-1; 2012

The regional disparities in access and utilisation of health services are mirrored by social disparities. In 2011, less than half of the women without formal education delivered in a health facility (42.5%) compared to almost all women with secondary education or higher (94.4%). Although this is a large gap, considerable equity gains have been made since the survey in 2003, especially between primary school graduates and high educational achievers. In 2003, there was a gap of 46 percentage points between these groups for facility-based deliveries. By 2011 it had reduced to 19 points.

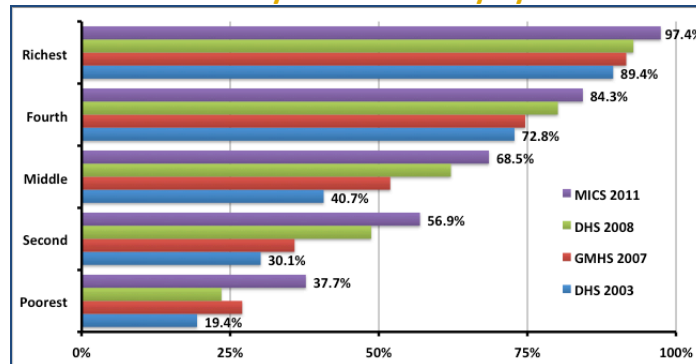
Figure 7. Rate of facility-based delivery by educational level



Sources: GSS 2004-1; 2006; 2009-1; 2012

The same disparities are observed in the analysis of facility-based deliveries by wealth index quintile. In 2011 there was a gap of 60 percentage points between the poorest (37.7%) and the richest (97.4%) quintiles. As in the case of analysis by educational level, the analysis by wealth quintile also shows that the gap between the richest and the second poorest quintiles is closing faster than the gap between the richest and the very poor.

Figure 8. Rate of facility-based delivery by wealth index quintile



Sources: GSS 2004-1; 2009-1; 2009-2; 2012

4.1.3 Results of facility-based survey of 21 hospitals

As mentioned under 3.1.1, the facility-based survey did not generate data that allowed us to make inferences on equity trends for access and utilisation of health facilities for maternal health services.

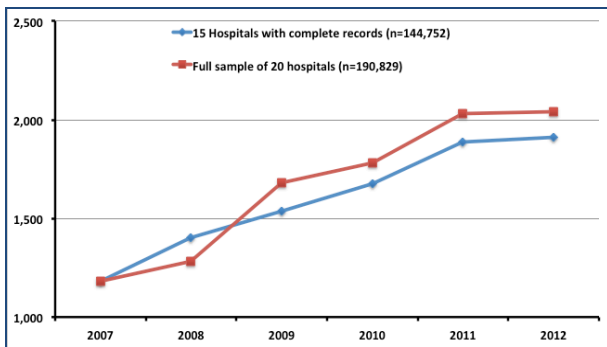
Of the 21 hospitals included in our sample, not all provided annual data on the number and type of obstetric deliveries from 2007 to 2012. One hospital provided no data, among the remaining 20 there were data gaps for some years, especially for 2007 when we were only able to obtain data for 15 hospitals in the sample. Over the six year period from 2007 to 2012, the 20 hospitals reported 190,829 obstetric deliveries. The average number of deliveries per facility almost doubled between 2007 and 2012, increasing from 1,182 to 2,043. A surge was recorded between 2008 and 2009, coinciding with the introduction of the free maternal health care initiative in July of 2008. Between 2011 and 2012 the rate of increase has slowed, which may indicate that the policy of user fee exemption is approaching a limit where other factors such as distance to the facility or cultural acceptance become more important.

Analysing the trend in average number of deliveries over the whole sample of 20 hospitals may introduce a significant sampling error, because the volume of maternity services differs significantly

among hospitals in our sample. Four hospitals in the sample were responsible for 45% of all deliveries. (Tamale Teaching Hospital 16%, St. Patrick Hospital 11%, Regional Hospital Wa 9%, St. Dominic Hospital 9%). We therefore performed a separate examination of trends in the 15 hospitals that provided a complete set of data for all six years. These 15 hospitals reported a total of 144,752 deliveries. The overall trend is similar, but the surge between 2008 and 2009 now disappears. It is therefore likely to be due to a sampling artefact.

We performed a similar analysis of the trends of the average number of spontaneous vaginal deliveries, Caesarean sections and assisted deliveries in the entire sample and in a sub-sample of those hospitals that provided complete continuous data for all six years. These were 13 hospitals for spontaneous vaginal deliveries, 12 hospitals for Caesarean section, and 9 hospitals for assisted deliveries.

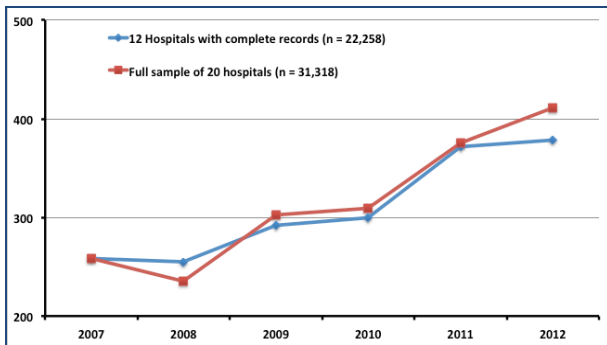
Figure 9. Average number of deliveries in sampled hospitals
All deliveries



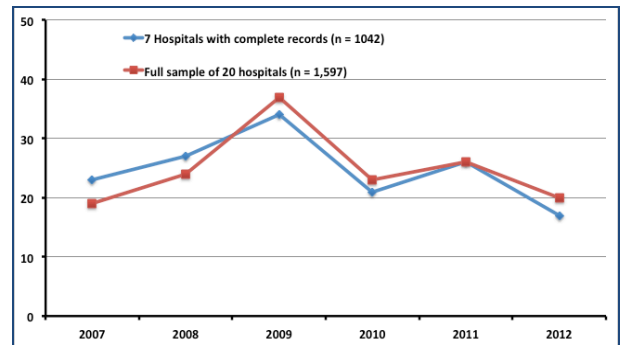
Spontaneous vaginal deliveries



Caesarean sections



Assisted deliveries



The average number of spontaneous vaginal deliveries performed in the sampled hospitals has been following the same trend observed among total deliveries. The total number of assisted deliveries is small and the calculated rate is therefore too unstable to recognise a trend. Three hospitals in our sample reported 60% of all assisted deliveries. The low use of forceps or vacuum extraction for delivery was also noted in the 2011 National Assessment of Emergency Obstetric and Neonatal Care. [MoH 2011-4] Lack of training was the main reason cited why these procedures were used so sparingly. This was confirmed in our interviews in health facilities.

The average number of Caesarean sections has increased faster than the average number of deliveries. The proportion of operative deliveries in our sample of hospitals was high with a total of 16% of births by Caesarean section and a high of 18% in 2012. This is in part a reflection of the characteristics of our sample which included a Regional Hospital and a Teaching Hospital which

accounted for a large proportion of the Caesarean sections. No inference can be made from these data on the national Caesarean section rate. It should be expected that an initiative to remove financial barriers to maternity services will be particularly effective in removing barriers of access to the most expensive services. Nationally, the Caesarean section rate was reported at 11.4% in the MICS 2011. [GSS 2012] Based on Ghana Health Service data we received in March 2012, we calculated it at 9.3% in 2011 although these data do not include all hospitals. (see 2.2) Both of these rates are within the range of 5% to 15% which is considered by WHO to be an indicative rate for adequate obstetric coverage. The increase in the proportion of Caesarean sections in the sample is a reflection of the overall increase in the Caesarean section rate in Ghana. It has implications on the global costs of the free maternal health care initiative and is therefore further discussed in Section 3.

4.1.4 Quality of care

We conducted a quality of care assessment in each of the 21 hospitals in our sample using the pre-tested check-list presented in the inception report. In each facility, we interviewed a staff person knowledgeable of the maternity services and conducted a walk-around the maternity ward, delivery suite and, time permitting, the pharmacy and laboratory. The list of 32 staff who participated in the interviews and visits is presented in Volume II.

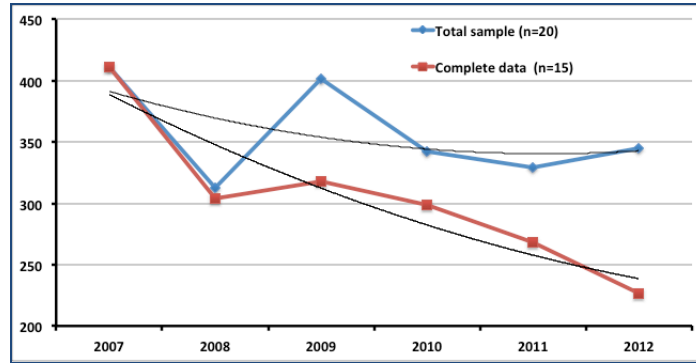
In addition, we collected data on institutional maternal deaths and on stillbirths in each hospital. We were unable to obtain these data in one hospital, and are therefore only reporting on 20 out of 21.

4.1.4.1 Maternal mortality and stillbirths

The statistics of maternal deaths and stillbirths are indicators of the quality of care in health facilities, although they have to be interpreted with caution. They can also change significantly when the profile of women attending the service changes. A more sensitive indicator is the Direct Obstetric Case Fatality Rate. Information about the development of these indicators from secondary sources is presented in Section 2.2

In our sample of 21 hospitals, twenty reported the annual numbers of maternal deaths, however not for each of the six years. Together, 780 deaths were reported, 38% in the only tertiary hospital in our sample, the Tamale Teaching Hospital. In 2008, the hospital reported a very high ratio of almost six deaths per 100 deliveries. We have removed this from our analysis as an outlier, most likely due to a reporting error. Our final data set of 20 hospitals had a total of 668 maternal deaths reported for 188,890 obstetric deliveries. For 15 hospitals we had complete data for each of the six years adding to 429 deaths for 144,752 deliveries. We have analysed these separately. The curves are not strictly comparable because the only tertiary hospital with the largest number of deliveries and deaths was removed from the second analysis. The range of ratios (227 to 412) was higher than the range reported by the GHS for the same period (see 2.2) but this should be expected because the sample included only hospitals. As in the national data obtained from GHS, we observed a general downward trend.

Figure 10. Institutional maternal mortality ratio in sampled hospitals

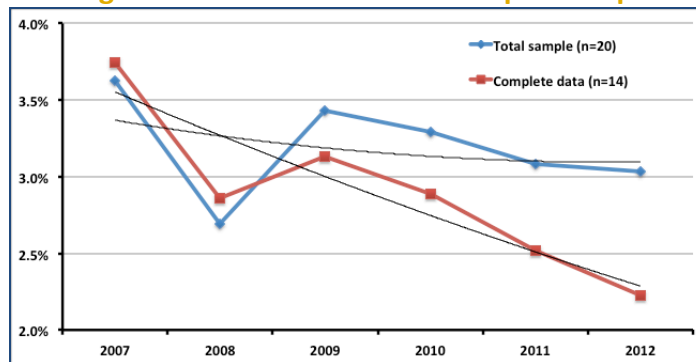


For stillbirths, we did a similar analysis. We did not distinguish between fresh and macerated stillbirths because historic data with this level of discrimination were difficult to obtain. Deliveries of stillbirths from foetal death outside the hospital are therefore also included in these data.

For the entire sample of 20 hospitals the average stillbirth rate was 32 per 1,000, for a sub-sample of 14 hospitals with complete annual records covering all six years it was 28. These data cannot be used to make inferences on national stillbirth rates, they are only specific to the facilities examined. The declining trend documented in these facilities is therefore a positive development. As in the trends for maternal mortality, the decline is more prominent in the sub-sample which does not include the only tertiary hospital in our study.

Globally, the stillbirth rate in 2009 was estimated at 18.9 per 1,000 for sun-Saharan Africa the estimate was 28.3 per 1,000. Both estimates have high ranges of uncertainty. [Cousens 2011]

Figure 11. Stillbirth rates in sampled hospitals



4.1.4.2 Characteristics of the sampled hospitals

The hospitals in our sample are listed in Volume II. They included 19 primary, one secondary and one tertiary hospital. We enquired about five key maternity services: Ante-natal care, family planning, normal delivery, assisted delivery and Caesarean section. The secondary and tertiary hospital and 11 of the 19 primary hospitals offered all five services. The services not offered in some primary hospitals were assisted delivery (4 hospitals), Caesarean sections (3 hospitals), and family planning services (3 hospitals). The most frequently mentioned additional service was the prevention of mother to child HIV transmission (PMTCT) (6 hospitals).

The maternity wards of the 21 hospitals varied in size from 4 to 58 maternity beds. Neonatal cots were available in eight hospitals. Most hospitals had one delivery room, only five had two delivery rooms. Operating theatres were available in all but two hospitals.

Table 3. Size of maternities in the sampled hospitals

	<21 beds	21-30 beds	>30 beds	Total
Number of hospitals	10	4	7	21
Number of beds	151	99	286	536
% of total beds	28%	18%	53%	100%

4.1.4.3 Obstetric Practice

We assessed four parameters of obstetric practice: (i) provision of emergency obstetric and newborn care (EmONC), (ii) use of the partograph, (iii) reporting of the Apgar score and (v) supervision activities.

