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**A REVIEW OF THE PREVENTION OF MATERNAL
MORTALITY PROGRAMME IN EJISU – JUABEN
DISTRICT**

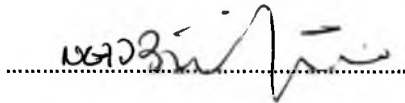


A DISSERTATION
PRESENTED TO THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, LEGON IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE MASTERS
DEGREE IN PUBLIC HEALTH.

AUGUST, 2001

DECLARATION

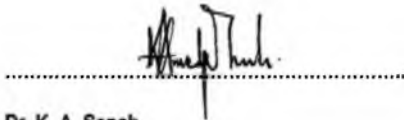
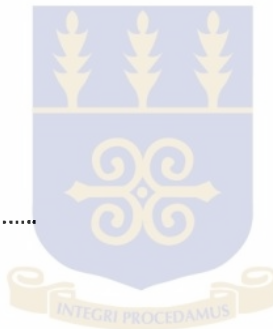
I hereby declare that this dissertation was prepared by me under supervision and submitted as part of the requirements for the Masters in Public Health Degree of the School of Public Health, University of Ghana, Legon.



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DEDICATIONS

To Abena,

Who weathered the storms of childbirth during my fieldwork and

To Akosua,

Who cried to help me stay up to do the write up.



ACKNOWLEDGEMENTS

To my academic and field supervisors, Dr. Edith Tetteh, Dr. K. A. Senah and Dr. Felicia Owusu-Antwi, who provided me with the necessary guidance through the preparation, data collection and write-up of the study I wish to say thank you.

To all those who helped with the data collection and analysis on the field and in Accra especially my friends Mr. I. T. Essegbey and Mr. Jacob Anum and also Kwaku Sefa-Okrah I wish to express my heartfelt gratitude.

To all my lecturers from inside and outside the School of Public Health, I say your support has been immense. Thank you.

Finally to the Good Lord who has provided all the way, I wish to express my sincerest gratitude.

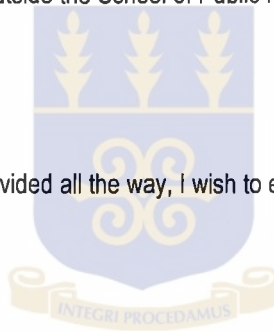


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LIST OF ABBREVIATIONS

- PMM – Prevention of Maternal Mortality
- RPMM – Regional Prevention of Maternal Mortality
- NGO – Non-Governmental Organisation
- SMI – Safe Motherhood Initiative
- NPHS – National Population and Housing Census
- DCE – District Chief Executive
- EmOc – Emergency Obstetric Care
- WHO – World Health Organisation
- ICD – International Classification of Diseases
- AMA – American Medical Association
- UN – United Nations
- UNICEF – United Nations Child Education Fund
- MOH – Ministry of Health
- MCH – Maternal and Child Health
- APH – Antepartum Hemorrhage
- CPD – Cephalopelvic Disproportion
- PPH – Postpartum Hemorrhage
- ANC - Antenatal Care
- SRK – Save the Children Fund of the Netherlands
- KATH – Komfo Anokye Teaching Hospital
- DHMT – District Health Management Team

ABSTRACT

The issue of maternal mortality continues to plague many developing countries including Ghana. To address this problem the Prevention of Maternal Mortality (PMM) programme was established in two districts in Ghana by a team of both local and foreign researchers in 1989. They constituted themselves into two teams in Accra and Kumasi. However actual work on the field by the Kumasi team in the Ejisu-Juaben district where they concentrated their activities was started in 1993 and ended in 1997 when the programme became a local entity and part of the Regional Prevention of Maternal Mortality programme. There has since been no evaluation of this programme.

Their approach was through the establishment of both facility-based and community-based interventions. These facilities were aimed at catering for the critically ill pregnant woman and specifically addressed obstetric bleeding. The intervention site was the Juaben health centre, which was upgraded to a district hospital. A theatre and a blood bank were provided and nurses trained in life-saving skills. The community programmes put in place included the setting up of a community fund to cater for these women. Bicycles were also provided to be used to call vehicles to transport obstetric emergencies to the hospital for care.

This study therefore set out to review the Prevention of Maternal Mortality Programme in the Ejisu-Juaben district with special emphasis on obstetric emergencies.

The specific objectives were:

1. To describe the emergency obstetric care activities of the Prevention of Maternal Mortality programme in the district in the management of obstetric haemorrhage.

2. To study the trend of activities at the intervention site using hospital records from the theatre, maternity ward and the blood bank.
3. To describe the knowledge, attitudes and practices of the adult population (especially women in the reproductive age-group, household heads and other opinion leaders) to the emergency obstetric care services in the district.
4. To undertake a confidential enquiry into five maternal deaths in the community and identify factors surrounding these deaths.

The findings of the study showed that the facility based interventions put in place have been sustained, however there still remains aspects of the facility based interventions such as staffing and training that still need to be addressed. The impact of the programme has also been limited to the sub-district where the intervention site is located and a few areas of adjacent sub-districts. The community-based interventions are almost non-existent in all the communities surveyed. The knowledge of respondents from the communities and health providers about the availability and utilisation of the prevention of maternal mortality was also inadequate.

From the study factors found to be associated with survival of obstetric emergencies in the Ejisu-Juaben district include geographic accessibility of health facilities, financial accessibility of health facilities, practices of health seeking behaviour of the people, knowledge of emergency obstetric cases, knowledge of the appropriate place to go for help, knowledge of the availability of a functioning blood bank, knowledge of the availability of drugs and the competence of health staff at handling emergency obstetric cases. These are important areas of the prevention of the maternal mortality programme, which need to be addressed in order that the programme would have the desired impact.

CHAPTER 1

1.0 INTRODUCTION

Childbirth is a universally celebrated event. However for many thousands of women, each day, childbirth is experienced not as a joyful event but a private hell that may end in death (1). Maternal death constitutes a tragedy, which affects greatly the immediate family, especially in sub-Saharan Africa where most of these deaths occur. These are areas where women form the backbone of most families. They run the homes and help the families to earn an income. The emotional support they lend to their children and even their husbands is enormous, but yet issues that concerned women and their health continued to suffer neglect.

In an attempt to address the issue of maternal health, the Safe Motherhood Initiative was officially launched in February 1987 in Nairobi, Kenya, at the First International Conference. This conference focused specifically on the health of women. Since then there has been a dramatic increase in attention to the problem of maternal mortality. Research and programmes have been instituted by developing country governments, international agencies, and non-governmental organisations to address this problem. (2) The fate of most of these programmes in developing countries has been largely dependent on both technical and financial support of their foreign partners.

One of such programmes has been the Prevention of Maternal Mortality Programme in West Africa. The main aims and objectives of the Prevention of Maternal Mortality (PMM) programme were the following:

- To strengthen the capacity of African institutions to design, implement and evaluate health programmes in a variety of settings;
- To foster a cadre of professionals experienced in the field of maternal mortality;

- To develop programmes and operations research models for use in maternal mortality projects; and
- To inform decision-makers about the importance of maternal mortality and to share information on effective strategies to reduce it. (3)

Out of the Safe Motherhood Initiative concept the Prevention of Maternal Mortality Programme was borne to specifically address the issues of maternal deaths (3). Scientists from the Columbia University with support from the Carnegie Foundation initiated the Prevention of Maternal Mortality network. The network consisted of 12 multidisciplinary teams of Public Health Physicians, Obstetricians/Gynaecologists, Midwives and Social Scientists. Two were in Ghana, eight in Nigeria, and two in Sierra Leone. Of the two teams that were in Ghana, one was in Accra and the other in Kumasi. Columbia University played the role of a technical co-ordinator (3).

The Ejisu-Juaben district was selected by the Kumasi PMM team for its research activities with the Juaben Health Centre now the Juaben Government Hospital as the focus of the teams activities. This team focused its attention on the management of obstetric haemorrhage as a means of improving its emergency obstetric service (3).

During the period of the study a needs assessment was done which served as a guide to the interventions that were put in place. These interventions were technical improvements, administrative improvement, and material improvements. A series of indicators were also developed to help monitor the progress of the implementation and to assess their effects. (3)

The findings of the research teams were reported on in 1996 at the PMM Results conference in Accra. (4) Columbia University's role as the technical co-ordinator had then come to an end. The network then became an entirely African entity known as the Regional Prevention of Maternal Mortality (RPMM) Programme. The PMM teams then constituted themselves into national and local Non-Governmental Organisations (NGOs) (3).

Since the PMM programme was constituted into a local programme there has been no evaluation of the team's activities at Ejisu-Juaben district where they continue to operate. This study therefore aims to review the emergency obstetric services in the Ejisu-Juaben district in the light of the ongoing programme to prevent maternal mortality in the district with particular emphasis on obstetric haemorrhage.

1.1 STUDY SITE

The Ejisu-Juaben district is one of the 18 districts in the Ashanti Region. It has an annual growth rate of 2.7%. Its population according to the Ghana Population and Housing Census for the year 2000 was 124,113. The district occupies a total land area of 1,635 sq. km.

