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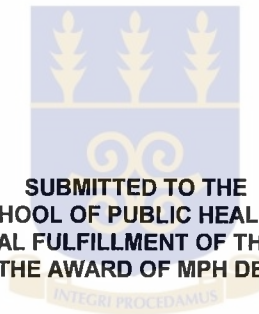
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**ESSENTIAL OBSTETRIC CARE: A COMPREHENSIVE COVERAGE  
EVALUATION IN ADANSI-EAST DISTRICT, GHANA.**



**SUBMITTED TO THE  
GHANA SCHOOL OF PUBLIC HEALTH, LEGON, ACCRA  
IN PARTIAL FULFILLMENT OF THE REQUIREMENT  
FOR THE AWARD OF MPH DEGREE**

**DR. KYEI-FARIED SARDICK  
1997**

This work is dedicated to my sons Owura Kyei-Faried and Kofi Adu Kyei-Faried  
and my daughters

Nana Afua Sarpong Kyei-Faried and Maame Yaa Nyarko Kyei-Faried

I love you all.



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My final gratitude goes to all those who in one way or the other contributed to make this study successful.



## **ABSTRACT**

A comprehensive coverage evaluation of essential obstetric care was carried out at the district referral point and the sub-districts' first points of contact in the Adansi-East District, Ashanti Region.

The evaluation tool consisted of measuring the coverage of essential care availability, access, utilization, adequacy and effectiveness. The essential care variables that were assessed were labour monitoring by partography, performance of obstetric surgery and the treatment of non-surgical obstetric complications. Interviews were conducted among district health managers, service providers, trained traditional birth attendants and women who delivered 12 months prior to the study, to identify factors causing bottlenecks in the coverage.

The effectiveness coverage of each essential obstetric care variable was found to be very low, below 5%. This was mainly due to bottlenecks at resource availability and service utilization at the district and sub-district levels. There was also a bottleneck at access coverage at the district level for all the variables. The low availability coverage was due to lack of information and training in the use of essential care resources, absence of resident midwives and lack of rooms to treat cases. The low utilization was as a result of the inability of the facilities to effectively treat obstetric complications. Most women with obstetric complications therefore use facilities outside the district.

To improve the effectiveness coverage of essential obstetric care, it is recommended that the District Health Team reallocates midwives, ensures the provision of a minimal package of essential resources in each facility, provides life-saving skills training for essential care providers and strengthens its collaboration with the communities.

**TABLE OF CONTENTS**

<b>Chapters</b>	<b>Page</b>
Dedication	ii
Acknowledgment	iii
Abstract	v
Table of contents	vi
List of tables	x
List of figures	xi
List of abbreviations	xii
Chapter One: INTRODUCTION	1
Introduction to the study	1
Background to the selection of essential obstetric care for the evaluation	3
Background to the selection of “coverage” for the evaluation	4
Rationale and justification	5
The Problem Statement	8
Objectives	9
Chapter Two: LITERATURE REVIEW	10
2.1 Women and their role	10
2.2 The magnitude of maternal deaths and ill-health	11
2.3 Making use of the causes of maternal deaths to set priorities for prevention	12

2.4 Why the mothers die	14
2.5 Measuring the success of safe-motherhood programs	20
Chapter Three: METHODS	23
Study design	27
Study population and sample size	27
Data collection techniques	28
Plan for data collection	29
Plan for data processing & analysis	29
Ethical considerations	29
Project management	29
Chapter Four: STUDY AREA	31
Chapter Five: RESULTS	35
Coverage of EsOC variables	35
Partography coverage	35
Coverage of minor surgical obstetric procedures	37
Coverage of non-surgical obstetric problems management	40
Coverage of major surgical obstetric procedures	43
Explanations to bottlenecks	45
Chapter Six: DISCUSSION, CONCLUSION AND RECOMMENDATIONS	50
Discussion	50
Conclusion	56
Recommendations	57

Sources of error and limitations	58
LIST OF REFERENCES	61
ANNEXES:	70
Annex A-- Quality score for EsOC	70
Annex B-- Data collection tools	72

<b>LIST OF TABLES</b>	<b>PAGE</b>
Table 1: Essential obstetric care coverage evaluation variables, coverage determinants and process indicators.....	26
Table 2: Percentage coverage of partograph determinants at the sub-district and district levels, Adansi East district.....	36
Table 3: Percentage coverage of minor surgical obstetrics at the sub-district and district levels, Adansi East district.....	38
Table 4: Percentage coverage of problem pregnancy management determinants at the sub-district and district levels, Adansi East district.....	41
Table 5: Percentage coverage of major surgical obstetrics at the district level Adansi East district.....	44
Table 6: Facilities to which trained TBAs and sub-district staff refer women with obstetric complications.....	45
Table 7: Reasons why trained TBAs and Sub-district staff do not refer women with obstetric complications to the district referral point.....	45
Table 8: The influence of obstetric complications on the use of the district referral point among women informed of the existence of the service.....	48
Table 9: The influence of obstetric complications on the use of the district referral point among women not informed of the existence of the service...	49
Table 10: The role of obstetric complication in women's judgement of essential obstetric care effectiveness at the district referral point.....	49

<b>LIST OF FIGURES</b>	<b>PAGE</b>
FIG.1: The Scheme for Effective Essential Obstetric Care System.....	7
Fig. 2: Sub-districts' first points of contact partography coverage, Adansi East district.....	36
Fig. 3: Subdistrict level and District Referral Point partography coverage, Adansi East district.....	37
Fig. 4: Sub-districts' first points of contact minor surgical obstetrics coverage, Adansi East district.....	39
Fig. 5: Sub-district level and District Referral Point minor surgical obstetrics coverage, Adansi East district.....	40
Fig.6: Sub-districts' first points of contact coverage of non-surgical problems management, Adansi-East District.....	42
Fig.7: Sub-district level and District Referral Point coverage of non-surgical obstetric problems management, Adansi East district.....	43
Fig.8: District Referral Point major surgical obstetric coverage, Adansi East district.....	44

**LIST OF ABBREVIATIONS**

DHMT:	District Health Management Team
EsOC:	Essential Obstetric Care
EmOC:	Emergency Obstetric Care
EOU:	Evacuation of the Uterus
FP:	Family Planning
MOH:	Ministry of Health
MVA:	Manual Vacuum Aspiration
PHC:	Primary Health Care
SDHT:	Sub-district Health Team
VHC:	Village Health Committee
WHO:	World Health Organization
WIFA:	Women In (their) Fertility Age

## CHAPTER ONE

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### INTRODUCTION

#### Introduction to the Study

##### *Essential Obstetric Care in Ghana, the policy direction.*

In Ghana, safe-motherhood is of priority. The Ministry of Health (MOH) plans to reduce the high level of maternal mortality rate, currently at 214/100,000 live births[1]. Services currently given in the country include family planning, prenatal, delivery and postnatal services and essential obstetric care (EsOC).

Essential Obstetric Care[2] is the essential care for the management of pregnancy and delivery related complications and special neonatal care. It incorporates emergency obstetric care (EmOC). It includes cesarean section, anaesthesia, blood transfusion, vacuum extraction, evacuation of the uterus (EOU), intrauterine contraceptive device (IUCD) insertion, partography, manual removal of placenta, episiotomy and perineal tear repair and laparotomy. Emergency Obstetric Care (EmOC) is the elements of care that are most often needed for the management of unexpected complications [i.e. eclampsia, retained placenta and postpartum haemorrhage (PPH)].

The importance of EsOC lies in the fact that the services can be provided. It must be available at all the levels of the health delivery system. The procedures are life-saving in emergency and the lack of one or more of them is the cause of most maternal deaths[3,4]. Maternal death is defined by the World Health Organization (WHO) as "the death of a woman while pregnant or within 42 days of termination of pregnancy;

irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy, but not from accidental causes.”

To re-emphasize the country’s positive commitment to women, the recent policy document of Ghana, Vision 2020, has made “significant maternal deaths reduction,” a top priority issue[5]. To operationalize this objective, the Ministry of Health (MOH), has highlighted essential obstetric care and family planning services as the priority safe-motherhood interventions[6].

The ministry has identified a seven-point strategy to guide implementation[7]. The first of these strategies is to strengthen primary health services. The purpose is *to strengthen district capacity to improve the coverage and quality of health care and to provide it in an efficient and effective manner*. This health care coverage improvement includes essential obstetric care. The ministry has therefore prepared a document that outlines step-by-step protocols for identifying and treating pregnancy-related complications[8].

As the health sector five-year program of work begins this year, 1997, there is the need to evaluate the current state of essential obstetric care at the primary level. The evaluation is even more important now than ever, as the newly established Ghana Health Service has decentralized health management. It makes the District Director of Health Services (DDHS) supported by the District Health Management Team (DHMT), responsible for the performance of all facilities in the district[9].

An evaluation of essential obstetric care at the district level can provide the needed district-specific information for effective decentralized microplanning. *Microplanning* is a planning process carried out by and for each health facility. It is part of a dynamic process of continuously adjusting corrective actions, objectives and resources to the monitoring and evaluation results.

***Background to the selection of Essential Obstetric Care for evaluation.***

WHO estimates about 500,000 maternal deaths worldwide annually[10]. The developing countries contribute 99% of the deaths[11]. Rochat estimates that the lifetime risks of maternal death for an average woman in Africa and Northern Europe are, respectively, 1 in 21 and 1 in 9850[12]. The 1993 Ghana demographic and health survey quotes the average maternal mortality rate of Ghana as 214/100000 live births. According to WHO, the country's 1993 maternal mortality rates ranged between 250 and 499 per 100,000 live births across the different regions[13]. The mortality figures are higher in the rural areas than in the urban areas. These figures do not compare favorably with values of 2 to 25/100,000 live births in developed countries like the USA and UK.

Almost 75% of the maternal deaths in developing countries are from direct obstetric causes[10,14]. The main direct obstetric causes are haemorrhage (45%), complications of unsafe abortion, pregnancy induced hypertension (6.8%), sepsis (4.6%) and obstructed labour (6.8%)[15,16]. The main indirect causes are hepatitis, malaria and anaemia[15]. In the developed countries the causes of maternal deaths

differ and include a condition like ectopic pregnancy[17]. It is estimated that 63-80% of direct maternal deaths worldwide, and 88-98% of all maternal deaths, could probably have been avoidable if properly handled[18].

Maine[19] has proposed an analytical model that categorizes the causes of maternal mortality into distant factors, intermediate factors and outcome. The model shows that, the only direct causes of maternal death are those that relate to pregnancy complications and the services to deal with them.

### ***Background to the selection of “coverage” for the evaluation***

To evaluate a service, Tanahashi[20] has proposed a comprehensive coverage evaluation model that assesses health service at the input, process, output and outcome levels, even before carrying out impact studies. He recognizes that certain resources must be present to be able to provide a service; and that a comprehensive coverage evaluation process must establish the proportion of time that these resources were present within the period under evaluation. This measures *availability coverage*, and can be used to assess inputs for a specified service. It is then important to examine the level of demand for the service. Current level of acceptance of the service among the target population, i.e. *acceptability coverage*, can be used as a proxy for the assessment of need (and therefore demand) during the period under evaluation. This acceptability coverage is a process measure. It requires a population-based study. The next step is to determine the proportion of the target population within a reasonable reach to the service, *accessibility coverage*. This coverage

assesses resource allocation, an important factor in the planning process. After access consideration comes utilization. The evaluation process must look at the proportion of the target population who used the service, i.e. *utilization coverage*. Of this, a certain proportion may receive adequate care, *adequacy coverage*, the others may not. Coverage of utilization and adequacy measure service outputs. *Effectiveness coverage*, the proportion of those that received adequate service at the prescribed standard of practice, provides a good measure of service outcome.

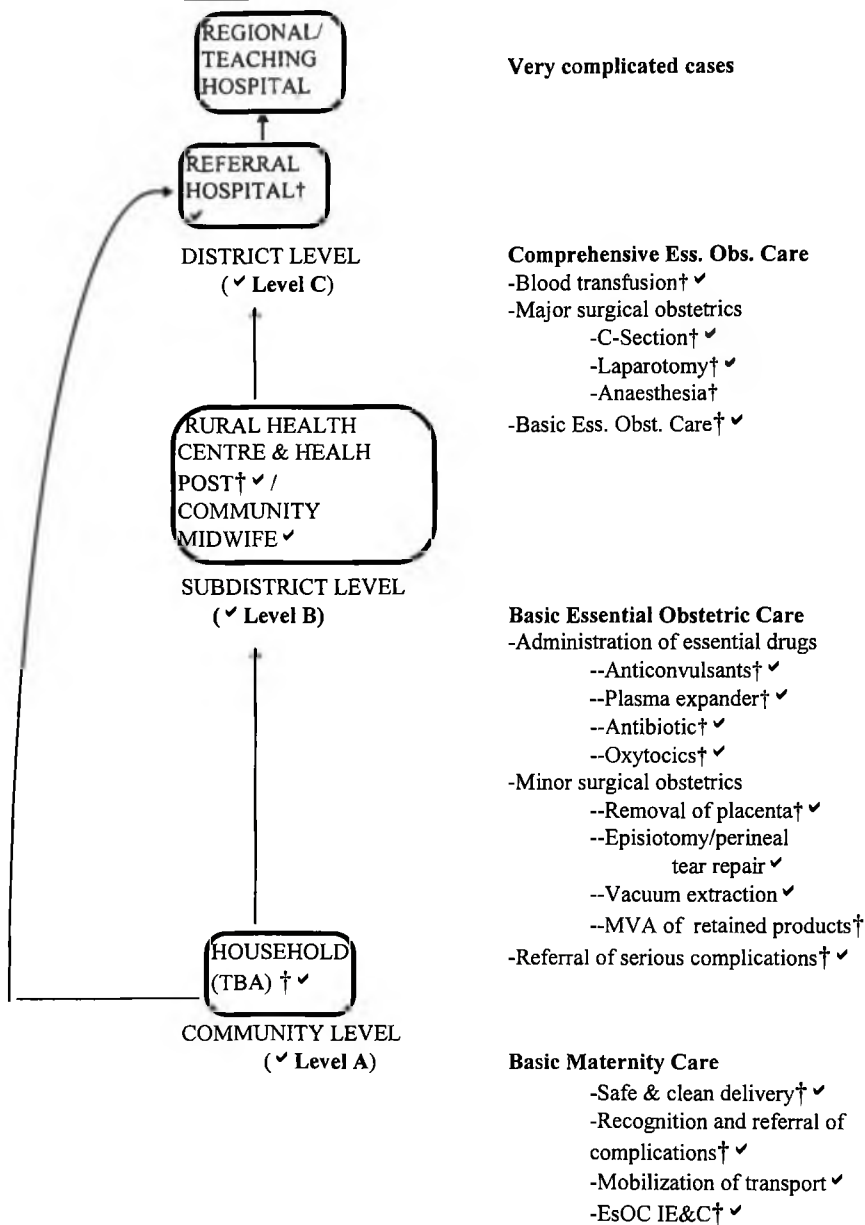
The availability, acceptability, access, utilization and effectiveness coverage determinants are measured using the appropriate simple and sensitive process indicators. The coverage values of the indicators are expressed in percentages for each determinant and graphed in a hierarchy starting from availability and ending at effectiveness coverage so that each one influences the level of the one above it. A preceding determinant therefore determines and influences the level of the subsequent determinant. A problem in one determinant affects all subsequent factors thereby reducing the effectiveness coverage. *A problem or bottleneck exists when the line (graph) joining two coverage determinants shifts sharply to the left.* The appropriate data is then collected to identify the factors that explain the bottleneck. Microplanning is then carried out to improve the effectiveness of the service.