Emergency Obstetric and Newborn Care

Health facilities are recognised as providers of comprehensive EmONC if they performed nine life-saving interventions (“signal functions”) within three months prior to the assessment. Those that performed all interventions except blood transfusions and Caesarean sections are recognised as providers of basic EmONC. [WHO 2010]

In the 2010 national EmONC assessment, 8 of the hospitals in our sample were assessed as providing comprehensive EmONC, 8 provided partial EmONC, and five did not provide EmONC services. [MoH 2011-4] For the evaluation, we asked about the capacity of the hospitals to perform 6 of the 9 signal functions.

Table 4. Assessment of signal functions for EmONC

Signal function	Assessed
Parenteral antibiotics	X
Parenteral oxytocics	X
Anticonvulsants	
Manual removal of the placenta	X
Removal of retained products	
Assisted vaginal delivery	X
Newborn resuscitation	
Blood transfusion	X
Caesarean section	X

Table 5. Comparing the 2010 EmONC assessment with the evaluation score

2010 EmONC assessment	Scoring 6/6	Scoring 5/6	Scoring 4/6	Scoring 3/6
Non-provider (n=5)	2	1	1	1
Partial provider (n=8)	6	1	1	0
Comprehensive provider (n=8)	7	1	0	0

- Among the five hospitals categorised as Non-EmONC providers in 2010 (providing only 5 or 6 of the 9 signal functions), two reported the capacity to provide all of the six interventions we assessed. The remaining three had capacity gaps for Caesarean section, assisted delivery and/or manual removal of the placenta.
- Among the eight hospitals categorised as partial EmONC providers in 2010 (providing only 7 or 8 of the 9 signal functions), six reported the capacity to provide all six interventions we assessed. The remaining two reported no capacity for providing assisted deliveries and/or Caesarean sections.
- Seven of the eight hospitals categorised as comprehensive EmONC providers in 2010 confirmed their capacity to provide all six interventions we assessed. The remaining hospital reported no capacity to provide assisted deliveries and should therefore not be considered as a comprehensive care provider.

We did not perform a formal assessment of EmONC which would have required proof of having performed the signal functions within the last three months. However, our evaluation of the limited sample of hospitals indicates that since the formal assessment in 2010, the availability of EmONC services has increased. Eight of the 21 hospitals had the capacity of providing a higher level of service than in 2010, while the level established in 2010 was only questioned in one of the hospitals.

Use of the partograph

The partograph is advocated by WHO as a necessary tool in the management of labour, and recommended for universal use, especially in under-resourced settings. The use of the partograph is actively promoted by the Ghana Health Service.

In our sample, 16 of the 21 hospitals were using the partograph. The reason given by the five maternity services for not using it was a shortage of human resources. We obtained staffing information for four of the five hospitals. One of them was apparently well staffed with nearly 16 midwives per 1,000 deliveries. The other 3 were just slightly above the UNFPA benchmark level of 6 per 1,000. This indicates that human resource productivity and professional discipline are at least as important criteria of quality of care as overall staffing levels.

In the 16 hospitals that reported using this tool, the completed partographs could not always be located in the individual maternity records. In some hospitals they were filed in a separate folder to have them ready for supervision visits. In our review of maternity records, we found copies of partographs in 34% of the sample, of which 95% were completed.

Reporting of the Apgar score

The Apgar score is a standardised method of evaluating a newborn's physical condition in order to determine any immediate need for medical or emergency care. The Apgar score card was displayed in the delivery room in five hospitals. In fourteen hospitals we reviewed a selected sample of recent maternity records and found the Apgar score recorded in all of them. In the full sample of maternity records from 2007 to 2012, Apgar scores at five and ten minutes were registered in 80%.

Supervision

External supervisions of maternity services by the District or Regional Health Teams are supposed to be conducted each quarter. This schedule is, however, not consistently adhered to. Those

interviewed had difficulties in remembering the date for the last supervision. Three hospitals reported having received their last supervision visits in 2012, one of them reported a visit in January 2013. No records of these visits were maintained in any of the hospitals we assessed. Some of the issues addressed by the supervisors were the use of the partograph, the availability of an emergency stock of drugs and the staffing of the maternity. In one case it resulted in the allocation of 2 midwives a few months later. Two hospitals reported a regular schedule of internal supervisions by the hospital quality assurance teams, one of them had a weekly protocol of “bed huddles” conducted by the unit heads.

4.1.4.4 Human resources

We collected detailed information on human resources for maternal care in 18 of the 21 hospitals in our sample. Midwives were performing normal deliveries and most of the signal functions for the provision of basic EmONC. In some facilities the midwives reported that they did not feel confident enough to perform assisted deliveries or resuscitation of newborns. Consultants and physicians were performing Caesarean sections and providing medical and emergency services that could not be handled by the midwives.

In the 18 hospitals the number of midwives ranged from 1 to 47 with an average of 13 midwives per maternity service. Nine of the hospitals had both consultant obstetricians and general practice physicians assigned to the maternity, the remaining maternities were covered by general practitioners. All hospitals performing Caesarean sections had one or more than one anaesthesia staff.

Pressure on human resources due to the increase in the workload following the introduction of the free maternal health care initiative (see 3.1.4) were reported by 12 of the 18 hospitals, some using words such as “overwhelming” or “too much”. Maternity supervisors in six hospitals, however, felt that the increase could be handled with existing staff. The increase in workload has not been accompanied by increased mobilisation of staff. Only four hospitals mentioned that additional midwives were contracted at the end of 2012, and one hospital mentioned an increase in the number of physicians. Concern was also expressed about the aging of the current generation of midwives and the capacity to replace those who are expected to retire within the next few years.

An indicator for the workload is the ratio of midwives per 1,000 deliveries, with an international benchmark of 6 midwives per 1,000 deliveries per year. [UNFPA 2011] We calculated the ratio for 17 hospitals using current staffing levels and reported deliveries for 2012. The ratio ranged from 2.1 midwives to 18.8 midwives per 1,000 deliveries with an average of 6.1. Six of the 17 hospitals were understaffed according to the benchmark with a ratio of less than 6 per 1,000. The national assessment of EmONC in 2010 reported a national average ratio of 10.9 per 1,000. [MoH 2011-4]

Supervisors of maternity services interviewed in the context of the quality of service assessment noted that the increased workload affected the performance and the well-being of the staff. (see also 3.4.2) They cited the workload as the main reason why midwives are sometimes not able to dedicate sufficient time to each client, fail to complete the partographs, or leave gaps in the documentation in registers or maternity records. Some supervisors mentioned that midwives are overworked and tired during their shifts, frequently fall ill and often have to forego their annual leave.

In 17 out of 18 hospitals in our survey the staff had attended additional training in safe motherhood, emergency obstetric care, life-saving skills, the use of the partograph, infection control and prevention, or in comprehensive abortion care. Recent training focused on the use of the partograph, life-saving skills and infection control. Most training in EmONC was organised between 2008 and 2010. Training needs mentioned by the supervisors included refresher courses on the use of the partograph, vacuum extraction, neonatal resuscitation, and management of eclampsia and of haemorrhage.

4.1.4.5 Drugs, supplies and equipment

We reviewed the availability of drugs for maternity services in 21 hospitals, asking about stock availability and management. We enquired about the following class of drugs:

- Analgesics
- Oxytocics
- Anticonvulsants
- Antihypertensives
- General- and Local Anaesthetics

We reviewed emergency stock in the maternity wards. In six hospitals we visited the pharmacy and reviewed the stock management of three tracer drugs: Magnesium Sulphate, Paracetamol and Hydralazine.

Three out of 21 hospitals reported occasional stock-outs of drugs. One hospital was out of hydralazine at the time of the visit and reported shortages of Magnesium Sulphate in the past year. All other hospitals reported a well functioning supply chain. The pharmacies visited were well organised and the stock cards for the three tracer drugs were up to date. Expiry of maternity drugs was not reported to be a problem. We observed emergency stocks of oxytocin, Magnesium Sulphate and hydralazine in the maternity ward in some hospitals as well as emergency packs for eclampsia and post-partum haemorrhage in the delivery rooms.

The main supply chain for drugs in GHS hospitals is via the Central Medical Store, Regional Medical Stores and Service Delivery Points. A minor quantity of drugs is procured from private suppliers. The general assessment of the supply chain for drugs was positive. The availability of transport is a challenge in some hospitals that are distant from the CMS delivery network. Several hospitals reported shortages of consumables such as gloves and detergents. They cited delays in receiving payment for insurance claims as a major reason for bottlenecks in the supply chain.

As tracers for the state of medical equipment for maternity care we assessed the availability of bag valve masks (“ambu bags”), suction machines and oxygen tanks with flow meters. All maternities had functioning bag valve mask sets. The suction machines in 3 of the 21 delivery rooms were defective and three hospitals had problems with the availability of oxygen for a variety of reasons.

In summary, we did not hear about significant problems in the supply of drugs for maternity services, and the three tracer drugs we surveyed were available in all 21 hospitals with the exception of hydralazine in one hospital. Problems with oxygen supply and suction machines were observed in 3 out of 21 hospitals.

4.1.4.6 Hygiene and infection control

We examined five parameters as indicators of hygiene and infection control:

Use of puncture-resistant and leak proof containers for the disposal of sharps:	Most hospitals (16/21) were using puncture resistant safety boxes for disposal of sharps. Five hospitals used improvised cartons containers.
Availability of hand washing facilities:	Most hospitals (17/21) had running water with sinks and soap available in the maternity wards. Four hospitals had problems with water supply and were using closed buckets with spigots (“Veronica buckets”) and flat pans for hand washing.
Disposal of medical waste:	The presence of functioning incinerators was noted in seven quality assessment reports (no comments on incineration were made at the remaining hospitals). Some hospitals were using a waste management company to dispose of medical waste. Placentas were usually buried by the hospital except by one facility which returned them to the clients in respect of local culture.
Decontamination of equipment and instruments:	All hospitals had solutions available for decontamination of instruments (0.5% chlorine solution or parasol). Observed decontamination procedures were applied correctly. Instructions for the decontamination of medical instruments were posted on the walls in some hospitals.
Sterilisation of instruments:	Twenty of the 21 hospitals used autoclaves for the sterilisation of instruments. The remaining hospital boiled the instruments for 20 minutes on a gas stove. In three hospitals the autoclaves in the maternity unit were defective and the instruments were sent to the central sterilisation department.

In summary, most hospitals complied with accepted standards of hygiene and infection control. There is room for improvement in the disposal of sharps in some facilities, and there are sometimes limitations because of equipment failure or inadequate water supply.

4.1.4.7 Infrastructure

We identified problems in the physical plant or lay-out of the maternity units in seven of the 21 hospitals in our sample. They included a need for general renovation, crowding of the maternity wards (including mothers sleeping on the floor), insufficient illumination, or the absence of separate rooms for pre- and post-delivery care. The remaining 14 hospitals had appropriate and well maintained infrastructure, some had recently been painted, others were undertaking gradual refurbishment. In most hospitals the maternity wards were clean and well ventilated, some had bed-nets, fans and television sets.

Five of the hospitals in our sample reported problems of water supply. One of them only received piped water twice a month during the dry season and stored the water in tanks that were not connected to the plumbing system. In another hospital, water was pumped only during the morning hours, and in the third the pumping system stopped frequently whenever there were electricity cuts. The remaining 16 hospitals had stable water supply from a pipeline or borehole with water storage tanks as back-up.

Sixteen of the 21 hospitals had access to ambulances either through the National Ambulance Service or through their own ambulance. Ambulance costs are not covered by the NHIS and are charged to the client. The National Ambulance Service transports patients free of charge within the district, but some hospitals reported that the ambulances are “never available”. Five hospitals had no access to an ambulance and used taxis or pick-up trucks for patient transport or relied on an ambulance from the neighbouring District Hospital.

4.1.4.8 Friendliness and confidentiality

Sixteen of the 21 hospitals used curtain dividers to assure the privacy of women during delivery. This affords insufficient privacy on occasions when there are two or more simultaneous deliveries. Some of the curtains were transparent, in some places they were never drawn. Other observed constraints to privacy were small and crowded delivery rooms.

Staff attitudes towards maternity clients was cited in the community discussions as one of the main barriers for women to deliver in health facilities. (see 3.3) Sixteen of the 21 hospitals reported measures to improve client communications. These were not specific to the maternity services. They included customer care training for some staff, suggestion boxes or complaint desks and periodic patient satisfaction surveys followed by the drafting of an improvement plan. One staff member who had attended customer care training explained that she learned how to speak nicely to clients and explain all procedures, but another stated that “the work pressure is so much, there is no time to talk to patients”.

4.1.4.9 Record keeping and data management

The quality of record keeping was highly variable among the 21 hospitals. We observed important deficits in the management of register books and maternity records. These are described under heading 2.7.3.

The staff person in charge of the maternity prepares monthly summary reports which are submitted to the District Health Management Team or in some cases directly to the central level. Service data are reviewed internally according to a variety of schedules ranging from weekly to biannual review meetings. Internal sharing of data and information with staff was insufficient in some facilities.

