

SPECIAL ARTICLES

IMPACT OF FREE MATERNAL CARE POLICY ON MATERNAL AND CHILD HEALTH INDICATORS IN GHANA

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Abstract

Background: Maternal and child mortality remain major global public health challenges. Majority of the world's maternal mortality occur in low-income countries including Ghana, where financial barriers make maternal healthcare inaccessible to many women during obstetric emergencies, resulting in avoidable maternal deaths. Ghana implemented a free maternal care policy nation-wide in 2008 to provide pregnant women antenatal, delivery and postnatal care in public, and accredited private healthcare facilities. This work assesses the impact of the policy on selected Maternal and Child Health (MCH) indicators in Ghana.

Methods: Literature on financial barriers to maternal healthcare in Low Income Countries (LICs) was reviewed. WHO databases were searched for MCH indicators for Ghana from 2000-2011, aggregated and trends analysed. Additional data was obtained from Maamobi Polyclinic, Koforidua Regional Hospital (KRH), and the Korle Bu Teaching Hospitals (KBTH). These were statistically analysed for trends to assess the policy's impact on these indicators.

Results: Over four years of implementation, average antenatal coverage increased by 2%, skilled birth attendance 11%; contraceptive prevalence unchanged and unmet need for contraception rose marginally. Under-5 mortality declined by 22%. KBTH recorded increased antenatal (ANC) attendance and decreased annual deliveries that were non-significant. Maternal Mortality Rate (MMR) increased by 89/100,000LB; Caesarean section (C/S) rate rose by 5.5%, fresh still birth (FSB) rate increased and Neonatal intensive care unit (NICU) admissions surged 21%. KRH recorded significant increases in deliveries by 2114; C/S rate by 3% while MMR reduced by 0.56% (562/100,000LB). However, the FSB proportion increased by 13%, ANC attendance reduced by 567, annual deliveries rose by 300, C/S rate and FSB increased by 3% and 11% respectively per year at the Maamobi Polyclinic.

Conclusion: Encouraging trends were observed in the MCH indicators attributable to the policy. Increasing FSB rates indicate inadequate care quality especially intra-partum monitoring possibly due to over-stretched staff and facilities from rising patient loads.

Key Words: Free maternal care, Policy, Impact

Introduction

Progress towards the Millennium Development Goals (MDGs) in maternal and child health has been slow in many developing countries including Ghana. According to the World Health Organisation (WHO), about 99% of maternal deaths annually happened in developing countries¹. The cost of a single maternal death to society remains extremely high, necessitating every effort to prevent these avoidable losses. The inability of most women to access prenatal and timely emergency obstetric care (EmOC) remains one major challenge in addressing the burden of maternal mortality worldwide. Timely availability of EmOC has been identified as one important modality for preventing maternal deaths².

Severe pregnancy-related complications leading to disability and long-term illness occur in over 15million women annually, implying that for every mortality, a lot more women suffer severe morbidity. The high numbers of maternal deaths in Sub-Saharan Africa are due to poor maternal health and inadequate care³. UNICEF estimates 15% of childbirths to have complications requiring emergency obstetric care which should readily be available and accessible to all women needing it³. Most maternal deaths occur among women who lack financial access to skilled providers⁵. Patients also suffer delays after arriving at the healthcare facility when prompt life-saving emergency obstetric treatment is not readily available^{4,3}. Substantial socioeconomic disparities have been observed in access to professional delivery care in many low and middle income countries, suggesting a clear poverty gradient to maternal mortality^{6,7}.

Unfortunately however, access to healthcare among women in developing countries is limited by poverty, women inequality, low status, as well as society's attitude towards women and their needs³. Unaffordable healthcare bills remain a major barrier to utilization of maternal and child healthcare services,

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and has adversely affected progress towards attaining the MDGs⁸.

Over the past two decades, charging user fees for primary health care services including maternal and delivery care has been controversial and debated. The World Bank and donor governments have promoted community financing through user charges as part of sector reforms. These user charges potentially give a perceived value to the services provided, and also deter un-necessary demand; and further provide incentives for staff; remove the hidden, unofficial charges by unscrupulous health workers or parallel markets; and ultimately increase use by improving service quality. Practically, many studies have confirmed that demand-for-services by the poor and the vulnerable populations e.g. mothers and children, is not price-inelastic¹⁴. Appreciable declines in the patronage of antenatal care, maternal care, child health, and sexually transmitted diseases have been reported following introduction of user charges. Such reductions in demand were greatest among the most socioeconomically deprived populations.