The district is located in the south-eastern part of Ashanti and shares boundaries with Kwabere, Afigya-Sekyere, Sekyere-East and Sekyere-West districts to the north, the Ashanti Akim North and South districts to east, Bosomtwi-Atwima-Kwanwoma districts to the south and Kumasi to the west. It lies within the forest belt of Ghana. The vegetation is mainly a tropical rainforest with some transitional zones due to the mass exploitation of the forest resources through farming and logging activities. It experiences two rainy seasons. The major one is from March to July and the minor one from September to November.

Administratively the district is run by the district assembly, which is headed by the district chief executive (DCE). The people are basically Akans with Asante-Twi as their main dialect. There are a number of people of northern descent who live in defined areas referred to as the Zongos in most of the communities. There are other settler farmers of other dialects who live in the district capital. The major religious grouping in the district is Christianity. Islam and then traditional African religion follow this. The Christians are mainly of the Pentecostal, spiritual, catholic or orthodox sects.

Most of the inhabitants are subsistent farmers. Crops grown are mainly cassava, plantain, cocoyam and maize. The cash crops they grow are cocoa and oil palm.

A few of the inhabitants are employed as factory hands in the wood industry and on the oil palm plantation at Juaben. Many of the women engage in trading as a second occupation. Kente weaving is an important occupation in one of the communities called Bonwire, which is the historic centre for Kente weaving.

Generally incomes tend to be unstable, and employment is often seasonal thus majority of the people lack sufficient money to provide for non-basic items such as bed nets and mosquito sprays among others.

Transportation is by private road services. The road network consists of only a few tarred roads in the district. The rest are un-tarred and make travelling during the rainy season difficult. The Kumasi–Accra railway line passes through Fumesua, Kwamo, Ejisu, Boankra, Boamadumasi and Bomfa all in the district. There are telephone facilities in Juaben and Ejisu. But private telecommunication centres also cater for Juaben, Ejisu, Fumesua and Bonwire.

Electricity is served from Effiduase in the Sekyere–East district. However only a few of the main towns are connected to the national grid. Juaben Township is the only community, which enjoys pipe-borne water. The other communities in the district either use bore holes or wells with or without pumps while others rely on streams and ponds for their water supply.

There are several primary, junior secondary and 5 senior secondary schools in the district. They are either private or government owned schools. There is no tertiary institution in the district.(5)

1.2 RATIONALE FOR THE STUDY

This study reviewed the PMM programme in the Ejisu-Juaben District with special emphasis on obstetric bleeding. It was aimed at determining the sustainability or otherwise of the PMM programme and factors that influence survival of obstetric emergencies in the Ejisu-Juaben district.

In Ghana official rates of maternal mortality are quoted to be as high as 214 deaths per 100,000 live births however a survey conducted in Northern Ghana by the Navrongo Health Research Centre in 1995 estimated maternal mortality to be between 500 and 1000 per 100,000 live births (6). This has been the case in spite of international programmes such as the Safe Motherhood Initiative aimed at improving maternal health and reducing maternal morbidity and mortality.

Most local programmes have either not survived or have experienced a limited reduction in its impact in the absence of international support. In Ghana the Kumasi PMM team, a member of the PMM network, selected the Ejisu-Juaben district for the teams operational research activities and focused on Haemorrhage (8). The Accra PMM team worked in the Akuapem-South district and focused on obstructed labour (7). The team's activities, which are aimed at improving emergency obstetric care, were evaluated after 8 years and the findings were presented in 1996 after which the local teams took over the programme as part of the Regional Prevention of Maternal Mortality network (8). There has since been no evaluation of the programme.

Maternal death reporting has been institution-based and does not cover out of institution deaths. During the evaluation phase of the PMM programme no maternal deaths were recorded in the Juaben District Hospital however 5 maternal deaths were recorded in the hospital in the year 2000(5).

1.3 OBJECTIVE OF THE STUDY

1:3:1 BROAD OBJECTIVES

To review the emergency obstetric services in the Ejisu-Juaben district with special reference to the management of obstetric bleeding.

1.3.2 SPECIFIC OBJECTIVES

1. To describe the Emergency Obstetric Care activities of the prevention of the maternal mortality programme in the district in the management of obstetric haemorrhage.
2. To study the trend of activities at the intervention site since 1997, using the hospital records from the theatre, maternity ward and blood bank.
3. To describe the knowledge, attitudes and practices of the adult population (especially women in the reproductive age group, household heads and other opinion leaders) to the emergency obstetric services in the district.
4. To undertake a confidential enquiry into five maternal deaths in the community and identify factors surrounding these deaths.

CHAPTER 2

LITERATURE REVIEW

2.0 OVERVIEW

Those who set the national and international health priorities largely ignored the tragedy of death during childbirth because those who suffer generally live in remote places, are poor, illiterate and are politically powerless (1). Today the rates of maternal mortality in rich and poor countries show a greater disparity than any Public health indicator. For a woman in the developing world, the average lifetime risk of dying of a pregnancy related cause is between 1 in 15 and 1 in 50 compared with an average lifetime risk of between 1 in 4000 and 1 in 10,000 for a woman in the developed world. This situation has existed for many years but because childbearing is essentially a welcome process, traditional societies have however accepted the risks as normal and unavoidable. Under the spotlight of UN decade for women (1976-1985), the sheer scale of the suffering associated with maternity became widely recognised. The crucial fact that most of this suffering is preventable made Health for All by the year 2000 a rhetoric in the face of glaring inequities in health care provision. There are encouraging signs that people are now beginning to build on this new awareness, with practical commitment to maternal health at the local, national and international levels (1).

2.1 The Extent of the Problem

A maternal death is defined as the "death of a woman while pregnant or within forty-two days of termination of the pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes" (International Classification of Diseases, Ninth and Tenth Revisions). In order to

simplify the identification of maternal deaths when the cause of death cannot be given even though the woman was known to be pregnant, the ICD 10(International Classification of Diseases, Tenth edition) introduced a new category of pregnancy related death which by definition is "the death of a woman while pregnant or within forty-two days of termination of a pregnancy, irrespective of the cause of death".

The WHO defined maternal death as "the death of a woman, occurring during pregnancy, regardless of the outcome (including spontaneous abortion or therapeutic induced abortion) or within forty-two days of its termination" (9). The American Medical Association's (AMA) Committee on Maternal and Child Health Care uses a ninety-day limit.

No one knows exactly how many women die each year as a result of becoming pregnant. The World Health Organisation has however estimated that about 600,000 maternal deaths occur annually worldwide. Most of these deaths occur in developing countries mainly in Africa. (9)

2.2 Maternal Mortality in Africa

Maternal mortality ratios are highest in Africa with community rates of up to 1000 per 100,000 live births reported in some rural areas. The risks of dying from maternal causes is somewhat lower in urban areas in Africa, though rates of over 500 per 100,000 live births have been reported in several cities (10).

In Ghana the Danfa project estimated maternal mortality rate to be 400 per 100,000 live births in 1972. (1) A survey conducted in Northern Ghana by the Navrongo Health Research Centre also estimated maternal mortality rate to be between 750 per 100,000 live births (6). The Ministry of Health however gives official rates of maternal mortality as 214 per 100,000 live births (6).

2.3 The Safe Motherhood Initiative (SMI)

The recognition in the late 1980's that maternal mortality continued to be a significant cause of premature death among women in developing countries led to the launching of the Safe Motherhood Initiative in February 1987. At that time it was emphasised "... that there are low-cost, effective, and available interventions that can have a major impact on reducing these mortalities and morbidities if these interventions are planned and practised as a priority."⁽¹¹⁾ This view has since been iterated many times. "It is suggested that no costly technologies are needed; rather that appropriate setting and allocation of needed resources are essential to the solution of the problem."⁽¹²⁾ "Low cost, feasible and effective intervention strategies are available."⁽¹³⁾ "More than nine out of ten maternal deaths in developing countries can be prevented using knowledge and technology that has been available for decades."⁽¹⁴⁾ "The disparity in deaths between wealthier and poorer countries is larger for maternal death and morbidity than for any other health problem common to both halves of the world. Moreover appropriate and cost-effective measures are available."⁽¹⁵⁾ The SMI as a health initiative focuses on the well being of the woman as an end in itself. The SMI has programmes to improve the health status of women who become pregnant, improve women's access to health services during pregnancy and also to improve the quality of medical care available to women who experience complications during pregnancy and childbirth.

(2)

2.4 Maternal Mortality Programmes

Maternal mortality is the result of complex interactions between biological and socio-economic factors, which should be organised in a meaningful way. Clinical literature tells us that the immediate cause of maternal mortality is usually an obstetric complication. An estimated 75% of maternal death results from direct obstetric causes, such as haemorrhage, infection/sepsis,

toxaemia and unsafe abortions. (WHO, 1985) Majority of deaths could also have been prevented with timely medical interventions (17).

