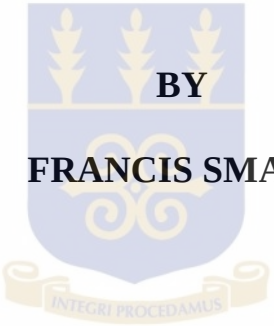
SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

EFFECTS OF DELIVERY CARE USER FEES EXEMPTION POLICY ON UTILIZATION AND OUTCOMES OF EMERGENCY OBSTETRIC CARE SERVICES IN TEMA GENERAL HOSPITAL



BY

FRANCIS SMART

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT FOR THE AWARD OF THE MASTER OF PUBLIC HEALTH (MPH) DEGREE

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DECLARATION

Dr. Francis Smart, Principal Investigator of "Effects of Delivery Care User Fees Exemption Policy on Utilization and Outcomes of Emergency Obstetric Care Services in Tema General Hospital", hereby faithfully declare that except for the duly acknowledged citations and ideas, this is an original work produced by me in fulfillment of my MPH Degree in the Department of Population, Family and Reproductive Health, undertaken under the supervision of my academic supervisor, Dr G. K. Norgbe.

Signed: ……

Student Name: Dr. Francis Smart

ACADEMIC SUPERVISOR

Signed: ……..

Dr G. K. Norgbe

DEDICATION

This work is dedicated to all women; and specifically to my Mother, Wife and Daughter(s) and friends, in recognition of their social and reproductive roles in maintaining relationships, families and populations; and the determination to pursue reproductive rights of all women through advocacy in Public Health for their improved well-being.

ACKNOWLEDGEMENT

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ABSTRACT

Background

Global challenge and commitment to reduce maternal mortality and morbidity burden in developing countries, particularly in Sub-Saharan Africa required Ghana to improve maternal health and achieve the Millennium Development Goal 5 targets. Ghana in 2003 introduced delivery care user fees exemption policy in four regions to remove financial access barrier to maternal health care services and increase utilization of facility delivery and caesarean section; extended to Tema General Hospital in July 2008. The implementation of delivery fees exemption policy has been extensively evaluated in four regions. This research assessed the effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital, located in the industrial municipality of Tema District, Greater Accra Region, Ghana.

Methods

The study design was cross-sectional and descriptive. Obstetric admissions in 2007 and 2009 were used to assess the effects of delivery fees exemption policy on utilization and outcomes of emergency obstetric care services. Non-probability sampling was applied. Quantitative and qualitative data were collected in June 2010 in Tema General Hospital. The data was processed and analyzed manually and with Epi Info.

Results

The delivery fees exemption policy implemented in Tema General Hospital significantly increased utilization of emergency obstetric care services ($p<0.05$ at 95% confidence

level for deliveries and caesarean sections). The policy had no significant effects on outcomes of emergency obstetric care ($p>0.05$): maternal mortality ($p=0.738$) and stillbirths ($p=0.217$). However, the policy statistically significantly reduced maternal deaths due to abortion complications (Fisher exact 1-tailed $p=0.009$). The introduction of the policy was not informed by any implementation plan and consequently, increased utilization overwhelmed the unprepared capacity of the hospital, resulting in poor quality of care, low client satisfaction, and reduction in Internally Generated Funds (IGF).

Conclusion

The delivery care user fees exemption policy introduced in Tema General Hospital significantly increased the utilization of the emergency obstetric care services but did not significantly affect the outcomes. The increased utilization with inadequate supportive policy context and policy measures, and lack of capacity to implement policy effectively resulted to poor quality of care.

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LIST OF ABBREVIATIONS

AMDD	–	Averting Maternal Death and Disability
ANC	–	Antenatal Clinic
ART	–	Anti-Retro-Viral Therapy
BEmOC	–	Basic Emergency Obstetric Care
BJOG	–	British Journal of Obstetrics and Gynaecology
CEmOC	–	Comprehensive Emergency Obstetric Care
CFR	–	Case Fatality Rate
CHPS	–	Community-based Health Planning and Services
CR	–	Central Region
CS	-	Caesarean Section
CSR	–	Caesarean Section Rate
CSSD	–	Central Sterilization Supply Department
ECG	–	Electrocardiograph
EmOC	–	Emergency Obstetric Care
ENT	–	Ear Nose and Throat
IGF	–	Internally Generated Funds
IMR	-	Infant Mortality Ratio
LB	–	Live Birth
MDG	–	Millennium Development Goal

MMR	–	Maternal Mortality Ratio
MVA	–	Manual Vacuum Aspiration
NGOs	–	Non-Governmental Organizations
NHIS	–	National Health Insurance Scheme
Ob/Gyn	–	Obstetrics and Gynaecology
OPD	-	Out-Patient Department
PMM	–	Prevention of Maternal Mortality
PMTCT	–	Prevention of Mother-to-Child Transmission
PPH	–	Postpartum Haemorrhage
QI	–	Quality Improvement
RHCS	–	Reproductive Health Commodity Security
RHRC	–	Reproductive Health Response in Conflict
SBR	–	Still Birth Rate
UN	–	United Nations
VCT	–	Voluntary Counseling and Testing
VR	–	Volta Region
WHO	–	World Health Organization

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Maternal mortality and morbidity has always been a global issue and prevention of maternal deaths resulting from obstetric complications is still a huge challenge for developing countries, particularly in Sub-Sahara Africa. The reduction of maternal mortality remains on the international agenda in order to achieve the fifth Millennium Development Goal (MDG-5), improve maternal health.

Women die from life-threatening medical conditions that are presented as emergencies and occur during pregnancy, childbirth or the immediate postnatal period (Ronsmans & Graham, 2006). Emergency obstetric care is one of the key strategies known to reduce maternal mortality.

In a bid to improve maternal health, the Ministry of Health, Ghana in September 2003 introduced the delivery care user fees exemption policy in four regions and was extended to the Tema General Hospital in July 2008.

This study focused on the effects of the delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital. The admission and treatment outcomes of women with pregnancy-related complications were assessed before and after the introduction of delivery care user fees exemption policy in the maternity unity of Tema General Hospital. This study was conducted in June 2010.

1.2 BACKGROUND

Globally, many women are dying from obstetric complications (Horton, 2006) and majority of the maternal deaths occur in developing countries (Graham, 2009), especially in Sub-Saharan Africa and Asia, with most of them occurring in Sub-Saharan Africa.

Ghana has an unacceptable number of women dying from pregnancy-related complications (Ghana Statistical Service, 2007). Sierra Leone is another example where maternal mortality has been estimated to be very high (Statistics Sierra Leone, 2008).

Thus, maternal mortality and morbidity continue to be global and national issues for Ghana, Sierra Leone and other countries in the sub-region. Prevention of maternal deaths resulting from life-threatening obstetric complications is still a huge challenge for developing countries, particularly in Sub-Sahara Africa including Ghana. Reduction of maternal mortality therefore remains on the international and national agendas in order to achieve the MDG-5.

The Ministry of Health, Ghana in September 2003 introduced the delivery user fees exemption policy directed at making delivery care free in a bid to reduce maternal mortality and achieve the MDG 4 & 5. The policy aimed at improving uptake, quality, financial and geographic access to delivery care services by covering normal deliveries, assisted deliveries including caesarean sections and management of medical and surgical complications arising out of deliveries in public, private and faith-based health facilities (Ofori-Adjei, 2007; Witter et al, 2008).

The delivery care user fees exemption policy was initiated in four regions and incrementally extended to cover the entire country over time. The funding source of the policy was replaced by the National Health Insurance Scheme in 2007 and was started in the Tema General Hospital in July 2008.

1.3 GEOGRAPHICAL AREA

The study was conducted in Tema General Hospital, located in the Tema Metropolis. Tema Metropolis is one of the 10 districts in the Greater Accra Region and is a vibrant commercial and industrial city. The population of Tema Metropolis was estimated at 403,934 (projection from 2000 Population Census), making it the second largest populated district in the Greater Accra Region.

The Tema General Hospital is the largest Public Health Institution in the Team Metropolis, which exists to promote, protect and ensure good health and well-being of clients and the community at large. The geographic location of the Hospital is surrounded by road networks, making the Hospital the major referral point for all other clinics/hospitals, public and private in and around the Metropolis. Thus the catchment area includes the whole of Tema Metropolis, its satellite towns and villages. The Tema General Hospital had ten (10) Wards and 280-bed capacity. It provides 24 hours specialist and general services to both out-patients and in-patients. It serves approximately a total population of 628,058.

1.4. RATIONALE OF THE STUDY

The facts that user fees exemption policies increase utilization of maternal health care services (Borghi et al, 2006; Kruk et al, 2007) and emergency obstetric care (EmOC) is one of the key known strategies to reduce maternal mortality (Paxton et al, 2005; Campbell & Graham, 2006) was a compelling reason to assess the effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital.

Implementations of delivery care user fees exemption policy that started in four regions in 2003 have been extensively evaluated. The findings of previous evaluations motivated the researcher to study the effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital.

Ghana and Sierra Leone are implementing National Health Insurance Schemes as national strategy to increase access to maternal and child health and consequently improve maternal health. Early understanding of the effects of this funding mechanism on the utilization and outcomes of EmOC services is a critical motivation for this study.

1.5 STATEMENT OF THE PROBLEM

Ghana has a maternal mortality ratio of 451 per 100,000 live births (Ghana Statistical Service, 2007) and infant mortality of 50 per 1,000 live births (Ghana Statistical Service, 2008). Sierra Leone has an estimated 857 maternal deaths per 100,000 live births and an infant mortality rate of 89 per 1,000 live births (Statistics Sierra Leone, 2008).

The exemption policy covers normal deliveries and EmOC services (Ofori-Adjei, 2007). However, evaluation reports of the delivery care user fees exemption policy introduced by the Government of Ghana in 2003 indicated that the implementation of the policy did not reduce maternal mortality significantly (Witter et al, 2008; Immpact, 2008).

The adequacy of support for EmOC strategy, known to be an essential requirement for reduction of substantial proportion of maternal mortality (Campbell & Graham, 2006) needs to be evaluated in order to make recommendations for improvement in services.

The previous evaluation studies did not particularly examine the adequacy of funds, reproductive health commodities, human resource, health systems performance and institutional efficiency, community factors and quality improvement in relation to the effects of the exemption policy on the utilization and outcomes of EmOC services. Borghi et al in 2006 had noted the concern that government funding needs to increase to avoid the risk of shortage of drugs and medical supplies and reduce the risk of an increase in informal charges when implementing exemption polices for EmOC services.

The delivery care user fees exemption policy initiative was introduced in the Tema General Hospital in July 2008 and therefore was not part of the earlier assessments of the delivery care user fees exemption policy implementation.

1.6 PURPOSE OF THE STUDY

The purpose of this study was to answer the following research questions:

1. What are the effects of the introduction of delivery care user fees exemption policy on the utilization and outcomes of emergency obstetric care services in Tema General Hospital?

2. How do operational capacity challenges posed by the introduction of the delivery care user fees exemption policy in Tema General Hospital affect the utilization and outcomes of emergency obstetric care services?

The following general and specific objectives were set and pursued to answer the above research questions.

1.6.1 General Objective

To assess the effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in the Tema General Hospital.

1.6.2 Specific Objectives

1. To determine changes in utilization of emergency obstetric care services in Tema General Hospital, one year before (2007) and one year after (2009) the introduction of delivery care user fees exemption policy.

2. To determine and compare the changes in outcomes of emergency obstetric care services in Tema General Hospital, one year before (2007) and one year after (2009) the introduction of delivery care user fees exemption policy.
3. To describe how the capacities of Tema General Hospital facilities for the provision of emergency obstetric care services affect service utilization and outcomes, one year before (2007) and one after (2009) the introduction of delivery care user fees exemption policy.

1.7 SIGNIFICANCE OF THE STUDY

The results of this study will give insight into the capacity needs of the Tema General Hospital for provision of EmOC services to operationalize delivery care user fees exemption policies. The changes in utilization and outcomes of EmOC services influenced by introduction of the delivery care user fees exemption policy will provide a comprehensive picture of mortality patterns needed for effective EmOC planning. Changes in outcomes of EmOC services in particular will also bring to attention issues of specialized obstetric care including quality of care associated with implementation of the delivery care fees exemption policy. Policy-makers and funding agencies will understand and appreciate the resource implications of implementing delivery care user fees exemption policies for sustainability of interventions and impact. Answers to the research questions will also inform and guide decision-making processes during formulation and implementation of delivery care user fees exemption policies with focus on EmOC services. The information on cause-specific deaths will be beneficial to the Tema Government Hospital; will inform community mobilization and programmatic planning.

1.8 RESEARCH DESIGN AND METHODOLOGY

Designing a study is a complex research process that involves number of decisions. Research design provides complete guidelines for data collection. The design and methodology determines the selection of the research approach, design of sampling plan, design of experiment and design of questionnaire (Panneerselvam, 2008). This research design involved identification of the problem, formulation of the research questions and objectives, selection of an observational technique (cross-sectional), data collection and analysis to obtain appropriate and accurate findings that answer the research questions.

1.8.1 Population

The population of a study is the universe of investigation and includes all the possible observations of the same kind; and may be considered the total number of all units of the phenomenon to be investigated that exits in the area of investigation (Kumekpor, 2002). Projection from the 2000 population census estimates that out of 115,121 women of reproductive age in Tema District, 16,157 were expected to be pregnant in 2009. The Obstetrics and Gynaecology Department in the Tema General Hospital had an estimated number of 80 midwives and 6 doctors and conducted about 7,500 deliveries annually. The study population was all normal deliveries and obstetric complications admitted in 2007 and 2009 for the quantitative method and hospital staff from units relevant for EmOC services for the qualitative method.

1.8.2 Sample and Sampling

A sample is a carefully selected portion of the study population, considered to be representative of the total population. It is that proportion of the number of units selected for investigation. Sampling is the use of definite procedures to examine a carefully selected proportion of the units of a phenomenon under study in order to help extend knowledge gained from the study of the part to the whole from which the part was selected (Kumekpor, 2002). In this study non-probability sampling was applied and the entire population of normal deliveries and obstetric complications were examined.

1.8.3 Data Collection and Data Collection Instrument

Data collection involves search for, measure and record of the phenomenon under investigation. For this process to be objective and purposeful, the collection of research data was well planned and controlled. Scientific observation is governed by a code of objectivity which forms the basis for selecting what to observe and how the observation is carried. Data collection instruments are used to achieve the objectives of the study objectively. Therefore the data source is very important. In this research secondary data was used. Secondary data is an existing data base to investigate research questions other than those for which the data were originally gathered.

1.8.4 Data Analysis

Secondary analysis is use of existing data sets to investigate research questions other than those for which the data were originally gathered. There are two types of secondary data

sets. The individual data means that there is separate information for each member of a list of individuals. The aggregate data means that no information is available for specific individuals, only for groups. Both types were used in this study for the quantitative data; and in-depth interviews were conducted to obtain the qualitative data. The data were manually processed. Epi Info software was used to analyze the quantitative data and determine particularly the association between the delivery care user fees exemption policy and the utilization and outcomes of EmOC in Tema Genera Hospital.

1.9 VALIDITY AND RELIABILITY

Validity and reliability describe the process of drawing and applying the study conclusions. The internal validity of the study denotes the degree to which the researcher's conclusions correctly describe what exactly happened in the study and external validity, the degree to which the conclusions were appropriate when applied to the population outside the study. The validity in this study was maximized by including all normal and obstetric complications admitted in 2007 and 2009. Research findings are considered to be reliable when they are not very different from the findings of other similar researches conducted using similar methodology. These research findings were consistent with findings of previous evaluations of the delivery fees exemption policy.

1.10 ETHICAL CONSIDERATION

Three general ethical principles of respect for persons and research subjects, of beneficence and of justice were considered during the conduct of the research. Consent

forms were signed and permissions granted to conduct the research by the appropriate persons, body and institution.

1.11 DEFINITION OF TERMS

The formal definitions of terms are those quoted and referenced, and the operational definitions are those designed to apply to this research. These are as follow:

Case Fatality Rate is percentage of deaths from specific cause (Gordis L, 2008). In this study the case fatality rate means the percentage of women who died from cause-specific obstetric complications at the Tema General Hospital.

Emergency Obstetric Care Services: Constellation of series of processes and crucial life-saving signal functions ideally performed in a medical facility to prevent the death of a woman experiencing the start of complications during pregnancy, delivery, or the post-partum period (Reproductive Health Response in Conflict (RHRC) Consortium, 2005). Emergency obstetric care services in this study imply all obstetric complications attended to, including basic and comprehensive emergency obstetric care signal functions performed and the processes applied to ensure 24 hours emergency obstetric care coverage in one year before and after the introduction of the delivery care fee exemption policy in the Tema General Hospital Maternity Unit.

Emergency preparedness refers to prenatal anticipation of obstetric complications and planning for readiness to avoid delays in preventing or treating the prevailing condition(s)

WHO, 2006). In this study, emergency preparedness refers to capacity of Tema General Hospital Maternity Unit to handle obstetric emergencies promptly and adequately.