Major constituents of this financial barrier include cost of paying for medical treatments and transport cost to reach health care facility, which in a Tanzanian study has been estimated to be as high as 50% of the total delivery-related cost. Another component is the financial cost of the days of work (wages) lost to an accompanying relation of the woman to the health facility¹⁵. Healthcare financing is a central determinant of access to skilled delivery care. General tax financing, coupled with national policies for universal coverage have been linked to high service coverage and utilization, and low maternal mortality in Sri Lanka, Malaysia and Kerala, India¹⁵. A recent cross-national study of LICs found a higher proportion of government financing of health was associated with greater utilization of skilled birth attendants. Out-of-pocket payments for delivery services constitute a barrier and inflict substantial financial repercussions on households including women having to borrow money or sell valuable household items to bear these catastrophic healthcare costs¹⁵.

Various interventions have yielded varying levels of success in efforts to remove the financial barriers to skilled delivery services and improve access to emergency obstetric care. These include the “midwife in every village” program and “Jamskesmas” in Indonesia;¹⁶ cash transfers for families with pregnant woman and children in Indonesia¹⁹; public-private partnership for EmOC to women from households below the poverty line in Gujarat, India where the state covered out-of-pocket costs incurred on travel to healthcare facility plus financial support to one accompanying relation’s lost wages¹⁷. In Tanzania, the fee exemption policy introduced in 2001 achieved no improvement in skilled birth attendance because 53.6% of their delivery-related cost was spent on transport which the policy did not cover¹⁵. The use of vouchers

that strengthened demand side for reproductive health services (RHS) by selected families in Kenya, Uganda, Bangladesh and Cambodia resulted in increased utilization of RHS, care quality and population health outcomes²¹.

Background on Ghana and Healthcare Financing in Ghana

In Ghana, healthcare financing has journeyed from free healthcare in the first republic, through the ‘Cash and Carry’ system in the 1980s, till the late 1990s when the move to a national health insurance system started with pilots in two district mutual insurance schemes in the Dangbe East and Nkoranza districts. By 2003 the National Health Insurance Scheme (NHIS) was established and rolled out.

Before the NHIS, ANC was theoretically free but such exemption running alongside a cash and carry system, gave rise to widespread illegal and under-the-table payments. Many pregnant women therefore had to pay for obstetric care, and their inability to afford this denied them access to skilled care.

Additionally, increasing inequalities in access to skilled birth attendance remained a major concern in Ghana. The absolute differences between the bottom and top quintiles in terms of skilled birth attendance increased from 60% in 1993 to 68% in 1998 and nearly 70% in 2003. These compared with an average poor-rich gap of 42% for a selection of sub-Saharan African countries.¹⁰ In order to uniformly improve access to skilled birth attendance and reduce maternal mortality, the policy exempting women attending health facilities from paying delivery care fees was considered^{10, 11}. This policy was piloted in 2003, in the four poorest regions of Ghana - Upper East, Upper West, Northern and Central regions¹⁰. An evaluation of the pilot by Witter et al¹¹ found that delivery exemptions in Ghana can be effective and cost-effective, and that despite being universal in application, they benefitted the poor. It subsequently concluded that the concept was a bold, timely and supported by existing evidence. Realization of the policy’s potential to increase skilled birth attendance however, fundamentally depended on effective implementation¹² Another review of the policy’s impact on institutional deliveries in the Central Region revealed that the delivery-related MMR decreased from 445 to 381 per 100,000LB (p=0.458). It concluded that the delivery-related institutional maternal mortality did not appear to have been significantly affected after about one year of policy implementation¹⁰.

In the year 2005, the national MMR in Ghana was an alarming 560 per 100,000LB putting Ghana in the global category of countries with high burden of maternal mortality¹¹. In response, the Health minister declared the situation as a national emergency and highlighted the need for greater prioritisation of reproductive health services. By 2007, an independent review indicated that the proportion of deliveries attended by skilled health staff was at a low 35%;

institutional maternal mortality rates and the proportion of births attended by traditional birth attendants were increasing¹¹.

These posed a huge threat to the Ghana's progress in improving maternal health and reducing child mortality to achieve the targets of the MDGs. The National Health Insurance running quite smoothly and there was increasing availability of funding globally to support initiatives that sought to reduce financial barriers to maternal healthcare. The nation-wide universal free medical care for all pregnant women in Ghana was therefore implemented in May 2008¹¹. The policy allows for all pregnant women at any public, mission or NHIS-accredited private health facility to get registered and receive free comprehensive antenatal, delivery, and postnatal care. It also covers routine diagnostics and EmOC at the primary, secondary and tertiary levels of the Ghanaian healthcare system¹³. Since implementation, the policy has had no comprehensive assessment to evaluate its effectiveness in order to recommend its continuation or modification.

This paper therefore assessed changes recorded in key MCH indicators attributable to this policy, and in a way tested the hypothesis that the free maternal care policy has produced improvements in the selected MCH indicators in Ghana.

Objectives

- To describe and analyze trends in available data on the key indicators of Maternal and Child Health such as maternal mortality rate, supervised delivery rate, contraceptive prevalence rate, and neonatal mortality rate from 2001 to 2011
- To examine for and highlight changes in the indicators following the introduction of the policy and make appropriate recommendations.