Knippenberg and others[21] substituted *Acceptability coverage* with *Adequacy coverage*, (i.e., the percentage of target population who have received complete treatment available in a health facility) when they used the model to evaluate the Bamako Initiative in Benin and Guinea.

### **Rationale and Justification**

In Ghana the essential obstetric care delivery system has been graded. The grading suits the different levels of health service delivery for it to work effectively. In Fig.1, the service package for each level has been specified. The package must be *available*, *accessible*, *adequate*, of *high quality* and *be used*. To evaluate the system, it is important to assess the coverage of each service determinant at each level based on its expected inputs, processes and output.

FIG.1

The Scheme for Effective Essential Obstetric Care System

Based on †WHO, *Draft Indicators to Monitor Maternal Health Goals. Report of a technical working group. Geneva, WHO, 1993* and ✓Ghana, *Ministry of Health, Clinical Management Protocol on Safe Motherhood*[8]

In the Adansi-East district, fertility rate is estimated at over 5.5 per woman[22]. At the end of 1996, family planning acceptor rate among women in their fertility age (WIFA) was 3.0%[22]. While the prenatal registration among expected pregnancies was 61.6%, supervised delivery was only 23.7%. Sixty five percent of the supervised deliveries were by Traditional Birth Attendants (TBAs). These data suggest that many women may be suffering or dying from pregnancy-related complications unreported especially when it is known that even when pregnant women are in good health and receive ante-natal care at least 15% will develop serious complications[23].

### **The Problem Statement**

Preliminary discussions with staff at the district referral center suggested a lack of essential obstetric care in the district. It appeared that safe-motherhood interventions in the district emphasizes family planning and basic maternity care. Essential obstetric care has never been evaluated in the district. As a result, obstetric record books are not made to capture complications. Complications are not recorded by type. Cases seen, treated, referred in, referred out, etc., are not routinely recorded. Resource allocation has not been planned to ensure access and to improve the effectiveness coverage of EsOC.

The 91.3% home and TBA-supervised deliveries in the district suggests that most pregnant women deliver in facilities that lack the capacity to handle obstetric complications. The problem therefore was a suspected **low essential obstetric care effectiveness coverage** in the Adansi East District.

There was therefore the need to evaluate in a more comprehensive manner the coverage of essential obstetric care in the district to enable the levels and gaps in the coverage determinants to be identified and corrected.

## **Objectives**

### **General Objective**

To evaluate essential obstetric care and identify factors that limit the care in the Adansi East District and make relevant recommendation(s) for appropriate action.

### **Specific Objectives**

1. To determine at the district referral point and the subdistricts' first points of contact,
  - a. The effectiveness coverage of labour monitoring by partography.
  - b. The effectiveness coverage of minor obstetric surgical procedures.(i.e. manual removal of placenta, repair of episiotomy and perineal tear.)
  - c. The effectiveness coverage of non-surgical obstetric problems management [i.e. puerperal sepsis, haemorrhage, post- and ante- partum and common illnesses as acute respiratory infection, malaria and urinary tract infection].
2. To determine at the district referral point the effectiveness coverage of major obstetric surgery (i.e. Caesarian section, general anaesthesia and manual vacuum aspiration).
3. To describe any bottlenecks that may explain any low effectiveness coverage.
4. To identify factors that may account for any bottleneck.
5. To make recommendations on improvement to the district, regional and national policy makers

## CHAPTER TWO

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### LITERATURE REVIEW

*“A trained TBA detained a case of prolonged 2nd stage for over 72 hours. The dying woman, a 30 year old Naana Frimpong, was finally referred to Bekwai Hospital in a different district, about 50km away. The TBA failed to inform the subdistrict MCH/FP staff who stay in the same town and only about 40 meters away. By the time Naana reached Bekwai hospital she was dead. This woman left behind a husband and four children.”<sup>1</sup>*

#### 2.1 Women and their role

The impact of investing in women can be more productive than investing in men. They tend to bear more responsibility and use more of their acquired resources to benefit their family[24].

It is estimated that if women's unpaid domestic labour was paid, the gross national product of most developing countries would increase by one-third, a substantial financial gain[25]. Women perform about 60 to 80% of all agricultural labour in Africa. In Ghana, for example, where women constitute about 51% of the population,

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<sup>1</sup> Personal communication with Caroline Effa-Ampoma, Public health nurse, Sub-district 3 team leader, Adansi-East District.

they provide up to 70% of the country's staple food production. It is primarily mothers who provide care, nourishment and nurture the family. They prepare and preserve food, walk long distances for water and fuelwood, care for the aged, teach the children at home and generally put the family together[26].

Records from 13 African countries have shown that a 10% increase in female literacy reduced child mortality by 10% whereas changes in male literacy had little effect[27]. Despite the woman's importance in society, in Ghana and elsewhere, she is the most neglected, especially in the rural areas. Women are more likely to be denied education, be a victim of unjust discriminatory traditional practices, be less economically empowered and above all suffer and die prematurely from pregnancy and delivery related complications.

## 2.2 The magnitude of maternal deaths and ill-health

"Every four hours, day in, day out, a jumbo Jet crashes and all on board are killed. The 250 passengers are all women, most in their prime of life, some still in their teens. They are all either pregnant or recently delivered of a baby. Most of them have growing children at home, and families that depend on them"[28].

It is estimated that 500,000 maternal deaths occur globally every year[10], i.e. 250 deaths every four hours!! Approximately one death every minute. It is believed that 99% of these deaths occur in the developing world[11], 30% in Africa where only 11% of the world's women are living[29]. Rochat estimates that the lifetime risk of

maternal death for an average woman in Africa and Northern Europe is respectively 1 in 21 and 1 in 9,850[12]. It is known that the death rates are higher in the rural areas[30].

In Ghana maternal mortality has been reducing modestly over the past 10 years. In 1983 it was between 500 and 1,500 per 100,000 live births across different regions of the country[31]. It reduced to 250-499/100,000 live births by 1988[32]. The Ghana Statistical Service puts the 1993 average figure at 214/100,000 live births[1]. The trend shows a 50% reduction over a 10 year period. The figures are still very high compared to the 8/100,000 live births in the United States, 0 to 9/100,000 live births in Europe and 9/100,000 live births in Japan[33].

Besides causing death, obstetric complications may cause chronic illhealth or disability. It is estimated that there are as many as 240 to 330 maternal morbidity (ill-health) per each maternal death[34].

### 2.3 Making use of the causes of maternal deaths to set priorities for prevention.

Any intervention to prevent pregnancy, complications, or death from the complications during pregnancy or 42 days after delivery will reduce maternal mortality. The aim will be to reduce unwanted pregnancies, provide antenatal care, provide Essential Obstetric Care for obstetric complications and reduce delays in seeking emergency obstetric care. It appears however, that there is no consensus as to which of these must be of the highest priority. Even the experts differ!

The challenge is ensuring that complications are detected and referred immediately. "That women are referred to facilities they can reach, where the quality of care is appropriate and where they are treated in a professional and supportive environment" says Anne Tinker, a Senior Health Specialist with the world bank.<sup>2</sup> Dr. Marjorie Koblinsky of the John Snow Inc & MotherCare Inc., project believes that "In the global effort to reduce maternal deaths, family planning should be the first line of offense."<sup>3</sup>

Sai and Measham put prenatal care first and access to emergency services third on their "important first-tier components" in improving obstetric care[34]. Deborah Maine, the Director of the PMM Network, on the contrary, puts first access to treatment for obstetric complications. This is in her proposed "three-priority" strategy for effective obstetric practice[19].

It appears to me that all the causes of maternal death are important. The priority intervention however should be the one that can be carried out cost-effectively. A service that provides only essential care will be overloaded with complications that could be prevented by family planning and prenatal care. Similarly, a service that provides only family planning and prenatal care will witness a lot of deaths since there are contraceptive failures and prenatal care cannot predict all complications. What will be the basis for prenatal screening and labour supervision if facilities to manage complications do not exist?

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<sup>2</sup> Network, feb., 1994, p.12

#### 2.4. Why the women die

Maternal deaths are caused by socio-economic[35,36,37,38], reproductive[39,32,40], medical and health service factors. For the purposes of this study only the medical and health service factors are discussed further.

**Medical Factors:** The medical causes of maternal deaths are direct and indirect. A direct medical death (or obstetric death) is one due to complications of pregnancy, delivery or the postpartum period. Pregnancy-related complications occur in 40% of pregnancies and are serious in at least 15% of all pregnancies[23]. Indirect medical death is one due to existing medical conditions that are made worse by the pregnancy or delivery.

In the developed countries the causes of maternal deaths differ from those in the developing countries and include conditions like ectopic pregnancy[17]. Direct medical causes of maternal deaths in developing countries are mainly due to haemorrhage (45%), complications of unsafe abortion, pregnancy induced hypertension (6.8%), sepsis (4.6%) and obstructed labour (6.8%)[15,16]. It is believed that at least 75% of the maternal deaths in developing countries are from direct medical causes[10,14]. The most important indirect causes are hepatitis, malaria and anaemia[15]. It is estimated that 63-80% of direct maternal deaths, and 88-98% of all maternal deaths, could probably have been avoidable if properly handled[18].

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<sup>3</sup> Network, Feb., 1994, p12

**Health service factors:** For any service to address the issues of safe-motherhood, it must be able to prevent pregnancy, ensure normal pregnancy and safe delivery and *recognize and treat complications*. The services that are normally provided are Basic Maternity Care (i.e., family planning, prenatal care and delivery supervision) and Essential Obstetric Care (i.e., for the treatment of complications).

**Family planning:** Family planning reduces maternal mortality by reducing the chances of getting pregnant and therefore the associated complications. It prevents unwanted pregnancies and unsafe abortions. In a prospective study conducted among over 38,000 women in the Matlab Sub-district of Bangladesh, Fauveau and others demonstrated that a high contraceptive prevalence reduces maternal deaths[41].

For family planning to reduce maternal mortality, women in their reproductive ages must want to use modern methods. In Ghana, a survey in 1993 revealed that, as high as over 90% of married men and women knew of at least one family planning method and over 70% knew where to obtain a method. Yet the proportion of current use among currently married women and men were only 10.1% and 19.9% respectively[1].

There are a number of studies that suggest that 1 in 6 women in African in their fertility age and 1 in 2 women in Asia and Latin America want no more children. Yet less than half of these women were using an effective method. There is therefore the need to satisfy the unmet needs of family planning. It is believed that if the unmet

needs of family planning were satisfied, maternal deaths could be brought down by 17% in Africa, 33% in Latin America and 35% in Asia[42].

Even though the theoretical effectiveness of modern contraceptive methods in preventing pregnancy is high, usually around 90 to 99%[43], the cumulative failure rate is found to be relatively high. Almost two-third (66%) of intrauterine contraceptive device (IUCD) users, for example, will experience pregnancy in 10 years of use, though the monthly risk of conception is only 1%[44]. It is also known that 47% of unintended pregnancies occur among women using methods, 41% of these ending in abortion[45].

***Prenatal care:*** Prenatal service educate pregnant women, screen for risk factors and treat complications and existing conditions. In Ethiopia, Kwast and others found that the maternal mortality rate for women who had received antenatal care was 2.5/1000 as opposed to 10.6/1000 for those who had none[46]. In a study involving 22774 consecutive births in Zaria, Nigeria, Harrison found that maternal mortality per 100000 live births were 40 in those who received antenatal care without complication; it was 370 in antenatal registrants with at least one major complication and 24300 in unbooked emergencies[47]. The Ghana Statistical Service study in 1994 showed per 100000 live births maternal mortality of 207 and 287 respectively for women who received antenatal care and those who did not[48]. Rohde however believes that the apparent correlation between antenatal care and survival is most likely to be due to self-selection[49].

In 1995 for example the Ashanti Regional Health Service of Ghana recorded an impressive 93% prenatal registrants[50]. Yet it is known that despite a very high antenatal care and attendance in Gambia, maternal mortality was as high as 2200 per 100000 live births[51]. Prof. Sai, the president of the International Planned Parenthood Federation says that "Prenatal care and health education cannot prevent most complications, they are likely to have an enormous impact on the utilization of referral-level care"[34]. "Prenatal screening does not identify all (or even most) of the women who will develop obstetric complications[19]. The reason for this is that low-risk women develop obstetric complications. We do not know why," says Deborah Maine.

Since most complications are not predictable by prenatal screening, all deliveries must be supervised. This helps to detect early any complication that may arise for immediate referral or swift and effective solution.

***Supervision of delivery:*** Maternal deaths in deliveries that are supervised are lower than among deliveries not supervised. Maternal mortality in Ghana is higher among unsupervised deliveries (255/100000) compared to women whose deliveries are supervised (175/100000)[48]. Using TBAs supervised deliveries as an example, maternal mortality was found to be threefold among home deliveries in Gambia compared to those supervised by TBAs[52]. Brennan found a 50% drop in maternal mortality following a TBA training program[53]. Greenwood and others however, demonstrated that maternal mortality reduction may be disappointingly low if training

for labour supervision is not simultaneously linked with referral facilities' improvement[54].

***Management of obstetric complications:*** For the treatment of obstetric complications to be effective in reducing maternal deaths, essential obstetric services and resources must be available. Women must have access to them. The care must be adequate and of high quality.