4.1.4.10 Summary of the quality of service assessment

The hospitals in our sample are making efforts towards increasing their capacity to provide emergency obstetric and neonatal care. Eight of the 21 hospitals indicated that they had capacity of providing a higher level of service than when they were assessed in 2010. [MoH 2011-4] Of the six signal functions for emergency obstetric and neonatal care analysed, the hospitals face challenges in performing three: manual removal of placenta, assisted delivery services and Caesarean section. Having human resources in adequate number and skills available 24 hours seven days a week is the main challenge hospitals face to provide quality emergency obstetric and neonatal care.

Drugs are generally available and the supply chain is working well. The use of the partograph is not yet standard practice in all hospitals. The majority of hospitals visited face challenges in providing an acceptable level of privacy and confidentiality for women during delivery. Constant availability of water is not assured in 5 of the 21 hospitals, challenging hygiene and infection control. The functioning of the referral system is affected by shortages and/or user fees for ambulances. Supervision is not well documented and not conducted with the expected frequency. Most hospitals do not have regular plans or programmes for up-grading or refreshing the knowledge and skills of their staff

4.2 Financing free maternal health care

4.2.1 The system costs

In May 2008, the UK Government signed a grant agreement with the Government of Ghana committing 42.5 million GBP to the implementation of the MoH Programme of Work in five annual tranches of 8 million GBP per year from 2008 to 2012. The announcement of the grant was linked to the announcement of the exemption of all pregnant women from the waiting period and from premium payment under the National Health Insurance Scheme. This became to be known as the free maternal health care initiative. The grant, however, was not earmarked, and payments appeared each year in the MoH budget under the category of budget support. [MoH 2008-5; 2009-1; 2010-3; 2011-5]

The only direct source of financing of the recurrent cost of implementing free maternal health care has therefore been the National Health Insurance Fund (NHIF). It was established through the Health Insurance Act of 2003 “to subsidise the cost of provision of healthcare services to members of district mutual health insurances schemes”. [GoG 2003] The main source of financing of the NHIF is through a value added tax levy, a levy on social security and pension funds, and transfers from the state budget. Insurance premiums collected by District Mutual Health Insurance Schemes (DMHIS) cover less than 4 percent of the recurrent costs of operating the NHIS. [NHIA 2012] The National Health Insurance Bill of 2011 abolished the DMHIS but did not significantly redefine the role of the NHIF. [GoG 2011]

The cost to the Ghana health system for delivering free maternal health care has four elements:

- a) Foregone revenue to the NHIS because of the premium exemption of pregnant women;
- b) Increased human resource costs to meet the increased demand for services;
- c) Increased investment costs in infrastructure and equipment to meet the increased demand for services;
- d) Increased recurrent costs of delivering services to meet the increased demand.

4.2.1.1 Foregone revenue

Over the four years from 2008 and 2011 between 380,000 and 500,000 women registered each year with the NHIS under the premium exemption policy. This represented about five to six percent of the active NHIS membership in each year. [NHIA 2012] Children under 18, people over 70 and indigents are also exempt from paying premiums. Among formal sector employees, the health insurance premium is charged as a levy on their social security contribution. Only about 35 to 40% of active NHIS subscribers are directly paying insurance premiums. [NHIA 2012] The ratio of free registrants to paying subscribers varies among Districts. In the Upper East Region, for instance, the

Bawku Municipal District reported that 29% of NHIS subscribers in 2012 were paying premiums and only 3% were pregnant women registered free of charge. Bawku West, on the other hand, reported 22% paying members among the new subscribers, while 11% were registered free of charge under the exemption policy for pregnant women. [NHIA-UER 2012]

Annual insurance premium levels for people in the informal sector were established in 2003 to range from GH¢ 7.20 to GH¢ 48.00 based on income. Income levels in Ghana are, however, difficult to ascertain. Most DMHIS therefore established uniform premium rates. The highest annual premiums of GH¢ 24.00 are charged in Accra, while most rural Districts established premiums of around GH¢ 9.00 per year.^{9,10} This does not include charges for the registration and the insurance card which are retained by the DMHIS to finance the operation of the scheme. These payments are not reported as income at the national level.

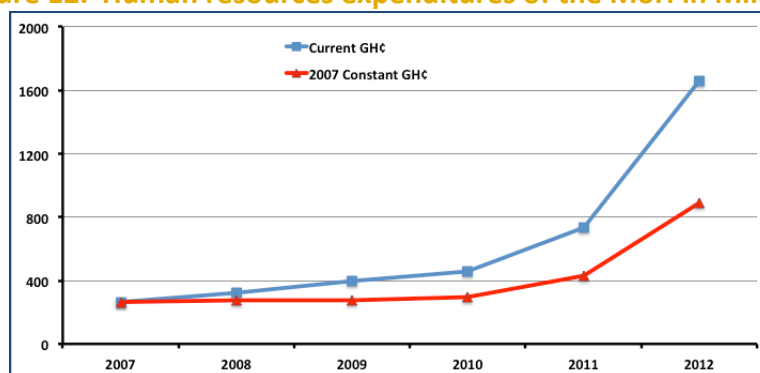
Even if we would assume that without the premium exemption policy, 50% of pregnant women registered without charge would have joined the NHIS by paying the premium at an average rate of 12 GH¢ per year, the annual revenue of the NHIS would have increased by less than 1%. (see calculation in Volume II) Foregone income because of exemption from premium payment is therefore not a significant contribution to the cost of providing free maternal health care.

In the absence of a premium exemption, some women could still have chosen to deliver in a health facility, and pay the cost out of pocket. This is therefore also a revenue loss to the health system. However, this cost is already fully captured as the increased cost of service delivery discussed below. (see 3.2.1.4)

4.2.1.2 Increased human resource costs

More than 95% of the human resources costs for public health facilities are paid from the national MoH budget, and more than 95% of the national MoH budget is spent on human resources. According to data from the Annual Health Sector Reviews provided by the MoH PPME, human resource expenditures in constant GH¢ were relatively stable from 2007 to 2010, but more than doubled in the succeeding two years. The 2012 data are still preliminary.

Figure 12. Human resources expenditures of the MoH in Million GH¢



Source: Data provided by MoH PPME 9/5/2013

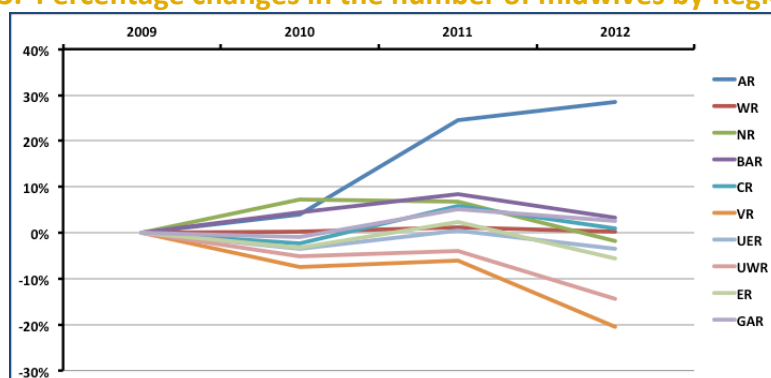
The total number of midwives in the public sector in Ghana, however, barely increased between 2009 and 2012 from 3,794 to 3,863. Only Ashanti, Brong Ahafo and Greater Accra Regions recorded

⁹ Information from key informant interviews

¹⁰ Approximately USD 4.50 at 2013 exchange rates

significant increases, while the numbers of midwives in most other regions decreased, in the Volta Region by as much as 20%.

Figure 13. Percentage changes in the number of midwives by Region since 2009



Source: Data provided by MoH PPME 19/3/2013

Interviews with key informants at all levels of the health system confirmed that the NHIS premium exemption for pregnant women created pressures on human resources for maternal health in the country. (see section 3.4) Steps have been taken to increase the training of midwives and physicians. The number of physicians employed by GHS is increasing slowly but no improvement has as yet been noted in the availability of midwives. Meeting the increased demand for maternity services clearly has a human resource cost. In one hospital, the maternity staff was strengthened by hiring a midwife on a contractual basis with internally generated funds. This was, however, an exceptional practice among the hospitals in our sample.

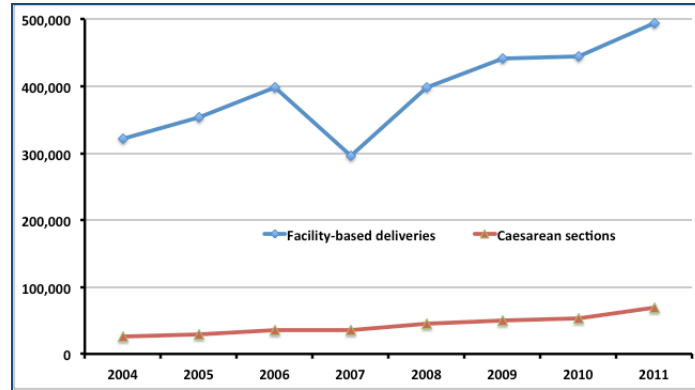
4.2.1.3 Increased investment costs

The two main budgetary sources for investments in infrastructure and equipment are earmarked donor funds and internally generated funds, primarily income from insurance claims. An increasing proportion of the cost of equipment and infrastructure is being covered by internally generated funds. Private health facilities have higher levels of NHIS tariffs to cover their investment costs.

Some of the investments of earmarked donor funds are directly related to providing maternal health services, such as the procurement of equipment for emergency obstetric and neonatal care in the 2009 and 2010 budgets or for the procurement of ambulances in 2012. The annual depreciation of these investments is a component of the cost of providing maternal health services. The National Assessment of Obstetric and Newborn Care in 2011 documented a large gap in health service infrastructure for maternity care. [MOH 2011-4] This was confirmed in the interviews we conducted for this evaluation. (see section 3.4) Most of the current infrastructure investments are therefore made to fill this gap and would have been required even without the free maternal health care initiative. They therefore cannot be counted among the costs of the initiative.

4.2.1.4 Increased recurrent service costs

The only remaining driver of the cost of delivering free maternal health care in Ghana is the increase in insurance claims for maternal health services that would otherwise have been paid out of pocket or that would not have been provided. Added to this are any changes in the service delivery profile, for instance an increasing proportion of deliveries by Caesarean section. According to data provided by the Ghana Health Service, the proportion of deliveries by Caesarean section among all facility-based deliveries increased from 8% in 2004 to 14% in 2011. [GHS data provided by MoH 20/03/2013]

Figure 14. Number of facility-based deliveries and Caesarean sections in Ghana

Source: GHS data provided by MoH 20/03/2013

When the financing of the 2003 HIPC-funded free maternal health care initiative started to fail in 2006, the number of facility-based deliveries in Ghana fell sharply to a low of 295,000 in 2007. It recovered rapidly after the announcement of the NHIS premium exemption for pregnant women in 2008. By 2011, the number of deliveries had increased by two thirds over the lowest level in 2007. The contribution of the free maternal health care initiative to this increase cannot be estimated with certainty. However the rapid increase in 2008 and the reports by key informants at all levels of the health care system indicate that it did make a significant contribution.

Applying the 2008 NHIS tariff structure, we estimate that in 2011 the free NHIS registration for pregnant women generated additional claims of GH¢ 31 M (low: GH¢ 18 M; high: GH¢ 45 M) representing about 5.8% of the value of all claims. (low: 3.3%; high: 8.3%) The method of calculation and the underlying assumptions are presented in Volume II. Since then, the NHIS tariffs have been adjusted twice and the amount of future claims will be considerably higher. Since the tariffs for all diagnostic groups have been raised, we do not anticipate a major proportional increase in the cost of claims for maternity care..

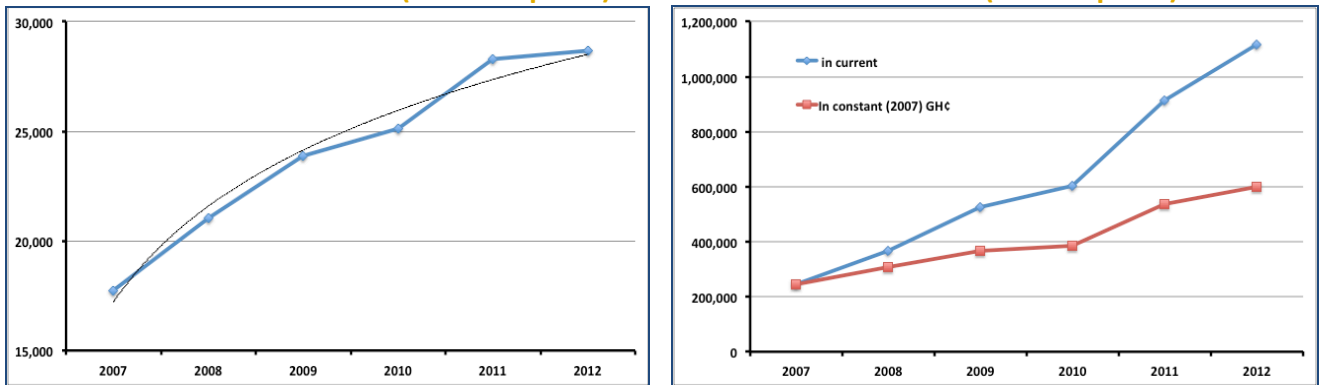
4.2.2 The cost to health facilities

4.2.2.1 Service delivery volume and income

Among the 21 hospitals sampled for the evaluation, 15 provided us with an annual record of obstetric deliveries from 2007 to 2012. Together, these hospitals reported 145,000 deliveries, ranging from a low of five at Siloam Hospital in 2007 to a high of 3,900 at the Wa Regional Hospital in 2012. The number of deliveries increased by about 65% over the period. After a robust growth in 2008 and 2009 following the announcement of the free maternal health care initiative, growth in the surveyed hospitals slowed in 2011.