Methodology

We conducted a literature search to review existing literature on similar evaluations of free maternal care policies implemented in developing countries including Africa. This comprised a key word search with truncation on the databases of Popline, EMBASE and PubMed, including Medline using keywords: matern* impact; pregnancy impact; antenatal care; delivery impact; neonatal impact; free matern* care; developing countr*; which were searched separately and then linked together. No time frame was included. There was also a title search for articles and publications on "impact of free maternal care policy in developing countries" on Google Scholar database. These yielded over a thousand five hundred and thirty peer-reviewed article publications, editorials and commentaries on the impact of the free maternal care policy on maternal and

neonatal health indicators in developing countries. The search was restricted to only publications in English language. Additional search of the websites of world health and international development, population and health agencies like www.who.int; www.unicef.org; www.worldbank.org; and www.unfpa.org was done to obtain more publications and later, data on the selected indicators obtained for description and analysis.

The list of publications was then reviewed and those which did not focus on free maternal healthcare or service in a low-income country excluded. Five publications which assessed aspects of Ghana's policy were also reviewed.

Existing national data on maternal and child health indicators for Ghana was extracted for the period 1990 – 2010, and aggregated, covering:

Antenatal coverage, Caesarean section rate, Maternal Mortality Ratio, Contraceptive prevalence rate, Unmet need for contraception, skilled birth attendance rate, Neonatal Infant mortality rates.

Facility based data was then extracted in June-July 2012 from the annual returns and routine data reports of three conveniently sampled facilities in Ghana namely Maamobi polyclinic (primary); Koforidua Regional Hospital (secondary) and the Korle Bu Teaching Hospital (tertiary) from the period 2001 to 2011. Maamobi polyclinic is a primary healthcare facility located in a densely populated sub-urban location in Accra. This facility has a 46 bed maternity unit with one operating theatre, one labour ward, and manned by two Specialist Obstetricians, two medical officers and 30 midwives and nurses. Koforidua Regional Hospital (KRH) is a secondary facility that serves as both primary and referral centre for all hospitals and clinics in the Eastern Region of Ghana. It has a maternity unit with 94 beds, one labour ward with 10 delivery suites and manned by one Consultant Obstetrician Gynaecologist, 2 Residents in training, 2 Medical Officers, 4-6 House Officers, 65 Midwives and Nurses, and 12 Nursing Assistants. Korle Bu Teaching Hospital is the leading teaching facility in Ghana with over 2000 bed capacity and a busy maternity unit that receives complicated referrals from all over the country into its 375 bed block that has two labour wards with a total of 18 delivery suites and 3 operating theatres; manned by 264 Nurses and Midwives. There are 12 Consultants, 10 Specialists, 22 Residents, and 27 House Officers. The unit also houses the hospital's Neonatal Intensive Care Unit (NICU) with 40-baby capacity, 32 Nurses and 4 Nursing Assistants, 4 House Officers, 5 Residents and one Consultant Neonatologist.

These data were then appropriately aggregated and presented in separate tabular and graphical forms, observed trends were described and statistically analysed to determine whether the changes occurring in the selected indicator after the policy was implemented are significant based on the t – distribution test and 95% confidence interval calculations. This was based

on the difference in the means of the indicators before and after the policy intervention.

Results

Nationally, there was an average increase of 1.8% (95%CI: -3 to 7) in the national antenatal care coverage after the policy was implemented (p=0.5). There was an 11% (p=0.02) increase recorded in skilled birth attendance following the policy implementation. The contraceptive prevalence remained unchanged alongside a marginal rise in the unmet need for contraception from 34 to 35% in 2010. Under-five mortality rate (U5MR) declined by a non-significant 22 deaths per 1000 births. Available Neonatal Mortality rates (NMR) were 43/1000LB and 30/1000LB in 2003 and 2008 respectively; with Infant Mortality rates (IMR) 64/100LB and 50/1000LB in 2003 and 2008 respectively. There was a clear decrease in MMR from 550 through 450, to 350/100000LB in 2000, 2005 and 2008 respectively.

Trends in national MCH indicators from 200-2011

Table 1: Trends in the national ANC Coverage (%); Women having 4 ANC visit; Skilled Birth(%); MMR per 100000LBs, Contraceptive Prevalence(%); Unmet need for Contraception(15-49years)%; Lifetime Risk of maternal death(1 in); NMR; IMR; U5MR(per 1000LB)

Indicator	2000	2003	2005	2008	2010
ANC Coverage (%)	88	92	92	95	90
At Least 4 ANC Visits	62	69	77	78	78
Skilled Birth Attendance (%)	44	47	50	59	57
MMR per 100,000LB	550		440		350
Contraceptive Prevalence (%)	22	25	17	24	24
Unmet need for contraception (15-49) %	34		34	35	35
Lifetime risk of Maternal death 1 in	39		51		68
Neonatal Mortality Rate / 1000Birth		43		30	
Infant Mortality Rate / 1000Births		64		50	
Under 5 Mortality Rate / 1000Births	99	111	86	79	74