- a. **Availability:** In most developing countries, citing of facilities may not be appropriate[22,55]. Equipment and supplies may be lacking[56] and qualified staff may be absent[57,58]. Several studies have shown that women will use essential obstetric services if facilities are upgraded and trained competent staff are available, even before any information, education and communication (IE&C)[59].
  
- b. **Quality:** When services are available, they must be of a high quality to be used. Obstetric care quality can be improved at the sub-district and district levels by reducing waiting time, improving records keeping, providing essential supplies, improving the skills and knowledge of staff and upgrading facilities. When a PMM team made available improved quality essential obstetric services at Bo and Makeni District Hospitals in Sierra Leone, utilization increased. Case fatality of women who reported with obstetric complications dropped considerably[57,60].

- c. **Adequacy:** Availability of staff however does not guarantee that the service will be adequate. Misdiagnosis, poor monitoring, delay in taking action and poor treatment can all contribute to providing inadequate treatment sometimes with fatal consequences. In Jamaica, Walker found that avoidable factors were present in 11 of the 15 deaths due to puerperal sepsis[61].
- d. **Access:** Women have access to EsOC only when the service is available, it is adequate, they have information about it, they accept it, they can afford to use and they can reach it. When distances are long and transport is a problem, women die on the way before any care could be provided. Similarly, women will not seek care if they do not have money and cannot obtain support to pay for transport and health facility bill. In Yemen, a young woman, Fatima, lost her life because the husband was not at home to grant her permission to seek essential obstetric care. By the time her uncle came and she was carried by stretcher 15km to the nearest highway, she was dead[35]. In Nigeria, the delay in seeking EmOC due to financial and transport problems was reduced by introducing emergency community loan funds[62]. In Kenya however, roads' improvement did not result in improved service utilization[63]. These findings suggest that proximity on its own may not result in utilization.

## 2.5 Measuring the success of safe-motherhood programs

Safe-motherhood interventions can be assessed in several ways. The assessment may look at inputs, processes, outputs, outcomes or impact. Each approach has its benefits and limitations.

### **The use of Impact assessment**

- **Maternal Mortality Ratio and Rate:** The measure commonly used is the *Maternal Mortality Ratio*, usually referred to as maternal mortality "rate." This rate is determined by maternal deaths per 100000 live births in a year. It expresses the risk of death from pregnancy. The values are low in the developed countries and unacceptably high in developing countries[13,15,31,32,33]. *Maternal Mortality rate* is maternal deaths per 100000 women in their fertility age in a year[64]. It expresses the impact of maternal deaths on women in their reproductive age. Maternal mortality ratio and the fertility rate influence the rate. Though very useful, the measurement of maternal mortality rates and ratios are very difficult on a large scale and meaningless when done on a small scale[65,66].
- **Lifetime Risk of Maternal Death:** This is a measure of the cumulative risk of maternal death as determined by the risk associated with pregnancy and the frequency of childbearing. If a country has a very low fertility rate, the life time risk of death may be low even though the risk of death associated with pregnancy may be high. It is a useful measure when values are compared over different geographical regions[12].

- Maternal Deaths as a proportion of all women deaths: This measure reflects the impact of maternal deaths on total death of women. Whereas in the United States the proportion of women deaths from maternal deaths is 0.5%[67], it is as high as 45% in rural India[68]. If death of women from other conditions is high, it may mask high maternal deaths.

### **The use of Inputs, process and output assessment**

The Use of Process Indicators: Given the difficulty in measuring the impact of safe-motherhood programs[65,66], the Prevention of Maternal Mortality (PMM) Network has developed a set of process indicators as a proxy to evaluate interventions aimed at reducing maternal mortality. These indicators measure changes in availability, utilization and (to a certain extent) quality of EmOC[69] as intervening variables in the provision of effective EsOC. This approach has been used, quite successfully, to evaluate and improve on essential care services in PMM-Member Countries in Africa[57,70,71,72]. According to the PMM Results Conference Abstract editors gathering the data to calculate the process indicators does not require special forms or data systems if the facility's record system includes information on obstetric complications[73].

The team however does not emphasize on coverage measurement that can reflect how a service variable promotes and protects the target population.

When evaluating Primary Health Care in Ghana, Cole-king and others[74] determined, among others, basic maternal service availability, quality, effectiveness,

access and utilization coverage. The team used a point-scoring system. The authors however failed to establish any systematic linkages between the various coverage indicators and how a bottleneck in one may affect the other.

#### Combining process indicators and coverage measures

Tanahashi[20] has proposed coverage measures that utilize process indicators. He sets out a systematic way of evaluation that identifies bottleneck in service delivery. He uses *Availability, Accessibility, Acceptability, Utilization and Effectiveness* as coverage determinants and defines a coverage measure (process indicator) for each determinant. The coverage values are expressed as percentages and graphed in a hierarchy. A problem in one determinant affects all subsequent factors thereby reducing the effective coverage. Knippenberg and others[21] introduced *Adequate coverage*, when they used the model to evaluate the Bamako Initiative in Benin and Guinea. By combining process indicators and coverage measures this way, the Tanahashi model makes it possible to define and monitor inputs, processes and outputs of EsOC interventions.

The major problem with this "process indicator"-based coverage measurement is the need for a reasonably current and accurate demographic information. Again there is no generally acceptable cut-off point for any one coverage measure. The model is however useful, as it aims at 100% achievement of effectiveness coverage and highlights priority problem areas to tackle.

## CHAPTER THREE

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### METHODS

The study was cross-sectional descriptive and was based on the Knippenberg's modification of the Tanahashi comprehensive coverage evaluation model.

EsOC coverage was determined using five *coverage determinants*. These were *Availability, accessibility, utilization, adequacy* and *effectiveness*. These coverage determinants were used to evaluate selected EsOC variables. The variables for the district referral point were *partography, minor surgical obstetrics* (manual removal of placenta, repair of episiotomy and perineal tear), *major surgical obstetrics* (Caesarian section, general anaesthesia and manual vacuum aspiration) and *non-surgical problem pregnancy management* (puerperal sepsis, haemorrhage, post- and ante- partum and common illnesses as acute respiratory infection, malaria and urinary tract infection). At the sub-districts' first points of contact all the variables were assessed except major surgical obstetrics. The data required to score the coverage determinants of each variable was collected using simple process indicators defined in Table 1 below.

Availability coverage was defined by the percentage of days in the year that a defined service resource was present, (column 3 of Table 1).

Access coverage was defined by the proportion of the target population (TP) living within 5Km from the 1<sup>st</sup> point of contact or district referral point, (column 4 of Table

1). This is a proxy measure because when the resources required to deliver the service are absent in the facility access coverage will not be nil though the service cannot be provided. This has practical problems in evaluation. The best reference point should have been the service resource, but it is difficult to determine the proportion of the target population who were within 5km reach of the resource when it was available.

Utilization coverage was defined by the proportion of the target population who made contact with the defined service (column 5 of Table 1).

Adequacy coverage was defined by the proportion of the target population who made contact with the service point and received the complete care defined for the condition presented (column 6 of Table 1).

Effectiveness coverage was defined by the proportion of the target population who received adequate care at the prescribed standard of practice, i.e. adequacy care x quality score (column 7 of Table 1). A quality score was developed based on Records Keeping and Service Providers' Knowledge on EsOC [Annex A].

Secondary data from the district health management team (DHMT) and health center records were reviewed. Obstetric care providers and core DHMT members were also interviewed using a checklist. Where a variable was measured by two or more indicators, the average score was used to represent the variable score.

To plot the **operation curve** for each variable, the coverage determinants were placed on the x-axis starting from the target population, followed by availability, accessibility, utilization, adequacy and effectiveness. The y-axis was labeled percentage coverage and in an ascending order labeled up to 100%. The score of each determinant was plotted on the graph and the plotted points connected with a line. A problem or **bottleneck exists when there is a sharp shift of the operation curve downwards between the value of two determinants.**

The relevant data was also collected from health managers, essential care providers, trained TBAs and women who had delivered 12 months prior to the study. This was to attempt to identify factors that may explain any bottlenecks found.

**Table 1. ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION VARIABLES, COVERAGE DETERMINANTS AND PROCESS INDICATORS**

<b>PROCESS INDICATORS (for measuring the coverage of each coverage determinant)</b>						
<b>VARIABLE</b>	<b>Service Target</b>	<b>Availability</b>	<b>Accessibility</b>	<b>Utilization</b>	<b>Adequacy</b>	<b>Effectiveness</b>
Labour monitoring by Partography	Women who delivered within the past 12 months (20% of WIFA@)	% of time that partographs were present	% of TP@ living within 5km from a 1st point of contact or referral point	% of TP on whom partography was done at delivery	% of TP on whom partographic entries were fully done	Adequacy coverage x Quality score for EsOC
Minor surgical obstetric procedures	*Women who developed obstetric complications within the past 12 months	% of time that the following resources were present: Gown & gloves, Kit for Episiotomy & perineal tear repair	% of TP living within 5km from a 1st point of contact or referral point	% of TP with minor surgical obstetric complication registered	% of TP who received complete minor surgical obstetric care	Adequacy coverage x Quality score for EsOC
Major surgical obstetrics procedures**	*Women who developed obstetric complications within the past 12 months	% of time that the following resources were present: EOU set, C-section set and General anaesthesia	% of TP living less than 5km from a health facility (1st point of contact or district referral point)	% of TP with major surgical obstetric complication registered	% of TP who received complete major surgical obstetric care	Adequacy coverage x Quality score for EsOC
Problem pregnancy management	*Women who developed obstetric complications within the past 12 months	% of time that Ringer's lactate or Normal Saline, Blood, ** Inj. Valium, Caps. Amoxycillin and Inj. Ergot were present	% of TP living less than 5km from a health facility (1st point of contact or district referral point)	% of TP with problem pregnancy newly registered	% of TP who received the complete treatment for problem pregnancy	Adequacy coverage x Quality score for EsOC

\* Women who developed obstetric complications during the past 12 months were estimated as 15% of the expected pregnancies.

\*\*District level only

@WIFA= women in their fertility age. ©TP= Target population

## **Study design**

### Study Population and Sample Size

Different target groups were used to determine the coverage and to identify the possible factors that cause bottlenecks.

To determine the coverage, the District Referral Center and all First Points of Contact at the subdistrict level (i.e., 5 MCH/FP Centres, outreach and static) were selected and the records assessed. Three members of the core DHMT, 4 midwives, a dispensing technician and the doctor in the district referral point were interviewed. Two obstetric care providers, including a midwife if available, from each 1st point of contact were also interviewed.

To identify factors that may explain a bottleneck, fifteen out of 40 trained TBAs were randomly selected and interviewed. They were interviewed on essential obstetric care adequacy and quality and also on referral of complications to the 1st point of contact and the district referral point.

One hundred and twenty seven (127) women who delivered within 12 months prior to the study, selected from 13 clusters were also interviewed on service adequacy, effectiveness and utilization. The 13 clusters were randomly selected and only the first 9 or 10 women to arrive at the interview site was interviewed.

To determine resource availability and quality care the six core DHMT members, the district referral point obstetric care providers, (i.e. 3 midwives and the resident doctor), and two obstetric care providers, including a midwife if available, from each 1st point of contact were interviewed on.

During the National Immunization Day (NID) program in December 1996 and January 1997, the DHMT compiled the names and addresses of all under-five children in the district. The average of the number registered, and the numbers immunized during the 1st and 2nd immunization sessions in each community was determined. The average for the three was used as the most recent and accurate census figure for the Women In their Fertility Age (WIFA). In this study, WIFA was assumed to be equal to the under-five population and was taken as 20% of the total population. Expected pregnancies were estimated at 20% of WIFA. The expected obstetric complications was estimated as 15% of the expected pregnancies.

#### Data Collection Techniques

Health records in all the selected facilities and secondary data of the DHMT were reviewed. To determine the coverage, the obstetric care providers and core DHMT members were interviewed using a checklist for the determination of coverage. To identify factors that cause bottleneck, trained TBAs and the women who delivered within the past 12 months were interviewed using mixed (open- and close-ended) questionnaires. The distances between service points and the communities were determined using the local Ghana Private Road and Transport Union (GPRTU) mileage.

### Plan for Data Collection

All the data required to determine the coverage and the data required to explain the bottlenecks that were found were collected by the author. The research assistants determined the distances between service points and the communities.

### Plan for data processing and analysis

The data was processed manually, by electronic calculator and by Microsoft Excel and Epi-Info computer software.

### Ethical Considerations

The study was discussed with and verbal informed consent obtained from the Regional and District Health Administrations, the District Chief Executive, the District Assembly and the Opinion Leaders of the selected communities.

### Project management

- Staffing: Two health workers from the DHMT supported the study as Research Assistants. The field supervisors were Dr. Seth Ayi, the District Director of Health Services, as the primary supervisor and Dr. George Amofah, the Regional Director of Health Services, as the backup. The academic supervisors were Dr. Nana Enyimayew and Dr. Eric Amuah.
- Quality checks: Preliminary analysis were made with the initial returns. All cluster returns were packaged in separate envelopes and labeled.

- Research Administration: A number of discussions were held with the school to select the topic. Preliminary discussions were also held with the two academic supervisors, both on campus and on the field, on the format, content and scope of the draft research proposal. There were regular consultations with the field supervisor on the proposal to ensure that the study was appropriate and feasible. The backup supervisor was consulted on two occasions, at the first and final draft stages.

All the checklists and questionnaires were pre-tested at Ejisu-Juaben district. Where necessary, modifications were made, before their final use.

## CHAPTER FOUR

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### STUDY AREA

The study area was the Adansi East District. It was created in 1989 as one of the new administrative and political districts in the country. It has a land area of 1,347.38sq km. The estimated 1996 population is 155,771 with a growth rate of 3.0. The estimated fertility rate is over 5.5 per woman. Female to male ratio is 1.00:1.05 and the proportion of the population under 20 years of age is 57.4%. The rural to urban distribution of the population is 2.1:1. Seventy-eight percent (78%) of the economically active population are farmers[57].

The district has 28 pre-schools, 99 primary schools, 39 junior secondary schools, 2 senior secondary schools and a literacy rate of 47%. The male to female ratio of the school going children changes from 1.2: 1 at primary level to 2.8: 1 at the senior secondary school level.