As is frequently mentioned the existence of health facilities for maternal care does not necessarily mean that they will be used even by a woman who has been advised to use them (18). According to a study in Zimbabwe, for instance women in a particular rural area were prepared to accept prenatal care from formal health services but preferred to deliver at home (19).

Delay, therefore, emerges as the pertinent factor contributing to maternal deaths. Delays have been viewed as having 3 phases;

- (a) Delay in decision to seek care
- (b) Delay in reaching an adequate health care facility
- (c) Delay in receiving adequate care at the facility (20)

The patient's decision to seek care, the availability of transportation, the condition of the roads, the facility's capacity to deal promptly with obstetric complications, can all be implicated in maternal death by causing delay. Programmes will be less successful if they are focused entirely on upgrading medical facilities and do not address the issues of distance, transportation and community awareness of a life threatening condition.

Phase 1 Delay

Factors which are likely to result in a delay in decision to seek care can be on the part of the individuals, the family or both include the centre of decision making that could be the individual, the spouse, a relative or the family. The status of the women, the characteristics of the condition, the distance from the health facility, financial and opportunity costs, previous experience with the health care system and the perceived quality of care will also influence a person's decision to seek care.

Barriers to the utilisation of health services include barriers in the sociocultural milieu that shapes values, beliefs and attitudes. These are access to money and information; geographic setting that shapes physical accessibility; in the financial environment that determines the cost of services and in the institutional context that shapes the scope and organisation of the medical services and quality of services provided. The most common barriers have been distance, cost, and quality of care and sociocultural factors.

Distance separating potential points from the nearest health facility has been shown to be an important barrier particularly in rural areas (21) Distance can either act as an actual obstacle to reaching the health facility or of transportation and poor roads. These can influence ones decision to seek care or the length of time the person takes to reach the health facility (22,23,24).

The cost of receiving care, which includes transportation costs, physician and facility fees (when they exist) and the cost of medication and other supplies may also act as a barrier to the utilisation of emergency obstetric care. In many parts of the world prospective patients, especially women, do not travel alone to a health facility. They may be accompanied by other adults, and by children who cannot be left at home alone because caretakers are not available. These additional people swell the cost of transport (25,26).

Quality of care also influences the decision to seek care. The role that quality of care plays in the decision to seek care is related to people's own assessment of health delivery. This depends on people's own experiences with the health system and those of people they know. Thus the evaluation of the quality of care is generally shaped by the realities they have encountered in the health system. These are often based on staff attitudes, hospital procedures, and availability of supplies and efficiency (27,28).

Health seeking behaviour is also influenced by the illness as perceived by individuals. Prospective users of health services must recognise that an abnormal condition exists. The perceived severity and perceived aetiology of the disorder then shapes the decision to seek care (29).

Phase 2 Delay

Delay in reaching an adequate health facility could be influenced by factors such as physical accessibility, distribution of facilities, travel time from home to facility, availability and cost of transportation and condition of roads (29).

Phase 3 Delays

Relevant factors which include adequacy of the referral system, shortage of supplies, equipment and trained personnel and competence of available personnel are known to affect the delay in receiving adequate care at the facility (17).

2.5 Evaluation of Maternal Mortality Programmes

Most maternal deaths are due to five obstetric complications: haemorrhage, sepsis, unsafe abortion, hypertensive disorders in pregnancy, and obstructed labour. A majority of these deaths occur in developing countries, this does not mean that only women in developing countries develop medical complications during or after pregnancy. (28)

A strategy for the design and evaluation of maternal mortality programmes should be based on access to emergency medical treatment for women with obstetric complications. If deaths are to be substantially reduced (29). There are several conditions that must exist for a maternal death to occur. The woman must become pregnant, she must develop a medical condition, and the condition must be either treated too late or not treated at all (29). Also the best way to evaluate the progress in the reduction of maternal deaths is through the use of process and output indicators.

Areas with high maternal mortality are usually faced with problems of poverty, illiteracy, low status of women, poor sanitation and nutrition, poor transportation and inadequate medical services (29).

Proposed interventions for the reduction of maternal mortality should aim to

- Reduce the likelihood that a woman will become pregnant
 - Reduce the likelihood that a pregnant woman will experience a serious complication of pregnancy or childbirth
- Reduce the likelihood of death among women who experience complications (29)

Reduction of the likelihood of death among women who experience complications is the focus of the prevention of maternal mortality programmes. However most obstetric complications cannot be predicted or prevented except for complications resulting from unsafe abortions, but they can be prevented (30).

2.6 The Use of "Process" And "Output" Indicators in Evaluation of Programmes

"Process" and "output" indicators measure changes in the steps leading to the desired outcome. "Processes" refer to programme activities and "outputs" refer to the results that lie between programme activities and the desired outcome of the programme. The objective is to make inferences about programme success by measuring changes in the process and output indicators (29).

Process indicators show that hospital services have been improved (drugs, supplies and equipment have been purchased, staff have been trained and a blood bank has been established)

Output indicators also show that, the number of women with complications receiving treatment at the hospital has increased, the time from admission to treatment has decreased, and the proportion of women admitted with complications who survive has increased (29).

2.7 The Prevention of Maternal Mortality (PMM) Network

Allan Rosenfield and Deborah Maine, decried the neglect of maternal mortality by international health programmes and called for action, in their article Maternal Mortality-a neglected tragedy: where is the 'M' in 'MCH'. This article was published in the Lancet in 1985 and called for action to reduce death from maternal causes. This led to the Safe Motherhood Initiative conference in Nairobi in February 1987(31), however there were many issues concerning maternal deaths that the SMI did not address.

In 1987, the Carnegie Corporation of New York gave a generous grant to the Centre for Population and Family Health at the Columbia University's School of Public Health. This supported among other activities the formation of a network of multidisciplinary research teams in Africa. The network comprised of 12 teams. 7 in Nigeria, 2 in Ghana, 2 in Sierra Leone and a technical support team from Columbia University, with a regional office in Accra, Ghana.(3)

After the first PMM workshop in 1988, each of the teams conducted a needs assessment, using both qualitative and quantitative methods. Based on the results of their needs assessment, teams designed projects to reduce maternal deaths in the study areas. They also collected various kinds of information including information on cost and also information for monitoring and evaluating their activities.(31). The PMM had a number of objectives, which they pursued simultaneously. These objectives were based on models, which influenced their activities.

The Conceptual Model

Lack of medical supplies and low status of women were conceptualised to be factors that contributed to maternal deaths in disparate ways. The development of the conceptual framework

helped to clarify possible causal pathways through which various interventions work. This was their conceptual model.(1,18)

The Strategic Model

The central fact, from which the strategic model follows, is that most life-threatening obstetric complications cannot be predicted or prevented but can be successfully treated. Therefore, working to ensure prompt access to adequate medical care for obstetric complications is fundamental to the team's project.(33,8)

The Programmed Model

This programmed model was used in identifying points of delay in receiving emergency obstetric care (EmOC).

- I. Delay in deciding to seek EmOC.
- II. Delay in reaching an EmOC facility.
- III. Delay in actually receiving care after arrival at the EmOC.

Using these models the PMM teams designed and implemented activities to address delays at each level.(17)

The Evaluation Model

Maternal mortality has been traditionally measured using 'impact' indicators such as maternal mortality rates and ratios. The data needed to calculate these indicators are difficult to collect. PMM has therefore developed a number of process indicators to evaluate interventions aimed at reducing maternal mortality. (10) This became the evaluation model.

The Model for Strengthening Human Resources

The PMM network is built upon the belief that, in international collaboration, different participants bring with them various assets. Members of the West African team included obstetricians, nurse-midwives, social scientist and community physicians. The Columbia University team comprised clinical, social science and public health professionals. Technical assistance visits and workshops facilitated the development of a range of skills. Over the years the PMM network held 8 workshops to facilitate collaboration. Columbia University's role as technical co-ordinator came to an end, but that did not mean the end of the PMM network. Appropriately, the network became an entirely African institution (31,34).

During a conference in Accra, network members from 3 African countries met and decided unanimously to continue work together as a network of regional and national non-governmental organisations called the Regional PMM (RPMM) programmed with its headquarters in Accra. The objective of the RPMM is to replicate the programmed models they have developed and tested, and to foster the development of additional teams and projects in other parts of Africa.(31)

2.9 The Prevention of Maternal Mortality (PMM) Project in the Ejisu-Juaben District

The PMM programme in the district took off in 1993. The Programme operated at 3 levels namely the teaching hospital in Kumasi, the health centre and the community. The health centre and the community constitute the district component, which had the following objectives. (16)

1. Updating the knowledge and midwifery skills of practising midwives.
2. Improving the recording and data processing ability of midwives (information management).
3. Improving the equipment level of the maternity units.
4. Establishing a theatre at the Juaben Health centre to handle cases especially obstetric complications.

5. Instituting blood transfusion services at the Juaben Health centre.
6. Use the Juaben Health centre as the district referral point.
7. Form blood donor associations.
8. Institute communal funding at the community level to aid referrals.
9. Improve the referral system at both health centre and community levels.
10. Monitor progress of the program.