At the Korle Bu Teaching Hospital (figure-1 and table-2), ANC attendance increased by 643 (p > 0.5). Annual deliveries decreased by a non-significant 295 (p > 0.5) over three years of policy implementation. MMR rose

by 89/100,000LB (95%CI: -97, 275; P > 0.5). The absolute number of Caesareans rose by 602 (p=0.05); but the C/S rate increased by 5.5% (p=0.1). Still birth rate reduced by 1%, but the proportion of fresh still births saw a lower decline of 0.9% (p > 0.5). There was a 21% increase (n=354) (p=0.1) in NICU admissions following the policy implementation. The NICU receives referrals from nation-wide

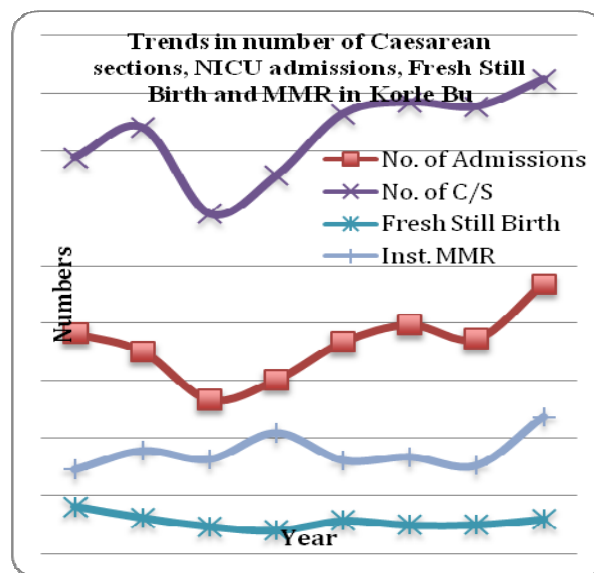


Figure1: Patterns in selected indicators at the KBTH over the period 2001 – 2011: C/S increased by 602; MMR slightly increased by 89/100,000LB; Proportion of FSB in still birth rates marginally increased by 1%; and NICU admissions increased by 354 cases following the policy implementation.

Antenatal care, deliveries and still births at KBTH

Table2: Trends in ANC Registration, Attendance; Still Births; Fresh Still Births and Annual Deliveries at the KBTH 2001-2011

Year	New ANC Registrants	ANC Attendance	Still Births Rate (%)	Proportion of Fresh Still Births (%)	Annual Deliveries
2001	17346	46439	6.5	57	12631
2002	15147	41420	5.8	53	12502
2003	13467	33773	6.8	53	11484
2004	14194	33848	6.2	54	12060
2005	11060	35690	5.5	47	12159
2006	11409	27092	6.3	52	7261
2007	11225	29187	5.3	51	7559
2008	13273	32390	5.3	54	9994
2009	13413	43032	4.6	51	10673
2010	16557	35795	4.8	48	10882
2011	13155	32749	5.4	53	10503

Data from the Koforidua Regional Hospital (Table-3 and Figure-2) showed a near 100% rise (n=3530) in ANC attendance by the third year of the policy (p=0.05). Similarly, annual deliveries increased by a significant 2114 babies (95%CI: 1362 – 2866; p < 0.001). C/S rates fell by 2.8% following the policy (p > 0.5); and a significant decline of 0.56% (562/100,000LB) in MMR (p = 0.05). Although still birth rates marginally decreased by 1.5%, the proportion of FSB recorded had increased by 13.3% (p=0.05) after three years of the free delivery policy.

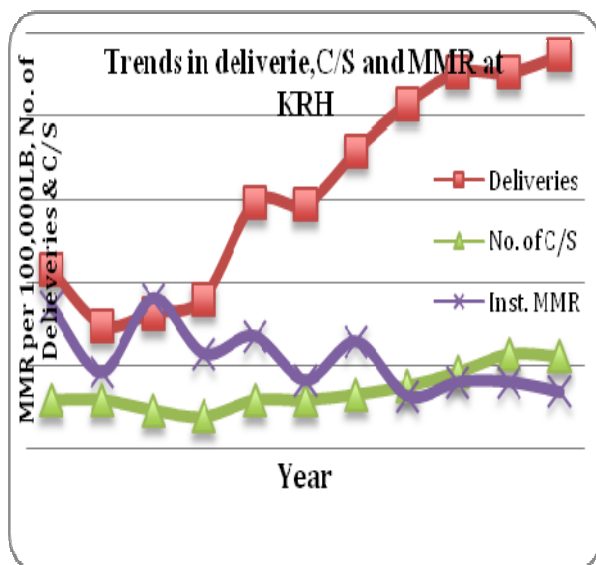


Figure 2: Pattern of Annual Deliveries; Caesarean section and Maternal Mortality at the KRH from 2001-2011.