Infant Mortality Rate is the number of infant (0-12 months) deaths per 1,000 live births in one year in a given country (Rowland, 2003); same meaning applied in this research.

Maternal Death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2004). In this study, the same meaning was applied.

Maternal Mortality Ratio is the number of maternal deaths in a period to 100,000 live births in the same period (Ronsmans & Graham, 2006).

Obstetric complications are defined as life-threatening medical conditions presenting as emergencies that occur during pregnancy, childbirth or the immediate postnatal period (Ronsmans & Graham, 2006). This study looked at the top five obstetric complications that were direct causes of maternal deaths, in the Tema General Hospital.

Outcomes of emergency obstetric care services are defined as the immediate outputs of emergency obstetric care interventions which usually measure the effectiveness of the services (RHRC, 2005). For this study, the outcomes are maternal deaths, facility-based

maternal mortality ratio, stillbirths, cause-specific case fatality rates of the top five obstetric complications, stillbirth rate and caesarean section rate.

Stillbirth is any fetus born with no life, after 24 weeks' gestation (Campbell & Lees, 2000). This study looked at fetuses borne after 28 weeks gestation, either fresh or macerated.

Utilization of emergency obstetric services measures the number of patients that used specific emergency obstetric care services (Kruk et al, 2007). In this study, the total number of deliveries, caesarean sections and obstetric admissions in one year before and after the introduction of the delivery care fees exemption policy in the Tema General Hospital Maternity Unit were used as process indicators to measure the utilization of emergency obstetric care services.

1.12 OUTLINE OF THE STUDY

The outline of this study shows the order in which the research was conducted and reported.

Chapter 1 discusses the orientation of the study. It summarizes the proceedings of the study and explains why the research was conducted and provides a summary of how it was done.

Chapter 2 presents the literature review. The literature review informed and guided the study using the previous approaches of other researchers.

Chapter 3 presents and discusses in detail how the research was conducted; what was done and how it was done in relation to the research protocols and instruments.

Chapter 4 presents the findings of the research. It includes data presentation and analysis. The findings are presented as obtained from the analysis without any additional expressions outside the findings obtained.

Chapter 5 presents the discussions. Here, the researcher compares and contrasts his results with other findings using information contained in the literature review. The researcher presents here his perspective of the results in relation to the research problem and puts forward his insight and position based on the data.

Chapter 6 presents the conclusion of research findings and recommendations.

1.13 SUMMARY

This chapter presented the summary of the proceedings of the research, the background including global and local situations of the problem, the geographic focus of the study, the motivation for the study, the specific problem and problem statement, the importance of the findings of the study, basis for the research design and data collection methods, ethical principles and noted the definitions of terms in the study.

The next section of the dissertation, Chapter 2 presents the literature review which formed the basis of the preceding and proceeding chapters.

CHAPTER 2

LITERATURE REVIEW

Literature review is the process of reading and gathering relevant information from a wide range of existing literatures with the view of enriching your knowledge and information base to inform and guide your research processes, procedures and methods.

2. 1 INTRODUCTION

Each year globally, over 500,000 women die from pregnancy-related complications (Horton, 2006) and about 99.2% of maternal deaths occur in developing countries and 0.8% in developed countries (Graham, 2009). More than 90% of the maternal deaths occur in Sub-Saharan Africa and Asia, most of them occurring in Sub-Saharan Africa. The global maternal mortality ratio estimate indicated that 400 women die during childbirth per 100,000 live births (WHO, 2005) and nearly 1,000 per 100,000 live births for Sub-Saharan Africa. The global estimate for the lifetime risk is one in 74, one in 16 for Sub-Saharan Africa and one in 6 for Sierra Leone (Ronsmans & Graham, 2006). However, a recent publication of The Lancet (Hogan et al, 2010) indicates considerable progress in reducing maternal mortality worldwide.

The health of mothers and children became a public health priority during the 20th century (WHO, 2005). The Primary Health Care Declaration in 1978 at Alma Ata catalyzed the global campaign to reduce maternal mortality. This was formally launched in 1987 in Nairobi, Kenya, as the Safe Motherhood Initiative (Starrs, 2006). In the opening years of the 21st century, the MDGs placed maternal and child health at the core

of the struggle against poverty and inequality, and considered it as a matter of human rights. Notwithstanding, over 300 million women in the world suffer from long-term or short-term illness brought about by pregnancy or childbirth (WHO, 2005).

For centuries, care for mothers and young children was regarded as a domestic affair, the realm of mothers and midwives (WHO, 2005). Despite the complexity of maternal mortality, today's technological advancement, including research suggests that only few strategic choices need to be made to reduce maternal mortality (Campbell & Graham, 2006). Empirical research and reviews of options for reduction of maternal mortality lucidly show that emergency care strategies are an essential requirement for reduction of a substantial proportion of maternal mortality, given that 15% of all pregnancies will end with life-threatening complications. To ensure a ready supply of EmOC services, health centers and hospitals have to be equipped to deal with the emergencies that reach them so that timely care is not slowed down by the need to pay at point of contact for life-saving treatments, or to purchase drugs and consumables outside the facility or organize blood donations, or to wait for skilled health personnel (Campbell & Graham, 2006). To avoid delays to save lives, many countries have resorted to health care financing mechanisms, including government-funded delivery care user fees exemption policies.

The impact of maternal mortality on social and economic development at community and national levels is insidious and vicious. High maternal mortality perpetuates poverty, making the poor poorer. As a result of the economic and social demises of maternal mortality, infant and child mortality are correspondingly high in poor countries with high maternal mortality rates. Women are intensely vulnerable to the effects of costs incurred

during childbirth (Filippi et al, 2006). Therefore, reducing financial barriers to health services will improve the utilization of maternal health services, and consequently reduce maternal mortality in developing countries (Kruk et al, 2007).

2.2 HEALTH FINANCING REFORMS

The user fees policy was among the health reform strategies of the 1990's as part of the structural adjustment policy of the International Monetary Fund. The internal (ruling governments) and external (World Bank, International Monetary Fund) pressure to introduce user fees was stronger than the civic opposition to such reforms in Africa. Countries in the 1990's attempted to increase governments financing through charging the users as part of the health sector reforms initiated in Africa. It was difficult for most African governments to effectively implement the exemptions targeted at the poor and vulnerable groups. During implementation of the health sector reforms in many developing countries in the 1990's, the user-fees policies required government capacity for routine data collection, accounting, administrative functions as well as financial management roles at central and sub-national levels. The user fees policies failed due to the inadequate supportive policy context and policy measures, and the lack of government capacity to implement policy effectively in many African countries. In 1983, government financing of health care in Ghana was only 20% of its level in 1975. The acute shortages of commodities and pressure from doctors and managers to maintain professional expectations of service standards caused a radical revision of the cost recovery policy and user fees were instituted (Mills et al, 2001).

2.3 HEALTH FINANCING APPROACHES

Alternative approaches to financing health-care exist (Green, 2002). Fees for service and private insurance is the most basic form of health-care financing, where a fee is charged to cover all or part of cost of the service provided. Tax revenue and social insurance schemes which widen the base of private schemes with payments tied to wage-levels are often compulsory. Where finance is raised from income tax, this is progressive (individuals receiving higher income pay more tax) as long as all incomes can be assessed and tax collected. This may be regressive, where the funding is raised from an indirect tax, depending on the goods on which such taxes are levied (and, in particular, whether these are essentials or luxury items).

Other tax options include payroll taxes, import duties, and export levies (Ackon, 2003). Community financing, alternative methods of raising finance at the community level are often suggested by agencies such as UNICEF under the Bamako Initiative. Some of these are linked to service use (Revolving Drug Funds, which are essentially a form of user charge with the income retained at the level of the facility), whereas others are genuinely community-based levy. Loans and grants may be provided in cash or in kind, through means such as technical assistance or the supply of free drugs. In the case of drugs, this has the effect of directly subsidizing the service. Loans are more usually for capital financing. Loans and grants may also be tied in different ways. Conditions may be placed on how the money is spent, and in particular on where it is to be spent.

2.4 HEALTH FINANCING IN GHANA

The financing of health care in recent years has been dynamic in Ghana; it moved from "cost recovery" to user charges, through delivery care user fees exemption policy to National Health Insurance Schemes in 2007. In Ghana, health service is financed through public funds, private contribution through user charges, internally generated funds and external aid (Ackon, 2003). Public funding is from budgetary allocation of the consolidated vote to public sector health services and subventions to mission hospitals. Private funding is from user charges from hospital fees: Internally generated funds (IGF), Cash and carry scheme, instituted in 1992. Revolving drug funds contributed to drugs and overhead costs. External aid funding includes bilateral, multilateral and United Nations (UN) agencies recurrent funding, spent mainly on projects and programmes. Other sources of financing options include community financing which include contributions by beneficiary individuals and groups to support part of the cost of the health care service, in cash or kind for community clinics at Level A and health posts at level B. Health Insurance covers individuals and families, from first visit of a patient to a general practitioner, to a specialist, through to treatment in hospital.

2.5 FINANCIAL ACCESS AND SERVICE UTILIZATION

Empirical evidences associate greater government participation in health financing and higher levels of health spending including introduction of health care delivery fees exemption policies with increased utilization of maternal health services (Kruk et al, 2007), particularly for emergency obstetric care.

Kruk et al in 2007 conducted a study on "Health care financing and utilization of maternal health services in developing countries" to determine the association between government versus private financing of health services and utilization of antenatal care, skilled birth attendants and caesarean section in 42 low-income and lower-middle-income countries. The study used a cross-national analysis to examine whether greater government participation in health care financing is associated with utilization of essential maternal health services. Utilization of a skilled birth attendant was defined as having a doctor, nurse or midwife present at the delivery. The primary dependent variables of interest in their analysis were rates of utilization of three maternal health services: antenatal care, skilled birth attendants and caesarean section. The key independent variable in that analysis was government health expenditure as a percentage of total health expenditure. The results show that utilization of skilled birth attendants and caesarean sections were far below international target levels, defined by WHO as 100% and 5–15% of pregnant women, respectively.

Penfold et al (2007) assessed how the free delivery policy affected utilization, quality of services and health and non-health outcomes for households in the Central and Volta Regions of Ghana. In the same study pre- and post- intervention implementation cluster-sampled household survey design was used although health facility data already showed increased numbers of deliveries after the introduction of the fee exemption scheme. The study population was women who delivered a baby during the fee exemption phase, and those who had delivered during an equivalent duration of time prior to the fee exemption

phase. Witter et al, in another study conducted in 2007 showed a significant increase in facility deliveries; and in deliveries with a skilled attendant.

Maine (1997) conducted a study which showed that EmOC can be improved not only by concentrating on hospitals and physicians, but also by focusing on peripheral facilities and other qualified staff. The teams' findings regarding utilization of EmOC suggest that more people utilize services when they know them to be functioning well.

2.6 FINANCIAL ACCESS AND SERVICE OUTCOMES

Bosu et al in 2007 conducted another evaluation study and found that delivery-related maternal mortality ratio (MMR) decreased in the Central Region (CR) and in the Volta Region (VR) following the implementation of the delivery care user fees exemption policy; but changes were not statistically significant. Interventions to improve access to care at the Juaben Teaching Health Centre in the Ashanti Region of Ghana led to a three-fold increase among women with complications seeking care and a 67% drop in referrals for treatment. The increase in uptake of delivery care observed in the study conducted by Bosu et al (2007) supported data from routine reports and a community survey. In a qualitative study conducted by Witter et al (2007), perceptions of increased utilization were triangulated with routine reports, where available. These showed different patterns in different districts. For example, in one district in the Central Region, skilled attendance rates had remained constant, but with evidence of a switch to facility based deliveries. In other districts the policy appeared to be linked to increases in facility based deliveries.

The Ghana Maternal Health Survey Report 2007, the Ghana Demographic Health Survey 2008 Report and other recent evaluation reports of implementation of the delivery care user fees exemption policy showed that the maternal mortality ratio is not only high but has increased since 2005; and the proportion of deliveries attended by skilled health personnel has declined from 54% to 35% between 2005 and 2007 (Immpact, 2008). The evaluation reports on the implementation of the delivery care user fees exemption policy in Ghana further indicated that the intervention was not quite successful but the studies fell short of providing information on the patterns of effects of the exemption policy on the outcomes of EmOC services (Bosu et al, 2007).

2.7 MILLENNIUM DEVELOPMENT GOAL 5

The Millennium Development Goal (MDG) 5, "improve maternal health" calls for 75% reduction in maternal mortality between 1990 and 2015 (Horton, 2006). Maternal death was chosen as the outcome with which to judge progress towards this goal. In Ghana nationally, access to caesarean section has increased from 4 percent in 2003 to 7 percent in 2008; and the percentage of births assisted by a skilled provider has increased to about 59% (Ghana DHS, 2008); with wide regional variations. To achieve MDG 5 obliges to meet targets 5A and 5B, which in turn require the implementation of strategies known to reduce maternal mortality in combination, including family planning.

Greater government participation in health financing and higher levels of health spending are associated with increased utilization of two maternal health services: skilled birth attendants and caesarean section. Hence greater absolute levels of health spending will be

required if developing countries are to achieve the MDG on maternal health (Kruk et al, 2007). Supportive of the above, Ghana delivery care fees exemption policy covers normal deliveries and emergency obstetric care services (Ofori-Adjei, 2007; Witter et al, 2008).

2.8 STRATEGIES FOR REDUCING MATERNAL MORTALITY

Emergency care is an essential requirement for reduction of a substantial proportion of maternal mortality (Paxton et al, 2005; Campbell & Graham, 2006). Skilled birth attendance and emergency obstetric care, including caesarean section, are two of the most important interventions to reduce maternal mortality (Kruk et al, 2007). In fact, historical evidence shows that no country has managed to bring its maternal mortality ratio below 100 per 100,000 live births without ensuring that all women are attended by an appropriately skilled health professional during labour, birth and the period immediately afterwards (WHO, 2006). However, the financial cost of developing a skilled attendance strategy is substantial and payment exemptions in public facilities must be better financed to overcome both supply and demand-side barriers to care seeking (Borghi et al, 2006). Additionally, it has long been recognized that some women need specialist obstetric care to prevent maternal death, and access to essential obstetric care, particularly caesarean sections, is vital to the success of making pregnancy safer.

2.9 EMERGENCY OBSTETRIC CARE

Emergency obstetric care (EmOC) is a medical response to childbirth-related life-threatening condition(s) and is not a standard for all deliveries. The EmOC signal functions are often divided into two categories: Basic EmOC, which can take place at a

health centre and be performed by a nurse, midwife or doctor; trained and proficient in managing normal delivery and capable of detecting obstetric complications for treatment and referral. Comprehensive EmOC usually requires the facilities of a district hospital with an operating theatre. Basic EmOC signal functions include: parenteral antibiotics, oxytocics and anticonvulsants, assisted vaginal delivery, manual removal of placenta, removal of retained products and neonatal resuscitation. Comprehensive EmOC signal functions include Basic EmONC, PLUS: blood transfusion and caesarean section.

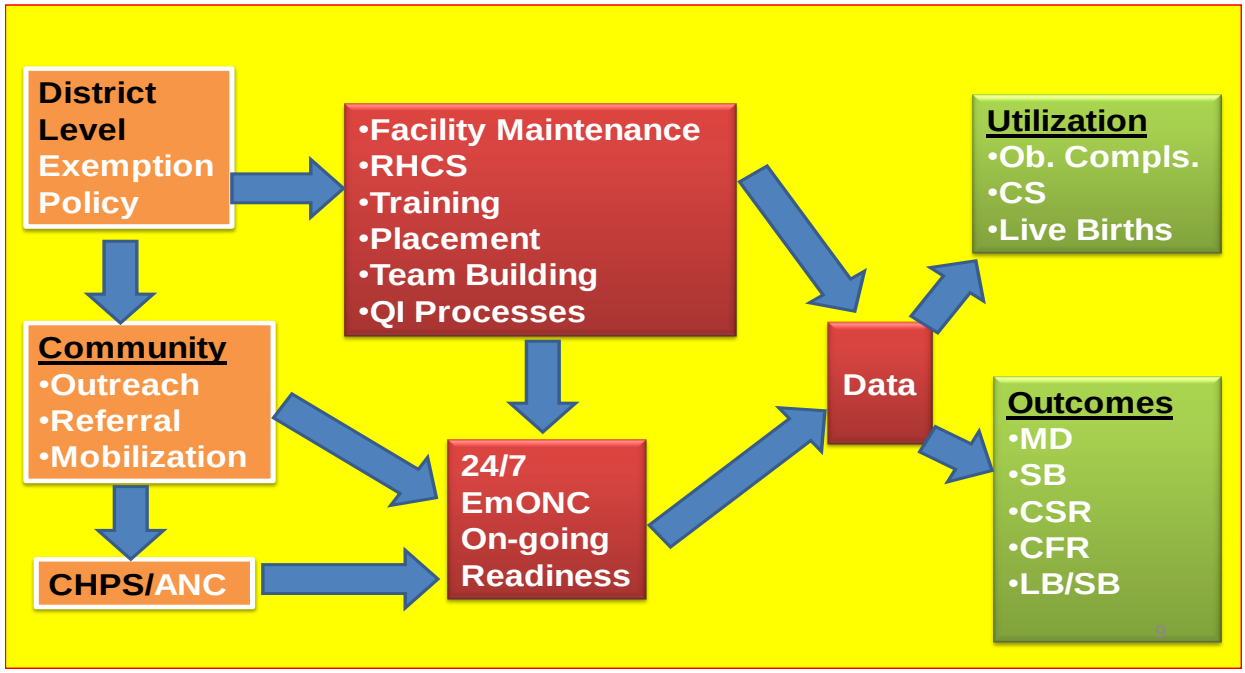
Extensive local studies on emergency obstetric care are generally limited, particularly in the sub-region where maternal mortality burden is highest. The Prevention of Maternal Mortality (PMM) Network conducted the early studies on emergency obstetric care in West Africa; designed and tested projects for reducing maternal deaths. The focus was on improving the availability, quality and utilization of EmOC for women with serious complications. The PMM Projects were initiated by Dr Deborah Maine and others from the Averting Maternal Death & Disability (AMDD) Programme, Mailman School of Public Health in Columbia University, USA. Recent research initiatives in the area of maternal mortality assessment are being conducted by the Initiative for Maternal Mortality Programme Assessment (Immpact), Aberdeen University, UK. Training institutions, UN agencies, bilateral, multilateral donor agencies and other non-governmental organizations (NGOs) have conducted limited studies (operations research and programmes/projects evaluation research) in response to the high maternal mortality in Sub-Saharan Africa. Particularly, evaluations of policies on free emergency obstetric

care are not abounding. The evaluations of the delivery care user fees exemption policy implementation in Ghana have however generated much insight into the outcomes of the policy but without describing the effects of health financing policies on emergency obstetric care services in particular.