The District Health System has a District Health Management Team (DHMT) at the district level, five Subdistrict Health Teams (SDHTs) at the subdistrict level and thirty-two Village Health Committees (VHCs) at the community level. The system provides clinical, preventive and maternity services. There is also a collaboration with other sectors like Education and Agriculture to promote health through education, food and nutrition, water and sanitation.

The district has one health center at New Edubiase that serves as the district referral point and the first point of contact with the formal health system in subdistrict one. The first points of contact in the other sub-districts are the Ataase Nkwanta MCH/FP Center in sub-district 2, Asokwa MCH/FP Center in sub-district 3 and the Aboabo No.2 MCH/FP Center in sub-district 4. Sub-district 5 has no facility. There is one private clinic, one maternity home, five dressing stations, thirty chemical sellers, over two hundred TBAs (40 officially trained), three homeopaths, seven wansams (male circumcizers) and over a hundred traditional healers.

At the close of the year 1996, family planning acceptor rate in the district was 3.0%. Prenatal registration was 61.6%, supervised delivery 23.7%, [65% of which were by Traditional Birth Attendants] and postnatal registration, 22.8%. The main causes of morbidity (and possibly mortality) in the district in a decreasing order of magnitude are malaria, acute respiratory infections, diarrhoeal diseases, obstetric and gynaecological conditions, anaemia and accidents.

#### Obstetric practice in the Adansi-East district.

The doctors and midwives in the district provide prenatal, delivery and postnatal services. There are 2 doctors and 7 midwives (1 private). To improve the effectiveness of obstetric care at the sub-district (MCH/FP) and district (Health Center) levels, Life Saving Skills (LSS) training was given in 1995 to 6 of the seven midwives. The training covered prenatal risk assessment and treatment, monitoring labour progress, episiotomies and

repair of lacerations, prevention and treatment of haemorrhage, resuscitation, prevention and management of sepsis, hydration and rehydration and vacuum extraction.

To improve the quality of TBAs' obstetric care, 54 TBAs were trained in the district in 1991/92; 40 with funds from MOH headquarters. The trained TBAs are expected to prevent sepsis, recognize risk groups and risk factors and promptly refer complicated cases. As part of a nationwide series of TBAs refresher training, a competency based training and learning (CBTL) package was introduced in 1996. This was to further improve the quality and effectiveness of the TBAs' midwifery practice in the district.

TBAs, in principle, are expected to refer complicated cases to the nearest first point of contact with the formal health system. It is from these points that the TBAs receive their supervision. In the Adansi-East district, these first points of contact are MCH/FP Centers, located in the subdistrict centers. These facilities are expected to handle certain problem pregnancies and perform some minor surgical obstetric procedures.

The sub-district facilities are to refer major surgical obstetric and other serious complications to the district referral point (i.e., the New Edubiase Health Center). This referral point is expected to have the capacity to deal with most obstetric complications. A resident doctor was posted to the Center in June 1996. The District Director of Health Services supported by a Medical Assistant, was previously in-charge of the facility. The nearest higher referral Hospital for the district referral point is the Assin Fosu Catholic Mission Hospital which is 27km away. The obstetric complications normally referred to

Assin Fosu include obstructed labour, sepsis, retained placenta, haemoperitonium from ruptured ectopic gestation and other conditions requiring transfusion. Other higher referral hospitals used by the district include the Obuasi AGC Hospital and the Kumasi Komfo Anokye Teaching Hospital.

#### The role of collaborators

In 1996, the District Assembly committed 764 million cedis to developmental projects. Of this amount, 11.8% went to support "health" projects, 9.7% for KVIPS and only 1.8% for health infrastructure development.<sup>4</sup> A new maternity block has been constructed and equipped at the New Edubiase health center to improve the quality and access to obstetric services. The District Assembly has pledge to further upgrade the district referral point and construct Health Centers in three Subdistricts.

The study covered the district referral point, (i.e., the New Edubiase Health Center), selected communities and all the five first points of contact with the formal health delivery system, (i.e. 5 sub-district Centres).

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<sup>4</sup> 2nd Sessional Address, District Chief Executive, Adansi-East Diatrict.

## CHAPTER FIVE

## RESULTS

**PART ONE: Coverage of EsOC variables**

## PARTOGRAPHY COVERAGE

The effectiveness coverage of the use of partograph was zero at both the sub-district and district levels. From Table 2 and Figure 2 below, there was a drop in the operation curve to zero at availability in sub-districts two to five; there was a bottleneck at availability coverage in these sub-districts. In sub-district one, there was a drop in the curve between availability and accessibility and between accessibility and utilization; there were bottlenecks at accessibility and utilization.

Again table 2 and Figure 3 show that the main bottleneck in the use of partograph at the sub-district level was at availability, (20%). At the district referral point the bottlenecks were at accessibility and utilization.

Table 2. Percentage coverage of partography determinants at the sub-district (SUB.) and district levels. Adansi-East district

Coverage Determinants	SUB. 1 (%)	SUB. 2 (%)	SUB. 3 (%)	SUB. 4 (%)	SUB. 5 (%)	SUB-DISTRICT AVERAGE (%)	DISTRICT (%)
AVAILABILITY	100	0	0	0	0	20	100
ACCESSIBILITY	42.2	16.6	30.3	15.5	0	20.9	11.6
UTILIZATION	0	0	0	0	0	0	0
ADEQUACY	0	0	0	0	0	0	0
EFFECTIVENESS	0	0	0	0	0	0	0

Fig. 2

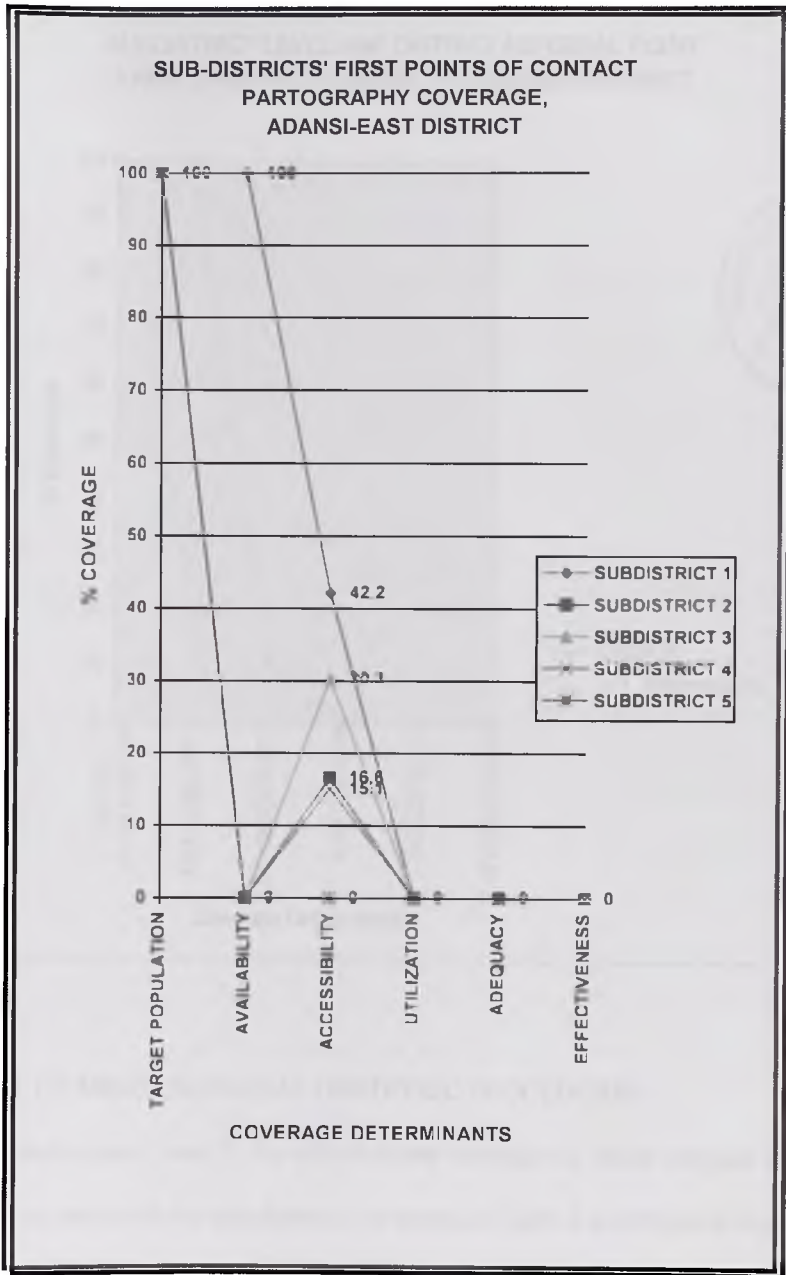
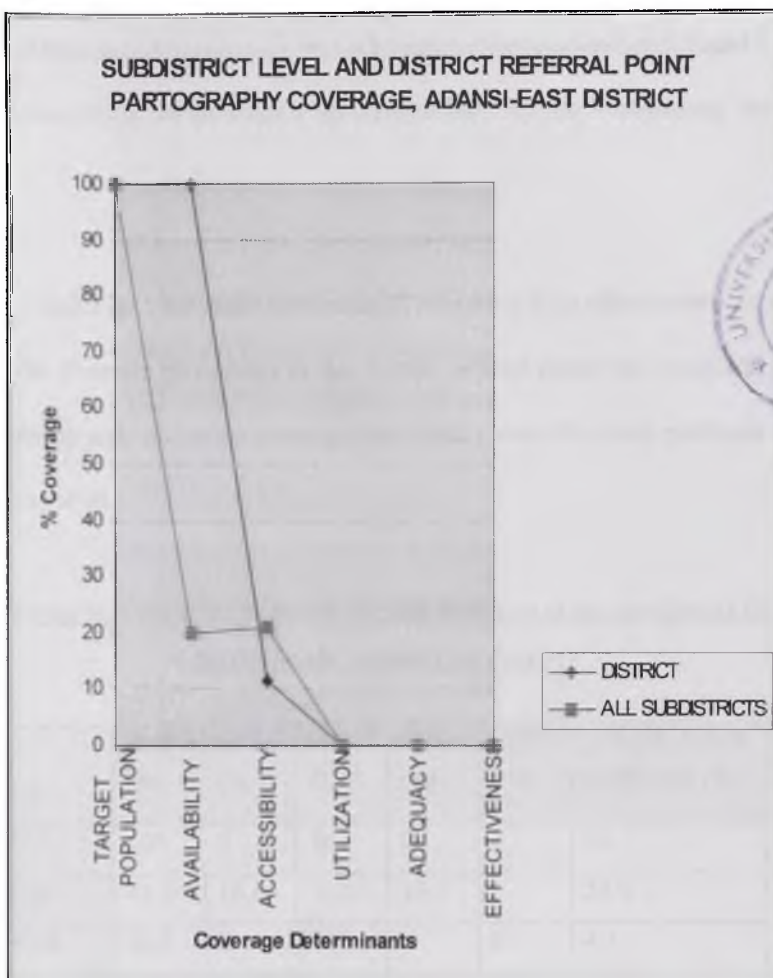


Fig. 3



### COVERAGE OF MINOR SURGICAL OBSTETRIC PROCEDURES

Except in sub-districts 1 and 3, the effectiveness coverage of minor surgical obstetric procedures was zero in all the sub-districts. As shown in Table 3 and Figure 4 there was a low minor surgical obstetrics effectiveness coverage (7.5%), even in sub-district one. This was due to a bottleneck at accessibility, utilization and poor service quality. Also

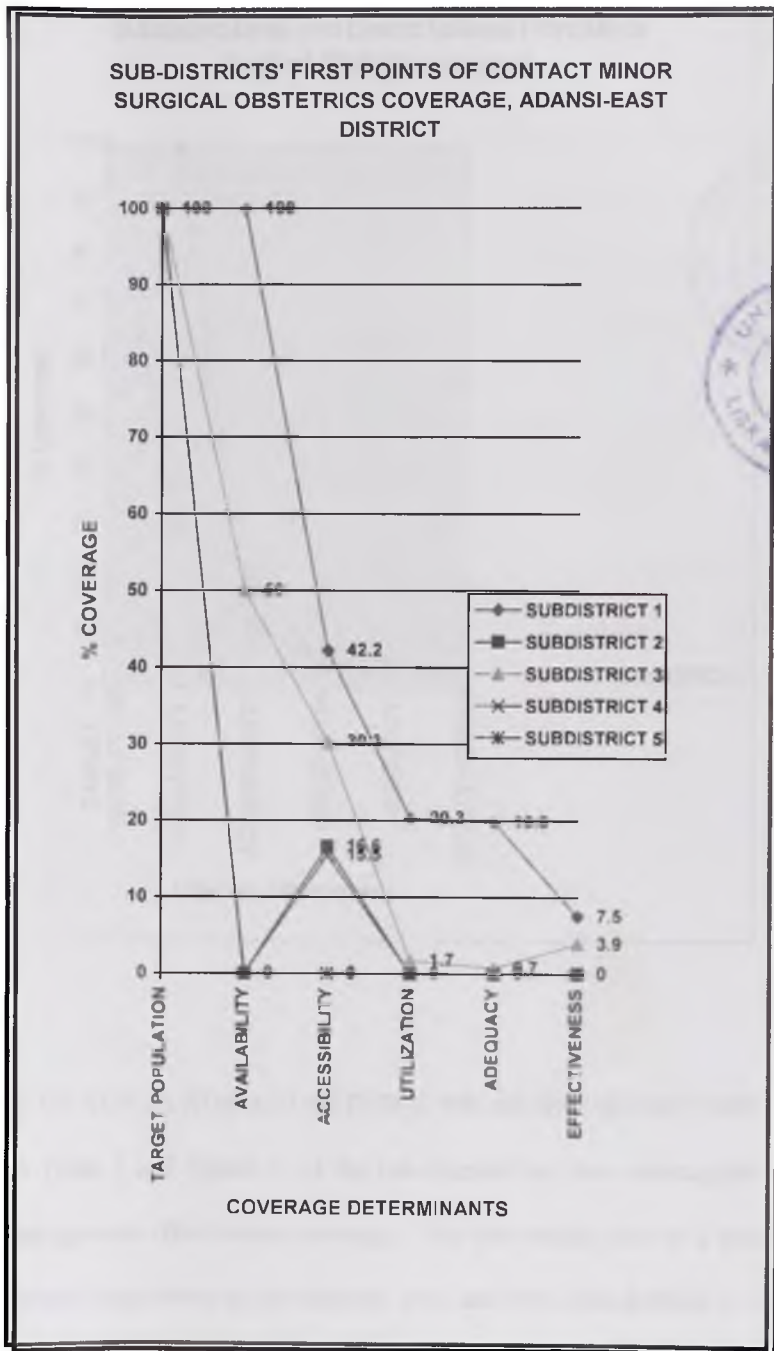
sub-district 3 had a low effectiveness coverage, (0.4%), because of bottlenecks at availability, (50%) and utilization, (1.7%). The curves for sub-districts 1, 2 and 5 dropped to zero at availability (a bottleneck at availability) thereby rendering the service ineffective.