Life Saving Skills Update

8 midwives attended training in life saving skills at Koforidua. The training they received and equipment available have offered them the opportunity to do the following:(16)

- Recognise the at-risk for referral
- Manage confidently normal deliveries
- Remove placenta manually
- Suture episiotomies correctly
- Do vacuum extraction and
- Confidently manage the asphyxiated neonate

Below is a summary of procedures carried out in the facilities with a total of 7 PMM trained nurses.

The facilities are Achiase Health Centre, Peminase Maternal and Child Health Centre, Bomfa Health Centre, Ejisu maternity home, Juaben Health Centre and Kwaso Health Centre (16)

Procedures	1993	1994	1995(April)
Total Number of deliveries	125	370	186
Total Number of Cases referred	10	44	28

Some of the cases referred include cases of Antepartum haemorrhage (APH), Cephalopelvic disproportion (CPD) with Prolonged labour, Malpresentation, Postmaturity, Eclampsia and Incomplete abortion. They also performed procedures, which included vacuum extraction, suturing of episiotomies and manual removal of placentae. Some of the health centres such as Peminase, Ejisu, Juaben and Kwaso did not present any figures for 1993. According to the report in 1995 all the midwives trained recorded accurately relevant information on all deliveries. This included the Socio-demographic information such as Name, Age, Address, Parity, and Attendance to ANC, Type of Delivery and Procedures done. Referred cases had the reasons clearly stated. The books and formats used included the Nominal roll of maternity patients, operation record book, the maternity history sheets, the Kumasi PMM evaluation form and the partograph. (16)

Equipment Level Improvement

The equipment supplied by the PMM program was Artery forceps, Episiotomy scissors, Cuscos speculum, needle holder, sponge holding forceps, draw sheets, cutting scissors, and equipment boxes. All facilities that had trained midwives in life saving skills were supplied with delivery kits. These kits contain a vacuum pump, ovum forceps, urethra catheters, and reflex hammers among other equipment (34).

Establishing a theatre in the Juaben Health Centre

This objective was successfully realised. The program created a theatre room, changing room, and a sterilising room. These were rooms that were meant for offices and stores. The theatre was supplied with an operating table, operating lamp, an air conditioner, and a laparotomy kit among others. In 1994 and 1995 a total of 43 procedures had been performed in the theatre. They included one Section-section. The others were repair of the cervix, bilateral tubal ligation and evacuation of the uterus, removal of the placenta, Shirodkar operation and vacuum extraction. Other general non-obstetric surgical procedures had also been performed. Other agencies such as the Save the Children Fund of the Netherlands and the Overseas Development Administration of U.K. supplied additional equipment. The absence of a qualified nurse anaesthetist, an anaesthetic machine and 24-hour blood transfusion services in the centre had limited the full utilisation of the theatre. (3,16)

Blood Transfusion Services and the Formation of Blood Donor Groups

The establishment of a 24-hour blood transfusion service was not possible in Juaben due to the absence of a blood bank and a standby generator and also the presence of a medical officer in-charge that would not transfuse on religious grounds. However a blood donor group comprising of 20 members was formed from the Juaben youth association, which donated and stored blood at KATH for retrieval when it was needed through a cumbersome procedure with a long delay. Eight transfusions that had been carried out had gone to children. (16)

Communal Funding

The main objective of the communal fund was to offer financial assistance to women whose pregnancies and deliveries were complicated by haemorrhage or obstructed labour. This

assistance was in the form of a loan, which had to be paid back. Five communities were selected as pilot areas for the programme. The moneys, which were raised through voluntary contributions at durbars to launch the fund, were kept with the medical assistant from whom the disbursement was to be made. (16)

Improving the Referral System

Transport was noted to be one major problem that confronted cases that had to be referred. Three bicycles were therefore presented to three communities to be used to fetch vehicles for the quick transport of emergencies to referral centres. (16).

Monitoring

Monitoring of the program by the district health management team (DHMT) and the Kumasi Prevention of Maternal mortality (PMM) team was very regular and stimulating. The DHMT also attended the regular monthly PMM meetings held in Kumasi. (16)

CHAPTER 3

METHOD

3.0 TYPE OF STUDY

This is a cross-sectional descriptive study. It aims at providing information on the provision of emergency obstetric services in the Ejisu-Juaben district, which was instituted in 1989 by the PMM team. It will provide information on the sustainability or otherwise of the services established. It will also provide information on the perception of both care providers, women of reproductive age group, household heads and opinion leaders in the district of these services.

3.1 TOOLS

The main research instruments were semi-structured questionnaires, in-depth interview guides and a checklist. Hospital records from the outpatients department and admissions and deaths registers were used. Laboratory, blood bank and theatre procedure registers were also employed.

3.2 TECHNIQUES

Questionnaire administration, in-depth interviews involving confidential enquiries with close relatives/significant others and analysis of hospital records using tables was used for data collection. Obstetric emergency cases seen and procedures done were also tallied.

Respondents for the in-depth interviews were identified by employing death registers where available, death roles of religious bodies, traditional councils and cemetery keepers. Five deaths were identified from the 5 sub-districts and a confidential enquiry carried out with a significant other of each of the identified deaths.

An attempt was made to interview all midwives who work in the district as representatives of the health care providers.

3.3 SAMPLE SIZE

- Care providers included all midwives who work in both private and government health institutions within the district.
- Significant others were people other than close relatives who had relevant information on each of the 5 identified maternal deaths.
- Women in the reproductive age group. (*Population-62,000, Expected Frequency of the knowledge of emergency services-5%, Worst Acceptable-1% At 95% Confidence Interval, **Sample size-115 for women in the reproductive age group***)
- At least one opinion leader, household head or member of the village health committee was interviewed from each of the communities to be visited.

3.4 SAMPLING

A two-stage proportionate sampling was done to select the 115 women in fertility age from 25 communities within the 5 sub-districts. The sub-districts were stratified according to the number of communities present in each sub-district. The number of communities chosen from each sub-district was based on its strength in terms of the number of communities it has. A minimum of 5 questionnaires was administered in each community. At least one opinion leader, household head, member of the village health committee or traditional birth attendant was interviewed from each of the 25 communities visited.

All the available midwives practising within the Ejisu-Juaben district representing the health care providers were also interviewed.

Hospital records for the maternity ward, the theatre and the blood bank were analysed for the last 4 years using tables.

3.5 ANALYSIS PLAN

Epi-info 6 was used to analyse the structured questionnaire. The qualitative data obtained from the confidential enquiries were analysed manually. The trends in hospital admissions and Caesarean sections for obstetric emergencies were studied. The function of the blood bank was studied by tallying the number of blood transfusions done using the blood bank records. Tables and graphs were produced from the analysed data and the results discussed.

3.6 TRAINING OF RESEARCH ASSISTANTS

Four research-assistants were used to assist with data collection. They were trained over a two-day period in data collection and interviewing techniques. The questionnaires were translated into Twi and an agreement as to how each question should be asked done. A day was used to do the pre-testing of the questionnaires. This was done at Ejisu for easy access. The questionnaire was then finalised, after the necessary corrections had been made.

3.7 ETHICAL CONSIDERATIONS

Permission was sought from all chiefs in each community before data collection was done. In their absence the village health committee members were consulted and they led us to respondents. To ensure confidentiality and anonymity serial numbers were used to identify questionnaires and these were also used for the purpose of follow-ups for any clarifications that may be required. Verbal consent was sought from each respondent.

3.8 LIMITATIONS OF THE STUDY

1. To eliminate interviewer bias and make room for easy data analysis most of the questions were close-ended. This led to loss of some useful information, which open-ended questions provide through probing.
2. Interpretation of the questionnaire into Twi, which the investigator understands well, was however a difficult task since there were no Twi equivalents for certain English words.
3. The time limit did not allow for the conduction of focus group discussions.
4. The use of the district health administration's vehicles, which are well known in the district during the data collection, must have biased the client interviews.

CHAPTER 4

RESULTS

4.0 Presentation of Clients Survey Data

A total of 142 interviews were done in the 5 sub-districts of the Ejisu-Juaben district. This included the 115 women of the reproductive age group of the calculated sample size. The remaining 27 respondents were made up of at least one household head, opinion leader or member of the village health committee from each of the communities visited. Two traditional birth attendants were also interviewed.

4.0.1 Background Information

The mean age of the respondents was 35. The minimum age was 15 and the maximum age was 63. In all 121 females and 21 males were interviewed. The females formed 85.2% of the group and the males 14.8%.

Table 1: Marital Status

Marital Status	Frequency	Percentage
Divorced/Widowed	15	10.6%
Married	120	84.5%
Single	7	4.9%
Total	142	100.0%

Of the 142 respondents 84.5% were married and formed the majority, 10.6% were either divorced or widowed and 4.9% were single and had never been married before.

Table 2: Ethnicity

Ethnicity	Frequency	Percentage
Akan	128	90.1%
Northerner	9	6.3%
Others	5	3.5%
Total	142	100.0%

Most (90.1%) of the respondents were Akan, 6.3% were of Northern descent and 3.4% were from other tribes.