2.10 DELIVERY CARE USER FEES EXEMPTION POLICY IMPLEMENTATION

Delivery care user fees exemption policy is usually a government policy that provides a funding mechanism for free provision of maternal and child health care services in order to increase targeted health services utilization, improve maternal and child health status and to reduce maternal and child mortality and morbidity (Kruk et al, 2007). The implementation of delivery care user fees exemption policy at the district level increases access to and utilization of Antenatal Care (ANC) services. Good quality ANC services consequently increase facility-based delivery, resulting to increased number of women having access to EmOC services. This increases the utilization and improves the outcomes of obstetric care services where the policy implementation meets the resource requirements for the provision of EmOC services. Implementation of the policy should improve obstetric service and administrative data management to tract output results. Thus, EmOC service provision requires a "building block" approach, where structures including material and human resources are linked to the processes and in turn to utilization of services as illustrated below (RHRC Consortium, 2005). The researcher used this conceptual framework together with the "Building Block Model" to assess the preparation that existed before and during the implementation of the delivery care user

fees exemption policy in Ghana in relation to the utilization and outcomes of EmOC services in Tema General Hospital.



QI – Quality Improvement

Figure 2.1 Conceptual Frameworks Showing the Interplay of Structures, Processes and Outcomes of Emergency Obstetric Care Services

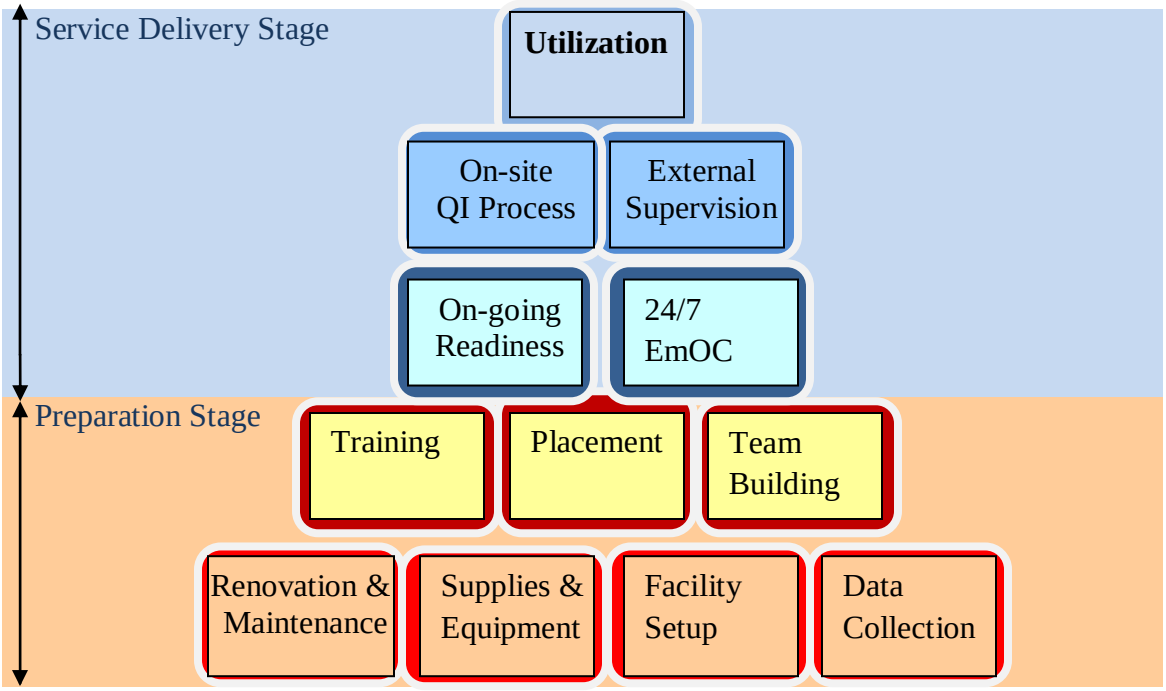
Source: Field-friendly Guide to Integrated Emergency Obstetric Care in Humanitarian Programs, RHRC Consortium, 2005.

2.11 THE PROCESS OF IMPLEMENTING EMERGENCY OBSTETRIC CARE

Based upon worldwide field experience in EmOC programmes, the process of implementing EmOC has been demonstrated by the "Building Blocks Model" (Reproductive Health Response in Conflict (RHRC) Consortium, 2005), which shows the

key elements of planning and implementing EmOC programmes. The "Building Block Model" (Figure 2.2) is a theoretical, logical sequence; in steps of the preparation and service delivery stages, which emphasize the cohesion between structures, processes and outcomes of EmOC services.

A break in the continuity of any aspect of the preparation stage affects the on-going processes and readiness for 24 hours EmOC services, which is critical for saving lives of women with obstetric complications. Any policy targeting free delivery services with the



QI – Quality Improvement

Figure 2.2 The "Building Blocks Model" of Essential Components for Setting up EmOC Services

Source: Field-friendly Guide to Integrated Emergency Obstetric Care in Humanitarian Programs, RHRC Consortium, 2005.

aim of reducing maternal mortality must fully address and ensure sustainability of these components for operationalizing quality emergency obstetric care services.

2.12 SUMMARY

Chapter 2 presented the literature review on global and local maternal mortality, health financing mechanisms, financial access and health care utilization and outcomes, Millennium Development Goal 5, emergency obstetric care and the exemption policy.

The next chapter discusses how the research data was collected and analyzed.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

Research method is a scientific method which involves specified procedures, techniques, ideas, and thoughts processes followed in getting specific things done, and, or in achieving particular ends or objectives (Kumekpor, 2002). The methods explain how this study attained the objectives and answered the research questions. The research methodology explains why certain choices of tools were made and how they are linked to the research questions and the conceptual framework. Each objective was given variables that measured the objectives appropriately. The steps were specific but the approach holistically put the steps together and gave meaning and understanding to the research problem. The tools used also highlighted the limitations to the research findings. The results were anticipated, and selected tools and scientific approaches were used, focusing on the objectives to obtain the findings without any biased influence.

3.2 PURPOSE OF THE STUDY

The study assessed the changes in utilization and outcomes of emergency obstetric care services in Tema General Hospital before (2007) and after (2009) the introduction of the delivery care user fees exemption policy; associated the effects to the introduction of the policy. The study also described how the introduction of the policy affected the operational environment that contributed to changes in utilization and outcomes of emergency obstetric care in Tema General Hospital.

The objectives were focused on the essentials of the study (research topic, problem statement, research questions) and guided the design and methods of investigation,

including the selection of the appropriate utilization and outcome (dependent) variables to answer the research questions; directed the data collection, analysis and interpretation of the results.

3.3 RESEARCH DESIGN

The study design was cross-sectional and descriptive. The researcher employed mixed (quantitative and qualitative) methods to collect data in June 2010 on utilization and outcomes of emergency obstetric care services in Tema General Hospital.

3.3.1 Secondary data

Secondary data is an existing data base to investigate research questions other than those for which the data were originally gathered. The main advantages of secondary data are speed and economy. Secondary data sets have some serious limitations, with the selection of which data, the quality of the data gathered and the method of entry are all predetermined.

Key advantages of secondary data analysis include economy of time and resources, breath of data available (months and all years) and the data collection process was informed by expertise and professionalism of the maternity staff using national data management standard registers and procedures.

Key disadvantages to analyzing these secondary data are that the data were not originally collected to answer specific research questions and the researcher did not participate in

the original planning and execution of the data collection processes. For instance, in the Tema General Hospital, aggregate data on obstetric complications were not classified as direct and indirect, instead direct and indirect admissions were recorded.

In this study, the quantitative data was collected using secondary data form Tema General Hospital in June 2010. The data sets used were not originally collected by the researcher for the purpose of answering the specific research questions; instead the data were collected by maternity staff for some other purpose. The researcher had no involvement in the design and data collection process but only analyzed data sets, collected from daily registers and summary forms, monthly and quarterly reports. Therefore, focus was put on selecting data that were appropriate to answer the research questions.

3.3.2 Quantitative

Quantitative method usually designs closed-ended questions in questionnaires to collect data (Blanche et al, 2008). Here, semi-closed questionnaires were designed. Specific questions were asked but optional answers were not provided; instead space was provided to fill-in corresponding specific answers from existing data sources that required time and expertise.

Variables are characteristics of the study subjects to measure. The independent (exposure) variable was time (year) and categorized as: 1) before (2007) and 2) after (2009) introduction of delivery care user fees exemption policy. The following dependent (outcome) variables were used as process indicators to measure utilization; the first

objective (% change in utilization of EmOC services): total number of obstetric admissions, total number of deliveries and total number of caesarean sections. Other dependent variables were used as process and proxy indicators to measure the second objective (% change in outcomes of EmOC): total maternal deaths, total stillbirths, cause-specific case fatality rates, stillbirth rate and caesarean section rate. The researcher assigned aggregated secondary data to respective variables, one at a time. The independent variable and specific dependent variables were used in the semi-closed questionnaires to measure the objectives.

3.3.3 Cross-sectional

Measurements are taken on a snap-shot in time in cross-sectional designs (Bowling, 2002). The researcher chose a cross-sectional study because of relative economy of resources and time. In this study data was collected for one year before (2007) and one year after (2009) the delivery care user fees exemption policy was started in July 2008.

3.3.4 Descriptive

Descriptive research tries to explain characteristics using specific objective(s) which result to definite conclusions (Panaeerselvam, 2008). This study described the effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital.

3.3.5 Qualitative

Qualitative research is a type of scientific research that provides valuable insights into the local perspectives of the study population. Qualitative research involves detailed, verbal descriptions of characteristics, cases, settings, people or systems obtained by interacting with, interviewing and observing the subjects. In qualitative studies, open-ended questionnaires are applied and the questions seek an answer in the respondents own words. Qualitative methods are time consuming and expensive but used in getting respondents view and opinions due to the flexibility in asking questions. In this study structured in-depth interviews were conducted.

3.3.6 In-Depth Interview

The in-depth interview is a technique designed to elicit a vivid picture of the participant's perspective on the research topic. Interview data consist of tape recordings, typed transcriptions of tape recordings and the interviewer's notes. In this study seven in-depth interviews were conducted. The perceptions in the in-depth interviews were triangulated with the quantitative data.

The third objective was measured using the dependent variables relating to institutional capacity for EmOC set out in the in-depth interview guides, which were grouped into the following themes after the interviews: facility infrastructure, reproductive health commodities/supplies, human resource, administrative logistics, data management, community attitude and quality of care.

3.4 POPULATION AND SAMPLE

The study used the labour ward secondary data on obstetric cases admitted in one year before (2007) and in one year after (2009) the introduction of the delivery care user fees exemption policy in Tema General Hospital. The study population comprised of women who delivered in Tema General Hospital including those who were treated for obstetric complications in 2007 and 2009. The data on women who had normal deliveries were included in measuring the variables for utilization; and data on normal deliveries and on obstetric complications were used to measure variables for outcomes of obstetric care services in the study periods. Data on top five direct causes of maternal deaths and proxy indicators of outcomes of EmOC services as variables were included in the study. The total facility live births and stillbirths were collected to measure outcomes of delivery services as influenced by the independent variable. The study population also included hospital units' managers for the in-depth interviews.

Non-probability sampling is often more practical for many clinical research projects than probability sampling. The researcher used non-probability sampling because the individual information in the clinical charts in the record section were not complete and charts were missing. The researcher used individual and aggregate data from the maternity records including delivery and theatre registers and progress reports. Aggregate data do not give information on individual subjects. Non-probability sampling was applied in the selection of participants for the quantitative and qualitative methods of the study. The researcher used all the relevant available data on EmOC services in 2007 and

2009 in Tema General Hospital for the quantitative study. A sample size of seven participants was determined for the in-depth interviews based on relevance to the study.

The researcher used non-probability, consecutive sampling method to collect the quantitative data. Probability sampling method could not be used in the quantitative method since there was need to calculate case fatality rates (CFRs) and proportions of maternal deaths for which full representations of numerators and denominators were required. Besides, data storage method and capacity of Tema General Hospital could not allow random sampling. The researcher did not get adequate access to patient folders for the planned systematic random sampling and therefore used individual and aggregate data on relevant EmOC services in 2007 and 2009 available in maternity registers and archive. Purposive and snowballing sampling methods were applied to select seven participants (n=7) for the in-depth interviews to collect qualitative data on capacity of hospital facilities for EmOC services in 2007 and 2009.

3.5 DATA COLLECTION AND DATA COLLECTION INSTRUMENT

The data was collected in June 2010 for the periods of January to December 2007 and 2009 which covered one year before and one year after the introduction of the delivery care user fees exemption policy in Tema General Hospital.

3.5.1 Development of the Interview Schedule and Guides

The interview guides were prepared based on key issues relating to institutional capacity in the literature review; were reviewed and probes were introduced. The participants were

selected by snowballing after discussions with the head of obstetric and gynaecology department. Permissions were sought and granted from the hospital superintendent to conduct in-depth interviews with hospital participants. A timetable was drawn with codes and the participants indicated the time they would be available for the interviews.

3.5.2 Pre-test

The questionnaires and in-depth interview guides were pre-tested/piloted at the research site but in a different unit of the hospital (gynaecology ward) and among three (3) non-participants since data management differed from facility to facility. Relevant amendments were made before the actual data collection commenced in the labour ward, based on results of the pre-testing. These included the use of monthly summary forms in order to capture any seasonality. The questionnaires and in-depth interview guides were reviewed to include monthly representation of data for seasonality and trend analysis.

3.5.3 Data Collection

Data was collected for the first two objectives (utilization and outcomes of emergency obstetric care services) using facility case summary forms as closed-ended questionnaires. The field assistant, Sister in charge of the maternity unit was trained in the research methods and data collection. She assisted in locating all the data the researcher needed for the quantitative study. Relevant data were retrieved from the maternity unit registers and reports: admission and discharge registers, monthly maternal death returns, monthly abortion returns, in-patient mortality and morbidity returns and monthly midwife's returns. The data were filled into the questionnaires in the aggregated form. The

questionnaires contained all variables (independent and dependent), numerators and denominators required to measure the dependent variables for data analysis. Data was also obtained for the third objective using in-depth interview guides. The principal researcher conducted the audio-recorded in-depth interviews. The field notes and audio-tapes were used to obtain responses from participants. Audio recording and consents were approved by all participants who took part in the in-depth interviews.

3.6 DATA ANALYSIS

The facility case summary tables were reviewed and modified but the focus of the objectives was maintained. The in-depth interview guides were individualized, improved before interviews were conducted. Data collected were cross-checked for discrepancies from all available sources including archives; verified on-site before departure and data entry. The raw data was reviewed and adeptly scrutinized by the supervisor.

Manual analysis of the facility data to determine change in utilization and specific outcome measures was conducted. Field notes of the in-depth interviews were cross-checked; audio recordings transcribed and coded according to the relevant themes. The themes were regrouped according to the opinions of the respondents. The in-depth interview data were manually analyzed. Frequency, percentage changes, proportions and rates were calculated and presented in frequency tables; pie and bar charts were constructed. Associations between independent and dependent variables regarding utilization and EmOC outcomes were explored using Epi Info Version 6 Statcalc.

3.7 VALIDITY AND RELIABILITY

Validity and reliability describe the process of drawing and applying the study conclusions to the study population and the general population. The validity and reliability of the study findings are governed by errors committed in the secondary data sets. Hospital records from the theatre and maternity units are fairly accurate and therefore, the validity and reliability of these findings are considered satisfactory.