Only 9 of the 21 hospitals provided us with an annual record of income for obstetric deliveries for each of the six years under study. The records show an increase in income of 360% from 243,000 GH¢ in 2007 to 1.1 million in 2012. Even after adjustment for inflation, the income in constant 2007 GH¢ had more than doubled by 2012. The pattern of growth shows a marked increase in the slope in 2011 which cannot entirely be explained by a surge in hospital-based deliveries. Contributing factors are the increasing proportion of deliveries by Caesarean section, increasing efficiency in claims payment, as well as the new NHIS tariff structure that was negotiated in 2011.

Figure 15. Number of deliveries and income from deliveries in sampled hospitals
Number of deliveries (in 15 hospitals) **Income (in 9 hospitals)**



We were unable to ascertain the detailed sources of all income for obstetric deliveries. Several hospitals reported their total income from NHIS claims and from user charges. The proportion of income from user charges generally decreased in importance over the six years of the study. In most GHS hospitals it ranged between 5% and 10% of total income, but in some private, mission and quasi-governmental facilities it still represented between one third and one half of all income in 2012. For all mission hospitals affiliated with CHAG, out-of-pocket payments by patients represented 20% of direct service income in 2011. [CHAG 2012]

A proportion of income by health facilities in Ghana continues to be generated from user charges. Insurance coverage is not 100 percent and some services are not insured. It is, however, unlikely that a significant proportion of this income is raised by the maternity clinics. Although all interviewees affirmed that expecting mothers still make out of pocket payments for the purchase of certain supplies, reagents or drugs, we found a record of co-payment in only 3% of the maternity records reviewed.¹¹

4.2.2.2 Tariffs and income per service

In 2008, the National Health Insurance Authority introduced the system of reimbursement by diagnostic groups (G-DRG) in order to make the claim process more efficient and to ensure uniformity of tariffs and claims. The first list of G-DRG reimbursement levels was implemented in April 2008. In 2012, the reimbursement levels were revised, and a more extensive revision of categories and reimbursement levels was introduced in 2013. [NHIA 2013]

Reimbursement by G-DRG is meant to cover all health care charges except drugs and transport. The cost of authorised drugs is reimbursed under a separate claim. The established tariffs differ by type and level of facility to compensate for different overhead and personnel costs. For instance the tariff for spontaneous vaginal delivery in a private hospital is about four times as high as for a delivery in a public health centre. Our evaluation did not collect data below the hospital level. Table 6 therefore only presents mean G-DRG tariffs for GHS, mission and private hospitals.

¹¹ See section 3.3 and 3.4

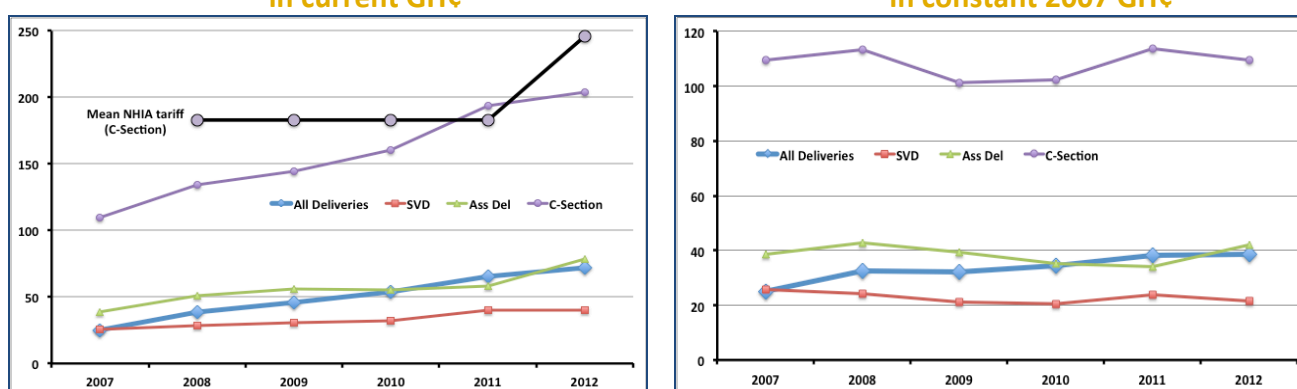
Table 6. Mean NHIA tariffs in GH¢ for obstetric services delivered in hospitals

	Caesarean Section	Spontaneous Vaginal Delivery *	Assisted Delivery
2008	183	43	61
2012	246	56	79
2013	284	83	108

* We folded the category of "SVD with episiotomy" that existed in 2008 and 2012 into this category by calculating a mean tariff for all spontaneous vaginal deliveries.

An analysis of annual income by type of service reported in our sample of hospitals shows that revenue per unit and type of service grew steadily in current GH¢, although it has been relatively static when adjusted for inflation.

Figure 16. Mean reported income by procedure in current GH¢
in constant 2007 GH¢



The average receipt for each type of procedure was generally lower than the average NHIA tariff. For Caesarean sections, for instance, the receipts only reached the level of the average tariff in 2011, just before the tariff was increased in 2012. This may in part be explained by the fact that a significant proportion of claims were not reimbursed by NHIS in the year that services were delivered. The receipts approached the tariffs as the efficiency of the payment mechanism improved.

4.2.2.3 Cost and financing issues for health facilities

The 2008 free maternal health care initiative achieved the goal of universal insurance coverage for one part of the population. For public health facilities, it meant that claims submitted to the NHIS became the only source of income for maternity services, hence the importance of the insurance claim tariffs. The tariffs are established through negotiation and are meant to cover all costs incurred in patient care, except capital, equipment and human resources costs in public facilities since these are paid directly by the Ministry of Health.

We have not been able to obtain any record of a costing exercise on which the tariffs were based, but we assume that such cost estimates were made prior to the tariff negotiations in 2008, 2011 and 2012. Only CHAG has published an average in-patient cost estimate in its 2011 annual report. The average cost per day was stable in 2010 and 2011, rising only slightly from GH¢ 39.60 to GH¢ 39.80. There was, however, wide regional variation with a low of GH¢ 20.50 per in-patient per day in the Western Region and a high of GH¢ 68.7 per in-patient per day in Greater Accra. [CHAG 2012]

We used claims data provided by the NHIA of 60 uncomplicated Caesarean sections performed over a three month period in 2011 at a CHAG District Hospital in the Volta Region to calculate the average length of hospitalisation for Caesarean section of 7.8 days. At the average cost per patient-day in the Volta Region (GH¢ 31.10) this would have cost the hospital GH¢ 243 per patient. In 2011, the tariff for a Caesarean section at a CHAG District Hospital was GH¢ 148.70. The hospital was therefore providing this service at a considerable loss. In 2013, the tariff was raised to GH¢ 231.44 which approximates the real cost for this hospital, but may still be low for facilities in Regions with higher unit costs.

Low tariffs were raised as an issue by some respondents in our interviews with key informants. However, the main issue mentioned by a majority of respondents at health facility level were delays in payment of NHIS claims, forcing some hospitals to take out lines of credit and run high bank overdrafts. At the time of our field study in March 2013, most hospitals had received the payment of claims up to August 2012. Delays in claim payments by the District Mutual Health Insurance Schemes is acknowledged by NHIA officials, although they maintain that there is steady improvement. The restructuring of the NHIS under the 2011 Health Insurance Bill and the imminent opening of Regional Claims Processing Centres is expected to bring further improvements. Claims that were processed by the only operational Claims Processing Centre in Accra, for instance the claims for the Tamale Teaching Hospital, were initially paid monthly without delays. Recently, however, they are also starting to be delayed. According to senior MoH and NHIA officials this is due to delays of transfers from the Ministry of Finance to the NHIF affecting the liquidity of the Fund.

All persons interviewed, from the community to the national level, and all information collected at facilities visited during the evaluation confirmed that user charges for obstetric deliveries have not been completely abolished. Hospitals cover their financing gap by asking patients to purchase essential supplies such as gloves, diapers, soap, or draw sheets. The cost of these items should be included in the established tariff. The recently negotiated 2013 tariff may achieve this. However until an adequate tariff structure is matched by timely payment of claims, the health facilities will continue to pass on some of their costs to their clients.

4.2.3 The costs to patients

In our review of 2348 maternity records, we found evidence of direct user payments in only 73 cases (3%). In a survey of client satisfaction with NHIS services in the Tamale Metropolitan Area in 2012, more than half of the patients reported that they had paid for some hospital services, primarily laboratory costs. [NHIA(NR) 2012] This may not apply to maternity services, or additional laboratory costs may not be charted in the maternity records. Client payments for blood transfusions were mentioned frequently by respondents in our key informant interviews. The practice that maternity clients bring or purchase certain supplies for pre and post partum care is so widespread that it is almost considered normal by most health staff.

The cost of free maternal health care services was discussed with women and men during the community meetings summarised under 3.3. The cost of having to pay for supplies at the hospital was mentioned by all groups. One group had a particularly vibrant discussion which may indicate that in this community additional user charges were raised by the health facility as exemplified by the following two quotes from the same group: *“When you go to the hospital you end up paying high for delivery service. Does the government pay the nurses at all? Ah we don’t understand this because*

the NHIS is free.” And: “Comparing the cost of delivering at home and the cost of delivering at the hospital, it is clear. In the home one can spend less than 12 Cedis but in the hospital many times you spend 90 or 100 Cedis. Why? For something that is free?”

4.2.4 Main findings on costs and financing

The recurrent cost of the free maternal health care initiative to the health system in Ghana is primarily generated by increased demand for services. It is carried by the National Health Insurance Fund and represented between 3.3% and 8.3% of total claim payments in 2011.

Health facilities carry some of the costs of the initiative. NHIA tariffs for claim reimbursement were initially quite low, but were adjusted in 2013 to approach real costs. However major costs to facilities are generated by the time lag between service provision and claims payment. System inefficiencies to close this gap are being addressed, but there is still the issue of liquidity of the NHIF which is beyond the control of the NHIA.

Patients ultimately are asked to close the gap between cost and income of service providers. We did not find much evidence of direct user charges levied by hospitals, however it is a widespread practice to require patients to purchase supplies that should be part of the basic service package.

4.3 Community attitudes and views

We assessed community attitudes and perceptions about access and utilisation of maternal health services in community group discussions in three districts of the country. A representative community study was beyond the scope of this evaluation. We selected one district in each of the three geographic regions of the country. Three teams of facilitators spent five days in each district and conducted a total of 13 group discussions with selected participants. The selection process and the characteristics of the selected districts and of the groups participating in the discussion are described in Volume II.

4.3.1 Choice of site for delivery

Most women who participated in the group meeting had delivered children at home and in health facilities. As anticipated, the main reasons for choosing home delivery varied in different regions of the country and among different groups.

4.3.1.1 Access to health facilities

Access to the nearest health facility was a major reason for home delivery cited by all groups. The issues raised included the unpredictability of the onset of labour, the cost of transport, the availability of transport, the state of the roads and the time required to reach the health facility. Women told of experiences of being transported on a motorcycle while in labour, and in one case of giving birth by the roadside.

4.3.1.2 Communication with health staff in maternities

The second most common reason for home delivery cited by women in group interviews was maltreatment by health staff. In some communities, this was the first and main reason cited. The accounts of maltreatment recounted by women in all three districts were at times shocking. Several women stated that they would never return for delivery to a health facility because of the treatment they had received. Some quotes collected during the group discussions are compiled in Volume II.

4.3.1.3 Various culturally determined reasons

A number of locally specific reasons for delivery at home or in other community sites were cited by women, reflecting the diversity of culture in Ghana:

- Some reasons would be relatively easy to address by health services, for instance the preferred practice by women in some cultures to deliver in a squatting position, or the fear of having a Caesarean section that was expressed in some groups.
- Others would be more difficult, like the fear of spiritual attacks if the delivery does not take place in a site of spiritual protection; the belief that delivery is a private affair that should be accomplished alone; or the community attitude that a woman seeking assistance for delivery in a health facility was behaving “*unwomanly and cowardly*”.
- Several groups of women also mentioned that they preferred home deliveries because of access to herbs and potions prepared by traditional midwives to accelerate labour. This potentially dangerous practice was also mentioned by health workers as a cause of stillbirth and maternal death among women admitted to hospital after a long period of labour at home.