Table 3: Religion

Religion	Frequency	Percentage
Christianity	128	90.1%
Moslem	12	8.5%
Traditionalist	1	0.7%
Others	1	0.7%
Total	142	100.0%

Majority of the respondents were Christians and formed 90.1% of those interviewed. Moslems formed 8.5%. There was 1 traditionalist and 1 person who said he did not belong to any religious denomination though he believed in God.

Most of the respondents had had Middle school or Junior secondary school education. They formed 69.3%. 18.6% had had no education but 5% each of people had primary and secondary education. Only 2.1% had had tertiary education.

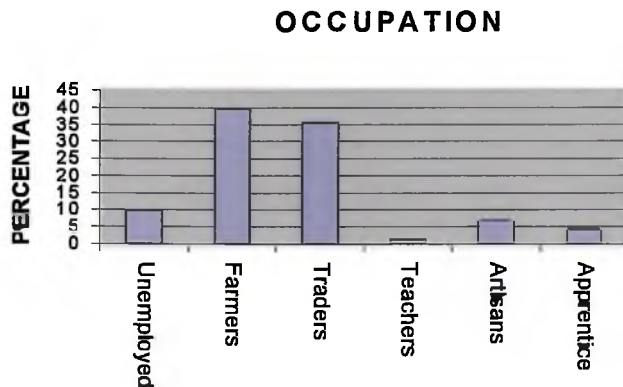


FIGURE 1

Majority of the respondents were either farmers or traders. They formed 39.7% and 35.5% respectively. The unemployed formed 9.9%. Teachers, artisans and apprentices were 2, 10 and 6 in number respectively.

The number of children varied from one child to as high as 12 children. Only 4 people forming 2.8% of those interviewed had no living children. The highest number of children alive was 10 and belonged to one person. Two people had lost as many as 4 children each. While 76.8% had lost no children, 19 had lost 1 child each, 9 had lost 2 each and 3 had lost 3 children each.

4.0.2 Health Seeking Behaviour

Where respondents went for help when they are ill or where they had their children was analysed against the background of the respondent's education (Table 2). This analysis showed that education was not significant in the person's health seeking behaviour.

Table 4: Health Seeking Behaviour and Occupation

Facility	Unemployed	Farmer	Trader	Teacher	Artisan	Apprentice	Other	Total
Chemical seller	3.2%	54.8%	29.0%	0.0%	9.7%	0.0%	3.2%	22.0%
Maternity home	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%
Hospital	12.7%	32.4%	40.2%	2.0%	6.9%	3.9%	2.0%	72.3%
Herbalist	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.7%
Others	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.7%
Total	9.9%	39.7%	35.5%	1.4%	7.1%	4.3%	2.1%	141

Majority of the respondents visit the hospital for treatment when they are ill. They formed 72.5%. About 21.8% go to chemical sellers when they are ill. About 4.2% of people said they go to maternity homes. An insignificant proportion used herbalists. Most people went to the hospital, followed by those who went to the chemical sellers, then the maternity homes and herbalist in that order.

Religion and marital status influenced where women delivered in the district with p-values of 0.048 and 0.02 respectively. Religion also determined where the respondents went when they were ill ($p=0.07$).

Among those who had lost at least one child a majority of 25(75.8%) out of 33 sought healthcare at the hospital, and then 18.2% and 6.1% went to the chemical sellers and the maternity homes respectively.

Out of a total of 33 people who had lost a at least one child, 48.5% were farmers, 36.4% were traders and 12.1% and 3.0% were unemployed and artisans respectively.

Table 5: Knowledge and Practice of Delivery

Type of delivery	Knowledge	Practice
Supervised Delivery	93.0%	56.3%
Home Delivery	7.0%	43.7%

About 78.2% of respondents knew that pregnant women should deliver in hospital and 14.8% knew they had to deliver with midwives. Together they formed 93.0% of respondents who knew about supervised delivery. Nine respondents knew about delivery by a traditional birth attendant and one knew about deliveries attended to by a relative at home. However actual practice suggested otherwise. Instead of the total of 93% who knew about delivery at the hospital or the maternity home only 56.3% actually delivered their children in the hospital or at the maternity homes. 7% knew about delivery by a traditional birth attendant or a relative but in practice a traditional birth attendant or a relative had actually delivered 56.3% of interviewees. These findings suggest that though a lot of people know about supervised deliveries only few people actually practice supervised delivery.

Educational level, marital status, religion and occupation did not determine people's knowledge of the need to have supervised delivery. But as demonstrated above practice is different.

4.0.3 Knowledge of Emergency Obstetric Cases

Only 59.9% of respondents had knowledge about people who could be labelled as emergency obstetric cases. Out of this number 47.6% knew about people who had obstetric bleeding and 39.3% knew about people who had had obstructed labour. Those who knew about other cases of obstetric emergencies were 13.1%.

Table 6: Facility where Children were Delivered

Facility	Frequency	Percentage
Hospital	76	89.4%
Maternity Home	3	3.5%
TBAs	2	4.7%
Other	4	2.4%
Total	85	100.0%

About 89.4% of those who knew about emergency obstetric cases said the cases had gone to the hospital and 89.4% of them had recovered with no problem. However 8.2% had recovered with a problem and 2.4% had recovered with severe debilitating illness.

4.0.4 Attitudes and Practice

Among the 99.3% of respondents who agreed that women who bleed in pregnancy required immediate attention, 86.6% were aware of services that catered for such women both inside and outside the district. Those who were aware of the availability of such services at Juaben hospital formed only 64.8% of respondents.

CLIENT AWARENESS AND USE OF EMERGENCY SERVICES AT JUABEN

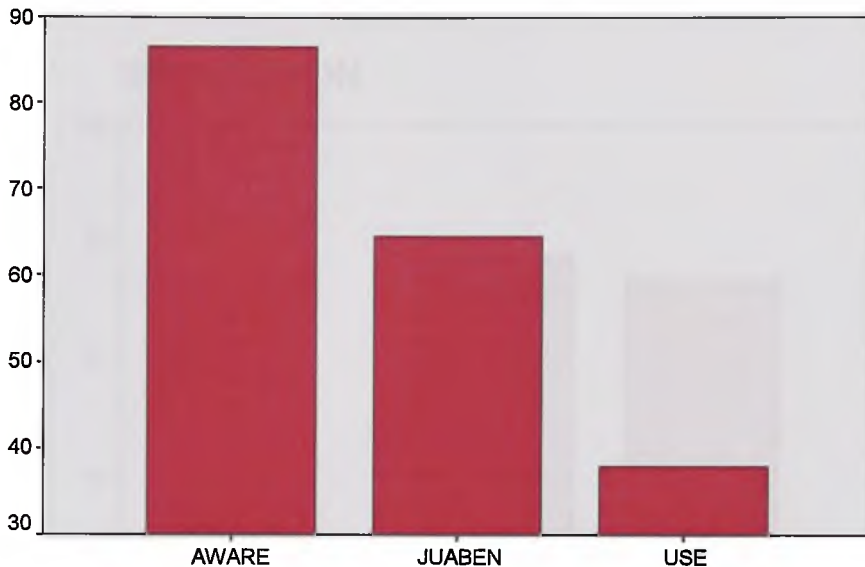


Figure 2: Client Awareness and Use of Emergency Services at Juaben District Hospital

Legend

Aware- clients who were aware of emergency obstetric services

Juaben - clients who knew that Juaben hospital offered these services

Use-clients who lived in communities, which used the services at Juaben hospital

Among those who were aware of the availability of emergency obstetric services at Juaben hospital 62.1% of them said women in their communities use Juaben hospital. They formed 44% of the total number of respondents.

About fifty-nine percent (58.5%) of respondents were aware of the availability of a blood bank inside and outside the Ejisu-Juaben District. But among 90 people who knew about Juaben hospital 65.6% knew about the availability of a blood bank at the Juaben district hospital.

For the 59 who knew about Juaben hospital 74.6% said relatives had to donate before blood could be given. 15.3% said blood was readily available at the blood bank. Only 1 person said that patients had to be referred if they needed blood at the Juaben district hospital.