Antenatal care at Koforidua regional hospital

Table 3: Trends in ANC Registration, At Least 4 Visits, and Attendance at the KRH from 2006-2011

Year	New ANC Registrants	At Least 4 ANC Visits	ANC Attendance
2006	301	621	1691
2007	980	1655	6384
2008	1403	1234	7417
2009	1238	1261	6425
2010	1372	1096	7899
2011	1451	1751	8530

From Fig.3, ANC attendance at the Maamobi policlinic reduced by 567 (p > 0.5); but annual deliveries increased by 300 (p=0.2). Similarly, the C/S rates rose by 3.1% (p=0.1). Again, the proportion of fresh still births component of still births rose by a significant 11% (95% CI: 4 – 18%), (p=0.02).

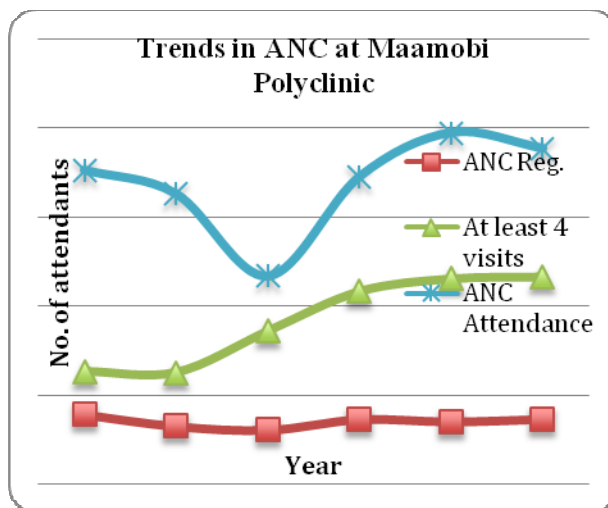


Figure3: Pattern in ANC Registration; At least 4 Visits, and Attendance at the Maamobi Polyclinic 2006-2011

There was a near four-fold increase in the number of Manual Vacuum Aspirations (MVAs) done for women presenting with incomplete abortions in the densely populated catchment area of the Maamobi Polyclinic following the policy implementation. The policy does not cover this service.

Discussion

Some improvement has been recorded in the national trends of ANC coverage, albeit statistically non-significant. The significant 11% increase in the percentage of births assisted by skilled health professionals may be attributable to the policy. Both increases particularly peaked at 95% and 59% respectively in 2008, the year of the policy implementation nationwide. These peaks may be explained by the sudden removal of the otherwise prohibitive financial barriers to both antenatal care and facility delivery. Many women were now able to access the available maternal care they have been in need of but unable to access earlier due to financial and other constraints. The 5% drop in ANC coverage and 2% in the skilled birth attendance rate in the policy’s third year may be the indirect reflections of the increased burden of clinical workload that the surge in patient numbers had imposed on the healthcare staff and facilities. These healthcare staff received no added remuneration for the extra work done, and similarly the existing facilities had seen no expansion in space or medical logistics to cope with the anticipated increase in patient turn-out. As a result, and consistent with findings in previous studies³, the overburdened staff became unfriendly in attitude and so the quality of care they provided waned, and these may have discouraged pregnant women from patronising ANC and delivery services at the facilities¹⁵. This pattern notwithstanding, Ghana’s skilled birth attendance rate still remained

above the UNFPA estimation of 34% in low income countries. In Ghana, the skilled birth attendance steadily increased from 44% in 2000 to 57% in 2010, accompanied by a declining MMR from 550 to 350/100,000LB over same period. In addition to the overall encouraging effects of the policy in three years, the over 60% literacy level rate in Ghanaian women (which according to UNICEF increased dramatically from 2005-2010) could be a major contributor to the ANC utilization and SBA rates. This is because a woman's education level has been found to have a strong influence on (maternal) healthcare utilization³⁰. The national contraceptive prevalence rate among the 15-49-year olds did not show any remarkable change over the period; and the unmet need for contraception marginally increased. This trend may be the result of the policy's provisions not covering family planning services despite available evidence indicating that women delivering in hospitals are increasingly welcoming the opportunity to delay their next pregnancy³¹.

Two years following the policy, there were 30% and 22% decline in the Neonatal Mortality and Infant Mortality Rates; however due to the lack of annual measurements of these indicators, detailed analysis of their trend was limited. The U5MR declined by 14%, meaning that 22 deaths per 1000 births were prevented over the period. This pattern while indicating progress towards the MDGs of reducing U5MR by two-thirds, also further emphasise the importance of national efforts and policies to improve perinatal morbidity and mortality³². Fenton et al³³ were correct in emphasizing that to further reduce infant mortality and U5MR, problems during birth and the first week of life must also be addressed.