4.3.1.4 The cost of facility-based delivery

The cost of delivering in health facilities was primarily mentioned in the context of transport costs. All women participating in the group discussions were aware of free NHIS registration during pregnancy, and there was high uptake of ante-natal care. But several also mentioned the cost of buying or paying for supplies. In the words of one focus group participant: *“It is free to deliver but other subsidiary materials that we buy around the hospital like Dettol make it expensive and burdensome”*. That these costs are perceived by women to be substantial is exemplified by this comment from one of the group participants: *“We don’t feel the actual relevance of the free maternal health service because under the NHIS many people end up paying for many things at very high price under the pretence that is free. When you go, you are required to buy many things.”*

4.3.1.5 The attitude of men

We organised two group discussions with men who, in many communities, play a critical role in care-seeking decisions, especially if it involves payment of cash for transport or other services. Men were generally supportive of having their wives deliver in a health facility. Some of them did, however, express some hard “negotiating positions” as exemplified by this quote: *“if you will waste my money on transport to attend the ante-natal clinic and refuse to take the medicines given, I will not bother myself to organise to get you to the hospital when you are in labour. I will let you suffer for your stubbornness and only help when it gets very critical.”*

4.3.2 Opinions about free maternal health care

All community members who participated in the group discussions knew about the free maternal health care initiative and expressed their appreciation. Despite reservations outlined under 3.3.1, most women stated that they would prefer to deliver in a health facility in future, a position supported by the men in the community. The free registration in the NHIS during pregnancy was a major contributing factor for this decision. In the words of one group participant: *“Because there is NHIS so many people go to deliver because they want to get their tax back from the government. Ah! I have to get my share. The government has made it free for us to receive treatment from the health facilities so if you will not go then it is over to you”*

An indication of a shift in community attitudes is the profile of 40 women who attended the four community discussions in West Mamprusi District. All of them were multiparous, and 28 of them had delivered their last child at the hospital. For the preceding birth, only five had delivered in a health facility. Although this is not a representative sample, the magnitude of the change indicates an important change in community attitudes.

4.4 The views of service providers

For an institutional assessment of the free maternal health care initiative, we conducted 109 structured interviews with a total of 128 persons at hospital, district, regional and national level. Several of the interviews were conducted in groups and one of them via telephone. The list of people interviewed is provided in Annex 4. In total, we interviewed

- 51 senior hospital staff,
- 41 senior staff of the Ghana Health Service at district, regional and national level (including one former staff),
- 32 staff of the National Health Insurance Authority at district, regional and national level,¹²
- the Chief Director, the Head of Policy, and the Director of Human Resources of the Ministry of Health,
- the Executive Director of the Christian Health Association of Ghana.

4.4.1 The institutional context of the free maternal health care initiative

The 2008 free maternal health care initiative was not the first time that the Government of Ghana introduced social protection for maternal health. Fee exemption for ante-natal care had been in effect since the 1990s, and a previous fee exemption initiative for delivery services was abandoned by 2007 when it ran out of money. Against this background, we asked stakeholders in the health sector about how the initiative in 2008 was prepared, how it was implemented, and how it was communicated.

- Some respondents referred to the previous free maternal health care programme, acknowledging the difficulties experienced by clients and by health facilities when the programme failed for lack of money. All respondents agreed that there was an urgent need for action to respond to the deterioration of maternal health care: *“The situation was pathetic. Utilisation of health facilities was very low. Clients came only with complications. Some women were made to stay and work for the facility to pay for the service.”*
- About three quarters of the respondents offered comments on the introduction of the initiative. Some saw the initiative as one step in health and social service development in the country, others voiced the opinion that the announcement of the initiative was a political act in the run-up of a general election. For most, the Presidential announcement on May 16th 2008 came unexpected. We heard conflicting accounts of what happened after the announcement, but those who were close to the process told us that the decision on implementation through the NHIS was taken quickly by a small task team of experts. In fact, the news bulletin by the Ghana

¹² At the time of the survey, staff of the District Mutual Schemes were being integrated into the NHIA according to the National Health Insurance Act of 2011.

News Agency on May 16 already referred to the registration of pregnant women in the NHIS.¹³ On June 27th the implementing and financing guidelines [MOH 2008-4] were published and distributed. Implementation started on July 1st 2008, six weeks after the Presidential announcement.

- The rapid roll-out of the initiative was acknowledged as a source of confusion and problems. There were questions about who would pay for the production and distribution of insurance cards for the newly registered pregnant women and who would undertake the registration when a woman presented in labour at a health facility at far distance from an insurance office. Initially, many claims were rejected by the DMHIS on procedural grounds. It took more than one year before routine procedures were established that assured relatively smooth implementation. All but one respondent strongly endorsed the decision of implementing the initiative through insurance premium exemption, some calling it the only option. However many were critical of the lack of preparation and the speed with which the initiative was rolled out.
- The initiative was announced in the run-up of national presidential and parliamentary elections and it was hotly debated in the news. The respondents affirmed that there was no lack of public information, but there was also no communication strategy. Communities were informed in speeches and discussions of political candidates and through local community information campaigns organised by health insurance and public health staff. The information was not always consistent. A controversy which at the time even led to demonstrations of women in front of the Presidential Offices, and which still echoed in a few of our interviews, was a rumour that the purpose of the initiative was to increase the birth rate. *“Girls are getting pregnant because they will get free care”* was one of the comments we heard from a Medical Officer. It was not a widespread opinion among the stakeholders we interviewed, and it was discounted by many, but we were told that it was a prominent subject of radio talk show discussions when the initiative was introduced in 2008.
- A salient comment on the institutional context and the communication of the initiative was made by a senior executive of the NHIA: *“The term ‘free maternal healthcare’ is a misnomer and it has created a lot of misunderstanding. In fact, there is no such thing as ‘free maternal healthcare’. What we have is the almost complete coverage of maternal health services under the NHIS, and that has always been there. The only change with this initiative was the possibility of pregnant women to join the NHIS for one year without paying a premium and without waiting period. There are some services and products related to maternal health care that are not covered by the NHIS. This has not changed, but this fact often leads to arguments because the public received the message that ‘maternal health care is free’ and they therefore demand that everything should be free of charge.”*

4.4.2 The effectiveness of the free maternal health care initiative

There was almost unanimous agreement among all respondents that the introduction of the free maternal health care initiative has increased the level and the equity in the utilisation of health facilities for delivery. Administrators and care providers in health facilities cited the increase in the number of deliveries since 2008. Several of them mentioned that they are now attending to many

¹³ <http://www.modernghana.com/news/165816/1/free-medical-care-policy-should-not-lead-to-uncont.html>

more women from poor rural communities who previously did not deliver in the hospital. But many respondents also noted that cost of health services was not the only factor that kept women from delivering in a health facility. Cost of transport was mentioned by many. Some respondents noted that the impact of abolishing out-of-pocket payments varied among Regions and Districts. In sparsely populated districts with poor roads and few health facilities, the difficulties and cost of transport are the main reason why women deliver at home. Removal of user charges therefore had only a minor effect on increasing hospital utilisation.

Cultural factors were also mentioned by several respondents. Two respondents mentioned examples on how the acceptance of hospital deliveries increased when hospitals took steps to adapt services to local culture, for instance by allowing women to squat during delivery. One senior respondent on the national level voiced the opinion that greater cultural sensitivity and a change in staff attitudes would have had a major effect on increasing facility-based deliveries, even without the removal of user charges.

When asked about what constrained the effectiveness of the initiative, some respondents at the health facility level mentioned financing and payment issues. (see 3.4.3) By far the majority, however, referred to human resource constraints. As expressed by one Municipal Director of Health Services: *“The initiative has increased utilisation of health services by more than 100% at the cost of breaking the backs of midwives”*. Although national MoH and GHS officials pointed to efforts to increase the output of trained midwives and physicians, the health facilities did not yet report any relief. Hospitals in remote areas traditionally have staff retention problems, but even municipal hospitals in densely populated areas reported a more than 100% increase in the workload of midwives.

Respondents were divided on the effect of the initiative on the quality of care. About a third voiced concerns that the increased workload has affected the quality of attention given to each client as reported by one Principal Nursing Officer: *“The quality is beginning to suffer. Yesterday two midwives delivered 20 mothers. While checking the foetal heart on one mother, another started shouting that the baby was coming.”* But the other two thirds estimated that quality had remained unchanged or even improved. One respondent pointed out that the relationship between volume and quality is complex. In facilities that were underutilised, an increase in deliveries may have had a positive effect on improving provider skills and increasing quality. But when a certain limit of capacity is reached, then quality is likely to suffer.

Of 43 GHS and hospital staff at district and health facility level who answered the question about the impact of the initiative on pregnancy outcome, 33 stated that there was a definite improvement. Many among them were able to support this statement by quoting hospital or district statistics of stillbirths or maternal deaths. Only three out of 43 respondents considered that there was no impact, while the remaining seven gave complex answers. One medical superintendent pointed out that among the 21 stillbirths registered in the hospital in the last year, 19 were macerated, pointing to the fact that conditions outside the hospital are responsible for many of the adverse outcomes of pregnancy. This was confirmed by a Municipal Director of Health Services in another Region: *“We are seeing more maternal mortality, but most of these are delayed cases from outside the district”*.

4.4.3 The cost of the free maternal health care initiative

On May 16th 2008 the Ghana News Agency announced the signing of the GBP 42.5 M grant agreement with the UK Government quoting that *“the British funds will enable the Government to implement the free antenatal care policy for the next 14 years”*.¹⁴ It is not known whether this quote originated from Government sources or whether it was simply an expression of journalistic freedom. It supports the assertion by several respondents at senior levels that the resource needs of the initiative were not assessed before the announcement was made. In the words of one respondent, *“the Government took high risks, and these risks are gradually being downloaded onto health providers who eventually pass them on to clients. A pledge was made without the necessary financial security to ensure that it can be served.”*

None of the respondents interviewed was able to estimate the cost of the free maternal health care initiative, but several pointed out that the real issue was the cost and the affordability of operating a social insurance system in Ghana. Interestingly, among health staff in the districts, the belief that the initiative was still being funded with a grant from the UK Government was not uncommon. At the headquarters level of MoH, GHS and NHIA the awareness of the precarious financial situation of the NHIA was high. Some suggested the introduction of “means testing” to limit the access to social health insurance, including maternity services, to the poor. Others discounted this as being impractical and potentially costing more money than it would save.

At the district and the facility level, the effects of the cost shifting from the NHIF to the facilities was felt acutely. A few respondents referred to low tariffs for maternal health services, but almost all of them referred to the long delay in receiving payments which was driving some hospitals to the brink of insolvency.

Not surprisingly, the hospitals pass on some of the costs to their clients. Respondents readily admitted that clients had to pay for services not covered under the NHIS, specifically mentioning transport services, blood transfusions and family planning services. But many also mentioned that in addition, clients are asked to bring or to buy supplies that should normally be covered by the hospital’s budget.

4.4.4 The sustainability of the free maternal health care initiative

There was a very high level of agreement among all respondents on the level of priority of the free maternal health care initiative. Of 102 respondents, 101 affirmed that they considered the continuation of the initiative a high priority. On the question of whether the initiative should be discontinued, 70 out of 71 answered with a resounding “No”. The dissenters on each question had similar arguments. One felt that strengthening the NHIS should take priority over the free registration of pregnant women, the other believed that free registration of pregnant women was a disincentive for women to join the NHIS.

Opinions were more divided on the assessment of sustainability of the initiative. Three of 81 respondents who answered this question thought that the initiative was not sustainable. Most of the remaining respondents had differentiated views. Common responses were that the initiative was as sustainable as the NHIS. As long as the NHIS was functioning, the free maternal health care initiative

¹⁴ <http://www.modernghana.com/news/165816/1/free-medical-care-policy-should-not-lead-to-uncont.html>

could be maintained. Many respondents added that the NHIS was too important to fail. *“The Government has no option but to sustain it”.*

4.4.5 An overall assessment and recommendations by key stakeholders

The overall assessment of the free maternal health care initiative among respondents in the interviews was clearly positive. In the words of a staff member of a private hospital: *“Continue with the initiative, it should be like the air we breathe.”* There were very few dissenters.

The respondents offered a large number and a wide range of suggestions for improvement. The two most frequent, each mentioned by 17 respondents, were for an increase in human resources, primarily midwives, and for improvements in the management of NHIS memberships and claims. These included suggestions to introduce biometric registration to avoid multiple registrants; simplification of the registration process; and simplification of claims management.

In third place among the recommendation was the demand for more timely payment of claims by the NHIS mentioned by 14 respondents. This was followed closely by 12 respondents who suggested that the initiative could be improved by including family planning services among the insured benefits. Nine respondents suggested that the payment of ambulance services should be included.