3.7.1 Validity

Validity is determined by the verity of the research questions and the method of selection. Thus it is about how the research was planned and conducted. The internal validity of a study denotes the degree to which the researcher's conclusions correctly describe what exactly happened in the study. External validity describes the degree to which the conclusions are appropriate when applied to population(s) outside the study. The validity in this study must be governed by any errors that existed in the secondary data. However, the validity for Tema General Hospital was maximized by including all normal and obstetric complications admitted in 2007 and 2009 which increased the sample size.

3.7.2 Reliability

Research findings are considered to be reliable when they are not very different from the findings of other similar researches conducted using similar methodology. Differences in reliability result from errors in measurements using instruments; whether faulty or incorrectly used. The reliability is determined by errors in measurements in the secondary data sets analyzed. However, findings of this study are consistent with findings of

previous evaluations of the delivery care user fees exemption policy conducted in Ghana and other studies on the utilization and outcomes of maternal health care.

3.8 TRIANGULATION

Triangulation is the use of multiple methods or theoretical outlooks to build up a fully-rounded analysis of some phenomenon by combining all lines of attack, each probe only revealing certain dimensions of the reality. In this study, the findings of the effects of delivery care user fees exemption policy on utilization and outcomes of obstetric emergency obstetric care obtained through quantitative and qualitative methods were triangulated. The results of the quantitative and qualitative methods are presented together in this study. For example, perceptions of increased utilization obtained from the qualitative method are triangulated with the quantitative results.

3.9 BIAS

Bias may be any systematic error in an epidemiological study that results in an incorrect estimate of the association between exposure and risk of disease.

The patients and clients were not interviewed because the researcher focused on exploring the effects of the delivery care user fees exemption policy on the institutional capacity of the Tema General Hospital within the short time available for the research. However, interviewer's knowledge may influence the structure of questions and the manner of presentation, which may influence responses. Misclassification bias, which is due to errors made in classifying either disease or exposure status may only have been

inherent in the secondary data. Thus incorrect diagnosis, incorrectly coded information may all be flaws in the database.

3.10 ETHICAL CONSIDERATIONS

General ethical principles of respect for persons and research subjects (confidentiality), of beneficence and of justice were considered during the conduct of this research. Before the research work commenced, ethical clearance was requested, approved and granted.

The data would strictly be used for academic purpose and the recommendations will be shared with the Tema General Hospital to improve decision-making. Data available in the dissertation will be kept by the School of Public Health, University of Ghana.

There was no conflict of interest and the research was funded by the Principal Investigator as partial fulfillment for the MPH degree

3.10.1 Ethical Clearance

Ethical clearance was sought from the Ghana Health Service Ethics Review Committee (GHS-ERC) through the Institutional Review Board. The recommendations of the School of Public Health Research Proposal Committee were met. The Tema General Hospital administration approved and granted the permission to conduct this research after due consultations with the Hospital Ethics Committee.

3.10.2 Informed Consent

Permission and consent were sought and granted from the facility personnel including the participants who took part in the in-depth interviews. Consent forms were signed in all interviews conducted. The quantitative study did not require individual consent since secondary data sets were used in the study. However, all ethical considerations regarding the use of the maternity patient data were respected and observed.

3.10.3 Privacy and Confidentiality

Respect for persons and research subjects to ensure confidentiality was among the principles of ethics observed strictly during this study. Data source was secondary and the process of obtaining data therefore proffered no risks or harm to patients and clients.

3.11 STUDY LIMITATIONS

Limitations of this study revolve around the facts that secondary data sets were used; the quality of the existing EmOC service data in the maternity unit, specifically obstetric complications that were available and the short time for the study which did not allow probability sampling methods; the data for normal deliveries and obstetric complications were not classified as direct or indirect. The definitions and meanings of direct and indirect admissions were different from that of direct and indirect obstetric complications. The following were the key limitations:

1. The study periods were limited to only one year before and one year after the implementation of the fees exemption policy. A longer period of review would

have given a clearer picture of the pattern of effects of the policy on EmOC services and predict success or failure of the policy.

2. The short time available for the dissertation writing did not allow the inclusion of all obstetric complications into the study to get the full pattern of the effects of the fees exemption policy on all the outcomes of EmOC services in Tema General Hospital.

3. The in-depth interview was limited to hospital participants (managers) and beneficiaries (clients) were excluded from the interviews and the study. The views of the clients and patients were not accounted for in the study due to the explorative nature of the research work.

3.12 SUMMARY

Chapter 3 presented and discussed how the research was conducted; started with the purpose of the study which put cross-sectional design into perspective. Quantitative and qualitative methods were applied using secondary data sets and in-depth interviews respectively to collect data. Data analysis, validity, reliability and ethical considerations were discussed in detail. The next chapter presents the research findings, presented in tables, graphs and pie charts.

CHAPTER 4

RESUTS AND INTERPRETATION

4.1 INTRODUCTION

The findings of this study are based on emergency obstetric care (EmOC) services provided in Tema General Hospital before (2007) and after (2009) the introduction of the delivery care user fees exemption policy in July 2008. The findings are based on the following specific objectives and the quantitative method results are triangulated with the qualitative method findings:

1. To determine percentage changes in utilization of emergency obstetric care services in Tema General Hospital, one year before (2007) and one year after (2009) the introduction of delivery user fees exemption policy in Tema General Hospital.

2. To determine and compare the percentage changes in outcomes of emergency obstetric care services one year before (2007) and one year after (2009) the introduction of delivery care user fees exemption policy in Tema General Hospital.

3. To describe how the capacities of Tema General Hospital facilities for the provision of emergency obstetric care services affect utilization and outcomes, one year before (2007) and one year after (2009) the introduction of delivery care user fees exemption policy.

4.2 Effects of Delivery Care User Fees Exemption Policy on Utilization of Emergency Obstetric Care Services in Tema General Hospital

The key issues of the first objective included utilization of EmOC services before (2007) and after (2009) the introduction of delivery care user fees exemption policy in Tema General Hospital, and indicators of utilization of EmOC services. The three indicators of utilization of emergency obstetric care services considered were: total number of obstetric admissions, total number of deliveries and total number of caesarean sections.

Table 4.1 Facility Case Summary of Emergency Obstetric Care Services in Tema General Hospital, 2007 and 2009

VARIABLES	**2007**		**2009**	
Caesarean sections	1,230		1,665	
Deliveries	6,474		7,484	
Stillbirths	99		95	
Obstetric admissions	7,466		9,055	
FIVE TOP DIRECT CAUSES OF MATERNAL DEATHS				
Obstetric complications	**Admission**	**Death**	**Admission**	**Death**
1. Haemorrhage	221	8	239	6
2. Eclampsia	212	6	386	12
3. Abortion complications	488	6	574	0
4. Obstructed labour/Ruptured uterus	511	2	606	2
5. Sepsis	17	0	33	1
TOTAL	**1449**	**22**	**1838**	**21**

The results of the above objective and indicators used to measure the utilization of EmOC services provided before (2007) and after (2009) the introduction of the delivery care user

fees exemption policy in July 2008 in Tema General Hospital are presented in tables, graphs and quotations.

Table 4.1 above shows case summaries of emergency obstetric care services before (2007) and after (2009) introduction of the delivery care user fees exemption policy in Tema General Hospital. More obstetric complications among the top five causes of maternal death were admitted in 2009 (1,838) than in 2007 (1,449). In terms of immediate outcomes, less stillbirths occurred in 2009 (95) than in 2007 (99). From admissions of top five obstetric complications, fewer maternal deaths occurred in 2009 (21) compared to 2007 (22).

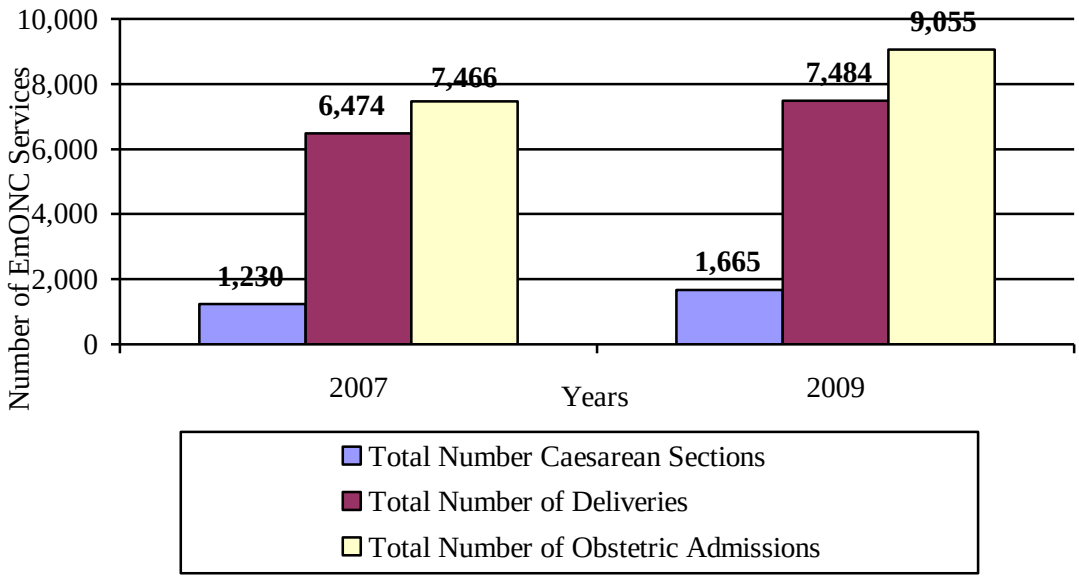


Figure 4.1 Utilization of Emergency Obstetric Care Services in Tema General Hospital, 2007 and 2009

Figure 4.1 shows comparison of utilization of EmOC services before (2007) and after (2009) introduction of delivery care user fees exemption policy in Tema General

Hospital. As immediate results, utilization of EmOC services measured by numbers of obstetric admissions, deliveries and caesarean sections increased in 2009 compared to 2007. One thousand five hundred and eighty-nine (1,589) more obstetric cases were admitted in Tema General Hospital in 2009 than in 2007,

Table 4.2 Percentage Change in Utilization of Emergency Obstetric Care Services in Tema General Hospital, 2007 and 2009

No.	**Indicators of EmOC Services**	**Percentage Change (%)**
1.	Total number of obstetric admissions	21.3
2.	Total number of deliveries	15.6
3.	Total number of caesarean sections	35.4

Table 4.2 shows percentage changes in process indicators of utilization of EmOC services utilization of EmOC services before (2007) and after (2009) introduction of delivery fees exemption policy in Tema General Hospital. In 2009, 21.3% more obstetric cases were admitted in Tema General Hospital than in 2007; 1,010 more deliveries were conducted in 2009 than in 2007, representing 15.6% increase over 2007; 435 caesarean sections more were performed in 2009 than in 2007, an increase of 35.4%.

Tables 4.1, 4.2 and Figure 4.1 show marked increase in the utilization of EmOC services after introduction of the delivery care user fees exemption policy in Tema General Hospital in July 2008. The results were supported by the responses obtained from the in-

depth interviews conducted during this study. All respondents agreed that the utilization of emergency obstetric care services increased with introduction of the delivery care user fees exemption policy. This is how one respondent from the maternity unit put it:

> "We have noticed a jump for example in our labour and delivery from 15 women delivering per day in 2007 to 30 women delivering in a day in 2009. We are now currently dealing with 7,000 to 8,000 deliveries in a year".

A respondent interviewed from the laboratory unit described the increase in uptake of service as thus:

> "Initially, people were put off because there was a fee attached to it and the money is not there and they will not come. They will wait until they are in trouble before they will come and access them. Now they know is free, therefore they are encouraged to come and it saves lives to help them identify their clinical needs. We attend to 250-300 samples a day, from various institutions".

Another respondent from general administration said:

> "The concept of free maternal care or exemption has been greatly accepted. And once again it improved access, because unlike previously, now you might find a lot females, girls, women, adolescents being brought to the OPD with sepsis, dying. Now majority of them are aware".

However, all the respondents interviewed in Tema General Hospital during the study strongly opined that there were no operational plans for implementing the exemption policy. An example of a strong opinion of a maternity unit respondent on the introduction of the delivery user fees exemption policy for the provision of EmOC services indicated that the whole policy would have been planned, implemented and managed differently and better:

> "Nothing was even discussed with the unit prior to the introduction of the policy. All we heard was its announcement on air and we had to figure out a way to implement the policy. I think the policy should be better managed and implemented than it was. And I think also that the policy should have been selective. For example, it should be not in

> the hospital, but if you went to health centres, then you got free care so that non-emergencies should all go to the health centre and the hospital still be left to deal with emergencies. So you re-direct the traffic but here you make it uniform and people could go from anywhere and everybody knows that people know you can get free delivery from the hospital and they all come here. The planning of the implementation was poor. No provision for the pictures. Even in 2009 no antenatal folders were provided for. It could have been done better!"

The laboratory unit respondent expressed serious concerns about the lack of preceding administrative logistical arrangements that would have addressed the problems of immediate increase in utilization of laboratory regents and machinery. In her views:

"Nothing was done about logistics inputs. I will say that it is how to offer hope to the hopeless, in that sense but it hasn't come with the needed inputs".

Other examples of administrative remiss according to the respondents in implementing the delivery care user fees exemption policy were evident in the opinions of the finance unit respondent who noted the following:

> "We just heard an information and directive from government. So we were supposed to add all processing of the free maternal to the National Health Insurance Scheme until further notice. So we were then under directive and then the insurance thing. It was the same normal things we were using, nothing was increased, and nothing was added to it. No preparation for the policy! No accountant was part of the people who did these tariff allocations. If they want it to be successful, the financial aspect must be apt because when you define the activities, somebody must allocate cost to it".

Further expressions of the absence of preparedness to implement the delivery care user fees exemption included the views of the respondent from general administration:

> "This was a hastily implemented policy. The free maternal policy was that implemented! There was no proper administrative preparedness. The policy was rolled on, and we had to embrace it. To even do with basic management of this policy, part of which had to do with taking photographs! The basic tenet of this policy is for basic women to take photographs. You have to prove of being pregnant and all that. There are lots of teething problems, due to the administrative lapses. But I believe if the administrative steps were taken prior to the implementation of this policy, we would

have been able to sort out all these issues. Being part of it is that the pregnant woman might need to have a proof of pregnancy. Who bears the cost? All these issues are part of the administrative problems that were not really sorted out and the problems got rolled on!"

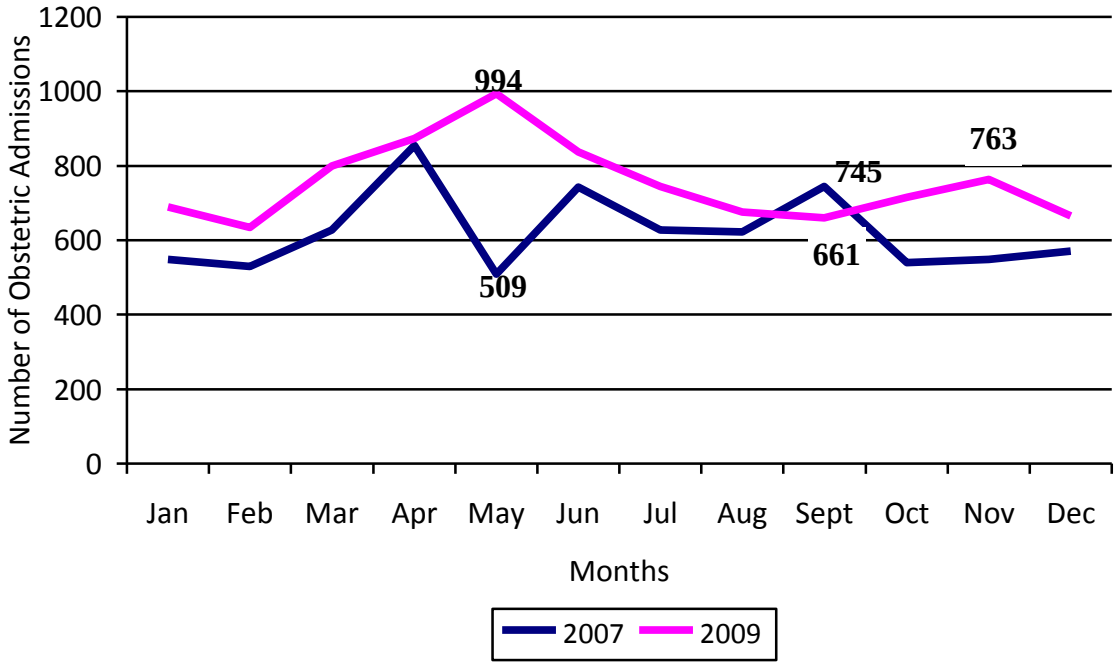


Figure 4.2 Monthly Obstetric Admissions in Tema General Hospital, 2007 & 2009

Figure 4.2 compares monthly trend in obstetric admissions before (2007) and after (2009) introduction of the delivery care user fees exemption policy in Tema General Hospital. It shows an overall increase in obstetric admissions in 2009 compared to 2007; the 2007 line graph lies below the 2009 line graph. The 2007 line graph in figure 4.2 shows a wave-like (arise and fall) pattern in obstetric admissions with a sharp increase in April (855) followed by marked drop in May (509) and another noticeable rise in June (743) and September (745). The 2009 graph line in figure 4.2 shows a pattern above the 2007 line with marked increase in May (994) and the obstetric admission in September (661) 2009 fell below that of September (745) 2007. The possible explanation for the sharp fall

in September is yet unknown. However, the results of this study show increased obstetric admissions in 2009 with nearly two folds increase in May (994).