The declaration in 2008 by the Ghanaian Minister of Health that maternal mortality was a national emergency had been a major 'focusing event' which further induced support and willingness amongst the major stakeholders for the implementation of the policy, including the media in creating the needed awareness. The government of Ghana subsequently received £2.8million in support of its free maternal care intervention from the British government¹¹

At the Korle Bu Teaching Hospital, slight decrease in ANC attendance and annual deliveries was found, with an accompanying rise in C/S rate by over 5.5% annually. There was a rise in MMR, though not statistically significant, possibly from increases in complicated and moribund obstetric emergencies seen at Korle Bu. This trend was however different from the experience from a similar policy piloted in Nigeria, where the C/S rate dropped slightly during the period of the free maternal care. The Nigerian finding was explained that there was timely availability of intervention to avert delays that would otherwise result in the need for the C/S³. In the KBTH, patient load increased from ANC registration, labour cases and other referred obstetric emergencies from various parts

of the country following the policy. Whether there was a commensurate increase in the staffing at the unit, physical expansion in equipment and logistics, or any incentive package for the staff here is beyond the scope of this report. However it is likely that, delays arose in the timeliness of care in the facility, resulting in many more complications possibly from poor labour monitoring, that consequently required Caesarean sections. Extrapolating from findings in the Enugu state pilot, "there was suboptimal care during this period of free maternal care, e.g. women who needed emergency caesarean sections had to wait for hours for the theatre to be free if there was already ongoing surgery, irrespective of the indication"³.

The decrease in ANC attendance and increase in C/S rate, MMR, and still births between 2010 and 2011 may indicate facilities were overstretched and so were the staff, that they were getting unfriendly to clients who therefore got discouraged to utilize the services; and subsequently, patient outcomes were getting poor for mothers and their babies. Even though most causes of maternal mortality are acute and unpredictable, some of the important causes and risk factors can be detected prenatally and managed to lower the woman's risk of maternal death if quality ANC is available and utilized. This could alternatively partially explain the rise in MMR as the total ANC attendance and delivery at this hospital waned³⁴.

There was a decrease in still birth rates after implementing the policy, but the proportion of fresh still births which decreased marginally from 50% in 2007 to 48% in 2010, rose again to 52% by 2011. This made an overall average 1% increase in the FSB proportion of still births after policy; the average percentage also persistently remained higher than the WHO recommended 10% FSB component of stillbirths. This usually reflects the fall in the quality of intrapartum care as the removal of financial barrier brought more clients to the tertiary facility. Fresh still births are usually due to intrapartum causes. The quality of care during pregnancy and delivery have been shown to contribute to maternal and neonatal mortality; the reason why poor care quality in many developing countries have led to high maternal and perinatal mortality rates³³. Initial gains in decreasing MMR in Korle Bu were probably becoming nullified by workload and increase care demand at the maternity unit.

The Koforidua Regional Hospital reported significant increases in ANC attendance, deliveries and a non-significant decline in C/S rate alongside declining maternal mortality and still birth rates with increase in FSB percentages of still births. This secondary facility, received referrals from all over the Eastern region of Ghana; as well as providing primary care. Although the policy gave rise to marked increases in patient load, the hospital's output was still remarkable from the results obtained. One significant factor that may have contributed to this heartwarming

trend was the posting of a Consultant Obstetrician Gynaecologist to the facility to coincide with the rolling out of the policy. Additionally, Residents training in Obstetrics did regular six-month postings in this facility, thus, providing the much needed clinical care to the rising load of clients so that the professional staff was not as over-burdened as the case in the Korle Bu Teaching Hospital. It is also very likely that the quality of care was optimal and clients were probably relatively satisfied, which is why they kept coming and the numbers kept rising, since suboptimal care has been linked to decreased utilization and increased perinatal mortality³⁵. The increases in other operative vaginal deliveries like vacuum extraction further affirm the improved availability of skilled care when needed at the facility.

At the primary care facility, the greatest improvements across all the indicators assessed were recorded in the year immediately following the policy. This included the instrument-assisted vaginal deliveries and C/S rates; with a remarkable zero maternal death. It is likely the sudden awareness of free care among a population with needs for care, as depicted by the numbers of incomplete abortions recorded that required MVAs may explain this trend. Also a possible contributing factor to these remarkable results could be the location of this facility in a densely populated neighborhood, with skilled staff and care available round the clock. There was a marginal rise in total still births, with another significant increase in the proportion of fresh still births; indicating the increase client load may have caused some pregnant women to suffer delays in receiving care at the facility or not receiving adequate intrapartum monitoring, resulting in these adverse perinatal outcomes. This is consistent with Unicef's emphasis on addressing the health worker crises which it described as being critical to the improvement of maternal and newborn health especially in Africa and Asia³⁶. It is likely that with improvements in ANC attendance, most of the prenatally detectable maternal complications and risk factors may have been picked up timely and managed to avert mortality. The near four-fold increase in the average number of manual vacuum aspirations performed for patients with incomplete abortion at this primary facility, while reflecting a situation of rising unmet need for contraception, also further brings into focus the need to consider its coverage under the scheme's care package.