A discussion of means testing to limit access to social insurance coverage for obstetric delivery based on income and wealth featured only in the interviews of senior staff at national level. Means testing was mentioned in 9/12 interviews at national level, but only in 2/97 interviews at regional, district or facility level. At national level, the opinions were divided with five respondents suggesting that means testing should be explored as an option to make the initiative sustainable, while the remaining four suggested that the discussion of means testing should be put to rest. *“The discussion of means testing is irrelevant in this context. Means testing in Ghana is too expensive and too imprecise. It could result in more equitable insurance premium rates, but premiums are quite irrelevant in the financing of NHIS.”*

5 THEMATIC ANALYSIS OF THE EVALUATION FINDINGS

5.1 Relevance

A World Bank study in 2004 estimated that 74% of maternal deaths could be averted through universal coverage of essential obstetric care (52% of deaths averted), safe abortion services (16%), active management of the third stage of labour (10%) and the use of Magnesium Sulphate and other anticonvulsants in the treatment of pre-eclampsia (8%). [Wagstaff 2004] Three of the four interventions require access to health facilities for delivery, but they also require that the health facilities provide services of sufficient quality.

In the World Bank study, access to abortion services ranked second among effective interventions to prevent maternal death. In Ghana, 11% of pregnancy-related deaths are estimated to be due to induced abortions. Abortion rates are highest among urban women in the 20-24 year age group. About 70% of women who had an induced abortion were not using contraception at the time they became pregnant. [GSS 2009-2] Increased access and use of effective contraception therefore has the potential of significantly decreasing the demand for abortions. Eliminating unplanned and unwanted pregnancies could potentially eliminate between one quarter and one fifth of pregnancy-related deaths. [Campbell 2006]

Increasing the coverage and effectiveness of family planning services is therefore a strategy to consider for the objective of reducing maternal mortality. The unmet need for contraception among women aged 15 to 49 in Ghana is estimated at 26%. [GSS 2012] Whether this gap can be closed through the inclusion of family planning services in the NHIS benefits package is a hotly debated issue in Ghana. In March 2012, the Minister of Health announced the intention to include family planning services among NHIS benefits. One year later the modalities of implementation were still under discussion. In our key informant interviews, we heard very firm statements on opposite sides of the debate. Whatever the position on ethical, moral or religious grounds, increasing the access and use of contraceptives can potentially provide a major contribution to the reduction of maternal mortality, and should therefore not be excluded from the list of policy options under consideration.

Removing user fees for delivery services had been a long established advocacy ask of maternal and reproductive health professionals and activists in Ghana. It had proven its effectiveness in the short-lived 2003 user fee exemption programme. (see 2.3) It was also a natural extension of the longstanding policy of free ante-natal service that resulted in sustained high coverage rates in Ghana. When the free maternal health care initiative was introduced in 2008, it provided more than just user fee exemption for delivery services. It provided effective NHIS insurance coverage for all pregnant women for one year, absorbing within its scope the existing policy of user fee exemption for ante-natal services.

User fees for delivery services are not the only barrier to the utilisation of health facilities for deliveries. In the 2007 Ghana Maternal Health Survey, 19% of women mentioned the lack of money as the reason for not delivering in a health facility, while 35% mentioned other problems of access, primarily distance and transportation, not having somebody to accompany them and not knowing where to go. [GSS 2009-2] Our interviews and community discussions confirmed the importance of geographic and cultural barriers. They also added the “culture” of health worker communication

with clients as another important factor that keeps women from seeking assistance in health facilities.

Eliminating user fees as a financial barrier of access to maternal health care was clearly a relevant policy option, especially in the context of an expanding social health insurance system that could assure the continued payment of service providers through a third party payment system. But there are other relevant options that can and should be addressed at the same time. These include the gradual expansion of delivery services to the health centre and CHPS level; increased availability of ambulances and the inclusion of ambulance costs in the NHIS benefits package; increased in-service training and supervision of maternity staff to assure better client relations and communication; and increased access and promotion of family planning services.

Distance to the health facility and the availability of transport are the next most important reasons cited by women for not accessing health care services. Their importance varies by region and location. While in an urban environment transport cost may be a negligible barrier, in some rural areas it is by far the main limitation of access. This has to be considered when assessing the regional relevance of the free maternal health care initiative. Transport costs also have an important effect of undermining equity of service delivery. In the 2008 Ghana Demographic and Health Survey, the issue of distance and transport as a problem for accessing health care were only mentioned by one in six women from the highest wealth quintile, but by one in two women from the lowest.

5.2 Effectiveness

According to the most recent GHS data provided to us by the MoH PPME, the number of facility-based deliveries in Ghana experienced a robust growth from a low of about 300,000 in 2007 to a high of 500,000 in 2011.¹⁵ This is illustrated in Figure 13 of Section 3.2. This increase was confirmed by the data we collected in 20 hospitals. The average number of deliveries per hospital and year almost doubled between 2007 and 2012 as presented in Figure 9 of Section 3.1.

Following ratios of facility-based deliveries with the GHS data is not useful because the GHS changed the denominator for expected deliveries from 4% of the population until 2009 to 3% in 2010. This produced a big jump in the ratio of facility-based deliveries in 2010, which is an artefact of the denominator change.

The steep increase in the number of facility-based deliveries following the introduction of the free maternal health care initiative in 2008 suggests that this increase, or at least part of it, is due to the introduction of the initiative. Direct attribution, however, could only be estimated through a population survey. Using insurance registration data does not provide a valid estimate, because a significant proportion of women register with the NHIS for ante-natal care but deliver their baby at home. The implementation of the initiative through the free insurance registration at the time of the first ante-natal visit, together with a more than 90% ante-natal coverage in the country, means that today practically all women who deliver in a health facility are insured. The information could potentially be obtained through a secondary analysis of the 2011 MICS database.

¹⁵ These statistics only include GHS and CHAG facilities. The actual numbers are higher, but our emphasis is on illustrating the rate of growth.

Until such a secondary analysis is made, or we have population-based survey data from the next Demographic and Health Survey, we have to content ourselves with the finding that the free maternal health care initiative contributed to increasing the rate of facility-based deliveries, but that we cannot estimate the attribution. The need for such an estimation is somewhat mitigated by the fact that the marginal cost of implementing the initiative is essentially the revenue loss to the NHIA because of foregone premium income. This is an insignificant amount, (see 4.3) and the initiative as currently implemented is therefore providing value for money, no matter what proportion of facility-based deliveries are directly attributed to the premium exemption.

An estimation of the social equity effect of the free maternal health care initiative proved equally difficult. During the course of the evaluation, we found that hospital maternity records and registers did not contain sufficient information to reconstruct a social profile of the clients. The profile of the more than 2,000 women whose maternity records we reviewed did not change significantly between 2007 and 2012. (see Table 2) However the power of our study to detect any changes was greatly reduced by the small number of data on social indicators we were able to find in the maternity records.

The 2011 Multiple Indicator Cluster Survey reported that among all women ever registered in the NHIS, the proportion of women who were registered without charge under the free maternal health care initiative was five times higher among the poorest segment of the population than among the richest.

To estimate the number of deaths averted through increased utilisation of facility-based deliveries, we chose the number of deliveries in 2007 as the baseline. Each year we increased the baseline by the population growth rate of 2.4%. We considered any delivery above this level to be “increased usage” without specifying attribution. Under this assumption the marginal increase in usage of health facilities for deliveries was 32% in 2008 and increased to 52% in 2011 for a total of 524,440 additional facility-based deliveries over four years.

Assuming that 15% of pregnancies result in complications [MoH 2011-4] and that the maternal mortality due to these complications is reduced from 5% at home to 1% in a health facility, an estimated 3,147 maternal lives were saved over four years by the increase in health facility deliveries. The calculation is presented in detail in Volume II.

If we assume that all additional deliveries above the baseline were among women who registered with the NHIS under the free maternal health care initiatives, and that insurance premiums for these women averaged about 12 GH¢ per year, the total cost to the NHIS in terms of foregone insurance premium revenue over the four year would be GH¢ 6.3M¹⁶ or GH¢ 2,000¹⁷ per maternal life saved.

The cost of providing the services is, of course, much higher than the foregone revenue for insurance premiums. This, however, is simply the cost of extending the coverage of obstetric services and would have to be paid by someone, independent of any initiative. Under paragraph 3.2.1.4 we estimated the mean cost of insurance claims for an obstetric delivery to the NHIS at 2008 tariffs at 90.5 to 134.3 GH¢. (see assumption and calculation in Volume II) Under this assumption, the cost of

¹⁶ (524,440 x 12)

¹⁷ 6.3M / 3147

claims per maternal life saved ranges between GH¢ 15,000 and 22,000 at 2008 NHIS tariffs. (see Volume II)

Based on the estimate that each maternal life saved averts 66 disability-adjusted life years (DALYs)¹⁸ the cost per DALY in terms of foregone insurance premium revenue would be GH¢ 30, in terms of additional insurance claims it would be in the range between GH¢ 227 and 333. An intervention is considered very cost effective if the cost per DALY is less than the annual GDP per capita. According to the Ghana Statistical Service, the per capita GDP in Ghana ranged from GH¢ 1,318 in 2008 to GH¢ 2,419 in 2011.¹⁹ So even at the highest estimate, the cost of a DALY averted through the free maternal health care initiative is highly cost effective.

5.3 Efficiency

Almost two decades of fee exemption for ante-natal care have contributed to a sustained high level of ante-natal coverage (>90%) in all Regions of Ghana. [GSS 2012] Increasing the coverage of facility-based deliveries is, however, a more complex task. Antenatal care is provided by a wide network of primary level health facilities that are much closer to communities than the health facilities providing obstetric deliveries. Many women who register during pregnancy with the NHIS under the free maternal health care initiative do therefore not take advantage of the access to insured delivery services. In addition to this geographic access issue, there are cultural barriers to facility-based delivery because of traditions of child birth that have been established over many generations and that are not easily abandoned. There are also modern medical traditions of responding to “cases” and “conditions” rather than to clients, resulting in behaviours of health staff that are not respectful towards women during delivery and that may even be considered abusive.

Other choices could have been made in Ghana to increase facility-based deliveries. Health worker training in customer care and cultural sensitivity as well as continuing support of a mother-friendly environment in maternity units could have removed important barriers in some communities. We heard examples of this in one interview at national level. Several respondents interviewed suggested that utilisation could be greatly increased by bringing the services closer to communities. This would require upgrading the capacity of health centres and CHPS compounds to provide quality skilled assistance during delivery. All our findings indicate that this would be effective. However, the cost in terms of additional human resources, infrastructure, equipment and supervision is likely to be very high. It would also take several years to expand the service capacity to the community level while there is still an unfinished agenda of filling gaps and stabilising the service capacity at the district level.

Many countries have experienced the risks of introducing user fee exemptions for priority health services. There is a risk that it results in a deterioration of services because no effective mechanism is introduced to compensate the lost income of facilities and health workers. There is a risk that services are distorted when staff and resources are drawn away from other services. There is a risk of a rebound decline in utilisation due to a loss of public trust when initially effective programmes run out of funds. This was the case when the first free maternal health initiative failed in Ghana in 2006/7. Delivering the policy of universal free access to maternal health care through temporary

¹⁸ see Volume II

¹⁹ <http://www.statsghana.gov.gh/gdp.html>

free registration in the expanding national social health insurance system effectively mitigates these risks.

Expanding the coverage of obstetric services requires investments in infrastructure and human resources development, as well as significant recurrent budgets for operational costs that. But increasing service coverage is a national goal. No matter how it is achieved, the services would have to be paid for. The only cost of delivering the initiative that could be considered a direct administrative cost is the foregone revenue from insurance premiums. This, we have shown, is equivalent to less than one percent of the cost of the NHIS in Ghana.

The option of implementation through insurance premium exemption has therefore no equal in terms of low cost and low risk. Effectiveness is discussed under 4.2. The increase in utilisation is documented. We do not expect utilisation to continue to grow towards full coverage because of the other barriers mentioned. But there is no reason to not address the other barriers at the same time. This effort is already being undertaken by many health facilities. The third risk, however, remains. If user charges start to creep into the system because of funding bottlenecks from the centre, and ineffective supervision at the periphery, then the growing confidence in health insurance may turn into public disappointment and loss of trust.

Practically all of the 128 key informants in the Ghanaian health sector we interviewed in the course of the evaluation supported the choice of implementation through the NHIS. However, health care workers and administrators of hospitals had a predominately negative view on operational efficiency. Low tariffs, delayed claim payments, unexplained cancellations of claims and an unmanageable increase in work load were cited. The NHIA has embarked on an ambitious project of streamlining the claims reimbursement process, but the effects have not yet been felt in most of the hospitals visited.

These issues should be taken seriously, because when the mechanisms for adequately reimbursing the services of providers fail, the providers will invariably start recovering their costs through user charges, thereby re-erecting old barriers to access. These issues are not specific to the free maternal health care initiative. They are general challenges of introducing a national social health insurance system. They have to be addressed at the level of general health service financing and administration.

There are also efficiency issues in the NHIS registration process for pregnant women. According to key informants interviewed, the District Mutual Health Insurance Schemes initially implemented their own processes, sometimes requiring women to travel long distances to be registered after obtaining a certificate of pregnancy. It was even more difficult for women arriving at the facility for the first time already in labour. Some local solutions involving temporary registration have been implemented, but not in all hospitals in our sample. There is also an unresolved issue of eligibility of women presenting with complications of an abortion. If the woman had previously confirmed her pregnancy and registered with the DMHIS, she will automatically receive all NHIS benefits. However if she presents for the first time at a hospital with a complication of a spontaneous or an induced abortion, her eligibility for registration under the initiative is not clear. With the passing of the National Health Insurance Bill in 2012, the NHIA is in a position to establish efficient and uniform registration processes and guidelines and ensure that they are implemented.