Relating increased obstetric admissions (Figure 4.2) to ensuing administrative problems, all respondents said no new infrastructure, space, equipment and maintenance facilities were provided to implement the delivery care user fees exemption policy. The problem of space was mentioned as concern by almost all respondents and the issue of space for clients, patients and storage, resulting to congestion in various units was considered as a very serious problem by respondents from the maternity, laboratory, store and pharmacy units of the Tema General Hospital.

The maternity unit was the focus of implementation of the delivery care user fees exemption policy. These were the views of one medical doctor on facility infrastructure, space and sanitation:

> "There was nothing! No single infrastructure was added! No extra structure! So with 30 women delivering in a day, we still have one toilet in the labour ward. So it means there is a long queue to use the toilet. Thirty (30) pregnant women using one toilet! Thirty (30) pregnant women in labour using one toilet is enough story! But more than that we need is space. We need space, increased space! There is desperate need for space. The wards are overcrowded. We had nine (9) women in labour awaiting beds".

The quantitative data show high admissions of patients with bleeding complications. The laboratory services are very essential for emergency obstetric care services. During the in-depth interview the issues of inadequacy of equipment and lack of facilities to screen all blood types and prepare blood products stood out as very serious shortcomings for laboratory services. Many people were now doing their laboratory investigations

immediately the requests were issued out. So the laboratory unit was overcrowded in the morning hours of the day. For example, a respondent from the laboratory unit expressed the following views on space, equipment and water availability:

> "Nothing was done about infrastructure or equipment input. Nothing was done about space, nothing about equipment! We do some aspect of screening but the rest is done at the National Transfusion Centre in Korle Bu. So, all these tests are barriers, if they could make this as a centre for preparing products because we have the qualified personnel here. Then things will be earlier than going there twice every week to ask for products which sometimes they don't give them because they also do not sometimes have enough. Yes, can't even get a place for them to sit in the morning. The workload increased. Yes, definitely there is demand and because the services are free, people are now encouraged to attend at first attempt. Many clients are coming in the morning. Long lines"!

Resource constraints were associated with the increased utilization according to respondents. Results of the in-depth interviews underscored human resource shortfalls as a general problem and respondents considered it very serious in the maternity, laboratory and finance units of the Tema General Hospital for the implementation of the delivery care user fees exemption policy. Numbers and quality of human resource required were all at stake according to the views of the respondents. All respondents acknowledged the high caseload and the corresponding workload.

> "Human resource is a big problem! We still have the same staffing level. In fact, the staffing level even depreciated. The previous year we had ten (10) doctors and with the jump, we now have six (6) doctors due to loss of staff and this created a terrible situation in terms of workload for us. It got impossible to manage. Very, very high caseload! This facility has always faced staffing constraints. This was aggravated by the policy. We have two (2) Ob/Gyn and most of the doctors are medical officers. We need up to twenty-five (25) doctors to be able to run at least three (3) teams of doctors" (Medical doctor).

A female respondent in the laboratory unit submitted her concerns about human resource constraints to implement the delivery care user fees exemption policy vigorously:

> "Human resource is very inadequate and staff are overworked; cannot even proceed on leave and the institution has to employ casual staff within attachment students. So

you will see that the laboratory human resource is very inadequate. Then we run 24 hours emergency services and we need about 25 personnel, qualified personnel but we have only 8 qualified personnel and then the rest are all attachment students and casual staff who have been trained on the bench. So it makes the work difficult".

A male respondent also expressed concern about human resource in the finance unit of Tema General Hospital:

"Human resource is the same staff! It is only once in a while when we get these attachment guys who help us and when national service is finished, they go. When you want to employ, it is difficult. And now we are even forced to take some people as casuals and that one also increases our wage bill so much that we are not able to cope. The casuals are paid within the hospital. It is the Internally Generated Fund (IGF) that pays them. The number of people somebody have to see and work on their papers a day! You can imagine that our outpatient department (OPD) in a day goes over 600 to 700 patients and all of them, their papers must have to be processed and that is just OPD alone".

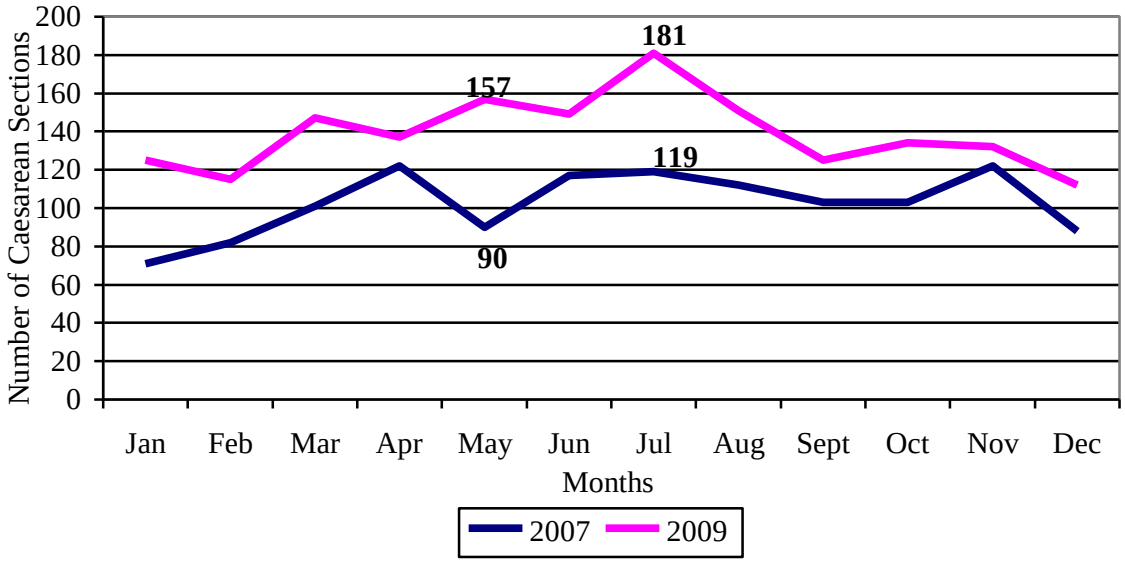


Figure 4.3 Monthly Caesarean Sections in Tema General Hospital, 2007 & 2009

Figure 4.3 compares monthly trend in caesarean sections performed before (2007) and after (2009) introduction of the delivery care user fees exemption policy in July 2008 in Tema General Hospital. The line graph in figure 4.3 shows a sustained increase in the

numbers of monthly caesarean sections performed in 2009 with exceptional increases in May (157) and July (181) against a notable decrease in May (90) in 2007.

Table 4.3 Significance of Change in Caesarean Sections in Tema General Hospital, 2007 & 2009

	Caesarean Sections		**Total Deliveries**
	+	-	
2009	1,665	5,819	7,484
2007	1,230	5,244	6,474
Marginal Total	2,895	11,063	13,958

	Chi-Squares	**P-values**
Uncorrected:	22.28	p=0.0000024 (p<0.05)
Mantel-Haenszel:	22.28	p=0.0000024 (p<0.05)
Yates Corrected:	22.08	p=0.0000026 (p<0.05)

Table 4.3 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of the significant increase in caesarean sections in Tema General Hospital after introduction of delivery care user fees exemption policy. Significant change in caesarean sections was shown by the $p<0.05$ at 95 percent confidence level.

Results from the qualitative method also support the significant increase in caesarean sections after introducing the delivery fees exemption policy in Tema General Hospital.

However, the increase in utilization was not accompanied with increase in staff. The medical doctor interviewed from the maternity unit stated thus:

> "The doctors in our department are about six (6) to seven (7) on average compared to seventy (70) or over fifty (50) in Obstetrics/Gynaecology Department doing nine thousand (9,000) deliveries in Korle Bu. We need up to twenty-five (25) doctors to be able to run at least three (3) teams of doctors. Three emergency teams to make work bearable. We need at least 10 midwives on schedule in the labour ward".

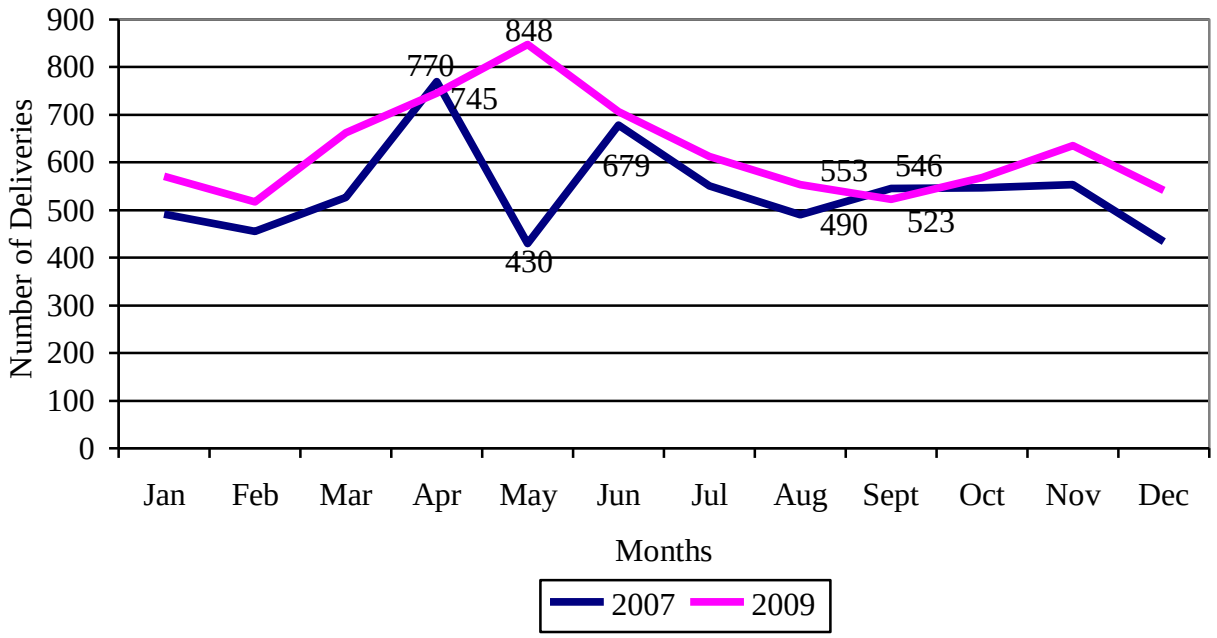


Figure 4.4 Monthly Deliveries in Tema General Hospital, 2007 and 2009

Figure 4.4 compares monthly trend in deliveries conducted before and after introduction of the delivery care user fees exemption policy in July 2008 in Tema General Hospital. The line graph in figure 4.4 shows an overall increase in the numbers of monthly deliveries conducted in 2009 with exceptional increase in May (848) against a notable decrease in deliveries (430) in the same month in 2007. The numbers of deliveries conducted in the months of April (770) and June (679) were noticeably high in 2007 as in

April (662), May (848) and June (707) of 2009. The numbers of deliveries conducted in the months of September and October in 2007 and 2009 did not differ markedly.

Table 4.4 Significance of Change in Deliveries in Tema General Hospital, 2007 & 2009

	Deliveries		**Obstetric Admissions**
	+	-	
2009	7,484	1,571	9,055
2007	6,474	992	7,466
Marginal Total	13,958	2,563	16,521

	Chi-Squares	**P-values**
Uncorrected:	51.53	p<0.05
Mantel-Haenszel:	51.53	p<0.05
Yates Corrected:	51.22	p<0.05

Table 4.4 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of the significance of change in deliveries in Tema General Hospital before (2007) and after (2009) introduction of delivery care user fees exemption policy. Significance change in deliveries was shown by the p< 0.05 at 95 percent confidence level.

The in-depth interview results agree with the significant increase in deliveries after introduction of the delivery care use fees exemption policy in Tema General Hospital. It

however relates the increase in utilization of the EmOC services to shortage of admission space and beds, human resource and sanitation challenges. Examples of opinions of respondents are as follows:

> "It is the same old facilities! As for results, now we have lots of pregnant women who are lying on benches. At times they deliver on trolleys and cots instead of beds. People wait! I mean women who are in labour at times wait for over 24 hours to get access to beds to lie on from a bench. Yes, in as much as management tries to buy more beds and also bring in beds from other departments in the hospital. The structure itself, of the maternity has not been expanded. It just can go beyond. It has got to its limit to the extent that we have to do something." Female administrator

> "Human resource is our main problem, because our old midwives are fading away. They are going on retirement. So we are left with these young ones. With the shortage of staff, we have big problem here. Although more people are being trained, attrition of midwives is a problem with the introduction of the policy because of the workload. In 2007 we did about 15 deliveries a day, but this time we are doing about 30. Doubled deliveries per day in 2009! We have 21 labour ward midwives. We need 6 in the morning, 6 in the afternoon, 6 for late shift and those who will be going on off duty. The 21 is small. We need up to 40 midwives in the labour ward". Midwife

Table 4.5 Percentage Change in Utilization of Emergency Obstetric Care Services in Tema General Hospital, 2007 & 2009

	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Obstetric Admissions	25.9	19.9	27.4	2.2	95.3	12.8	18.6	8.4	-11.3	32.7	39	16.8
Deliveries	16.1	13.6	25.9	-3.3	97.2	4.1	11.3	12.9	-4.2	3.8	14.8	24.7
Caesarean Sections	76.0	40.2	45.5	12.3	74.4	27.4	52.1	34.8	21.4	30.1	8.2	27.3

Table 4.5 shows percentage changes in utilization of EmOC services on monthly basis of the study period. The percentage changes in utilization increased in all months except in

April (decrease in deliveries) and in September (decrease in obstetric admissions and in deliveries). Overall, Table 4.5 shows increased percentage changes in obstetric admissions, deliveries and caesarean sections after introduction of the delivery care user fees exemption policy in July 2008 in Tema General Hospital. Very high percentage changes in the process indicators of utilization of EmOC services in the month of May, namely obstetric admissions (95.3%), deliveries (97.2%) and caesarean sections (74.4%) were observed. See Figure 4.5 below. This was attributed to a strike action by nurses in May 2007 though not elicited in the qualitative study.

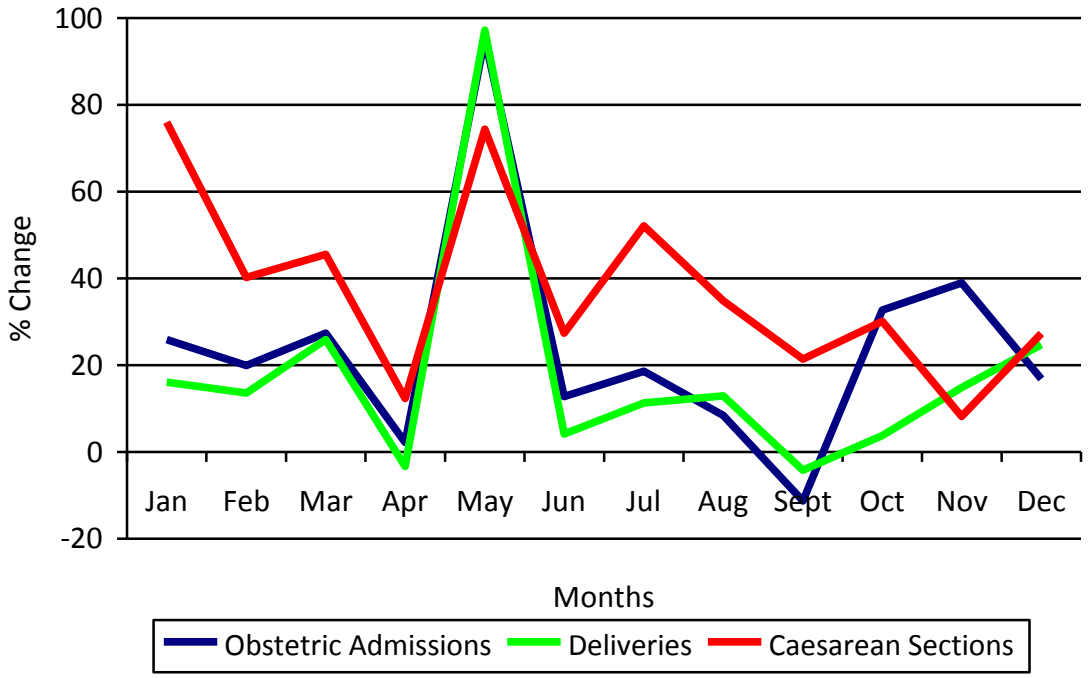


Figure 4.5 Percentage Changes in Obstetric Admissions, Deliveries and Caesarean Sections in Tema General Hospital, 2007 & 2009

Figure 4.5 above illustrates and compares the percentage changes in obstetric admissions, deliveries and caesarean sections before (2007) and after (2009) introduction of the

delivery care user fees exemption policy in Tema General Hospital in July 2008. Figure 4.5 further shows sustained increase in percentage changes for caesarean sections from January to December. The monthly percentage changes were highest for caesarean sections except in May when the percentage changes in deliveries (97.2%) and obstetric admissions (95.3%) were higher than in caesarean sections (74.4%) and in November when percentage change in deliveries (14.8%) and obstetric admissions (39.0%) were notably higher than for caesarean sections (8.2%). Percentage changes dropped in April by 3.3% for deliveries and for obstetric admissions and deliveries in September by 11.3% and 4.2% respectively. This result implies that 11.3% and 4.2% less obstetric admissions and deliveries respectively were observed in September 2009 than in September 2007.