Overall there are still more potential gains to be made in reducing maternal and child mortality in Ghana through increased skilled birth attendance for instance, aside the fee exemption policy for deliveries nationwide. As was found during an evaluation of the 'midwife in every village' programme in Indonesia by Laurel H. et al⁶, socio-economic inequalities in professional attendance at birth were reduced by the policy, but the gap in access to potentially life-saving emergency obstetric care widened. All these therefore

underscore the importance of understanding the barriers to accessing emergency obstetric care and of the ways to overcome them, especially among the poor⁶.

Conclusion

There have been remarkable improvements in some of the selected MCH indicators over three years of implementation, attributable to the free maternal care policy nation-wide from 2008. Across primary, secondary and tertiary levels of healthcare, still birth rates have been variable, but the proportion of fresh still births have consistently increased to varying extents following this policy.

Contraceptive prevalence rate remained relatively unchanged while unmet need for contraception increased to indicate the potential gains Ghana could make if the policy covered family planning services. Overall, the policy holds prospects to accelerate progress towards the MDGs 4 and 5 if implemented properly with adequate pre-implementation preparations to address the challenges of additional workload so that care quality is not compromised, and to ensure sustainable improvements in all indicators in low-income countries.

References

1. Brugha R, Pritze-Aliassime S. Promoting safe motherhood through the private sector in low- and middle-income countries. *Bulletin of the World Health Organization* [Internet]. 2003 81:616–23. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2572515&tool=pmcentrez&rendertype=abstract>
2. Richard F, Witter S, de Brouwere V. Innovative approaches to reducing financial barriers to obstetric care in low-income countries. *American journal of public health* [Internet]. 2010 Oct [cited 2012 Aug 19];100(10):1845–52. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20724689>
3. Ezugwu EC, Onah H, Iyoke CA EF. Obstetric outcome following free maternal care at Enugu State University Teaching Hospital (ESUTH), Parklane, Enugu, South-eastern Nigeria. *J Obstet Gynaecol. J Obstet Gynaecol.*; 2011; 31(5):*J Obstet Gynaecol.* 2011;31(5):409–12.
4. Borghi J, Ensor T, Neupane BD, Tiwari S. Financial implications of skilled attendance at delivery in Nepal. *Tropical medicine & international health: TM & IH* [Internet]. 2006 Feb [cited 2012 Aug 15]; 11(2):228–37. Available from:<http://www.ncbi.nlm.nih.gov/pubmed/16451348>
5. Prata N, Graff M, Graves a, Potts M. Avoidable maternal deaths: three ways to help now. *Global public health* [Internet]. 2009 Jan [cited 2012 Aug