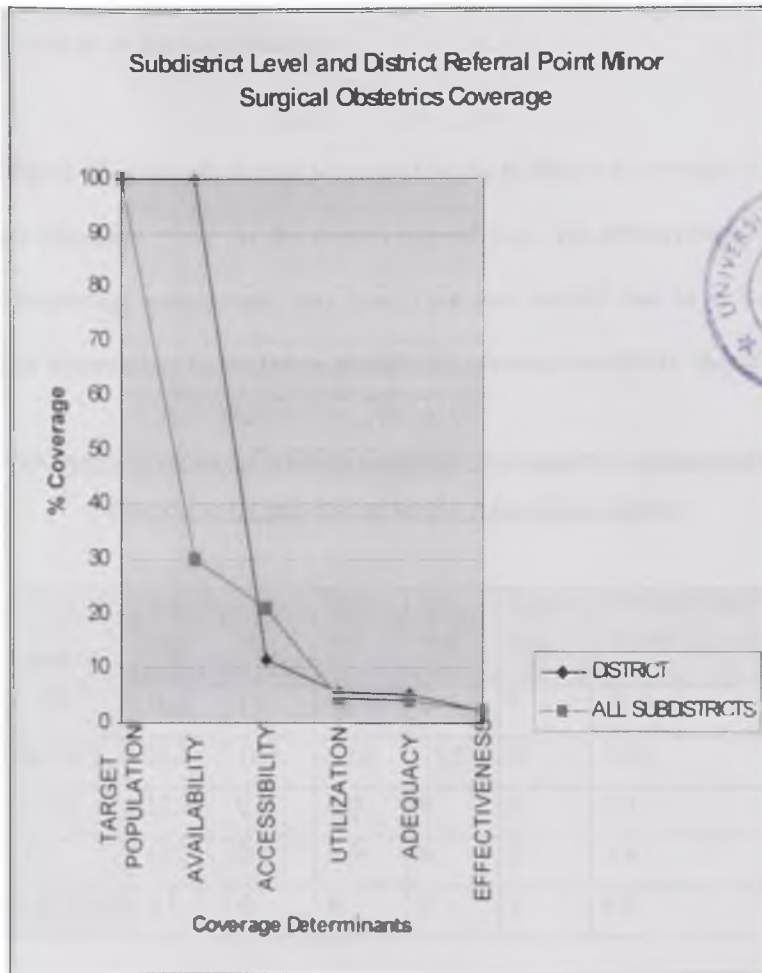
From Table 3 and Fig. 5 the main bottleneck in achieving high effectiveness coverage of minor surgical obstetric procedures at the district referral point was at access coverage while availability and utilization coverage bottlenecks were the main problems found at the sub-district level.

Table 3. Percentage coverage of minor surgical obstetrics at the sub-district (SUB.) & district levels, Adansi-East district

Coverage Determinants	SUB. 1 (%)	SUB. 2 (%)	SUB. 3 (%)	SUB. 4 (%)	SUB. 5 (%)	SUB-DISTRICT AVERAGE (%)	DISTRICT (%)
AVAILABILITY	100	0	50	0	0	30	100
ACCESSIBILITY	42.2	16.6	30.3	15.5	0	20.9	11.6
UTILIZATION	20.3	0	1.7	0	0	4.4	5.6
ADEQUACY	19.8	0	1.7	0	0	4.3	5.4
EFFECTIVENESS	7.5	0	3.9	0	0	2.3	2.1

Fig. 4:



**Fig. 5:**

#### COVERAGE OF NON-SURGICAL OBSTETRIC PROBLEMS MANAGEMENT

As shown in Table 4 and Figure 6, all the sub-districts had low non-surgical obstetric problems' management effectiveness coverage. This was mainly due to a bottleneck at availability which was worse in sub-districts four and five. Sub-districts 1 and 3 had

additional bottlenecks at utilization and effectiveness while sub-district 2 had additional bottleneck only at utilization coverage.

Figure 7 shows the main sub-district level bottlenecks to effective coverage at availability (20%) and utilization (3%). At the district referral point the effectiveness coverage of problem pregnancy management was low. This was mainly due to a bottleneck at accessibility measured at 11.6% (when availability coverage was 50%), and utilization.

**Table 4. Percentage coverage of problem pregnancy management determinants at the sub-district (SUB.) and district levels, Adansi-East district**

<b>Coverage Determinants</b>	<b>SUB. 1 (%)</b>	<b>SUB. 2 (%)</b>	<b>SUB. 3 (%)</b>	<b>SUB. 4 (%)</b>	<b>SUB. 5 (%)</b>	<b>SUB-DISTRICT AVERAGE (%)</b>	<b>DISTRICT (%)</b>
AVAILABILITY	50.6	25	36.3	0	0	22.4	50.6
ACCESSIBILITY	42.2	16.6	30.3	15.5	0	20.9	11.6
UTILIZATION	12.3	0	4.0	0	0	3.3	3.4
ADEQUACY	10.7	0	4.0	0	0	2.9	2.9
EFFECTIVENESS	4.1	0	0	0	0	0.8	1.1

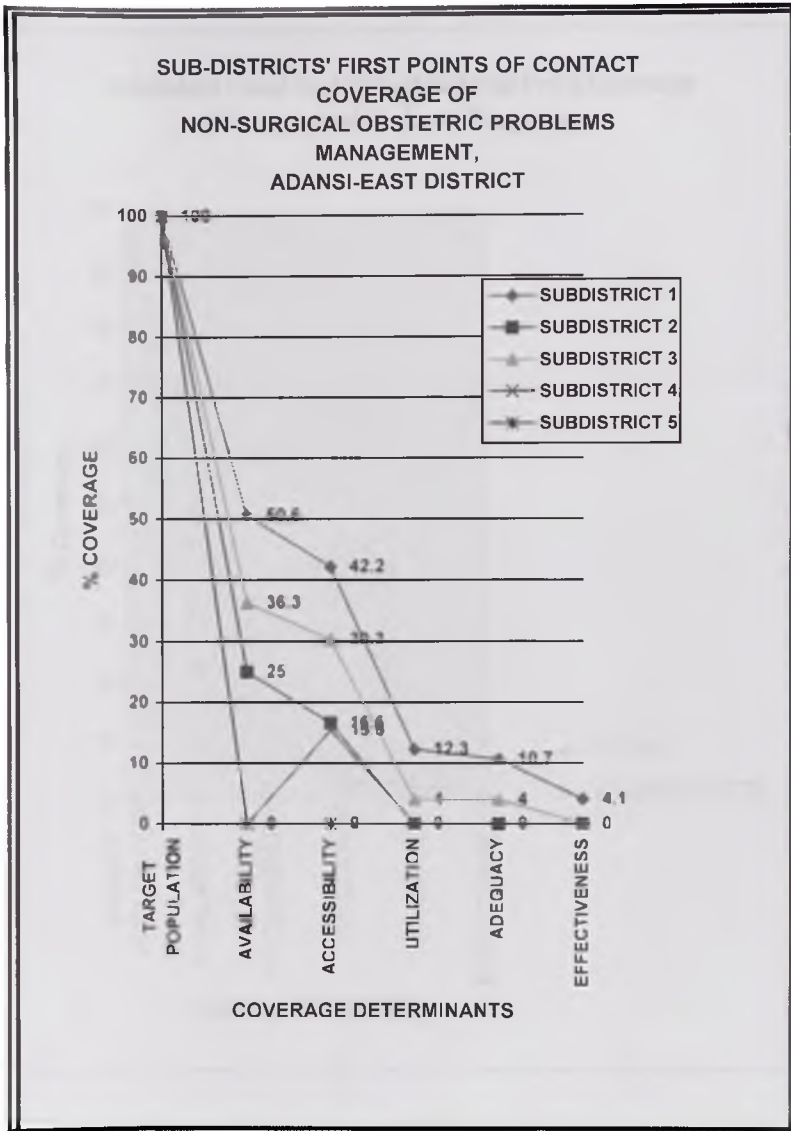
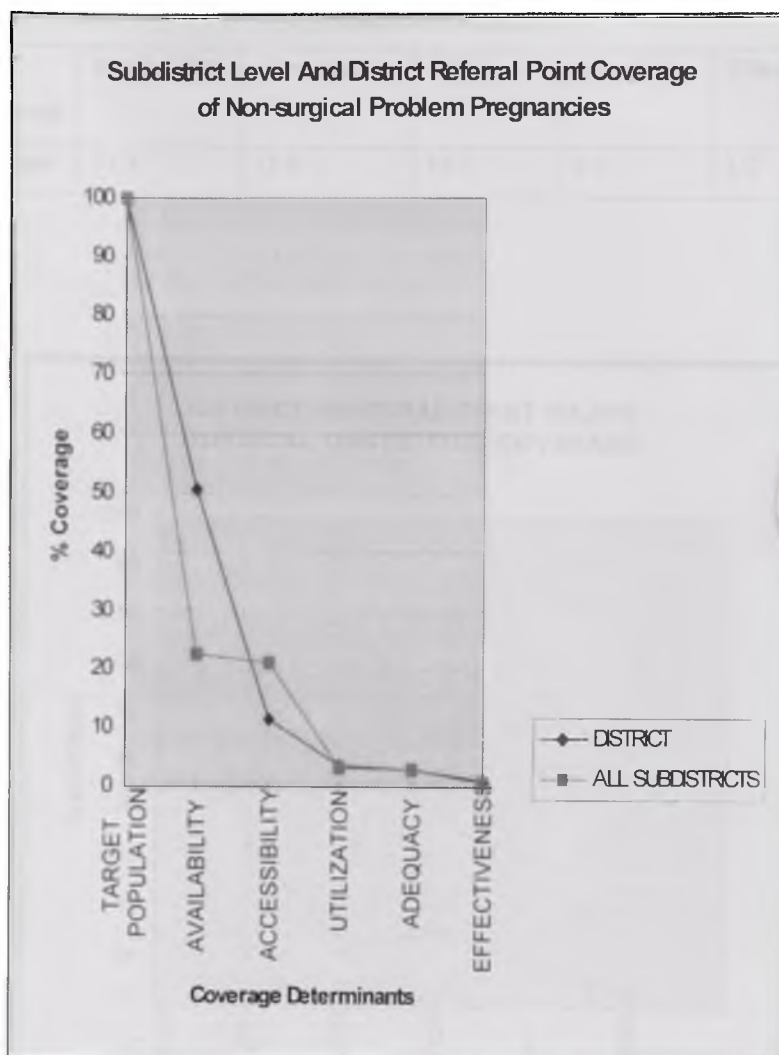


Fig.7:



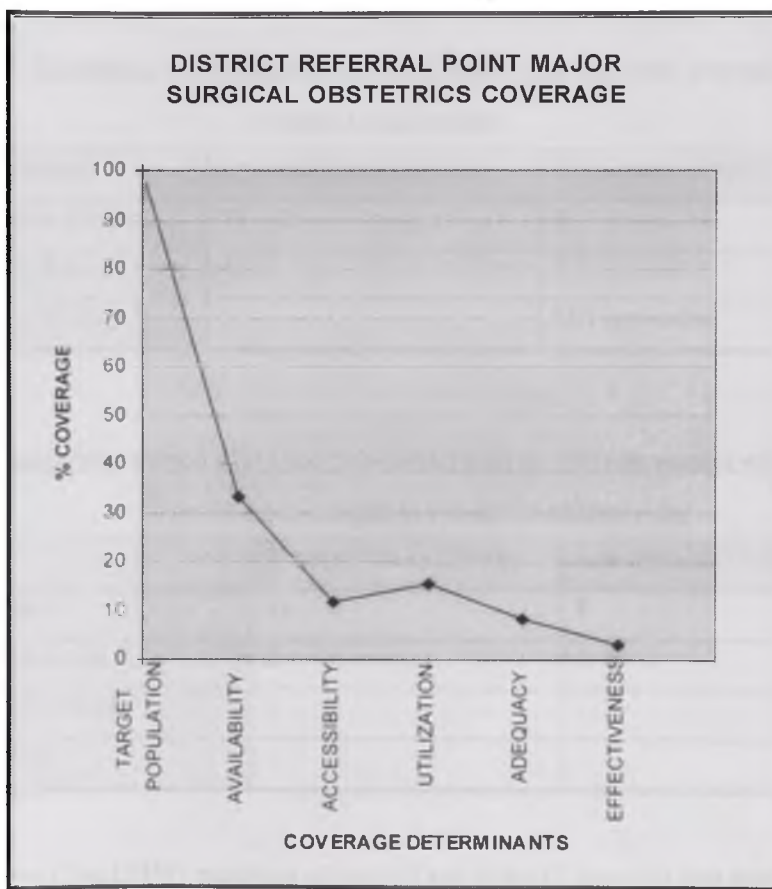
### COVERAGE OF MAJOR OBSTETRIC SURGICAL PROCEDURES

Table 5 and Figure 8 below show a low effectiveness coverage of major obstetric surgical care at the referral point, measured at 3.2%. It is mainly due to bottlenecks at availability (33.3%) and access (11.6%) coverage.

Table 5. Percentage coverage of major surgical obstetrics determinants at the district level, Adansi-East district

Coverage Determinants	Availability	Accessibility	Utilization	Adequacy	Effectiveness
% Coverage	33.3	11.6	15.5	8.4	3.2

Fig. 8



***PART TWO: EXPLANATIONS TO BOTTLENECKS***How obstetric complications were being referred

Tables 6 and 7 show that most trained TBAs refer women with obstetric complications to facilities outside the district because the 1<sup>st</sup> point of contact and the district referral point are not able to provide effective care. The obstetric care providers at the sub-district level also refer their cases outside for the same reason.