5.4 Impact

We reviewed the process of implementation of the initiative through document reviews (presented under 2.3) and interviews with key informants (presented under 3.4.1). The initiative clearly suffered organisational problems at the start. This was in part related to the speed of introduction and in part due to the fact that the social health insurance system in Ghana was still in a phase of development, a process that is not yet completed. Uniform procedures for registration and claims processing had not been developed or had not been sufficiently communicated to the DMHIS. Capacity at the DMHIS to respond to the new registration process was variable. These issues are being addressed in an on-going process of reform and growth of the NHIS.

The pressure on human resources for maternity care that we have documented in the evaluation should have been an anticipated rather than an unintended consequence. According to a senior MoH officer, the free maternal health care initiative was launched one year after the Nurses and Midwives Council had abolished the shorter midwife certification programme and only continued to license midwives who had completed the three year diploma programme. The national graduation of midwives dropped from about 700 to 200 per year at a moment when there was a surge in demand for deliveries in health facilities. The diploma programme has since been expanded, and a gradual increase in the number of midwives is noted, but the demand still outstrips the supply.

Very few health sector staff believe that the free maternal health care initiative has had an effect on reproductive behaviour by removing cost of delivery as a disincentive to unprotected sex. A small minority of respondents, would agree with the statement of a senior national official that *“pregnancy has become cheap - young girls are no longer worried about becoming pregnant because they know they can get free delivery care”*. The agreement may be more widespread in the general population where this was, according to informants, a major discussion theme of radio talk-shows in 2008. It is, however, not a highly plausible effect, nor is there any evidence to support it. A steady decline in the age specific fertility rate among adolescent girls aged 15 to 19 has been documented in successive population surveys since 1988. This declining trend is maintained up to the latest survey, the MICS 2011. [GSS 2009-1; 2012]

One potential effect that has received little attention is the promotion and reinforcement of the National Health Insurance System through the free maternal health care initiative. In 2011, the NHIA reported an active membership of 8.2 million subscribers, including about 500,000 women who were registered for one year free of charge. Women registering with the NHIS under the initiative therefore make up a significant proportion of the insured population in Ghana. We had asked key informants for an estimate of the proportion of women who join the NHIS as paying members after their period of free registration expires. This information is not available and respondents were generally not prepared to estimate. It is, however, plausible that a good experience in receiving insured delivery care promotes health insurance subscription in the family and the close community.

In the community arm of the evaluation, we held discussions with 13 groups of women in the three geographic regions of the country. The groups were selected from communities with low utilisation of health facilities for delivery. Much of the discussion focused on reasons for non-utilisation. Nevertheless, a positive assessment of the initiative was dominant in all groups as expressed by one mother who recently delivered in a hospital: *“It is true that we are close to the hospital so we*

patronize the hospital, however, even if it were not close we will still go because the money we use for payment of services can now be used for transport.” Section 3.3 presents community views about services and about the initiative in greater detail.

5.5 Financial sustainability

An analysis of the cost and the sustainability of the free maternal health care initiative cannot be separated from an analysis of the cost and sustainability of social health insurance in Ghana. The initiative is essentially a limited NHIS premium waiver for pregnant women, and therefore somewhat misnamed. The cost to the NHIS in terms of foregone revenue from premium payment is insignificant. The costs to the health systems are the cost of increased numbers of claims charged to the NHIS, and the increased human resources and infrastructure costs charged to the budget of the MoH. (see 3.2)

In Section 3.2 and in Volume II we have calculated the annual cost of claims under the free maternal health care initiative to the NHIS in 2011 at between 3.3 and 8.3% of total NHIS claims. We did not have sufficient information to establish past trends of this cost. It is reasonable to assume that it rose quickly after 2008 when the initiative was introduced, but has since stabilised as the marginal effect of removing financial barriers to facility-based deliveries decreased. At the same time, the overall volume of claims to the NHIS due to increasing registration rates and increasing cost of services has grown rapidly. It increased from GH¢ 79 M in 2007 to GH¢ 550 M in 2011. [NHIA 2012] We therefore expect that after reaching a peak in the number of free registrations of pregnant women, the proportional cost of claims attributable to the initiative will decrease. We estimate that this peak was reached in 2011 when the highest number of pregnant women were registered under the exemption initiative, representing 67% of all pregnant women in Ghana²⁰. [NHIA 2012]

The marginal human resources costs of the initiative cannot be separated from the overall human resources costs of the health sector in Ghana. When adjusted for inflation, the human resources expenditures of the MoH remained unchanged until 2010 but have more than doubled since then. The increase in the number of midwives has, however, not kept pace with the increasing demand for services. The increased cost due to the increase in facility-based deliveries has until now been carried primarily by the existing staff in the form of increased work load. It will have to be factored into any analysis of the financial sustainability of the initiative.

A proportion of investments in infrastructure and equipment are paid for by the health facilities with funds generated from insurance claims which are already considered in the cost to the NHIF. Additional investments in equipment and infrastructure are to a large extent paid for with international grants. The annual amount of these grants has been decreasing steadily since 2007²¹, a trend that is likely to continue. This entails a need for increased financing of infrastructure development from domestic sources which will also need to be factored into a sustainability analysis.

The conclusion is that the financial sustainability of the free maternal health care initiative is dependent on a sustained increase in domestic funding of the health sector through the NHIF and

²⁰ The denominator used for this calculation is 729,833 expected pregnancies as per data from MoH PPME

²¹ <http://apps.who.int/gho/data/node.main.A1626?lang=en>

the MoH budget. The financial challenges this poses are much larger than the challenge of continuing the insurance premium exemption for pregnant women. This exemption is a minor contribution to the overall cost of sustained health service delivery in the context of expanding social health insurance coverage.

The sustainability of the social health insurance NHIS model in Ghana has been extensively analysed and there are justified reasons for concern. A study of the World Bank published in 2012 projected that with current trends of revenues and claims, the National Health Insurance Fund risked insolvency as early as 2013. [WB 2012] This type of analysis is beyond the scope of this evaluation. However, there are clear signals that the social health insurance model and with it the free maternal health care initiative cannot be sustained without an increase in domestic fiscal space for health in Ghana .

The 128 key health sector stakeholders we interviewed, ranging from hospital management to the highest levels of the MoH, the NHIA, the GHS and CHAG, were unanimous that the National Health Insurance System in Ghana would not and could not be dismantled. It has overwhelming popular support and, as one respondent remarked, *“any government that would try to dismantle the NHIS could not survive in this country.”* All respondents at senior level were aware of the need to increase the domestic fiscal space for health in order to sustain the system, and all were confident that there was sufficient political will to achieve this. While this is a challenge that is being dealt with at levels above the discussion of free maternal health care, there are two additional challenges that are highlighted by findings of our evaluation:

1. The expansion of health service coverage that is being achieved through the progressive roll-out of the NHIS requires not only increasing financing of the NHIF, but also increased investment in the human resources and infrastructure by the MoH and the private sector (for profit and not-for profit). Shifting this cost onto health service providers, as observed in our field study of 21 hospitals, leads to stress, attrition and potential decreases in the quality of services. Just because these effects cannot be captured in accounting spread sheets does not mean that they are not an important cost to consider.
2. The sustainability of the social health insurance model in Ghana is to a large extent dependent on continued political commitment and ultimately on continued public support. If this support is undermined by the creeping introduction of user charges, public opinion and health seeking behaviour can change very quickly. The long delay in claim reimbursement to the health facilities are a cause of an increasing financial burden on providers who, in order to maintain the solvency of their institution, pass them on to clients who often perceive them as a new (or old) form of user charges. (see 3.3) Increasing the efficiency of the NHIA and the liquidity of the NHIF to assure prompt payment of claims to facilities would go a long way towards stabilising the finances of these facilities to a point where effective policies could be introduced to eliminate “informal” charges to patients. This will be an essential step to maintain the trust of the population in the system.

6 CONCLUSIONS

The free maternal health care initiative recognises the right to health of pregnant women and represents a clear commitment of the Government of Ghana to fulfil its obligation as a duty bearer. There is evidence that the utilisation of health facilities for deliveries is increasing, that the equity of access is increasing, and that the quality of maternity care provided by the facilities is improving.

We estimate that the increase in facility-based deliveries during the first four years of the initiative (2008-2011) has saved more than 3,000 maternal lives. Direct attribution of this achievement to the initiative is difficult because of the way it is embedded in the NHIS, and because of serious shortcomings in documentation and information management in the facilities and the insurance system. If we assume direct attribution, then the initiative is highly cost effective with the cost per DALY saved due to a maternal death averted being less than one quarter of the annual per capita GDP even at the highest estimated cost level.

The implementation of the initiative through the national social health insurance system is widely supported and has contributed to the relevance, efficiency and sustainability of the initiative. It was, however, introduced with extraordinary speed and with insufficient communication and administrative support. This resulted in considerable problems in the registration of beneficiaries and in the processing of claims in the early years. These initial difficulties are being resolved, but some still remain. Providers complained about low tariffs, slow payment of claims and unexplained cancellation of claim payment. Women complained about charges being levied by hospitals for the purchase of supplies that should be covered by health insurance.

Despite the achievements noted, three out of ten pregnant women are not yet delivering their babies in health facilities. The challenge for the health system in Ghana is to sustain the gains that have already been made, improve equity, and reach out to those women who are not yet claiming their right.

The five years of implementing the initiative have shown that the removal of financial barriers is important but not sufficient to achieve universal access to facility based delivery services. Important barriers on the demand side are the availability and cost of transport to reach the health facilities and a number of cultural factors. These barriers particularly affect poor women and women with low educational status.

On the supply side, service coverage is constrained by the shortage of human resources, insufficient proximity of delivery services to communities, and weak capacity to provide emergency obstetric and newborn care in some hospitals. An additional constraint to the delivery of quality services that was highlighted in the community meetings are the lack of communication skills and client orientation of health workers in maternity services.

Accesses to family planning services and to safe abortion services are two interventions that are proven to contribute to the reduction of maternal mortality. They are not covered by the NHIS and therefore also not included in the initiative.

7 BIBLIOGRAPHY

1. Aboagye P (2012) Implementation of the MDG acceleration framework strategy. Presentation.
2. Abt Associates Inc. (2009) An Evaluation of the effects of the National Health Insurance Scheme in Ghana. Bethesda, Maryland, USA.
3. Akazili J, Garshong B, Aikins M, Gyapong J, McIntyre D, (2012) Progressivity of health care financing and incidence of service benefits in Ghana. *Health Policy and Planning* 2012; 27:i13-i22.
4. Amoako Johnson F, Padmadas SS, Brown JJ (2009) On the spatial inequalities of institutional versus home births in Ghana: a multilevel analysis. *Journal of Community Health*; 34: 64–72.
5. Ankrah E, Akweongo P (2011) Costing of free maternal health services: Challenges and implications for sustainability in Ghana. Presentation, Health Technology Assessment International Conference 2011.
6. Ansong-Tornui J, Armar-Klemesu M, Arhinful D, Penfold S, Hussein J (2007) Hospital-based maternity care in Ghana: findings of a confidential enquiry into maternal deaths. *Ghana Medical Journal*, 41 (3): 125-132.
7. Asamoah BO, Kontie MM, Stafström M, Musinguzi J (2011) Distribution of causes of maternal mortality among different socio-demographic groups in Ghana; a descriptive study. *BMC Public Health*; 11:159.
8. Asante E, Chikwama C, Daniels A, Amar-Klemesu M (2007) Evaluating the economic outcome of the policy of fee exemption for maternal delivery care in Ghana. *Ghana Medical Journal*, 41 (3): 110-117.
9. Asare QA (2010) Maternal mortality in Ghana: Key findings of the Ghana Maternal Health Survey. Presentation at 3rd Annual Scientific Conference KNUST, College of Health Sciences.
10. Asenso-Boadi F, Akanzige B (2011) Integrating free maternal care into Ghana's National Health Insurance Scheme. Presentation COP Financial Access Workshop, Bamako, November 2011.
11. Awoonor-Williams K, et al. (2013) Auditing obstetric and newborn referrals in Upper East, Ghana: the effect on quality of care. Presentation at the Global Maternal Health Conference 2013.
12. Biritwun RB (2006) Promoting and monitoring safe motherhood. *Ghana Medical Journal*, 40 (3): 78-79. (Editorial)
13. Bosu WK, Bell J, Armar-Klemesu M, Ansong-Tornui J (2007) Effect of delivery care user fee exemption policy on institutional maternal deaths in the Central and Volta Regions of Ghana. *Ghana Medical Journal*, 41 (3): 118-124.
14. Campbell OMR, Graham WJ et al (2006) Strategies for reducing maternal mortality: getting on with what works. *Lancet* 2006; 368: 1284–99
15. Canning T, Schultz TP (2012) The economic consequences of reproductive health and family planning. *Lancet*; 380: 165–71.
16. Christian Health Association of Ghana (2012), Annual Report
17. Cousens S et al, (2011) National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: a systematic analysis. *Lancet*; 377: 1319-1330
18. Dery SD (2011) Gender relations and maternal health services: on prenatal care utilization in rural Northern Ghana. Masters Thesis; Institute of Social Studies; The Hague.
19. Dzakpasu S, et al. (2012) Impact of free delivery care on health facility delivery and insurance coverage in Ghana's Brong Ahafo Region. *PLOS ONE* 7(11) www.plosone.org
20. EngenderHealth and Mailman School of Public Health, Columbia University (2003-1) , Quality Improvement for EmOC Tool Box and Adaptation of COPE (Client-Oriented, Provider-Efficient Services), New York, USA
21. EngenderHealth and Mailman School of Public Health, Columbia University (2003-2) , Quality Improvement for Emergency Obstetric Care, Leadership Manual, Adaptation of COPE (Client-Oriented, Provider-Efficient Services), New York, USA