- 16];4(6):575–87. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19326279>
6. Hatt L. Did the strategy of skilled attendance at birth reach the poor in Indonesia? *Bulletin of the World Health Organization* [Internet]. 2007 Oct 1 [cited 2012 Aug 15];85(10):774–82. Available from: <http://www.who.int/bulletin/volumes/85/10/06-033472.pdf>
 7. Nahar S, Costello a. The hidden cost of “free” maternity care in Dhaka, Bangladesh. *Health policy and planning* [Internet]. 1998 Dec;13(4):417–22. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10346033>
 8. Okafor II, Obi SN UE. Impact of Free Maternal and Child Healthcare programme on maternal and neonatal healthcare outcome in Enugu State of Nigeria. *a/Local/Temp/3/pubmed_result.txt* 1. *Niger J Med.* 2011 Oct-Dec;20(4):441-3. 2011;20(4):22288319.
 9. National Health Insurance Authority. The Road to Ghana’s Healthcare Financing - From Nkrumah to Health Insurance [Internet]. www.nhis.gov.gh. 2012 [cited 2012 Jun 16]. Available from: <http://nhis.gov.gh>
 10. Bosu W, Bell JS, Armar-Klemesu M, Tornui JA. Effect of delivery care user fee exemption policy on institutional maternal deaths in the central and volta regions of Ghana. *Ghana medical journal* [Internet]. 2007 Sep;41(3):118–24. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2279091&tool=pmcentrez&rendertype=abstract>
 11. Witter S, Adjei S, Armar-Klemesu M, Graham W. Providing free maternal health care: ten lessons from an evaluation of the national delivery exemption policy in Ghana. *Global health action* [Internet]. 2009 Jan [cited 2012 Aug 15];2:1–5. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2779941&tool=pmcentrez&rendertype=abstract>
 12. Witter S, Armar-klemesu M, Dieng T. National fee exemption schemes for deliveries: comparing the recent experiences of Ghana and Senegal. *Studies in HSO&P.* 2008; 24:167–98.
 13. MOH. Implementation Guidelines For Financing Free Delivery Through NHIS. 2008 ;(June):1–4.
 14. Costello A. Should mother and child health services in developing countries be free? Anthony Costello. *BMJ (Clinical research ed.)* [Internet]. 1997 Mar 29;314(7085):925–8. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2126378&tool=pmcentrez&rendertype=abstract>
 15. Kruk ME, Mbaruku G, Rockers PC, Galea S. User fee exemptions are not enough: out-of-pocket payments for “free” delivery services in rural Tanzania. *Tropical medicine & international health : TM & IH* [Internet]. 2008 Dec [cited 2012 Aug 15]; 13(12):1442–51. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/18983268>
 16. The World Bank/Bank Dunia. “. . . and then she died’ Indonesia Maternal Health Assessment. 2010; 22 - 46.
 17. Bhat R, Mavalankar DV, Singh PV, Singh N. Maternal healthcare financing: Gujarat’s Chiranjeevi Scheme and its beneficiaries. *Journal of health, population, and nutrition* [Internet]. 2009 Apr;27(2):249–58. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2761781&tool=pmcentrez&rendertype=abstract>
 18. Royat S. The PNPM Generasi : Conditional Cash Transfer for Poor people Driven by Community For Better Health and Education In Indonesia. :1–15. Available from: <http://www.socialsecurityextension.org/gimi/gess/RessFileDownload.do;jsessionid=6f1519d7f3>
 19. ILO. Initiatives In South East Asia Indonesia : Conditional Cash Transfer To The Poor [Internet]. Available from: <http://www.ilo.org/public/english/region/asro/bangkok/events/sis/download/paper22.pdf>
 20. Bellows NM, Bellows BW, Warren C. Systematic Review: the use of vouchers for reproductive health services in developing countries: systematic review. *Tropical medicine & international health : TM & IH* [Internet]. 2011 Jan [cited 2012 Aug 15];16(1):84–96. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21044235>
 21. Ensor T, Ronoh J. Effective financing of maternal health services: a review of the literature. *Health policy (Amsterdam, Netherlands)* [Internet]. 2005 Dec [cited 2012 Jul 28];75(1):49–58. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/16298228>
 22. Ridde V, Diarra A. A process evaluation of user fees abolition for pregnant women and children under five years in two districts in Niger (West Africa). *BMC health services research* [Internet]. 2009 Jan [cited 2012 Aug 15];9:89. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2698841&tool=pmcentrez&rendertype=abstract>
 23. GSS. Demographic and Health Survey 2008 Report. Ghana. 2008; 56 - 147.
 24. GHS. Reproductive Health Strategic Plan [Internet]. 2007. Available from: www.ghs.org
 25. WHO. Ghana Factsheets of Health Statistics 2010. 2010.
 26. GHS. Ghana Health Service Annual Report. 2010; 28 -39.
 27. WHO, UNICEF, UNFPA W. Maternal mortality in 1990-2010 WHO, UNICEF, UNFPA, The World Bank and UN Population Division Maternal Mortality Estimation Inter-Agency Group Ghana

- Maternal mortality in 1990-2010 WHO, UNICEF, UNFPA, The World Bank and UN Population Division Maternal Mortality. 2010 p. 2010.
28. The WORLD BANK. Trends in Maternal Mortality : 1990 to 2010. 2010.
 29. WHO. WHO country statistics for Ghana [Internet]. 2003 p. 13-15. Available from: www.who.int
 30. Chakraborty N. Determinants of the use of maternal health services in rural Bangladesh. Health Promotion International [Internet]. 2003 Dec 1 [cited 2012 Jul 15]; 18(4):327–37. Available from: <http://www.heapro.oupjournals.org/cgi/doi/10.1093/heapro/dag414>
 31. Laureen Lopez, Grimes D, Szpir M. Immediate Postpartum Insertion of an IUD is Safe and Effective. Global Health Technical Briefs. 2001;6-7.
 32. Unicef. Tracking Progress in Maternal, Newborn & Child Survival the 2008 Report Newborn & Child Survival the 2008 Report. 2008; 167-221.
 33. Fenton PM, Tadesse E. Reducing perinatal and maternal mortality in the world: major challenges. BJOG : an international journal of obstetrics and gynaecology [Internet]. 2000 Jun;107(6):831–2. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/10847245>
 34. Carroli G, Rooney C, Villar J. How effective is antenatal care in preventing maternal mortality and serious morbidity? An overview of the evidence. Paediatric and perinatal epidemiology [Internet]. 2001 Jan;15 Suppl 1:1–42. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/11243499>
 35. Cameron B. Outcomes in rural obstetrics. *Aust J Rural Health*. 1998;6:46–51.
 36. Unicef. THE STATE OF THE WORLD'S CHILDREN 2009 Maternal and. 2009.
 37. Biritwum R. Promoting and monitoring safe motherhood in Ghana. *Ghana medical journal* [Internet]. 2006 Sep; 40(3):78–9. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1790854&tool=pmcentrez&rendertype=abstract>
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