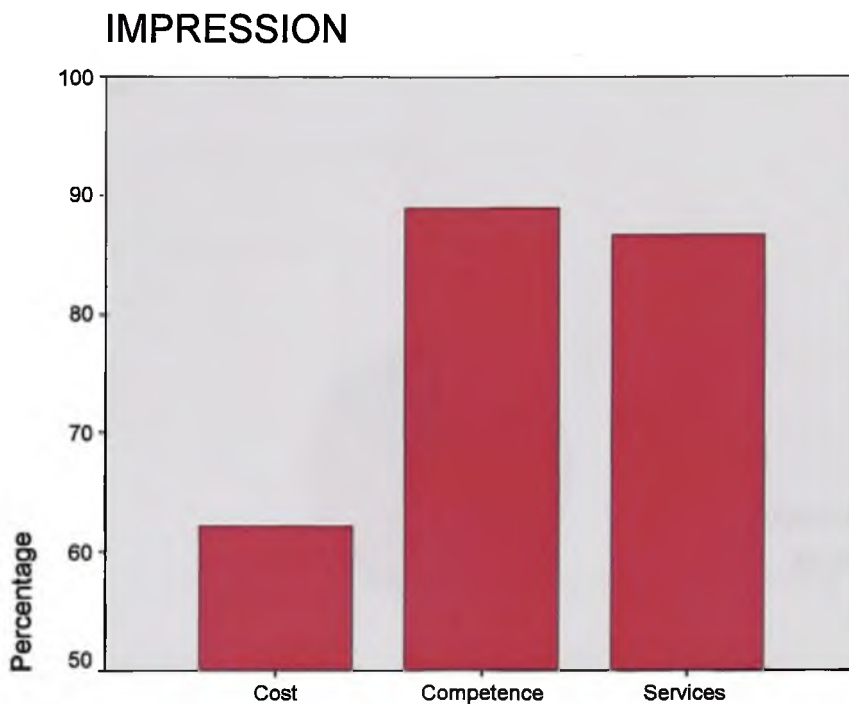


Figure 3: Impressions about Services

Legend

Cost-clients who said cost of treatment was affordable at Juaben hospital

Competence-clients who said there were competent doctors and nurses at the hospital

Services-clients who were happy with the services offered at Juaben hospital

Among those who knew about Juaben district hospital, 63% said the drugs were readily available but 56% said the cost of emergency management of cases was affordable. Eighty-nine percent

(89%) said the doctors and the nurses were competent at handling obstetric emergencies but 86.7% of them were happy with the services offered at Juaben District hospital.

IMPRESSIONS ABOUT SERVICES

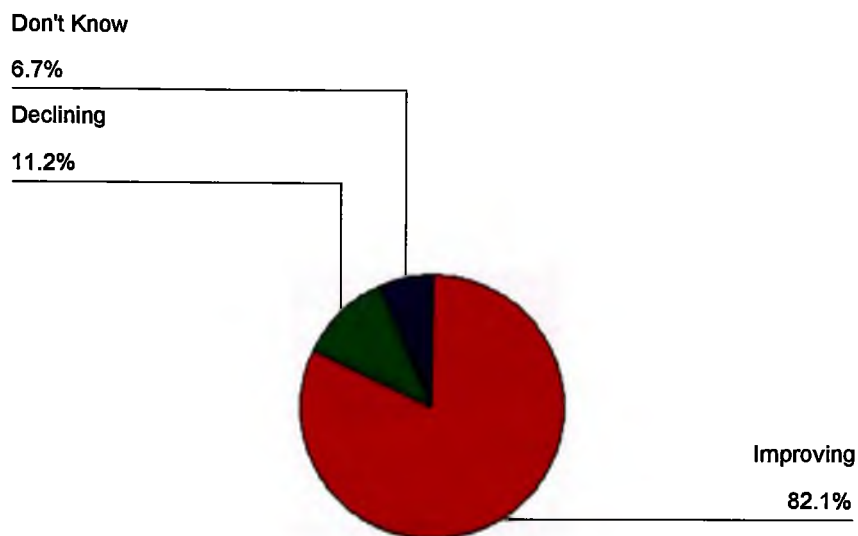


Figure 4: Impressions about Progress of Work

With respect to the impressions of those who knew about Juaben district hospital within the last few years, about 82% of 89 said the hospital was improving, 11.2% felt the conditions at the hospital was declining but 6.7% did not have an opinion.

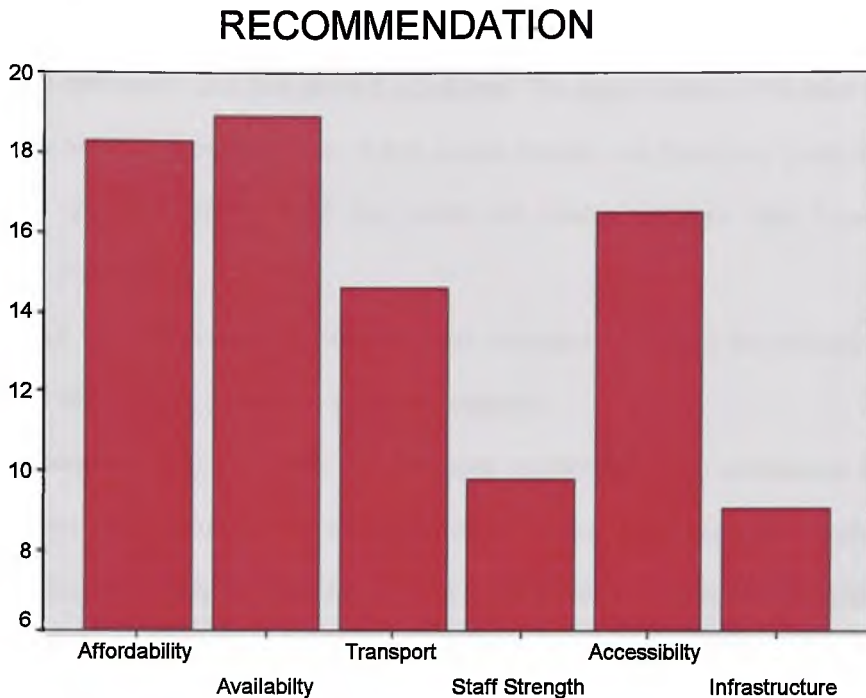


Figure 5: Recommendations for Improvements in Emergency Obstetric Care

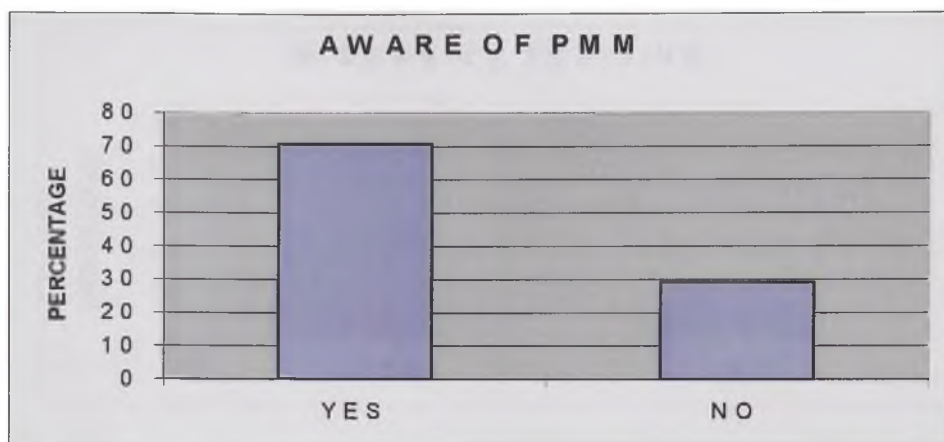
Suggestions for the improvement of the management of emergency obstetric care were varied. Improving affordability, availability and accessibility topped the list of suggestions with 30, 31 and 27 respondents respectively suggesting various way of improving these. Improving transport, staff strength, infrastructure development followed the list of suggestions with 27, 24 and 15 respondents suggesting various ways of improving them. Other suggestions were for the improvement of staff competence and also staff-patient relationship by way of training. The rest were for the training of traditional birth attendants and members of the village committee to help in the handling of these emergencies when they occur. They also suggested early referral of cases by midwives, counselling and health education and also the establishment of community funds to help those who find themselves in such situations.

4.1 Healthcare Providers Survey Data

The midwives interviewed were 24 in number. They included community health nurse midwives, enrolled nurse midwives, staff nurse midwives, nursing officers and senior nursing officers. The midwives interviewed came from all the 5 sub-districts. The largest number of 10 came from the Ejisu sub-district; 6 from Kwaso, then 5 from Juaben followed this. Bomfa had 2 with one from Achiase. 12 of the midwives came from private and mission institutions while 8 were from government institutions.

83.3% said their work involved the care of obstetric emergencies. 16.7% of the respondents said their work did not involve the care of obstetric emergencies.

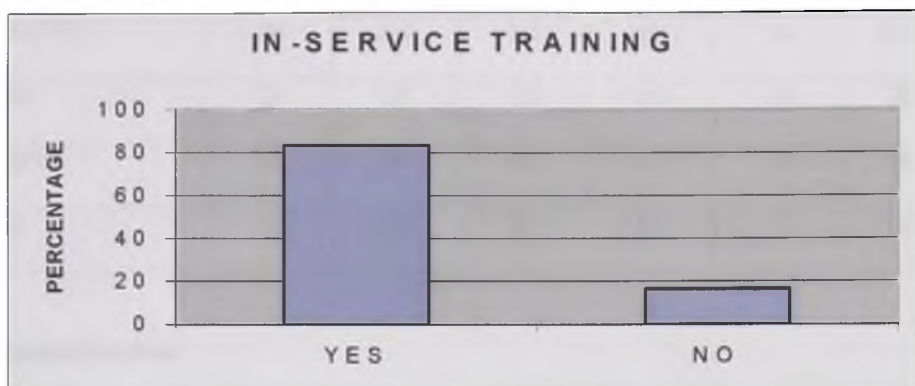
The midwives said pregnant women who developed complications in the communities in which they worked visited various people. About 42% of the midwives said these women visited other health institutions outside the Ejisu-Juaben district, 37.5% said the women in their communities visited the Juaben District hospital, 3% said they visit maternity homes while one person who formed 4.2% said women in her sub-district visited TBAs when they had problems in pregnancy. 20 who formed 83.3% of the respondents said women with complications came to their institution but 4(16.7%) said women with complications do not present at their institution.