Table 6. Facilities to which trained TBAs and Sub-district staff refer women with obstetric complications

Places Mentioned	Trained TBAs (N=16)	Sub-district Staff (N=8)
Facility outside district	11	7
District referral point	4	3
Sub-district 1st Point	5	Not applicable

Table 7. Reasons why trained TBAs and Sub-district staff do not refer women with obstetric complications to the district referral point

	Trained TBAs (N=16)	Sub-district Staff (N=8)
Ineffective care	11	8
Long travel distance	2	1
Transport difficulties	2	
Cultural barrier	1	

How informed Core DHMT members were about sub-districts' essential care practice

Two of the six core members had knowledge about the state of all three EsOC variables at the sub-district 1st points of contact. Two knew nothing. Three knew that essential

obstetric drugs and resources for minor surgical obstetrics were generally not available at the 1st points of contact. Four knew that the service providers were not generally treating problem pregnancies.

#### Reasons for the low availability of resources at first points of contact

Three of the core DHMT members (N=6) and 3 of sub-district obstetric care providers (N=8) cited lack of training on the use of partographs as the reason for not stocking partographs. Four of the providers mentioned lack of delivery room and three mentioned the absence of a resident midwife as reasons for not making partographs available.

“Lack of delivery and storage room” and “midwives are not expected to treat complications” were each mentioned by three DHMT members as the main reasons for the low availability of essential obstetric drugs at the sub-district level. The reasons cited by the service providers for not stocking essential obstetric drugs were: “Lack of training in drugs administration,” (n=3), “Lack of delivery/storage room,”(n=3) “Does not know midwives can use such drugs,”(n=2) and “lack of funds to procure the drugs”(n=2).

Four of the core DHMT members gave “Lack of training” to perform obstetric surgical procedures as the reason for the lack of resources for the procedures. The main reasons mentioned by the service providers to explain the lack of resources was “lack of a room” in which complicated cases could be treated, (n=5) and “Lack of training,” (n=2). The main reason cited by most Core DHMT members and the district level service providers

to explain the lack of resources to perform major obstetric operations at the district level were “the facility is a health center and has not been upgraded to a hospital.”

#### Reasons for the low access to EsOC at the district referral point

Two reasons were given by the service providers, (N=4). Three sited “High concentration of the population in the remote farming areas” and one sited “poor road network.” The solutions suggested by them were “upgrading of sub-district facilities” (n=3), “intensifying obstetric education” (n=3), and “improving transportation” (n=3). Other reasons were “obstetric training to outreach staff” (n=1) and “cost sharing” (n=1)

#### Reasons for the low utilization coverage

Of the 46 women who developed obstetric complications, 38 (82.6%) did not use the subdistrict point of contact. This was because one-third (31.6%) had no knowledge of the EsOC facility or services and a half said the care was ineffective.

The main reasons given by the women who developed complications but did not use the referral point [n=43 (93.5%)], were “ineffective care” (27.9%), “long travel distance” (23.3%) and “no knowledge of EsOC facility or services” (27.9%).

The main reasons why 57 (i.e. 70.4%), out of the 81 women who had no complications would not use the 1st Point of Contact if they had one were “lack of knowledge of EsOC facility or/and services” (50%), and “ineffective care” (52.6%). Half of these women without complications would not use the referral point if they had a complication. The

reasons being “no knowledge of EsOC facility or services” (30.2%), “long travel distance” (32.6%) and “ineffective care” (32.6%).

The use of the district referral point appears to depend on the occurrence of a complication and not on information about the existence of the service point. Table 8 shows that among the women informed about where to obtain essential obstetric services, the proportion with complications that used the District Referral Point (0%) was significantly *lower* than the proportion without complication who had the intention to use the facility if a complication arose (42.1%).

Table 8. The Influence of Obstetric Complications on the Use of the District Referral Point among women informed of the existence of the service

		COMPLICATION		
		+	-	
USED OR INTEND TO USE	+	0	8	8
	-	12	11	23
		12	19	31

One tailed, p:(Fisher) 0.0095581  
 Two tailed, p:(Fisher) 0.011551  
 Pearson's X<sup>2</sup>:6.81 p: 0.009064  
 Yates X<sup>2</sup>:4.79 p: 0.028650

Also, among the women not informed about where to obtain essential obstetric services, the proportion with complications that used the District Referral Point, (8.8%), was significantly *lower* than the proportion without complications who had the intention to use the facility if a complication arose (48.4%), [Table 9].

Table 9. The Influence of Obstetric Complications on the Use of the District Referral Point among women not informed of the existence of the service

		COMPLICATION		
		+		
USED OR				
INTEND	+	3	30	33
TO USE		31	32	63
		34	62	96

One tailed, p:(Fisher) 0.000052  
Two tailed, p:(Fisher) 0.000092  
Pearson's  $X^2$ :15.24 p: 0.000095  
Yates  $X^2$ :4.79 p: 0.000234

Again of the 127 women interviewed, (Table 10), the proportion with complications who found the district referral point EsOC ineffective (41.3%), was significantly higher than the proportion without complications who found the care ineffective (16.0%). This suggests that it is the women who needed essential obstetric care that found the district referral point service ineffective and therefore limited their utilization.

Table 10. The Role of Obstetric Complication in the Women's Judgment of EsOC Effectiveness at the District Referral Point

		COMPLICATION		
		+		
DISTRICT				
SERVICE	+	19	13	32
INEFFE	-	27	68	95
CTIVE				
		46	81	127

One tailed, p:(Fisher) 0.001856  
Two tailed, p:(Fisher) 0.002637  
Pearson's  $X^2$ :6.81 p: 0.001628  
Yates  $X^2$ :4.79 p: 0.003301

Majority of the service providers at the sub-district and district levels mentioned "ineffective care" as the main cause of the low EsOC service utilization.

## CHAPTER SIX

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### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

#### DISCUSSION

The effectiveness coverage of all the EsOC variables were low, below 10%. These were mainly due to serious bottlenecks at availability, access and utilization coverage.

##### Essential obstetric care availability

At the sub-district level for example, resource availability for partography, minor surgical obstetrics and problem pregnancy management ranged between 0% and 30%. Similarly, while the availability coverage for the above EsOC variables were 100% at the district referral point, the availability coverage for major obstetric surgery was only 33%.

The reasons given for the non-availability are not new. There was lack of training on the use of resources, rooms for delivery, storage of drugs and handling of complications were absent. Again in some cases there was no resident midwife or midwives were not expected to treat complications. The DHMT and the service providers at the district referral point expected an “upgrading of the health center to a district hospital” before resources for major obstetric surgery are put in place.

These findings demonstrate two key weaknesses in obstetric care management in the district.

The first is poor resource allocation and training in the use of these resources especially at the sub-district level. The New Edubiase health center, the district referral point, had four

midwives while two of the sub-districts had no resident midwife. Yet, in Gambia, it was found that "the single most important factor (in causing maternal mortality reduction) has apparently been the on-the-spot, 24-hour availability of a physician or qualified midwife[75]. This situation is undoubtedly not a problem confronting only the Adansi East district. Even as a country over one-third of professional nurses in Ghana work in the two teaching hospitals, Korle Bu and Komfo Anokye. The nurses in the two teaching hospitals and the Greater Accra Region alone make up over 50% of the total 5,728 professional nurses[76]. Even among the nurses, the non-community health nurse midwives (i.e. the enrolled, state registered and the straight midwives), are rarely posted to peripheral MCH centers. Safe-motherhood services in most MCH Clinics and some Health Centers are carried out by community health nurses most of whom have no training in life-saving skills.

On the lack of rooms for essential obstetric care, it was observed that the existing rooms in all the sub-districts could reasonably be used to provide EsOC. What remains is the will to train and post midwives and to supply the essential drugs and supplies. These are management issues that are normally overlooked, and lapses blamed on lack of resources! Thaddeus and Maine recognized this fact when they said "there is little question that this situation is due in part to the very real issue of limited resources. But it is often perpetuated by poor management and organization of available resources"[77].

Where only a room is available, the community and the District Assembly can assist in providing additional rooms especially as community participation in primary care is

known to yield positive results[78]. At Pakro, Ghana, an abandoned warehouse was converted to a life-saving facility and a midwife posted. Twelve percent (12%) of the expected complications occurring in the population was treated[59].

At the district referral point, a critical look at the staff type and numbers, the outpatient consultations and the level of admission shows that the facility is a hospital by MOH norms, though not bearing the name. It is the responsibility of the district and facility managers to ensure that lapses in resource allocation are rectified especially those required for major obstetric surgery. This can be done by mobilizing local resources and where necessary to solicit for regional or central support. If this would be done, the benefits could be enormous. At Juaben Health Center, Ghana, when obstetric service resources were made available and the staff trained in life saving skills, utilization of essential services improved[70]. In the Kebbi State of Nigeria, utilization of emergency obstetric services went up and case fatality dropped from 22% to 5% when an obstetric first aid box with essential drugs and supplies was introduced with staff training[79]. Again in the Bo District Hospital, Sierra Leone, case fatality rates for major obstetric complications dropped in all intervention years when blood transfusion services were made available[60].

It is only in a few instances that utilization of essential services does not improve with allocation and redistribution of resources. Ifenne and others found in Zaria, Nigeria, that utilization may be low if there is deterioration in the economic condition of a country even though the facility to treat obstetric complications may be available[71]. In Makarfi

secondary hospital, Nigeria, renovation of maternity services, establishment of a drug scheme, training of midwives and restoration of an ambulance did not increase utilization. This was believed to be due to the inability to secure a physician with skills to treating obstetric emergencies and other factors[80].

The second finding causing deficiencies in resource allocation, is the reason that “midwives are not expected to treat obstetric complications.” This coming from half of the core DHMT members and 2 of the 8 obstetric care providers, points to a gap between obstetric care policy and implementation. Obviously, these primary level staff are not well informed about the MOH current policies on essential obstetric practice. The cause of this anomaly is unknown. It may be speculated that not much information and training have been given to the staff to enable them fully understand and implement the ministry's policies.

#### Access to essential obstetric care

Almost 90% of the women expected to develop obstetric complications were beyond 5km radius of any of the EsOC facilities. Even at the sub-districts' 1st points of contact, the coverage of geographical access to essential obstetric care was below 50%. This is due to the “high concentration of the population in the remote farming areas.”

Dr. Sam Bugri<sup>5</sup> says "every Ghanaian resident should be within 8km (5 miles) radius of a health facility." Cole-king and others recommended under 4 miles radius distance for effective Primary Health Care service[74]. Also Ashitey and others found that one mile was the maximum mothers in the Danfa area were prepared to travel for child care[81]. As long as the farther from a major hospital or the more difficult the terrain, the higher the maternal mortality[19], it is important to upgrade sub-district facilities, improve transportation and intensify obstetric education, as was suggested by the district service providers.

How far can a bleeding woman with retained placenta walk, especially when essential care cannot be delivered effectively through outreach? Yet two of the sub-districts in the study area, one over 50km away from the district capital, had no resident midwives. In Nigeria, the delay in seeking EmOC due to transport problems were reduced by introducing and improving transport services[82]. Maternity Waiting Homes have also been found to improve access to emergency obstetric care. However it was found in Accra, Ghana, that when the beneficiary community is not involved in the citing, it may not be used[83].

#### Essential obstetric care utilization

All the essential obstetric care variables had bottlenecks at utilization. Ineffective essential obstetric care and lack of information about the facilities and services were the main reasons most of the women gave for not using, or intending to use the district and

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<sup>5</sup> Director of Public Health, MOH, Ghana: Personal

sub-district services. Long distance was also mentioned as a reason for not using the district referral point.

The women may be illiterate, as 86% of the women studied had no or only primary education and they may be rural in their perceptions, but they are not foolish! They know which facilities can solve their obstetric problems. Of 46 women with obstetric complications interviewed, 93% did not use the district referral point and 82% did not use the sub-district 1st point of contact. Similarly, half the women without complications (n=57) had no intention to use the referral point and the 1st points of contact. There was actually a statistically significant difference between the proportion of women with complications and those without complications who found the care at the district referral point ineffective [Pearson's  $X^2$ :6.81 p: 0.001628]. And whether these women were informed about where to obtain the care [Pearson's  $X^2$ :6.81 p: 0.009064], or not [Pearson's  $X^2$ :15.24 p: 0.000095], the proportion that used the referral point was significantly lower than the proportion without complication that intended to use it if a complication arose. These findings may suggest that the ineffectiveness of the care becomes more important when the women develop complications and they have to take a decision on where to obtain effective solution to their problems. The presence of a complication and the knowledge that a facility can provide effective answer forms the basis for the decision to use a particular facility.

These findings bring out the issue that no matter how well-planned essential care information, education and communication (IE&C) or how close a service point may be, without upgrading facilities to provide effective service, utilization shall be low. The success in following upgrading of facilities with IE&C has been demonstrated by members of the Prevention of Maternal Mortality Network[84].

Interestingly, in sub-district two, the midwife had instructed the TBAs not to refer cases to her facility because she lacked a room and supplies to handle obstetric complications. This might explain why a trained TBA detained a case of prolonged labour for over 72 hours in that sub-district and finally referred to an outside facility, about 50km away. She did not inform the sub-district MCH/FP staff who stay in the same town, only about 40 meters away. By the time the woman reached her destination, she was dead, leaving behind four children<sup>6</sup>.

## **CONCLUSION**

By the use of a systematic coverage evaluation tool to assess health service delivery in the Adansi East district, it has been possible to establish that the effectiveness coverage of essential obstetric care is low at both the sub-district and district levels. It has also been possible to identify the bottlenecks in achieving high effectiveness coverage. It is therefore possible for the District Health Management Team to carry out micro-planning to address the bottlenecks in each sub-district and at the referral point to improve the

coverage. It is only then that maternal mortality could be reasonably reduced in the district.

### **RECOMMENDATIONS**

It is recommended that the District Health Management Team takes a critical look at midwives' postings to ensure 24 hour availability of midwives at all 1<sup>st</sup> points of contact, especially in sub-districts 4 and 5.

To ensure quality care at each service delivery point, life-saving skills training for midwives using the Ministry of Health book titled "clinical management protocol on safe-motherhood" is recommended. The training among others must include the use of partograph, data analysis and records keeping.

Emergency obstetric box containing essential logistics and drugs may have to be provided at each 1<sup>st</sup> point of contact to ensure their 24 hour availability. At the district referral point, attempt should be made to establish general anaesthetic and blood transfusion facilities.