The findings above (Tables 4.1, 4.2, 4.3 and 4.4) show that introduction of delivery care user fees exemption policy in Tema General Hospital in July 2008 had significant effects (increase) on the utilization of EmOC services as shown by $p<0.05$ at 95 percent confidence level for deliveries and caesarean sections.

The qualitative results agreed with the increased utilization of EmOC services due to the introduction of the delivery care user fees exemption policy in Tema General Hospital and described the institutional capacity inadequacies associated with the lack of preparation for operationalizing the policy. A female respondent from the administrative unit described the working environment as thus:

> "For water and sanitation, no! Definitely no! I mean introduction of the free maternal care policy really improved, I mean greatly on access to emergency obstetric and gynaecological care in this hospital. As for results, there has been an upsurge in the number of clients that we see. And with this come the issues of sanitation and water

and other things. It is the same old facilities. The postnatal ward is full; really are nursing patients on benches".

4.3 Effects of Delivery Care User Fees Exemption Policy on Outcomes of Emergency Obstetric Care Services in Tema General Hospital

The key issues on the second objective were: immediate outcomes of EmOC services before (2007) and after (2009) introduction of delivery care user fees exemption policy in Tema General Hospital (deliveries, live births, stillbirths and maternal deaths); proxy and process indicators of outcomes of EmOC services before (2007) and after (2009) introduction of delivery care user fees exemption policy in Tema General Hospital (maternal mortality ratio, case fatality rate, stillbirth rate and caesarean section rate); outcomes of obstetric complications before (2007) and after (2009) the introduction of delivery care user fees exemption policy in Tema General Hospital (haemorrahge, pre-eclampsia/eclampsia, obstructed labour/ruptured uterus, abortion complications and sepsis); proportions of obstetric complications (selected) that caused maternal deaths before (2007) and after (2009) the introduction of delivery care user fees exemption policy in Tema General Hospital (haemorrahge, pre-eclampsia/eclampsia, obstructed labour/ruptured uterus, abortion complications and sepsis).

The results are presented below in tables and pie charts based on the following indicators used to measure the outcomes of EmOC services provided before (2007) and after (2009) introduction of the delivery care user fees exemption policy in July 2008 in Tema General Hospital: total number of live births, total number of stillbirths, total number of maternal deaths, maternal mortality ratio, case fatality rate, stillbirth rate, caesarean section rate.

Table 4.6 Immediate Outcomes of Emergency Obstetric Care Services in Tema General Hospital, 2007 & 2009

Variables	Deliveries	Live Births	Still Births	Maternal Deaths
2007	6474	6375	99	31
2009	7484	7389	95	32
% Change (2007 & 2009)	**15.6**	**15.9**	**- 4.04**	**3.2**

Table 4.6 shows the immediate outcomes of EmOC services provided before (2007) and after (2009) introduction of the delivery care user fees exemption policy in Tema General Hospital. In 2007, 6,474 deliveries were conducted; 6,375 live births, 99 stillbirths and 31 maternal deaths were reported. In 2009 7,484 deliveries were conducted; 7,389 live births, 95 stillbirths and 32 maternal deaths were reported. The percentage changes (2007 & 2009) were 15.6 % increase in deliveries, 15.9% increase in live births, 4.04% reduction in stillbirths and 3.2% increase in maternal deaths.

Table 4.7 Significance of Change in Maternal Mortality in Tema General Hospital, 2007 & 2009

	Maternal Deaths		Total Live Births
	+	-	

2009	32	7,357	7,389
2007	31	6,344	6,375
Marginal Total	63	13,701	13,764

	Chi-Squares	**P-values**
Uncorrected:	0.21	p=0.645
Mantel-Haenszel:	0.21	p=0.645
Yates Corrected:	0.11	p=0.738

Table 4.7 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of significance of change in maternal mortality in Tema General Hospital before (2007) and after (2009) introduction of deliver fees exemption policy. No significant change in maternal mortality was shown by the p=0.738 (p>0.05) at 95 percent confidence level.

The qualitative method investigated the effects of the delivery care user fees exemption policy on institutional capacity and outcomes of EmOC services through in-depth interviews of respondents in Tema General Hospital.

These were the views of the medical doctor interviewed in the maternity unit:

> "Extremely high caseload, with resulting poor quality of care! And a doctor for example has to do nine (9) caesarean sections (CS) per day. One individual on duty does about nine (9) CS a day. That can be traumatic! Can be very stressful! It accounts for delays. There were delays in attending to clients resulting to maternal and fetal losses and generally poor quality of care. Even though our maternal mortality ratio has been coming down consequently every year, for last year we noticed a rise in our maternal mortality ratio. The trend has been downward all along. Not only the complications that are coming, it is both normal and complications that are coming. We use to be a referral centre. We only saw complications but now all the normal cases are coming because it is free".

Table 4.8 Significance of Change in Stillbirths in Tema General Hospital, 2007 & 2009

	Stillbirths		**Total Deliveries**
	+	-	
2009	95	7,389	7,484
2007	99	6,375	6,474
Marginal Total	194	13,764	13,958

	Chi-Squares	**P-values**
Uncorrected:	1.71	p=0.191 (p>0.05)
Mantel-Haenszel:	1.71	p=0.191 (p>0.05)
Yates Corrected:	1.53	p=0.217 (p>0.05)

Table 4.8 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of significance of change in stillbirths in Tema General Hospital before (2007) and after (2009) introduction of delivery care user fees exemption policy. No significant change in stillbirths was shown by the p-value of 0.217 (p>0.05) at 95 percent confidence level.

The in-depth interview results explain why possibly the stillbirths did not reduce significantly. The Partograph is a tool used to monitor the progress of labour, meaning the well-being of the mother and fetus. But the process was constrained with limited number of midwives. The medical doctor interviewed explained:

> "Under normal labour norm, a midwife in charge of the labour ward can attend to do the Partograph for three (3) clients comfortably per day. But with three (3) nurses dealing with thirty (30) deliveries per day, the Partograph can not be completed as

according to the protocols, because to do the Partograph protocol you need to have three (3) clients per midwife, not ten (10) per midwife".

Table 4.9 Indicators of Outcomes of Emergency Obstetric Care Services in Tema General Hospital, 2007 & 2009

No.	**Variables**	**Maternal Mortality Ratio (Per 100,000 LB)**	**Still Birth Rate (Per 1,000 LB)**	**Caesarean Section Rate (%)**
1	**2007**	486	15.3	19
2	**2009**	428	12.7	22.3
3.	**% Change**	**-11.9**	**-17.0**	**17.4**

Table 4.9 shows some of the indicators that were used to measure the outcomes of EmOC services provided before (2007) and after (2009) introduction of delivery care user fees exemption policy in Tema General Hospital. In 2007, the maternal mortality ratio, stillbirth rate and caesarean section rate were 486 per 100,000 live births, 15.3 per 1,000 live births and 19% respectively. In 2009, the maternal mortality ratio, stillbirth rate and caesarean section rate were 428 per 100,000 live births, 12.7 per 1,000 live births and 22.3% respectively. The percentage changes in maternal mortality ratio and stillbirth rate were reduced by 11.9%, and 17% respectively; and the percentage change in caesarean sections was increased by 17.4%.

The qualitative results further agree with these quantitative findings and describe the institutional capacity that prevailed. In response to questions on quality of care issues, the respondent from general administration for example said:

"Em, I think broadly the outcome of care at Tema General Hospital has improved. This is in relation to the numbers we have seen. Since the number for maternal care has increased, it also brought the attendant ills, may be a bit of rise in maternal mortality rate. But it has to do with the population you are dealing. But broadly, it is better and more so challenges of working almost with the same numbers of staff, doctors, nurses and then the same facilities; the theatre hasn't been expanded and all that. So to me it is great improvement. Women dying around were a terrible period. It has improved".

Table 4.10 Outcomes of Obstetric Complications (Selected) in Tema General Hospital, 2007 & 2009

No.	**Direct Causes of Maternal Deaths (Selected)**	**Before (2007)**		**After (2009)**	
		Admission	**Maternal Death**	**Admission**	**Maternal Death**
1.	Haemorrhage	221	8	239	6
2.	Pre-Eclampsia/Eclampsia	212	6	386	12
3.	Obstructed Labour/ Ruptured Uterus	511	2	606	2
4.	Abortion Complications	488	6	574	0
5.	Sepsis	17	0	33	1
6.	Others	-	9	-	11
Total		**1449**	**31**	**1838**	**32**

Table 4.10 shows admissions and outcomes of obstetric complications before (2007) and after (2009) the introduction of delivery care user fees exemption policy in Tema General Hospital. A total of 1,449 admissions of five major obstetric complications and 22

maternal deaths were recorded in 2007; and 1,838 admissions of same obstetric complications and 21 maternal deaths were recorded in 2009. Three hundred and eighty-nine (389) more major obstetric complications were admitted in 2009 than in 2007. There were totals of 31 and 32 maternal deaths in 2007 and 2009 respectively. Eighteen (18) more obstetric haemorrhage cases were admitted (8.2% increase in admission) in 2009 than in 2007; two more deaths from haemorrhage were prevented in 2009. One hundred and seventy-four (174) more pre-eclampsia and eclampsia cases (82.1% increased admissions) were admitted in 2009. Hundred percent (100%) increase in maternal deaths due to pre-eclampsia/eclampsia were observed in 2009. The admissions of obstructed labour and ruptured uterus cases increased by 95 (18.6%) in 2009 with no change in this cause-specific maternal deaths. Eighty-six (86) more abortion complication cases (17.6% increased) were admitted in 2009 than in 2007; and 100% reduction in maternal deaths due to complications of abortions was observed in 2009. Sixteen (16) more cases of sepsis (94.1% increased) were admitted in 2009 and one (1) maternal death occurred in 2009 compared to none in 2007. Three more maternal deaths occurred in 2009 due to other direct and indirect causes.

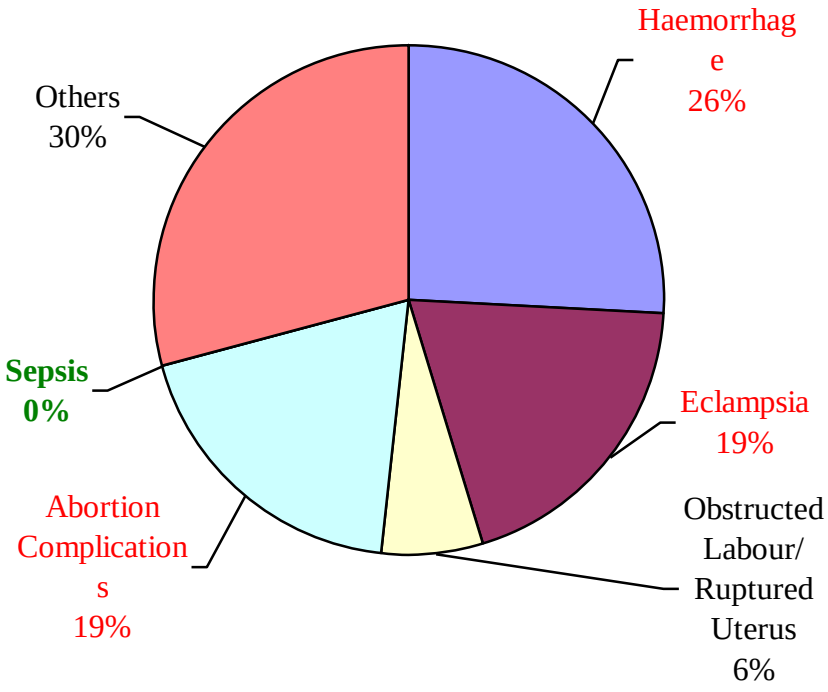


Figure 4.6 Direct Causes of Maternal Deaths in Tema General Hospital, 2007

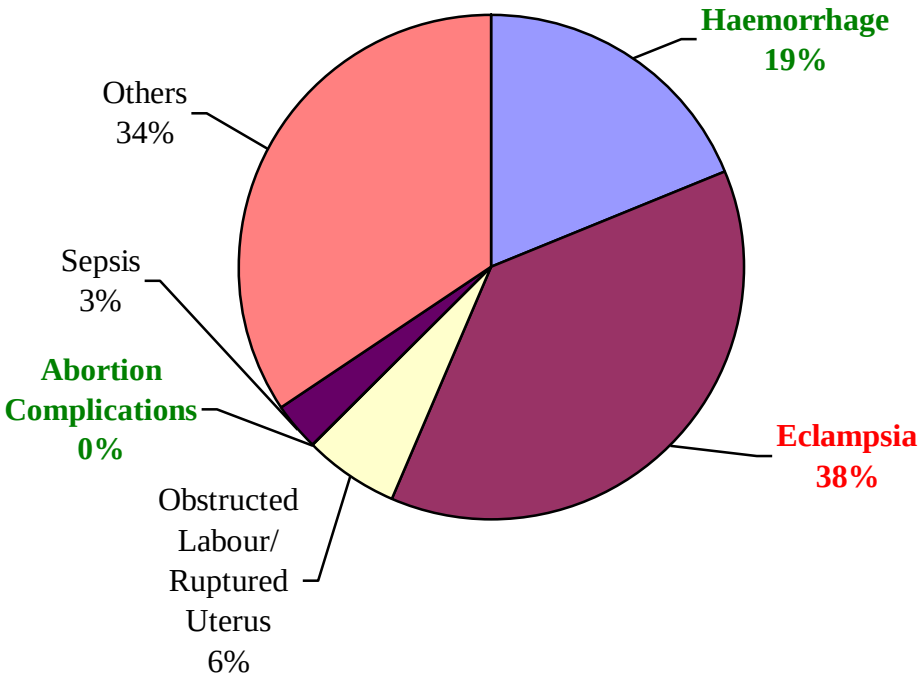


Figure 4.7 Direct Causes of Maternal Deaths in Tema General Hospital, 2009

Figures 4.6 and 4.7 show the proportions of major direct causes of maternal deaths before and after introduction of the delivery care user fees exemption policy in Tema General Hospital. In 2007 (Figure 4.6), maternal deaths were due to 26% hemorrhage, 19% eclampsia, 6% obstructed labour/ruptured uterus, 19% abortion complications, 0% sepsis and 30% others. In 2009 (Figure 4.7), maternal deaths were due to 19% hemorrhage, 38% eclampsia, 6% obstructed labour/ruptured uterus, 0% abortion complications, 3% sepsis and 34% others. In 2009, maternal deaths due to haemorrhage reduced by 27%; the proportion of maternal deaths due to pre-eclampsia and eclampsia increased by 100%; the proportion of maternal deaths due to complications of abortions reduced by 100%; the proportion of maternal deaths due to sepsis increased by 100%; proportion of maternal deaths due to other causes increased by 13.3% and the proportion of maternal deaths due to obstructed labour and ruptured uterus did not change in Tema General Hospital.

Table 4.11 Significance of Reduction in Maternal Deaths due to Five Major Direct Causes in Tema General Hospital, 2007 & 2009

	Cause-Specific Maternal Deaths		**Obstetric Complications**
	+	-	
2009	21	1,817	1,838
2007	22	1,427	1,449
Marginal Total	43	3,244	3,287

	Chi-Squares	**P-values**
Uncorrected:	0.89	p=0.347 (p>0.05)

Mantel-Haenszel:	0.89	p=0.347 (p>0.05)
Yates Corrected:	0.62	p=0.432 (p>0.05)

Table 4.11 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of the significance of change in maternal deaths due to five major direct causes in Tema General Hospital before (2007) and after (2009) introduction of delivery care user fees exemption policy. No significant change in maternal deaths due to five major direct causes was shown by the p-value of 0.432 (p>0.05) at 95 percent confidence level.

The qualitative results showed that the inadequacy of infrastructure and particularly space in the maternity affected the outcomes of EmOC after the delivery care user fees exemption policy was introduced in Tema General Hospital. For example, one of the maternity unit respondents described the admission space situation as follows:

> "We had ruptured uteruses because when in labour they were sitting on the bench in labour. We had nine (9) women in labour awaiting beds. Nine (9) women in labour last year, waiting to be placed on beds and we had some tragic deaths because of that. They sat on the bench for sometimes up to twelve (12) hours, waiting for the bed with losses of the babies. Twenty-nine early neonatal deaths in the month of May just because of congestion"!