Figure 6

About seventy one percent (70.8%) of the midwives said they were aware of the PMM programme but 29.2% said they were not aware of the PMM programme. Of the 17 that were aware of the PMM programme 94.1% agreed that the programme had helped to prevent maternal mortality in the district but one person said the reduction in maternal mortality in the district was not due to the PMM programme.

About 58.3% of the respondents said women who often presented with complications in the sub-district often ended up being transfused. For the proportion of women who presented with bleeding that ended up being transfused, 45.8% of the midwives said it was about 25% of the obstetric emergencies seen but 37.5% said the proportion was less than 25%. 4.2% said it was about 50% and 12.5% said they did not know. For the proportion of maternal complications that presented with obstructed labour, 50% of the respondents said it was less than 25%, 20.8% said it was about 25% and 4.2% said it was about 50% but 25% said they did not know.

Concerning the ability of healthcare providers to adequately handle women with complications in pregnancy, 66.7% respondents said yes, 25% said no but 8.3% did not know.

Figure 7:

Of the 24 midwives interviewed 20(83.3%) had had some in-service training but 14(58.3%) had been trained in life saving skills. All 58.3% who had had training in life saving skills said they were able to practice the skills acquired.

4.2 Data from Hospital Records

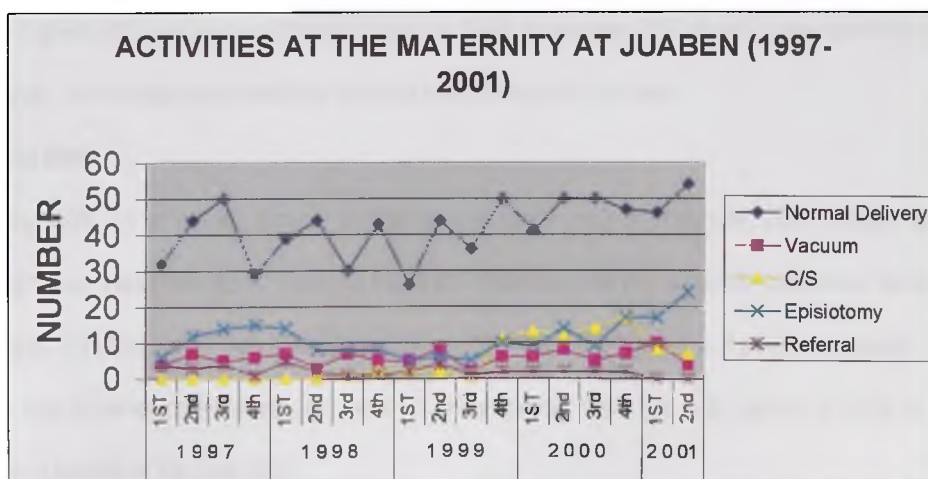
Figure 8: Trend of Activities at the Maternity Ward of Juaben District Hospital from 1997-20

Table 7: Frequency of Blood Transfusions

YEAR	2000				2001	
QUARTER	1st	2nd	3rd	4th	1st	2nd
Adults	22	18	23	28	24	20
Children	12	94	65	55	26	66
Total	34	112	88	83	50	86

Caesarean-Sections

The data from the hospital records shows that no Caesarean-Sections were done in 1997 but they were started in 1998 with 1 and 2 cases done in the first and the second quarters respectively. The number rose from 2 in the first quarter of 1998 to 11 in the fourth quarter of 1999. It then rose gradually to a peak of 17 in the fourth quarter of 2000. It has since been falling with 8 and 7 cases done in the first and second quarters of 2001 respectively.

Referrals

The number of referrals has been between 1 and 5 per a quarter since the first quarter of 1997. The highest of 5 was done in the first quarter of 1998. In the year 2000 there 2 were done for each quarter. No referrals were available from the hospital records this year.

Blood Bank

There were no available records of transfusions done prior to the year 2000 though blood transfusions had been done. The total blood transfusions done per a quarter have been between 34 and 112. The lowest was in the first quarter of 2000 and the highest in the second quarter. The rate has however been steady at about 80 per a quarter since the first quarter of 2000 to the second quarter of the year 2001.

4.3 Data From Confidential Enquiries

4:3:0 Summaries of the Confidential Enquiries

1. On the 31st of December of that year at about 11:00pm the deceased went into labour and called for help. She had started having severe abdominal pains and knew she was in labour. The respondent's grandmother was called to call the driver. She in turn called an old lady to come and stay with the mother while the grandmother went to call the driver but when the old lady arrived the mother had already given birth to the first twin. The grandmother ran to call the driver but when the driver arrived the second twin had also been delivered but she could not deliver the afterbirth and started bleeding. She was rushed to the Agogo hospital. They arrived at the hospital at about 1:00 am on the 1st of January. The nurses went to call the doctor who did not come immediately and had to be called a second time before he came. In actual fact he came after about 2 hours. When he came he took the bleeding woman to the theatre and removed the afterbirth and put up an infusion. He also requested for blood for her but that could not be given before she died at about 5:00am in the morning. The blood to be given had been drawn from an uncle but could not be given before she died.
2. The deceased, an aunt of the respondent had gone into labour on Saturday but the husband called the aunt who is also a traditional birth attendant on Sunday at about 5:00pm. When she got to the woman in labour the head of the baby was in the vagina and so she delivered within a short time. The baby was alive but she retained the afterbirth and started bleeding profusely with clots. They prepared mashed kenkey for her and asked the husband to get a vehicle to take her to the hospital. The husband instead went to look for a

herbalist who also delivers pregnant women in this community. But while he was gone the woman continued to bleed profusely with clots so with the help of others she was carried to the roadside to get a vehicle to take her to the Bomfa health centre. It took sometime before they were able to get a vehicle to take her to the health centre at about 8:00pm. At the health centre the midwife removed the placenta but the woman continued to bleed. An infusion was set up and the patient was referred to Agogo hospital. She died at Bomfa health centre while arrangements were being made to take her to Agogo. She was also on her second bag of infusion when she died.

3. The deceased a cousin to the respondent went into labour at term at about 4:00am and was taken to a clinic at Bonwire but could not deliver and also started bleeding so was referred to KATH by the attending doctor (medical assistant) at about 7:00am. When they got to KATH they were told that the doctors were on strike so they were asked to take her to a private clinic. About 4 private clinics she was taken to refused to accept her because they did not have the facilities to cater for a woman in her condition. They were finally shown a clinic at Bekwai roundabout where she was finally taken in because they had a theatre. This was at about 1:00pm. The bleeding woman was taken in and a machine used to pull out the baby who was already dead. She started to pour out blood more profusely after the baby had been brought out. They were then told that the mother had to be taken into theatre for an operation to save her so this was done soon after the baby had been brought out. In the meantime they were sent to KATH to bring blood for her because she had lost a lot of blood. They first went for 2 bags but had to go back for more. The operation in theatre took several hours and she was brought out of the theatre between 2:00am and 3:00am the following morning. In the meantime she had been transfused

about 7pints of blood and 14 pints of infusions. She had become unconscious soon after arrival at the private hospital and did not regain consciousness until she was taken into theatre. She came out still unconscious and died at about 4:00am the following morning.

4. The respondent, a brother to the deceased said they returned from the farm one day at about 4:00pm and could not find the pregnant sister in the house or anywhere in the locality. She had been at home when they left for the farm at about 8:00am. Those who were at home with her said they noticed her absence at about 9:00am. However all efforts to locate her had failed. When they arrived they also looked for her but did not find here. At about 5:30pm they decided to go to a farm in their backyard to harvest some maize to roast for ourselves only find their sister lying in a pool of blood among the plantain trees on the farm. It was getting dark and that must have made it difficult for them to find her. She had aborted the baby on the farm and was lying in the pool of blood. According to what she told them when she regained consciousness she had buried the foetus in a hole she dug out herself. There were also signs of struggling around on the farm where she was found. She was unconscious so they got a bucket of water and poured it all over her, which made her conscious. They quickly changed her clothes and got a taxi to take her to the hospital at Juaben. They arrived at the hospital at about 6:00pm. She was taken into the theatre and an infusion set up. Drugs were also written for them to buy from town but she died soon afterwards without the doctor even starting the procedure he had wanted to carry out.
5. The deceased, a wife of the respondent, went into labour and delivered at their hamlet with the help of the husband's mother but started bleeding soon after she had delivered. but she died on the way to the hospital.