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<sup>6</sup> Personal communication with Caroline Effa-Ampoma, Public health nurse, Subdistrict three team leader, Adansi-East District

There is the need for the DHMT and the sub-district health teams to collaborate more effectively with the communities and the District Assembly. This can ensure that at least additional rooms are provided in the sub-districts with few rooms.

To update itself of midwifery practice in the district, it is recommended that the DHMT pays regular monitoring visits to the health institutions. In this regard, the DHMT is urged to use the evaluation tool in this study to appraise its performance in essential obstetric care periodically.

This study makes a recommendation to the Ministry of Health for the establishment of basic essential obstetric facilities to be staffed by midwives within every 3 to 5 kilometer radius, especially in areas where most basic maternity care are provided by TBAs and there are problems with road network and transport.

Finally, if the essential obstetric care findings in the Adansi East district pertains in other districts, then the Ministry of Health may have to strengthen its effort at information dissemination, midwifery and life-saving skills training and allocation of essential obstetric resources to enable it achieve a desirable maternal mortality reduction.

## **SOURCES OF ERROR AND LIMITATIONS**

1. To reduce recall bias, the study was limited to the 12 months prior to the study date.

2. Due recognition is given to the importance of determining “acceptability coverage.” It provides a proxy indication of demand levels among the target population that has access to a service. This important variable was omitted because there was fuel shortage and it was not possible to bear the estimated transport cost involved in interviewing the target group.
  
3. Interpretation of the scores of the individual coverage determinants was limited by lack of generally acceptable cut-off points. This meant that none of the individual scores in the evaluation had much meaning taken in isolation. The interpretation was rather from the pattern of the operation curve.
  
4. Establishing accessibility coverage requires that “availability person days” ( i.e. the product of resource available days and the target population) is computed as a proportion of the total “person days of evaluation” (i.e., the product of total days under evaluation and the target population). In this study, accessibility coverage was measured using the service delivery facility as the reference point, instead of service resources. Because availability coverage was defined as 24-hour presence of a resource, a downward dip appeared at accessibility coverage in some of the operation curves. These dips do not represent bottlenecks. The explanation is that, even at zero availability of a resource and hence no service delivery, the target population still had “access.” This access is however only to the fixed service facility.

5. In plotting the availability coverage for obstetric surgery and problem pregnancy management, the mean scores of the variable indicators (i.e., the selected resources) was used. This statistic is affected by extreme values. Because the average variable coverage masks the scores of the individual indicator scores, the operation curve may not truly represent the variables. Similarly, the presence or absence of a bottleneck in the availability plots, may be caused by extreme scores of some of the indicators.

**CHAPTER SEVEN**

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**LIST OF REFERENCES**

1. Ghana Statistical Service/Macro International Inc. Ghana demographic and health survey, 1993 Calverton, Maryland, 1994
2. WHO, "Essential or Emergency Obstetric Care" Safe Motherhood newsletter, Issue 18, 1995(2) pp 1-2
3. WHO, Essential Obstetric function at first referral level to reduce maternal mortality: Report of a technical working group, June 23-27, 1986. Geneva, WHO, 1986 (FHE/86.4).
4. WHO. "Definition and recommendation." In the manual of the international statistical classification of Disease, Injuries, and causes of Death, Vol. 1 Geneva, 1977, PP 763-764
5. Republic of Ghana, Ghana Vision 2020, 1995
6. MOH, Ghana, Medium term health strategy, 1995, pp1-52
7. MOH, Ghana, Health Sector 5 Year Program of Work, 1996, pp. 1-34
8. MOH Ghana, Clinical Management Protocol on Safemotherhood, 1994, pp. 1-38
9. MOH Ghana, Institutional Reforms in the Health Sector, 1996, pp 9
10. WHO, "Maternal mortality ratios and rates: A tabulation of available information" Geneva, WHO, 1991
11. Potts, M. "Can Family Planning Reduce Maternal Mortality?" Journal of Obstetrics and Gynaecology of East Central Africa. 1986, 5(29), PP 29-30
12. Rochat, R. W. "Table 2: Estimated Lifetime Chance of Dying from Pregnancy-Related Causes, by Region, 1975-84" In Preventing the Tragedy of Maternal Deaths: A Report on the International Safemotherhood Conference, Nairobi, 1987

13. WHO, The World Health Report: Bridging the gaps. Geneva, 1995, Annex 3, pp 106.
14. Hartfield, U.J. "Maternal Mortality in Nigeria compared with earlier international experience". *international Journal of Gynaecology and Obstetrics*, 1980, 8(1): 70-75.
15. Martey, J.O., Djan, J.O., et al " Maternal Mortality and related factors in Ejisu District, Ghana" *East African medical Journal*. 1994, 71:10, PP 657-660.
16. Alanddin, M. "Maternal Mortality in Rural Bangladesh: The Tangail District." *Studies in Family Planning*, 1986, 17(1): 13-21.
17. Turnbull, A.C. et al. Report-on confidential enquiries into maternal deaths in England and Social subjects NB. 34 London: Her Majesty's Stationery office, 1989. in Maine, D., *Safe Motherhood Programs: Options and Issues*, Columbia University, New York. 1991, pp.13
18. WHO "Maternal Mortality: helping women off the road to death" *WHO Chronicle*, 1986, 40 (5): 175-83
19. Maine, D. *Safe Motherhood Program: Options and Issues*. Columbia University, New York, 1991, pp.-45
20. Tanahashi, T. " Health Services Coverage and its evaluation" *Royal Tropical Institute, Bulletin of WHO*, 1978, 56(2):pp.295-302.
21. Knippenberg, R., Levy-Bruhl, D., Osseni, R., Drame, K., Soucat, A., Debeugny, C. "The Bamako Initiative: Experiences in Primary Health Care from Benin and Guinea", *Children in the Tropics*, 1990, No. 184-185 pp 27-38.
22. Kyei-Faried, S. "District Health Profile, Adansi East-District, Ashanti Region", October 1996, pp.26.

23. WHO, Mother-Baby Package: A Road Map for Implementation in Countries.  
Division of Family Health, Geneva, 1993
24. Herz, B. & Measham, A. "The Safemotherhood Initiative; Proposals for Action"  
World Bank Discussion Papers 9. May 1987.
25. Tinker, A. & Koblinsky, M. "Making Motherhood Safe" World Bank Discussion  
Papers 202, October 1994.
26. The world Bank, sub-Saharan Africa; From Crises to Sustainable Growth, World  
Bank, Washington DC, 1989
27. The world Bank, World Development Report 1993: Investing in Health, New York,  
Oxford University Press, 1993.
28. Potts, M., "Maternal mortality: helping women off the road to death" WHO  
Chronicle, 1986, 40(5): 175-183
29. United Nations. "United Nations Population Chart 1988", New York: UN Population  
Division, Department of International Economic and Social Affairs, 1988  
(ST/ESA/SER.A/106/Add. 1). in Maine, D., Safe Motherhood Programs: Options and  
Issues, Columbia University, New York. 1991, pp.6
30. WHO, "The health situation of mothers and children: A brief overview".  
Unpublished, 1983
31. Abou Zahr, C., Royston, E. "Maternal Mortality: A Global Factbook" WHO, Geneva,  
1991 pp.112-14
32. Ghana Statistical Service Ghana demographic and health survey, Accra, 1988
33. United Nations World Abortion Policies, UN Population Division, March 1994.

34. Sai, F.T., Measham, D.M. "Safe Motherhood Initiative: getting our priorities straight." *Lancet*, 1992, 339(8791) pp.478
35. Kwast, B.E., "Case histories-Papers from the Safe Motherhood Conference, Nairobi, 1987" (Geneva: WHO, 1987) *Network*, Vol. 14 No.3, Feb. 1994 pp.15
36. Harrison, K.A., "Predicting Trends in Operative Delivery for Cephalopelvic Disproportion in Africa", *Lancet*, 1990, 335 pp.861-62
37. PIP/Ghana. Adolescent Fertility and Reproductive Health in Ghana, 1995, pp.-5.
38. Kaunitz, A.M., et al "Perinatal and Maternal Mortality in a Religious Group Avoiding Obstetric Care" *American Journal of Obstetric and Gynaecology*, 1984, 150(7), pp.826-31.
39. Walker, G.J.A., et al, "Maternal Mortality in Jamaica: A Confidential Inquiry into all Maternal Deaths in Jamaica, 1981-1983" Paper presented at the WHO Interregional Meeting on Prevention of Maternal Mortality, Geneva, 1985 (FHE/PMM/85.9.10) in Maine, D., *Safe Motherhood Programs: Options and Issues*, Columbia University, New York. 1991, pp.13-14
40. Bledsoe, C.H., Cohen, b. "Social Dynamics of Adolescent Fertility in sub-Saharan Africa", *Population Dynamics of sub-Saharan Africa Series*. National Research Council. Academy Press, Washington DC, 1993
41. Fauveau, V., Koenig, M.A., et al. "Impact of family planning and health services programme on adult female mortality" *Health Policy Planning*, 1988, 3(4), pp.271-79.
42. Martey, J.O. et al. " Maternal Mortality due to Haemorrhage in Ghana." *International Journal of Gynaecology and obstetrics*, 1993, 42(3) PP.....

43. Hatcher, R.A., et al *Contraceptive Technology*, 16th ed., Irvington Publisher, New York, 1994 pp.113
44. Ross, J.A., Marjorie, R., Molzan, J.P. *Management Strategies for Family Planning Programmes*. Centre for Population and Family Health, Columbia University, 1989, pp.38-39.
45. Guttmacher, a. *Preventing Pregnancy, Protecting Health: A New Look at Birth Control Choices in the United States*. Alan Guttmacher Institute, New York, 1991, pp.
46. Kwast, B.E., et al "Epidemiology of maternal mortality in Addis Ababa: a community-based study". *Ethiopian Medical journal*, 1985, 23(1) pp.-16
47. Harrison, K.A. "Childbearing, health and social priorities: A survey of 22774 consecutive hospital births in Zaria, Northern Nigeria" *British Journal of Obstetrics and Gynaecology*, 1985, 92(Supple. 5): pp.-119
48. Ghana Statistical Service *Infant, Child and Maternal Mortality Study in Ghana Accra*, 1994
49. Rohde, J.E. "Removing risk from safe motherhood" *International Journal of Gynaecology and Obstetrics*, 1995, 50(2) pp S3-S10
50. Regional Health Services, Ashanti, 1995 Annual Report 1996, pp.21.
51. Greenwood, A.M., Greenwood, B.M., Bradley, A.K., et al "A prospective study of the outcome of pregnancy in a rural area of the Gambia" *WHO Bulletin*, 1987, 65(5), pp.635
52. Kwast, B.E. "Maternity Services and TBAs in Addis Ababa: biosocial factors related to birth places and outcome of pregnancy" *Health Policy and Planning* 1988, 3.2, pp.109-118.

53. Brennam, M. "Training traditional birth attendants". Postgraduate Doctor Africa. 1989, 11:1 pp 16-18.
54. Greenwood, A.M., Bradley, A.K., et al "Evaluation of a Primary Health care programme in the Gambia: The import of trained TBAs on the outcome of pregnancy" Journal of Tropical medicine ad Hygiene, 1990, 93.1 pp.-66.
55. Kyei-Faried S. District Profile, Ejisu-Juaben DHMT, 1994.
56. White, S.M., Thorpe, R.G., Maine, D. "Emergency obstetric surgery performed by nurses in Zaire" Lancet, 1987, ii, pp6.12-13
57. Leigh, B., Kandeh, H.B.S. et al "Improving Emergency Obstetric Care at a District Hospital, Makeni, Sierra Leone in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.19.
58. Olukoya, A.A., Ogunyemi, M.A., Akitoye, C.O., Abudu, O., Tijani, M.A., et al "Upgrading obstetric care at a secondary referral hospital, Ogun State, Nigeria" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.20.
59. Senah, K.A., Richardson, D., Kwofie, G., Wilson, J.B., Collison, A.H., Tinkorang, E.K. " From abandoned warehouse to Life-saving facility, Pakro Ghana" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp 24.
60. Sengeh, P., Samai, O., Fofana, P., Kebbie, A., Stephens, S., Sidique, S.K. "Improving blood availability in a District Hospital, Bo, Sierra Leone" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.32.

61. Walker, G.J.A. "Maternal mortality in Jamaica" *Lancet*, 1986, 1: 486-88
62. Chiwuzie, J., Okojie, O., Okolocha, C., Omorogbe, S., Oronsaye, A., et al "Emergency Loan Funds To Improve Access To Obstetric Care In Ekpoma, Nigeria" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.47.
63. Airey, T. "The impact of road construction on hospital in-patient catchments in the Meru District of Kenya" *Soc. Sci. Med.* 29, 1989, 95
64. Haupt, A., Kane, T.T. "Population Handbook: International edition" 3rd Edition, Population Reference Bureau, Inc., Washington D.C., 1991
65. Maine, D. *Studying Maternal Mortality in Developing Countries. A guidebook: Rates and causes.* WHO 1987 (FHE/87.7)
66. WHO and UNICEF, *Revised 1990 Estimates of Maternal Mortality: A New Approach*, World Health Organization, Geneva, 1996.
67. U.S. Department of Health and Human Services, National Centre for Health Statistics, *Vital Statistics of the United States 1983: Vol.11-Mortality, Part A.* Hyattsville, Md., 19
68. Bhatia, J. C., "A Study of Maternal Mortality in Ananthapur District, Andhra Pradesh, India" Bangalore, India: Indian Institute of Management, 1986, Tables 8 and 9.
69. Maine, D., Wardlaw, t., et al, *Maternal Mortality: Guidelines for Monitoring Progress* (2nd Edition). WHO and UNICEF, New York, Nov. 1996.
70. Djan, J.O., Kyei-Faried, S., Twum, S., Danquah, J.B.O., Ofori, M., Brown, E.N.L. "Upgrading Obstetric Care at the Health Centre Level, Kumasi, Ghana" in Akalin, M.Z.,

et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.23

71. Ifenne, D., Essien, E., Golji, N., Sabitu, K., Alti- Mu'azu, M., et al "Improving the Quality of Obstetric Care at the Teaching Hospital, Zaria, Nigeria in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.17

72. Danquah, J.B., Appah, E.K., et al "Improving Record Keeping for Maternal Mortality Programs, Kumasi, Ghana" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.23.