The respondent from the laboratory unit described the implementation of delivery care user fees exemption policy in relation to the non-supportive environment:

"I will say that it is how to offer hope to the hopeless, in that sense but it hasn't come with the needed inputs. You know, it hasn't come with the needed inputs that would help the lab man to be on top of his job. It offered hope to the many who are poor but we are not able to meet the demands because the inputs are not there. But we do our best to maintain quality care. The little that we are left with, we do our best and make sure the results are good".

One respondent from the maternity unit in her response to the issue of community attitude to introduction of delivery care user fees exemption policy described women's desire to deliver in Tema General Hospital and their refusal to use other facilities thus:

> "And also that sometimes because the congestion is so bad you have to mobilize to get people out to other facilities. So your time is taken doing things that you should not be doing. How to take people out of this hospital? You need to mobilize Ambulance. Sometimes to carry patients from here, going around town, looking for places you can distribute them to. And so takes you away from your real duty".

Table 4.12 Case Fatality Rates for Five Major Obstetric Complications in Tema General Hospital, 2007 & 2009

Selected Obstetric Complications	**Case Fatality Rate (%) 2007**	**Case Fatality Rate (%) 2009**	**% Change**
Haemorrhage	3.62	2.51	- 30.7%
Pre-Eclampsia/ Eclampsia	2.83	3.11	9.9 %
Obstructed Labour/ Ruptured Uterus	0.39	0.33	- 15.4%
Abortion Complications	1.23	0	-100%
Sepsis	0	3.03	-

Table 4.12 shows case fatality rates by obstetric complications for five major obstetric complications before (2007) and after (2009) introduction of delivery care user fees

exemption policy in Tema General Hospital. The case fatality rates (CFRs) for haemorrhage were 3.62% in 2007 and 2.51% in 2009; reduced by 30.7%. The CFRs for Eclampsia were 2.83% in 2007 and 3.11% in 2009; increased by 9.9%. The CFRs for obstructed labour/ruptured uterus were 0.39% in 2007 and 0.33% in 2009; reduced by 15.4%. The CFRs for abortion complications were 1.23% in 2007 and 0% in 2009; reduced by 100%. The CFRs for sepsis were 0% in 2007 and 3.03% in 2009.

Almost all respondents admitted that the implementation of the policy necessitated increased and rigid documentation and ushered in data management challenges resulting from the high utilization of services and NHIS strict billing criteria. The high caseload and workload also precipitated scanty documentations and mistakes particularly in the maternity and finance units. For example one of the participants from the maternity unit expressed concerns in response to questions on supervision, monitoring and data management:

> "What I would say is that because of the workload, again those who have to look at auditing have challenges. We could not hold audit meetings. People are not involved. There is too much work. We can not leave the work today! So in terms of doing proper auditing, it also affects the auditing because people do not fill those documents very well. The notes are scanty and in terms of looking at data, you have challenges for quality of care issues. Supervision of EmOC services has been difficult. It has been difficult experience in that you know that your workers are burnt out, they need help, and then you can not intervene. Disciplinary, quality of care issues, you have to be understanding, because people don't clerk well and you know the victim. How do you maintain this quality in the face of those things? How do you ask a young doctor who takes so many people to be able to clerk fully? And how can you even maintain quality? So it is very difficult".

Table 4.13 Significance of Change in Maternal Deaths due to Haemorrhage in Tema General Hospital, 2007 & 2009

	Maternal Deaths due to Haemorrhage		**Admissions due to Haemorrhage**
	+	-	
2009	6	233	239
2007	8	213	221
Marginal Total	14	446	460

	Chi-Squares	**P-values**
Uncorrected:	0.48	p=0.488 (p>0.05)
Mantel-Haenszel:	0.48	p=0.489 (p>0.05)
Yates Corrected:	0.18	p=0.674 (p>0.05)

Table 4.13 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of the significance of change in maternal deaths due to haemorrhage in Tema General Hospital before (2007) and after (2009) introduction of delivery care user fees exemption policy. The no significance of change in maternal deaths due to haemorrhage was shown by the p-value of 0.674 (p>0.05) at 95 percent confidence level.

The qualitative results triangulated with insignificant improvement shown by the quantitative results brought to focus the blood transfusion facilities, a requirement for

Comprehensive EmOC. The female respondent from the laboratory further expressed her views in response to questions on availability of blood and laboratory supplies:

> "Before and now, it is very different. It is not the best and the reason been that the institutional money is all locked up with the Insurance, so that now moneys are not released to authorities to meet IGF logistics needs. So occasionally we ran out of stock of laboratory regents. Some formalities caused delay and as a result we run out of stock sometimes. When it comes to things like blood, we are also at the mercy of the people at the higher level. So every week we go to Korle Bu twice to look for our results. Some of them may not be forthcoming. We have some of the screening done at their screening centre. So we don't get the results. So, the blood is here but once we do not get all the results, we do not put them in circulation. Korle Bu will give us supplements for our demands if they have enough. For some time now, they can not give us FFP, because their machine has broken down".

Table 4.14 Significance of Change in Maternal Deaths due to Abortion Complications in Tema General Hospital, 2007 & 2009

	Maternal Deaths to Abortions		**Obstetric Complications**
	+	-	
2009	0	574	574
2007	6	482	488
Marginal Total	6	1056	1062

	Chi-Squares	**P-values**
Uncorrected:	7.10	p=0.007 (p<0.05)
Mantel-Haenszel:	7.09	p=0.007 (p<0.05)
Yates Corrected:	5.08	p=0.024 (p<0.05)
Fisher exact:	1-tailed P-value	p=0.009 (p<0.05)
	2-tailed P-value	p=0.009 (p<0.05)

An expected cell value is less than 5.

Fisher exact results recommended.

Table 4.14 shows Epi Info Version 6 Statcalc Single Tables 2x2 analysis results of significance of change in maternal deaths due to abortion complications in Tema General Hospital before (2007) and after (2009) introduction of delivery care user fees exemption policy. The significance of change in maternal deaths due to abortion complications was shown by the p-value of 0.009 ($p<0.05$) at 95 percent confidence level.

The reduction in deaths due to complications of abortion was also opined by the respondent from general administration:

> "Even those who attempt to abort their pregnancies criminally, once they are bleeding or they feel ill, they rush to the hospital for the process of abortion to be completed for them. That saves a lot of lives!"

Generally, the implementation of delivery care user fees exemption policy in Tema General Hospital that started in July 2008 had no significant effects on the outcomes of emergency obstetric care services in terms of quality of care but on the average many more lives were saved. Specifically: the policy had no significant effects at 95 percent confidence levels on maternal mortality - p-value of 0.738, stillbirths – p-value of 0.217 ($p>0.05$), maternal deaths due to haemorrhage – p-value of 0.674 ($p>0.05$) , maternal deaths due to five major direct causes – p-value of 0.432 ($p>0.05$) . However, the delivery care user fees exemption policy implemented in Tema General Hospital had very strong significant effect (reduction) on maternal deaths due to abortion complications – Fisher exact 1-tailed p-value of 0.009 ($p<0.05$).

The opinions of relevant units' managers in the Tema General Hospital agree with the quantitative results which show increase in utilization of emergency obstetric care services with introduction of the delivery care user fees exemption policy. However, the qualitative results further show that the implementation process was not informed by any implementation plan on the ground and consequently the increased utilization (caseload) overwhelmed the unprepared capacity of the hospital, specifically the maternity, laboratory and finance units of the hospital resulting in poor quality of care, long lines and long waiting times for services, minimal defrayment of cost by NHIS and reduction in IGF. Put straight by one of the respondents:

> "It offered hope to the many who are poor but we are not able to meet the demands because the inputs are not there".

4.4 SUMMARY

Chapter 4 presented the findings of the study. The quantitative and qualitative results show that introduction of the delivery care user fees exemption policy in Tema General Hospital in July 2008 had statistically significant effects (increase) on utilization of emergency obstetric care services but had no significant effects on the outcomes. The qualitative results further show that introduction of the delivery care user fees exemption policy was not preceded by any implementation plan in Tema General Hospital and therefore put the unprepared institutional capacity under pressure that resulted in overcrowding of the facility and poor quality of emergency obstetric care services.

The next Chapter presents discussions of the study findings.

CHAPTER 5

DISCUSSIONS

This study assessed the effects of delivery care user fees exemption policy on utilization and outcomes of EmOC services introduced in Tema General Hospital in July 2008.

5.1 Changes in Utilization and Outcomes of Emergency Obstetric Care Services in Tema General Hospital

In this study the percentage changes of three emergency obstetric care process indicators, namely obstetric admissions, deliveries and caesarean section were used as dependent variables in assessing utilization of EmOC services. Kruk et al in 2007 used antenatal care, skilled birth attendants and caesarean section as primary dependent variables of interest in their analysis to determine the rates of utilization of maternal health services in developing countries. The study found strong significant increases in the utilization of EmOC services after introduction of delivery care user fees exemption policy in July 2008 in Tema General Hospital; taken into account the results obtained from data collected from the maternity unit, triangulated with opinions of respondents in relevant units of the hospital. The findings agree with existing evidences that associate greater government participation in health financing and higher levels of health spending including introduction of health care delivery fees exemption policies with increased utilization of maternal health services (Kruk et al, 2007), particularly for EmOC services.

The findings also show that introduction of the delivery care user fees exemption policy did not totally change the outcomes of EmOC services. There were no significant changes in the immediate outcomes of EmOC and changes in the indicators of EmOC

outcomes were also not significant; changes in the outcomes of the selected five (5) obstetric complications were not significant except for abortions complication which was strongly significant. The changes were also observed in the proportions of some direct causes (five selected) of maternal deaths in Tema General Hospital after introduction of the delivery care user fees exemption policy.

5.2 Comparison of Changes in Utilization of Emergency Obstetric Care Services in Tema General Hospital

Detailed descriptive analysis of the maternity unit data showed significant increase in percentage changes in deliveries, obstetric admissions and caesarean sections (15.6%, 21.3% and 35.4 % respectively) with very high percentage changes in these process indicators which measured utilization of EmOC services in the month of May: obstetric admissions (95.3%), deliveries (97.2%) and caesarean sections (74.4%). Low numbers of obstetric admissions, deliveries and caesarean sections before (in 2007) the introduction of the delivery care user fees exemption policy in July 2008 were observed. However, this study did not delve into the reasons for the marked differences. The percentage change (35.4%) of utilization of caesarean section was observed to be higher than the other two dependent variables (obstetric admissions, deliveries) after introduction of the delivery care user fees exemption policy in Tema General Hospital. The reasons for this increase in access to caesarean sections ($p < 0.05$ at 95% confidence level) could be associated with the fees exemption policy implementation since the in-depth interview also showed that the number of doctors in the maternity unit actually reduced from about 10 to 6 in 2007 and 2009 respectively. The increase in deliveries ($p < 0.05$ at 95% confidence level) observed after the introduction of delivery care user fees exemption

policy in Tema General Hospital in this study corroborates with Penfold and others, who in 2007 assessed how the free delivery policy affected utilization in the Central and Volta regions of Ghana and showed increase in the numbers of deliveries after introduction of the fees exemption scheme; increased proportions of deliveries that took place in Central Region health facilities (11.9 percentage points) and in health facilities in Volta Region after the implementation of fees exemption was much smaller (5.0 percentage points).

Additionally, all the respondents interviewed during this study to assess the effects of delivery care user fees exemption policy on the capacity of Tema General Hospital said the caseload (utilization) increased considerably after July 2008. This finding is in congruent with another study which showed a significant increase in facility deliveries after introduction of delivery fees exemption policy in the Volta Region where informants reported substantial increases in utilization ("it had doubled, according to the regional director") (Witter et al, 2007).

Further detailed descriptive analysis of maternity unit data (2007 & 2009) showed percentage changes in the immediate outcomes of EmOC services after introduction of the delivery care user fees exemption policy though not statistically significant. The number of live births increased by 15.9%; number of stillbirths reduced by 4.04% and 3.2% increase in number of maternal deaths. These immediate outcomes are favorable in the light of the increased utilization without planned increase in staff, particularly in the maternity unit. Facility-based maternal mortality ratio, stillbirth and caesarean section rates are important process and proxy indicators of the outcomes of emergency obstetric care services. This study showed that the maternal mortality ratio reduced by 11.9%,

stillbirth rate reduced by 17.0% and caesarean section rate increased by 17.4% after introduction of the delivery care user fees exemption policy in Tema General Hospital in July 2008. The percentage change in stillbirth rate referenced to the increase in live births (15.9%) was a modest improvement in delivery care. The percentage change in caesarean section rate was also a modest improvement, being one of the two key signal functions of Comprehensive EmOC. However, these changes were not statistically significant except for caesarean sections ($p<0.05$ at 95% confidence level).

The reduction in maternal mortality ($p=0.738$ or $p>0.05$ at 95% confidence level) was not statistically significant but was encouraging, considering the difficult circumstances under which the policy was operationalized, as described by the respondents. This finding is similar to what Bosu et al in 2007 observed after another evaluation study; they found that delivery-related maternal mortality ratio (MMR) decreased in the Central Region (CR) and in the Volta Region (VR) following the implementation of the delivery care user fees exemption policy; but changes were not statistically significant.

However, the difference between percentage change in maternal deaths and the percentage change in maternal mortality ratio must be appreciated since percentage change in maternal deaths does not take into account the denominator, number of live births; noting also that for the additional obstetric admissions in 2009 (1,475), only one (1) more maternal death occurred in 2009 compared to 2007.

This study found that there were no facility case summaries of obstetric complications in the labour ward; instead records were kept on the basis of direct and in direct admissions.

Maternal deaths occur from obstetric complications and it was challenging during this research to collect data on obstetric complications before (2007 and after (2009) introduction of delivery care user fees exemption policy in the Tema General Hospital. Analysis of data on five (5) key direct causes of maternal deaths showed that the case fatality rates by obstetric complications were generally above the recommended standard of 1% or less. Case fatality rate (CFR) by obstetric complications is a proxy measure of the ability of the facility to prevent deaths due to specific causes. This study showed that women with obstetric complications were dying mainly from haemorrhage and eclampsia with case fatality rates three times more than the standard of 1%. The introduction of delivery care user fees exemption policy increased the CFR for Eclampsia by 9.9%; 2.83% in 2007 and 3.11% in 2009. This increase was observed on the backdrop of one hundred and seventy-four (174) more Pre-eclampsia and Eclampsia cases (82.1% increased) admitted in 2009 compared to 2007. In order words, 174 more Eclamptic cases had access to EmOC services after (in 2009) introduction of the delivery care user fees exemption policy. During implementation of the exemption policy, the CFR for Haemorrhage was reduced by 30.7% (3.62% in 2007 and 2.51% in 2009). To reduce maternal mortality considerably, these CFRs have to be 1% or less. The CFR of sepsis also increased from 0% in 2007 to 3.03% in 2009; but it worth's noting that admissions due to sepsis increased from 17 cases in 2007 to 33 cases in 2009. The CFR for abortion complications reduced from 1.23% to 0% with introduction of the fees exemption policy in Tema General Hospital. The change in outcomes of abortion complications was statistically significant (Fisher exact 1-tailed p-value of 0.009 at 95% confidence level). This finding is consistent when triangulated with views of respondents. This indicates

that the delivery care user fees exemption policy was an effective strategy not only to reduce maternal mortality but to also implement the abortion law and policy.

Introduction of delivery care user fees exemption policy also changed the proportions of major causes of maternal deaths for the five (5) obstetric complications selected in this study as on the basis of the CFRs above. The smaller the cause-specific CFR towards 1% the smaller the proportion of maternal death due to that obstetric complication. In 2007, 26% of maternal deaths in Tema General Hospital were due to Hemorrhadge compared to 19% after (2009) introduction of delivery care user fees exemption policy; below the WHO level or average of 25% in developing countries. For reasons already discussed (increased utilization, high caseload and high workload, inadequate staffing, etc) Pre-eclampsia/Eclampsia represented the highest proportion (38%) of cause of maternal deaths in 2009 compared to 19% in 2007. Exceptionally, the proportion of maternal deaths due to abortion complications reduced from 19% in 2007 to 0% in 2009. The 6% proportion of maternal deaths due to obstructed labour/ruptured uterus in 2007 and 2009 directly reflects high access to caesarean sections in Tema General Hospital. Caution should be exercised for increasing rates of caesarean sections since evidence shows that high caesarean sections can by itself increase maternal mortality. Usually, facility-based caesarean section rates are far higher than national rate.

5.3 Capacity of Tema General Hospital and Utilization of Emergency Obstetric Care Services

The qualitative findings of the research show shortcomings in policy implementation and supportive environment required to implement emergency obstetric care services. The

"Building Blocks Model" (Figure 2) illustrates the process of implementing EmOC. The model demonstrates the key elements of planning and implementing EmOC programmes. At the preparation stage the renovation and maintenance, supplies and equipment, facility setup, data collection, training, staff placement and team building serves as the foundation for the implementation of EmOC services. Service delivery stage builds on the preparation stage for emergency preparedness (on-going readiness) 24/7 EmOC, on-site quality improvement process, external supervision and utilization of services, specifically the signal functions with life-saving skills (RHRC) Consortium, 2005). Inadequacy in planning and implementing the delivery care user fees exemption policy were expressed by all respondents.