22. Fikree FF, Worley H, Sines E (2007) Delivering safer motherhood: sharing the evidence. www.impact-international.org.
23. Garshong B, Ansah E, Dakpallah G, Huijts I, Adjei S, (2001) "We are still paying..." A study on factors affecting the implementation of the exemptions policy in Ghana, Health Research Unit, Ministry of Health, Ghana
24. Gething PW, et al. (2012) Geographical access to care at birth in Ghana: a barrier to safe motherhood. Centre for Population Change Working Paper Number 21.
25. Ghana Health Service (2000) Costing of hospital services
26. Ghana Health Service (2003) Ghana Health Service Annual Report 2002.
27. Ghana Health Service (2007-1) Reproductive Health Strategic Plan 2007-2011.
28. Ghana Health Service (2007-2) The health sector in Ghana: facts and figures 2007.
29. Ghana Health Service (2008) Ghana Health Service Annual Report 2007.
30. Ghana Health Service (2009) The health sector in Ghana: facts and figures 2009.
31. Ghana Health Service (2010) Ghana Health Service Annual Report 2009.
32. Ghana Health Service (2011) Ghana Health Service Annual Report 2010.
33. Ghana Health Service (2012-1) Ghana Health Service Annual Report 2011.
34. Ghana Health Service (2012-2) The health sector in Ghana: facts and figures 2010.
35. Ghana Health Service, Builsa District (2011) Annual Review Presentation 2011.
36. Ghana Health Service, Builsa District (2012), Final LDP Report, October 2012. (2 versions)
37. Ghana Health Service, Wale Wale District Hospital (2011) Annual Performance Review 2011
38. Ghana Health Service, Wale Wale District Hospital (2012) Annual Report 2012
39. Ghana Health Service, West Mamprusi District (2012) Reproductive and Child Health Unit, Annual Report 2012
40. Ghana Statistical Service (1994) Ghana Demographic and Health Survey 1993.
41. Ghana Statistical Service (1999) Ghana Demographic and Health Survey 1998.
42. Ghana Statistical Service (2002) Service Provision Assessment Survey 2002.
43. Ghana Statistical Service (2004-1) Ghana Demographic and Health Survey 2003.
44. Ghana Statistical Service (2004-2) Ghana Demographic and Health Survey 2003: fact sheet.
45. Ghana Statistical Service (2004-3) Ghana Demographic and Health Survey 2003: key findings.
46. Ghana Statistical Service (2006) Multiple Indicator Cluster Survey 2006.
47. Ghana Statistical Service (2009-1) Ghana Demographic and Health Survey 2008.
48. Ghana Statistical Service (2009-2) Ghana Maternal Health Survey 2007.
49. Ghana Statistical Service (2009-3) Ghana Demographic and Health Survey 2008: key findings.
50. Ghana Statistical Service (2009-4) Ghana Demographic and Health Survey 2008: fact sheet.
51. Ghana Statistical Service (2012) Multiple Indicator Cluster Survey 2011.
52. Gobah F, Liang Z (2011) The National Health Insurance Scheme in Ghana: Prospects and challenges: a cross-sectional evidence. *Global Journal of Health Science*; 3 (2): 90-101.
53. Government of Ghana (2003) National Health Insurance Act
54. Government of Ghana (2011-1) National Health Insurance Bill (Gazette notification: 10th June 2011)
55. Government of Ghana (2011-2) Joint review of public expenditure and financial management.

56. Grepin K (2009) The effect of a delivery fee exemption policy on the utilization of maternal health services in Ghana. Dissertation, Harvard University.
57. Gumanga SK, et al. (2011) Trends in maternal mortality in Tamale teaching hospital, Ghana. *Ghana Medical Journal*, 45 (3): 105-110.
58. HERA (2012) Institutional and organisational assessment of the Ministry of Health and its Agencies in Ghana.
59. ICF Macro (2010-1) Millennium Development Goals in Ghana: A new look at data from the 2008 Ghana Demographic and Health Survey. Calverton, Maryland, USA.
60. ICF Macro (2010-2) Gender and health indicators in Ghana: data from the 2008 Demographic and Health Survey. Calverton, Maryland, USA.
61. IHP+ (2010) Joint assessment of Ghana's Health Sector Medium Term Development Plan 2010-2013.
62. Impact (2006) Evaluating a health financing policy change: framework and suggested approaches. A guide and tools for maternal mortality programme assessment. www.impact-international.org
63. Impact (2007) Evaluating removal of delivery fees in Ghana. www.impact-international.org
64. Impact (2008) Extending coverage for maternal health care through the National Health Insurance Authority in Ghana: lessons from the Impact evaluation of the free delivery care policy. www.impact-international.org
65. Mensah J, Oppong JR, Schmidt CR (2009) Ghana's national health insurance scheme in the context of the health MDGs; *Ruhr Economic Paper* # 157.
66. Mensah SA (2011) NHIA position on OXFAM/ISODEC report on free universal health care in Ghana. www.ghanaweb.com
67. Mills A, et al (2012) Equity in financing and use of health care in Ghana, South Africa, and Tanzania: implications for paths to universal coverage. *Lancet*; 380: 126–33.
68. Ministry of Health (2002) Five year programme of work 2002-2006
69. Ministry of Health (2005) Health sector strategies for the Ghana Poverty Reduction Strategy.
70. Ministry of Health (2006-1) Programme of work 2006.
71. Ministry of Health (2006-2) Review of exemption policies.
72. Ministry of Health (2007-1) National Health Policy.
73. Ministry of Health (2007-2) Programme of work 2007.
74. Ministry of Health (2008-1) National consultative meeting on the reduction of maternal mortality in Ghana: partnership for action. A synthesis report.
75. Ministry of Health (2008-2) Joint Ministry of Health - Partners Business Meeting, Accra, 23rd April 2008. Aide Memoire.
76. Ministry of Health (2008-3) Millennium Development Goal 5 background note: November Summit 2008.
77. Ministry of Health (2008-4) Implementation guidelines for financing free maternal health care.
78. Ministry of Health (2008-5) Programme of work 2008.
79. Ministry of Health (2008-6) Independent review of the health sector programme of work 2007.
80. Ministry of Health (2009-1) Programme of work 2009.
81. Ministry of Health (2009-2) Independent review of the health sector programme of work 2008.
82. Ministry of Health (2010-1) Independent review of the health sector programme of work 2009.
83. Ministry of Health (2010-2) The health sector medium term development plan 2010-2013.
84. Ministry of Health (2010-3) Programme of work 2010

85. Ministry of Health (2011-1) MDG acceleration framework and country action plan: Maternal health.
86. Ministry of Health (2011-2) Independent review of the health sector programme of work 2010.
87. Ministry of Health (2011-3) Health Summit Report 2011.
88. Ministry of Health (2011-4) National assessment of emergency obstetric and newborn care. November 2011.
89. Ministry of Health (2011-5) Programme of Work 2011
90. Ministry of Health (2012-1) Public policy development capacity building needs in MOH Ghana: Situational assessment report.
91. Ministry of Health (2012-2) Programme of work 2012
92. Ministry of Health (2012-3) Annual report 2011
93. Ministry of Health (2012-4) Holistic assessment of the health sector programme of work 2011
94. Nagumse Y, Hor J (2012) Achieving universal health coverage in Ghana: why a premium-based health insurance model is not a better solution. (Blog)
95. National Development Planning Commission (2008) Citizens' Assessment of the National Health Insurance Scheme.
96. National Health Insurance Authority (2004) National health insurance regulations.
97. National Health Insurance Authority (2009) NHIS Medicines List
98. National Health Insurance Authority (2010-1) Annual Report 2009
99. National Health Insurance Authority (2010-2) Update on claims payments 2010
100. National Health Insurance Authority (2011-1) Annual report 2010.
101. National Health Insurance Authority (2011-2) NHIS Medicines List, March 2011
102. National Health Insurance Authority (2012) Annual report 2011.
103. National Health Insurance Authority (2013) Conceptual framework of G-DRG development.
104. National Health Insurance Authority, Northern Region (2011) Annual report 2011.
105. National Health Insurance Authority, Northern Region (2012) Report on a Customer Satisfaction Survey, 2012
106. National Health Insurance Authority, Upper East Region (2012) Annual Report 2012
107. National Health Insurance Scheme, Bolgatanga Municipal (2012) Annual Report 2012
108. National Health Insurance Scheme, Builsa District (2012) Management Information System Report 2012
109. National Health Insurance Scheme, Sissala East District (2012) Annual Report 2012
110. National Health Insurance Scheme, West Mamprusi District (2011) Annual Report 2011
111. National Health Insurance Scheme, West Mamprusi District (2012) Annual Report 2012
112. Ofori-Adjei D (2007) Ghana's free delivery care policy. Ghana Medical Journal, 41 (3): 94-95.
113. Opoku EA (2009) Utilization of maternal care services in Ghana by region after the Implementation of the free maternal care policy. University of North Texas Health Science Centre. (Dissertation)
114. Oxfam International (2011-1) Achieving a shared goal: free universal health care in Ghana.
115. Oxfam International (2011-2) Oxfam's response to the Ghana National Health Insurance Authority's criticisms of joint NGO report: 'Achieving a Shared Goal: Free Universal Health Care in Ghana'.
116. Penfold S, Harrison E, Bell J, Fitzmaurice A (2007) Evaluation of the delivery fee exemption policy in Ghana: population estimates of changes in delivery service utilization in two regions. Ghana Medical Journal, 41 (3): 100-109.

117. Ridde V, Morestin F (2011) A scoping review of the literature on the abolition of user fees in health care services in Africa. *Health Policy and Planning*; 26: 1–11.
118. Seddoh A, Adjei S, Nazzar A (2011) Ghana's National Health Insurance Scheme. Centre for Health and Social Services.
119. Sulzbach S, Garshong B, Owusu-Banahene G (2005) Evaluating the effects of the National Health Insurance Act in Ghana: Baseline report. Abt Associates, Bethesda, Maryland, USA.
120. Tamale Teaching Hospital (2012) Health Information Management Unit Annual Performance Review 2012.
121. Tunçalp Ö, Hindin MJ, Adu-Bonsaffoh K, Adanu R (2012) Listening to women's voices: the quality of care of women experiencing severe maternal morbidity in Accra, Ghana. *PLOS ONE* 7(8). www.plosone.org
122. UNDP (2012) Ghana Millennium Development Goals Report 2010.
123. UNFPA (2011) The State of the World's Midwifery: Delivering Health, Saving Lives. UNFPA, New York.
124. Wagstaff A, Claeson M (2004) The millennium development goals for health: rising to the challenges, The World Bank, Washington.
125. Witter S, Adjei S (2007-3) Start-stop funding, its causes and consequences: a case study of the delivery exemptions policy in Ghana. *International Journal of Health Planning & Management* 22: 133–43.
126. Witter S, Adjei S, Armar-Klemesu M, Graham W (2009) Providing free maternal health care: ten lessons from an evaluation of the national delivery exemption policy in Ghana. *Global Health Action*.
127. Witter S, Amar-Klemesu M, Dieng T (2008) National fee exemption schemes for deliveries: comparing the recent experiences of Ghana and Senegal. *Studies in HSO&P* 24: 167-198.
128. Witter S, Arhinful DK, Kusi A, Zakariah-Akoto S (2007-2) The experience of Ghana in implementing a user fee exemption policy to provide free delivery care. *Reproductive Health Matters*; 15(30): 61–71.
129. Witter S, Kusi A, Aikins M (2007-1) Working practices and incomes of health workers: evidence from an evaluation of a delivery fee exemption scheme in Ghana. *Human Resources for Health* 5(2).
130. World Bank (2009) Aide Memoire for the mid-term review mission of the health insurance project
131. World Bank (2012) Health Financing in Ghana.
132. World Health Organisation (2012) Trends in Maternal Mortality 1990 to 2010
133. World Health Organisation et al. (2010) Monitoring emergency obstetric care: a handbook. http://whqlibdoc.who.int/publications/2009/9789241547734_eng.pdf