73. Akalin, M.Z., Birnbaum, A.S., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.

74. Cole-King S., Gordon, G., Lovel, H. "Evaluation of Primary Health Care-A Case Study of Ghana's Rural Health Care System" Journal of Tropical Medicine and Hygiene, Nov./Dec., 1979 pp.214-228

75. Lamb, W.H., Foord, F.A., et al "Changes in maternal and child mortality rates in three isolated Gambian villages over ten years" Lancet, 1984, ii: 8408, pp.912-14, 5 ref.

76. MOH, Ghana, "Manpower position on payroll as at April 1996" Human Resource Bulletin Vol. 1, Issue 1, 1996 PP 5-7.

77. Thaddeus, S. and Maine, D. "Too far to walk: Maternal Mortality in Context" Social Science and Medicine 38(8), 1994 PP 1091-1110

78. Kyei-Faried, S., Hermans, M. "Primary health care in Ghana: no pay no cure?" Netherlands Medical Journal, 1995, 139(45), pp.2321-25

79. Oyesola, R., Shehu, D., Ikeh, A.T., Maru, I. "Improving Emergency Obstetric Care at a State Referral Hospital, Kebbi State, Nigeria" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.21.
80. Sabitu, K., Alti-Mu'azu, M., Musa, A.A., Ifenne, D.I., Essien, E.S., et al "The Effect of Improving Maternity Services in a Secondary Facility, Zaria, Nigeria" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.25.
81. Ashitey et al "Danfa Rural Health Centre: Its patients and services, 1970-71" Ghana Medical Journal, 1972, v11, pp.
82. Essien, E., Ifenne, D., Sabitu, K., Musa, A., Alti-Mu'azu, M., et al "Community Loan Funds and Transport Services for Obstetric Emergencies in Northern Nigeria" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.48.
83. Wilson, J.B., Collison, A.H.K., Richardson, D., Kwofie, G., Senah, E.K., Tinkorang, E.K. "The Maternity Home Idea: The Nsawam, Ghana Experience" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.38.
84. Opoku, S.A., Kyei-Faried, S., Twum, S., Djan, J.O., Browne, E.N.L., Bonney, j. "Community Education to Improve Utilization of Emergency Obstetric Services in Ghana" in Akalin, M.Z., et al, PMM Results Conference Abstracts, Columbia University, New York, June 1996, pp.43

**ANNEXES****Annex A:****QUALITY SCORE FOR EsOC ( PRESENT= 1, ABSENT= 0)****1. Records of referrals in with the following entries:**

Name.....	1
Age.....	1
Parity.....	1
Address (Village).....	1
Reason for referral.....	1
From whom referred.....	1
Monthly summary by type of complication.....	1

**2. Records of referrals out with the following entries:**

Name.....	1
Age.....	1
Parity.....	1
Address (Village).....	1
Reason for referral.....	1
To whom referred (e.g. KATH).....	1
Monthly summary by type of complication.....	1

**3. Records of complications treated with entries for:**

Name.....	1
Age.....	1
Parity.....	1
Address (Village).....	1
Type(s) of complication.....	1
Monthly summary by type of complication.....	1

**4. EsOC Provider's ability to do the following:**

a) distinguish between EsOC and EmOC.....	1
b) list the components of EsOC as:	
Partography in labour monitoring.....	1
Anaesthesia.....	1



**Annex B:**

**Data collection tools**

ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION  
INTERVIEW OF WOMEN WHO DELIVERED WITHIN THE PAST 12 MONTHS

**Basic information**

1. Mother Form No. ....

3. Subdistrict..... 

NE[1]	AN[2]	AS[3]	AB2[4]	AK[5]

2. Viillage.....

3. Compound name and number.....

4. Date of visit.....

5. Marital status..... 

Single [1]	<input type="checkbox"/>
Married [2]	<input type="checkbox"/>
Separated[3]	<input type="checkbox"/>
Divorsed[4]	<input type="checkbox"/>
Widowed [5]	<input type="checkbox"/>

6. Level of education attained..... 

None[1]	<input type="checkbox"/>
Primary[2]	<input type="checkbox"/>
Secondary[3]	<input type="checkbox"/>
Tertiary[4]	<input type="checkbox"/>

**Information flow on complications and essential care**

7. Do you receive information on pregnancy related complications?.....

8. Do you get information on Essential Obstetric Services.....

9. If YES to (7) and/or (8) how do you receive the information?.....

Radio[1]	<input type="checkbox"/>
T.V.[2]	<input type="checkbox"/>
Health staff[3]	<input type="checkbox"/>
TBA[4]	<input type="checkbox"/>
Other[5]	<input type="checkbox"/>

10. Where did you deliver your last child?  
-Home/Untrained TBA.....

- Trained TBA.....
- MCH Centre.....
- New Edubiase health centre.....
- Others.....

**Complications developed and where treatment was sought**

11. Did you develop any complication during your last pregnancy, childbirth and newborn period?.....

Y	N

If YES,

12. what type of complication ?

- Eclampsia.....
- Offensive vaginal discharge/Fever.....
- Fever/chills.....
- Jaundice.....
- Prolonged labour.....
- Bleeding.....
- Retained placenta.....
- Perineal tear.....
- Fistula.....
- Others.....

13. where did you receive care?

- a. Home (Traditional, TBA, Chemical seller etc).....
- b. Subdistrict MCH/FP Centre (1st point of contact)....
- c. New Edubiase health centre (district referral point). ....
- d. Outside the district (Obuase, Assin Fosu, KATH, etc).....

13a. If not "b", why ?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility. ....
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

13b. If not "c", why ?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility. ....
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

If NO

14a. then, assuming that you needed to seek care for a complication during pregnancy, childbirth and newborn period, is there any reason you why would not be able to get care from the New Edubiase health centre?.....

Y	N

14b. If "YES", what reason ?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility...
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

15a. If you needed to seek care for a complication during pregnancy, childbirth and newborn period, is there any reason why you would not be able to get care from the subdistrict MCH/FP centre?.....

Y	N

15b. If YES, what are the reasons?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility. ....
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION  
INTERVIEW OF ESSENTIAL OBSTETRIC CARE PROVIDERS  
Adansi East Subdistrict First Points of Contact

**Basic information**

1. Provider's Form No. ....

2. Facility.....

3. Subdistrict.....

NE[1]	AN[2]	AS[3]	AB2[4]	AK[5]

4. Date of visit.....

**Subdistrict level service availability & utilization**

**AVAILABILITY**

1. It has been found that you do not have partograph to monitor the progress of labour.

- Why is it so? -Staff do not know how to use.....
- Staff feels reluctant to use.....
- Lack of supervision from superior officers.....
- No reason .....
- Does not find the need to use.....

2. It has been found that this facility provides almost no obstetric minor surgical procedures (eg. manual removal of placenta, episiotomy/perineal tear repair etc.). What are the reasons for the observation ?

- Lacks the required training/skill.....
- Does not see that as a responsibility.....
- Lacks infrastructure (building) .....
- Lacks equipment.....
- Other.....

3. In this facility, essential drugs like antibiotics, i.v. valium, and plasma expanders are absent and therefore not used. What reasons account for this ?

- Lacks the required training/skill to use.....
- Does not see that as important.....
- Does not know she has to have such drugs .....
- Has no funds to stock such drugs.....
- Other.....

**UTILIZATION**

4. Women who need care for pregnancy-related complications make very limited use of this subdistrict MCH/FP centre? What reasons account for this?

- Cost of care.....
- Poor quality of the service.....
- Inadequacy (incompleteness) of care .....
- Distance from EsOC facility.....
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

**REFERRAL**

5a. If you supervised delivery and the labour was prolonged, where will you refer the woman ?

- a. New Edubiase health centre (district referral point). .....
- b. Outside the district (Obuase, Assin Fosu, KATH, etc).....

5b. If not "a" why?

- Poor obstetric care quality .....
- Long distance.....
- Most women do not want the facility .....
- Inadequate service.....
- Services for serious complications not available.....

ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION  
INTERVIEW OF ESSENTIAL OBSTETRIC CARE PROVIDERS  
Adansi East District Referral Point

**Basic information**

1. Provider's Form No. ....
2. Facility.....
3. Subdistrict.....
 

NE[1]	AN[2]	AS[3]	AB2[4]	AK[5]
4. Date of visit.....

**District level service availability, access & utilization**  
**AVAILABILITY**

1. Partographs have been available in this facility 24 hours a day, throughout the whole of last year. Yet they were never used. What reasons account for this observation ?
  - Does not know how to use.....
  - Feels reluctant to use.....
  - Lack of supervision from superior officers.....
  - Request for required resources not made.....
  - Failure to respond to request by appropriate authority. ...
  - Did not know it is important to use partographs.....
  - Other.....
2. This referral facility lacks the resources to perform major obstetric surgical procedures. What are the reasons for this observation?
  - Request for required resources not made.....
  - Failure to respond to request by appropriate authority. ...
  - Essential obstetric care issues of less priority.....
  - Staff not trained to provide such a service.....
  - Other reasons.....

**UTILIZATION**

3. Women who need care for pregnancy-related complications make very limited use of this district referral centre? What reasons account for this?

- Cost of care.....
- Poor quality of the service.....
- Inadequacy (incompleteness) of care .....
- Distance from EsOC facility.....
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

4. Women with pregnancy-related complications have limited geographical access to this facility and therefore do not make much use of the facility. What accounts for this finding?

- Referral centre not strategically placed.....
- Widely scattered communities.....
- High concentration of the population in the hinterlands.....
- Others.....

5. Essential obstetric care is reasonably available, about 60%, at the district referral centre (ie. The New Edubiase centre) but it is accessible to only a small proportion of the intended target population, about 11%. How could access to essential obstetric care at the district referral level be improved?

.....  
 .....

**ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION**  
**Interview of Adansi East Core District Health Management Team (DHMT)**

**Basic information**

1. Provider's Form No. ....
2. Grade.....
3. Date of visit.....

**MONITORING**

4. Do the obstetric care providers at the subdistrict MCH/FP centres stock antibiotics, i.v. valium and plasma expanders?.....

5. Do the obstetric care providers at the subdistrict MCH/FP centres perform minor obstetric surgical procedures such as manual removal of placenta, perineal tear/episiotomy suturing?  
 .....

6. Do the obstetric care providers at the subdistrict MCH/FP centres treat pregnancy-related complications like eclampsia, shock and sepsis?.....  
.....

7. The New Edubiase health centre has 100% availability of partographs and yet partographs are never used to monitor the progress of labour. What accounts for this?.....  
.....

**AVAILABILITY**

8. At the subdistrict MCH/FP Centres, the obstetric care providers do not have partographs and therefore do not monitor the progress of labour with partographs. Why is it so?.....  
.....

9. At the subdistrict MCH/FP Centres, the obstetric care providers do not stock antibiotics, i.v. valium and plasma expanders. Why is it so?  
.....  
.....

10. At the subdistrict MCH/FP Centres, the obstetric care providers do not perform minor obstetric surgical procedures such as manual removal of placenta, perineal tear/episiotomy suturing. Why is it so  
.....  
.....

11. Major obstetric procedures like C-Section, laparotomy and blood transfusion are not carried out in the New Edubiase health centre due to lack of the required resources. What factors account for the lack of such resources? .....  
.....

12. At the subdistrict level availability of essential care is very low, about 22%. This has seriously reduced utilization by the intended target population to about 2%. How could essential obstetric care be made more available at the subdistrict level?  
.....  
.....

**ACCESS**

13. Essential obstetric care is reasonably available, about 60%, at the district referral centre (ie. The New Edubiase centre) but it is accessible to only a small proportion of the intended target population, about 11%. How could access to essential obstetric care at the district referral level be improved?

.....

.....

**UTILIZATION**

14. With a 22% essential obstetric care resource availability at the subdistrict level utilization of the service is only 2%. How could utilization of essential obstetric care at the subdistrict level be improved?

.....

.....

ESSENTIAL OBSTETRIC CARE COVERAGE EVALUATION  
INTERVIEW OF ESSENTIAL OBSTETRIC CARE PROVIDERS  
Adansi East District Trained TBAs

**Basic information**

1. Provider's Form No. ....

2. Village.....

3. Subdistrict.....

NE[1]	AN[2]	AS[3]	AB2[4]	AK[5]

4. Date of visit.....

**Obstetric Practice**

5. How many pregnant women visited your place in the past 12 months?

6. How many deliveries did you supervise in the past 12 months?.....

7. Did any of the women who visited your facility during pregnancy and delivery complain of some problem(s)? [ie.any complications?]......

If "YES" to Question 7,

- 8.,What type of complication ?
- Eclampsia.....
  - Offensive vaginal discharge/Fever.....
  - Fever/chills.....
  - Jaundice.....
  - Prolonged labour.....
  - Bleeding.....

- Retained placenta.....
  - Perineal tear.....
  - Fistula.....
  - Others.....
9. What did you do to such cases ?
- Treat.....
  - Refer.....
  - Nothing.....
10. Where did you refer the cases to?
- a. Subdistrict MCH/FP Centre (1st point of contact)....
  - b. New Edubiase health centre (district referral point). ....
  - c. Outside the district (Obuase, Assin Fosu, KATH, etc.).....
- 10a. If not "a", why ?
- Cost of care.....
  - Distance from EsOC facility.....
  - Perceived poor quality/inadequacy of care at health facility. ....
  - Transportation difficulties.....
  - Cultural barriers (religion, language, etc.).....
  - Other reasons.....
- 10b. If not "b", why ?
- Cost of care.....
  - Distance from EsOC facility.....
  - Perceived poor quality/inadequacy of care at health facility. ....
  - Transportation difficulties.....
  - Cultural barriers (religion, language, etc.).....
  - Other reasons.....

If "NO" to Question 7,

11. then, assuming that you needed to refer a complicated case during pregnancy, childbirth and newborn period, is there any reason why you would not be able to get care from the New Edubiase health centre ?.....

Y	N

12. If "YES" to Question 14, what are the reasons?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility... ..
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

13. then, assuming that you needed to refer a complicated case during pregnancy, childbirth and newborn period, is there any reason why you would not be able to get care from the Subdistrict MCH/FP centre?

Y	N

.....

14. If "YES" to Question 16, what are the reasons ?

- Cost of care.....
- Distance from EsOC facility.....
- Perceived poor quality/inadequacy of care at health facility...
- Transportation difficulties.....
- Cultural barriers (religion, language, etc.).....
- Other reasons.....

15. How often do the midwives visit you ?

- Weekly.....
- Monthly.....
- Quartely.....
- Irregularly.....
- Never.....