In the 1990's user-fees policies required government capacity for routine data collection, accounting, administrative functions as well as financial management roles at central and sub-national levels. The user fee polices had failed in many countries in the past due to the inadequate supportive policy context and policy measures, and the lack of government capacity to implement policy effectively (Mills et al, 2001). Borghi et al in 2006 cautioned that the financial cost of developing a skilled attendance strategy is substantial and payment of exemptions in public facilities must be better financed to overcome both supply and demand-side barriers to care seeking. Qualitative findings obtained from the in-depth interviews conducted during this study point out key institutional capacity issues.

5.4 SUMMARY

Chapter 5 presented the discussions of the study findings in relation to the context of the study and the literature review of findings of other studies. Similar results were obtained in other studies and the study results only differ in the nature of the study area and its institutional peculiarities. The next Chapter presents the study conclusion and recommendations based on the findings of the study.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

This study shows that introduction of the delivery care user fees exemption policy in Tema General Hospital in July 2008, implemented through the National Health Insurance Scheme affected substantially, and statistically significantly the utilization of emergency obstetric care services although the increase observed may be due to factors other than the delivery care user fees exemption policy. The effects of the delivery care user fees exemption policy in Tema General Hospital is typically shown in the percentage increase in all the process indicators (obstetric admissions, deliveries and caesarean sections) in May 2009 compared to the observed downward trend in these indicators in the same month in 2007 when the policy was not in operation. Specifically, the effects of the policy on the utilization of delivery and caesarean section services were strongly statistically significant for the periods under review.

Based on the findings of this study, it can be concluded that the introduction of the delivery care user fees exemption policy in general may have contributed to reduce the maternal mortality ratio, and stillbirth rate, case fatality rates but not statistically significantly. The implementation of delivery fees exemption policy "offered hope to the hopeless" to access emergency obstetric care services in the Tema General Hospital. Importantly, after the introduction of the delivery care user fees exemption policy, the proportion of maternal deaths due to abortion complications was reduced to zero percent

(0%) and reduction in maternal deaths due to abortion complications was strongly statistically significant.

The introduction of the delivery care user fees exemption policy resulted to increased workload, delays in service provision, overcrowding or congestion, depletion of hospital IGF, frequent breakdown of equipment and sanitation problems particularly in the labour ward and poor quality of care. These menaces were related to the increased utilization of emergency obstetric care services without proper administrative logistical preparedness to implement the delivery care user fees exemption policy. Thus, "It offered hope to the many who are poor but we are not able to meet the demands because the inputs are not there".

Finally, based on the quantitative and qualitative research findings, implementation plan and management structures or adaptation or adjustments were not made to implement the policy but above all, the managers of the facility were not even involved in the policy decision making at the onset and therefore the institutional capacity to implement the hastily adopted policy has been weakened by trying to "offer hope to the hopeless without proper administrative preparedness and the necessary inputs"; in the face of problematic funding through the National Health Insurance Scheme. It is envisaged that the institution (Tema General Hospital) cannot withstand this high burden of caseload, overwork and financial pressure and a downward trend in the outcomes of emergency obstetric care are already in the making as observed in the first two quarters of 2010.

These conclusions are similar to those of the numerous conducted evaluations of the delivery care user fees exemption policy introduced in September 2003 though supported

through different funding mechanisms. However, this research could be the first among others to draw expressed attention to the NHIS funding of the delivery care user fees exemption policy, because emergency obstetric care is about saving lives of women with obstetric complications who come in routinely. Delay is dangerous!

6.1 Recommendations

The implementation period of the delivery care user fees exemption policy through the National Health Insurance Scheme in Tema General Hospital started in July 2008. This period may appear short to measure very significant patterns of change in health service delivery but this research work has shown how people can respond immediately to seek health care when fees are exempted, particularly for emergency obstetric care services. Emergency obstetric care is about saving lives of women with obstetric complications which are routine, and therefore policy makers and hospital managers need not wait long enough to blow the whistle when policies are experimented. Based on the findings of this research work, it is clear that the quality of care and status of equipment are depreciating as a result of the high demand and caseload imposed by the introduction of the delivery care user fees exemption policy without the commensurate supporting environment to particularly support emergency obstetric care services. The following are research-based recommendations suggested to improve emergency obstetric care services in Tema General Hospital in the context of the NHIS funding:

Ministry of Health & Ghana Health Service

1. To urgently address space and congestion problems in the maternity unit of Tema General Hospital. Based on the current caseload, a modern maternity unit is required to meet the increasing demands.
2. Haemorrhage is second highest cause of maternal mortality in the Tema General Hospital. There is need to upgrade the laboratory equipment to empower staff to screen all blood groups and prepare the required blood products to meet current and future demands and avoids relying on Korle Bu.

Greater Accra Region Health Directorate and Ghana Health Service

1. It always takes time to notice and address the flaws of health policies since the evaluations are usually planned for three (3) to five (5) years and beyond. Delays in emergency obstetric care like in other emergencies are dangerous. It would therefore be pertinent to monitor and evaluate the effects of the delivery care user fees exemption policy as currently implemented through the National Health Insurance Scheme on the outcomes of emergency obstetric and newborn care in Tema General Hospital before the situation deteriorates considerably.
2. This research shows that the introduction of delivery care user fees exemption policy statistically significantly increased utilization of delivery and caesarean section services which have imposed quality improvement challenges. This implies increased need for basic and comprehensive emergency obstetric care skilled attendants. It is therefore imperative to address the acute shortage of

doctors and midwives in the maternity unit for the timely provision of life-saving skills, a prerequisite for performing the basic and comprehensive signal functions.

Greater Accra Region Health Directorate, Tema Municipal Health Directorate and Tema General Hospital

1. Findings of this research show that normal cases (deliveries) and obstetric complications flood the maternity unit and create congestion particularly in the labour ward and overwork the limited skilled staff. Whilst hospital and facility-based deliveries must be appreciated and encouraged, the key stakeholders need to work out a strategy of re-distribution of patients/clients such that pregnant women are encouraged to deliver in other appropriate health facilities, preferably community-basic emergency obstetric care centres, public and private clinics in the community registered with NHIS so that the Tema General Hospital Maternity Unit concentrate on the management of obstetric complications.
2. Tema General Hospital and particularly the maternity and pertinent unit managers must be actively involved in the policy formulation and implementations processes to motivate them take the actions to deliver the services on the ground.

Tema General Hospital and Obstetric and Gynaecology Department

1. Improvement in data management by introducing computerized database will easily help the maternity unit to show and appreciate the inputs, output and outcome results since process and proxy indicators are peculiar to obstetrics. Use

of computer technology in Tema General Hospital with the given high utilization of services will also facilitate documentations of activities, training and research.

2. Provisions for pregnant women to take pictures and register with NHIS should be proximal to the hospital and well advertised to avoid delays in providing clinical services to pregnant women.
3. Further research is needed to explain the case fatality of pregnancy induced hypertension.
4. Review protocols and conduct training on pre-eclampsia/eclampsia and haemorrhage with emphasis on prevention in the community and treatment in the hospital.

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APPENDICES

Appendix I - Data Collection Tools

Facility Case Summary for Emergency Obstetric Care Services in Tema General Hospital, 2007

VARIABLES	2007												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Tot
Total number of caesarean sections													
Total number of deliveries													
Total number of stillbirths													
Total obstetric admissions													

Facility Case Summary for Emergency Obstetric Care Services in Tema General Hospital, 2009

VARIABLES	2009												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Tot
Total number of caesarean sections													
Total number of deliveries													
Total number of stillbirths													
Total obstetric complications													

Obstetric Complications Summary in Tema General Hospital, 2007

VARIABLES	Before Exemption Policy - 2007																							
	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sept		Oct		Nov		Dec		Total	
Obstetric Complication	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD
1.Haemorrhage																										
3. Eclampsia																										
4. Abortion complications																										
5. Obs. Labour/ Rupt. Uterus																										
6. Sepsis																										
Total																										

Key: Ad – Admission; MD - Maternal Death

Obstetric Complications Summary in Tema General Hospital, 2009

VARIABLES	Before Exemption Policy - 2009																							
	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sept		Oct		Nov		Dec		Total	
Obstetric Complication	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD	Ad	MD
1. Haemorrhage																										
2. Eclampsia																										
3. Abortion complications																										
4. Obs. Labour/ Rupt. Uterus																										
5. Sepsis																										
Total																										

Key: Ad – Admission; MD - Maternal Death

Appendix II

In-depth Interview Guide for Emergency Obstetric Care for Providers

Archival No.:

Site:

Interviewer:

Date:

Start:

End:

Question 1. The delivery care user fees exemption policy was first introduced by the Government of Ghana in September 2003 and in mid 2008 at the Tema General Hospital. Please describe any physical differences in facility infrastructure and maintenance you may have experienced before and after the introduction of the user fees exemption policy in the maternity unity of this hospital?

Maternity beds and space?

Laboratory services and blood availability?

Water and sanitation facilities?

Question 2. How would you compare the availability of reproductive health commodities in the hospital before and after the introduction of the user fees exemption policy?

Explain your experience about stock levels or stock-outs of Antibiotics, Anticonvulsants, Oxytocics, Anaesthetics, IV fluids and infection prevention materials situations before and after the introduction of this user fees exemption policy?

Question 3. What was the human resource situation in the maternity unit of the hospital before and after the introduction of the user fees exemption policy?
And about the caseloads?

Your opinion on emergency teams?

Question 4. Please explain your experience and observations about trained staff numbers in the maternity unity of the hospital before and after the introduction of the user fees exemption policy?

Your view on training and capability of maternity staffs during these periods?

Question 5. What is your experience on supervision of emergency obstetric care services before and after the introduction of the user fees exemption in the maternity unit of this hospital?

Question 6. What is your impression about emergency obstetric care data management before and after the introduction of the user fees exemption policy in the Tema General Hospital?

Question 7. What is your opinion on the community attitude towards the utilization of the emergency obstetric care services in the Tema General Hospital before and after the introduction of the user fees exemption policy in Ghana?

THANK YOU!

Appendix III ……. Consent From

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

MPH DISSERTATION

Consent Form for Use of Secondary Data

Research Topic: "Effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital".

INTRODUCTION

I am a student of the School of Public Health, University of Ghana, conducting my MPH Dissertation Research, **"Effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital".**

I am kindly requesting your permissions to use the Tema General Hospital data on emergency obstetric care for the purpose of my MPH Dissertation on the above topic.

The information that I gather will be strictly confidential and for the above stated reason.

The data required will be collected in June 2010. Kindly indicate your approval by signing below:

Signatures of consent:

Medical Superintendent:…… Date:…….....

Head, Department of Obstetrics & Gynaecology:…… Date:…….

Sister in-Charge, Maternity Unit:…… Date:……

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

MPH DISSERTATION RESEARCH

Consent Form for In-depth Interview

INTRODUCTION

I am a student of the School of Public Health, University of Ghana, conducting my MPH Dissertation Research, on **"Effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital".**

I am kindly requesting your participation in my In-depth Interview to contribute to the objective, "To describe how the capacity of Tema General Hospital facilities for the provision of emergency obstetric care services, one year before and one after the introduction of delivery care user fees exemption policy, affected service utilization and outcomes".

Serving as participant, you will be therefore required to answer few questions relating to the capacity of the hospital to provide emergency obstetric care services before and after the introduction of the delivery care user fees exemption policy.

The information that I gather will be strictly confidential. I would be grateful if you kindly grant me the permission to ask you questions, which will last for about 20-30 minutes. The conversation will be audio recorded. Please indicate your approval by signing below:

Participant signature of consent: …… **Date:** ……...

SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA

MPH DISSERTATION

Consent Form for In-depth Interviewer

Research Topic: "Effects of delivery care user fee exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital".

INTRODUCTION

I am a student of the School of Public Health, University of Ghana, conducting my MPH Dissertation Research, **"Effects of delivery care user fees exemption policy on utilization and outcomes of emergency obstetric care services in Tema General Hospital".**

I wish to conduct an In-depth Interview with you on the above research topic. The information that I gather will be strictly confidential. I will abide by the principles of In-depth Interviews.

Interviewer signature of consent: ……Date: ……..

Appendix IV …….. Raw Data

Proxy Indicators of EmOC Services in Tema General Hospital, 2007

Variables	**Before Delivery Care User Fees Exemption Policy, 2007**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	**Total**
Total Number of Caesarean Sections	71	82	101	122	90	117	119	112	103	103	122	88	**1230**
Total Number of Deliveries	492	455	526	770	430	679	551	490	546	547	554	434	**6474**
Total Number of Stillbirths	7	8	6	7	8	11	8	10	10	12	7	5	**99**
Total Number of Obstetric Admissions	548	529	628	855	509	743	628	623	745	539	549	570	**7466**
Total Number of Live Births	484	447	520	763	422	668	543	480	536	535	547	429	**6374**
Maternal Deaths	**0**	**3**	**3**	**0**	**1**	**3**	**8**	**2**	**2**	**2**	**3**	**4**	**31**

Proxy Indicators of EmONC Services in Tema General Hospital, 2009

Variables	**Before Delivery Care User Fees Exemption Policy, 2009**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Total Number of Caesarean Sections	125	115	147	137	157	149	181	151	125	134	132	112	**1665**
Total Number of Deliveries	571	517	662	745	848	707	613	553	523	568	636	541	**7484**
Total Number of Stillbirths	9	6	5	6	7	8	10	11	8	7	6	12	**95**
Total Number of Obstetric Admissions	690	634	800	874	994	838	745	675	661	715	763	666	**9055**
Total Number of Live	562	511	657	739	841	699	603	542	515	561	630	529	**7389**

Births													
Maternal Deaths	**1**	**1**	**4**	**4**	**3**	**4**	**4**	**3**	**0**	**4**	**3**	**1**	**32**

Obstetric Complications (Selected) in TGH Before Exemption Policy (2007)

Obstetric Complications/ Admissions	**Before Delivery Care User Fees Exemption Policy, 2007**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Haemorrhage	12	19	8	25	19	26	19	11	14	25	31	12	**221**
Eclampsia	9	10	30	22	21	16	10	23	27	13	18	13	**212**
Obstructed Labour/ Ruptured Uterus	9	11	37	44	34	48	49	51	58	54	78	38	**511**
Abortion complications	51	41	40	37	25	47	32	37	43	40	50	45	**488**
Sepsis	0	0	0	0	0	0	0	0	3	3	6	5	**17**
Total	**81**	**81**	**115**	**128**	**99**	**137**	**110**	**122**	**145**	**135**	**183**	**113**	**1449**

Maternal Deaths by Obstetric Complications (Selected) in TGH Before Exemption Policy (2007)

Obstetric Complications/ Maternal Deaths	**Before Delivery Care User Fees Exemption Policy, 2007**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Haemorrhage	0	0	2	0	0	1	4	0	0	0	0	1	**8**
Eclampsia	0	1	0	0	0	1	1	0	1	1	1	0	**6**
Obstructed Labour/ Ruptured Uterus	0	0	0	0	0	1	0	0	0	0	1	0	**2**
Abortion complications	0	1	0	0	0	0	2	1	0	0	1	1	**6**
Sepsis	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**2**	**2**	**0**	**0**	**3**	**7**	**1**	**1**	**1**	**3**	**2**	**22**

Obstetric Complications (Selected) in TGH Before Exemption Policy (2009)

Obstetric Complications/ Admissions	**Before Delivery Care User Fees Exemption Policy, 2009**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Haemorrhage	32	17	30	20	16	19	29	18	23	13	11	11	**239**
Eclampsia	14	26	38	37	34	22	44	42	23	39	31	36	**386**
Obstructed Labour/ Ruptured Uterus	64	55	58	70	33	76	98	30	31	15	29	47	**606**
Abortion complications	69	40	51	40	36	36	48	59	50	47	42	56	**574**
Sepsis	0	3	0	5	3	6	3	5	1	3	1	3	**33**
Total	**179**	**141**	**177**	**172**	**122**	**159**	**222**	**154**	**128**	**117**	**114**	**153**	**1838**

Maternal Deaths by Obstetric Complications (Selected) in TGH Before Exemption Policy (2009)

Obstetric Complications/ Maternal Deaths	**Before Delivery Care User Fees Exemption Policy, 2009**												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Haemorrhage	0	1	0	2	1	0	1	1	0	0	0	0	**6**
Eclampsia	1	0	2	0	0	0	3	0	0	3	2	1	**12**
Obstructed Labour/ Ruptured Uterus	0	0	0	0	1	0	0	1	0	0	0	0	**2**
Abortion complications	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Sepsis	0	0	0	0	0	1	0	0	0	0	0	0	**1**
Total	**1**	**1**	**2**	**2**	**2**	**1**	**4**	**2**	**0**	**3**	**2**	**1**	**21**