The respondent suspect his wife started labour earlier than she called because she gave birth soon after calling for help at about 5:00am on the Wednesday it all happened. He went to call his mother who lives in the same community to come and help her deliver after she had called for help. Her first delivery had been in the hospital but her second delivery was done at home with the help of relatives so she had decided to have the third child at home too. When the mother-in-law arrived she was ready to deliver and in less than 20 minutes she had delivered. She could however not deliver the afterbirth and started pouring out a lot of blood. So they decided to take her to the Kwaso health centre, which is about one and a half miles from their hamlet for help. They also sent some people ahead of them to get a vehicle to transport her to the health centre. In the meantime the husband constructed a pallet to carry her on towards the health centre. When they got to a small stream they had to cross they noticed that she "had fallen backwards" and was not responding to their calls. The elderly women who were with them told them she was dead. It was soon after that that those they had sent for the vehicle arrived with one but she was dead. This was about 2 hours after she started bleeding.

Five confidential enquiries were all conducted in 4 sub-districts the Ejisu-Juaben district. Two of the confidential enquiries were done in Bonwire in the Ejisu sub-district, one at Akronwi in the Achiasie sub-district, one at Akoodaakrom in Kwaso sub-district and there was one at New Koforidua in Bomfa sub-district. They were all cases of haemorrhage during delivery or/ after delivery. The relationships of respondents to the deceased ones were varied. There was an aunt, a husband, a brother, a cousin and then a daughter.

None of the deaths had occurred before delivery but 2 occurred during delivery and 3 after delivery. The deaths that occurred during delivery started bleeding after expulsion of the foetus but retained the placenta and died before the placenta could be removed.

One out of the 3 deaths that occurred after delivery had been delivered by Caesarean section. One had also started bleeding after expulsion of the foetus but died after the placenta had been removed manually at the health centre.

All but one of the maternal deaths was said to have attended antenatal care regularly. They were all medically fit during pregnancy except one. Three of the maternal deaths were married. One of the other 2 had never been married but the other who was divorced was in a relationship with the man who was responsible for the pregnancy, which led to her death.

The numbers of births were 1,2,5,12 and 13. The ones with 1 and 3 births had lost none of the children. The one with 5 births lost the twins whose birth led to her death. The one with 12 and 13 births had lost 3 children each including the children whose birth led to her death.

Financially all but one were said to be financially handicapped. They were farmers. The one with 10 births was a subsistent farmer together with her husband. One was also a commercial farmer with her husband but their income was seasonal. They had money after they had sold their harvest but became broke later. They had money at the time of the death because the incident occurred soon after the harvesting season. The last had prepared financially because she had been warned of a difficult delivery and had been generally unwell during pregnancy. The teenager was unemployed and relied on her sister for financial support. The maternal death that did not seem to have any financial problems was a teacher married to a teacher.

It took the various cases at least 3 hours to get medical attention. The one that died in the community died about 2 hours after bleeding had started and was not able to get medical attention until she died. It took two of the cases 3 hours to get medical attention but the last two, 4 hours and 6 hours respectively to get medical attention.

Three of the respondents complained about poor transport systems and poor roads. They had had difficulty in getting vehicles to transport their relations to the hospital. Two of them however said there had been a marked improvement in transportation with tarring of their roads.

Two of the deaths were referred outside the district and had died at health institutions outside the district. One had been referred outside the district but died before she could be taken outside the sub-district health centre.

Two of the deaths were first seen at health institutions, which did not have facilities for blood transfusions and to perform operations. One was from Bonwire and the only one who presented first at Juaben district hospital, the intervention site of the PMM programme where she died.

Another of the deaths had taken as long as 6 hours to get medical attention. They did not go to Juaben because they were referred directly to Komfo Anokye Teaching hospital, where the doctors were on strike. They roamed several hospitals until they finally found a private hospital with a theatre, which agreed to offer her medical attention.

Finances had not played a part in 4 deaths except the death that occurred at Bomfa health centre and was from Akronwi. The husband of the bleeding woman who was sent for a vehicle to take her to the hospital rather went to call the traditional birth attendant who was also a herbalist because of poor finances. They also had to go back and mobilise funds to take her to the hospital from the centre when she was referred. She died at the health centre.

Four of the maternal death cases had not had supervised deliveries. This included one that had been done by a trained traditional birth attendant. The only supervised delivery had had a Caesarean section more than 6 hours after the onset of bleeding.

Probable reasons cited by the respondents for the maternal deaths included poor finances, transportation problems and non-availability of doctors to care for the emergency cases when they arrived at the hospital. For instance, doctors at Komfo Anokye Teaching hospital were on strike so

the patient sent there had to be taken elsewhere. At Agogo where another patient was taken the doctor did not come to see her until after 2 hours. One respondent blamed the poor health status of the deceased during pregnancy and also failure of the woman to deliver in hospital, which was due to a poor decision of the health personnel to discharge the woman home for Christmas. She also said the time of occurrence of the incident had contributed to the outcome. In the case of the abortion, the brother thought the pregnancy was too advanced for an abortion.

The respondents said special facilities known to be available in the district for taking care of obstetric emergencies are a theatre, blood bank and also some drugs. For the hospital available to the people in the district with the mentioned facilities, the respondents mentioned Agogo Mission hospital, Konongo Government hospital, Juaben District hospital and Komfo Anokye teaching hospital. The respondent from Kwaso sub-district mentioned Kwaso health centre.

The respondents from Bomfa and Achiase sub-districts mentioned transportation as problems they faced in the district but added that improvements in the road network had reduced the problem considerably. For the two respondents from Bonwire, Juaben hospital is the answer to their health problems but complained that their services are expensive. They added that patients are often given prescriptions to buy in town and added that they also lack certain essential logistics. One respondent whose sister was taken to Juaben hospital said, "We were given a prescription to buy from Juaben, town when we returned to the hospital my sister was dead."

The respondent from New Koforidua complained about finances and said, "we tend to have financial problems because most of the people who live here are subsistent farmers and cannot afford to put money aside for emergencies".

All respondents said women from their sub-district make use of available health institutions in the district when they get pregnant. They attend antenatal clinics at these health institutions but the two from Bonwire said the women also take herbs as enemas and orally to "protect" the pregnancy, but

those who do not want the pregnancy take several herbal concoctions to abort the pregnancies.

Families of those that result in death do not make the cause of death public.

All the respondents said women who have complications in pregnancy, delivery or post delivery period use the available health facilities, which includes those also outside the district. They said they use these facilities because the health workers are more knowledgeable in matters of health.

Respondents from Akronwi and Akodaakrom said they also have herbalists who are able to help with such cases of obstetric emergencies.

CHAPTER 5

DISCUSSION

The study shows that local health programmes can be sustained by local teams with limited financial and administrative support from the local health budget in the absence of foreign technical support and large financial resources. The only set back is that the programme has not been able to adequately tackle the problem of maternal mortality within the whole district.

The sustainability of the programme is shown by the hospital records, which show a steady rise in the performance of Caesarean sections at the Juaben district hospital, the intervention site. However this rate has shown a steady decline since the beginning of the year 2001 in spite of the fact that deliveries are still rising. (Figure 8) This may be due to the fact that for the year 2000 and early part of 2001 there were 2 doctors at Juaben district hospital but one has been posted to another station. The blood transfusion services, which had been dormant after its establishment, was revived last year with steady figures of about 80 transfusions done every quarter (Table 7). This has been the observation since a particular laboratory technician was posted to the hospital. However all blood for transfusions have to be donated by a relative before it can be done. Though no referrals have been recorded for the 2000, the referral of cases has been fairly constant since the first quarter of 1997 with values between 1 and 5 per a quarter (Figure 8). Referrals are done when the only doctor at post is not available.

The main flaw of the programme has been that the location of the intervention site has not been strategic and has made it impossible for communities located outside the Juaben sub-district to utilise the facility.

According to the study, the management of obstetric emergencies within the district is still faced with problems of financial and geographic accessibility. Five maternal deaths were identified for the

confidential enquiries. All these deaths occurred about 2 years ago except one, which occurred 4 years ago. According to the hospital records five maternal deaths were recorded in the Juaben hospital last year. One has so far been recorded this year.

Findings that the health seeking behaviour of people is influenced by the socio-economic background of individuals (28,29) have been confirmed by this study (Table 4). The findings show that religion played a part in where women gave birth. Religion also played a part in where people sought help when they are ill. This may be because of the presence of health institutions, which have been established by missions, and also people associate herbalists and other forms of traditional treatment to be unchristian. From the result it can be generalised that majority of people who live in the Ejisu-Juaben district are Christians.

Again marital status also influences the choice of where the women in the district delivered. Married women are more likely to have financial support from their husbands making it more possible to deliver at the hospitals or maternity homes where cost is involved. A total of 54 children had died to all the respondents from the communities. This is an indication that in spite of good prenatal and postnatal care available at the intervention site of the PMM, a large number of inhabitants of the sub-district still do not have access to good quality medical care. A similar reason might hold for the emergency obstetric cases.

Again 93% of the respondents of the client interviews knew that pregnant women had to be delivered by a midwife or a doctor however only 56.3% had been delivered by a doctor or midwife. As many as 43.7% of respondents had not had supervised delivery (Table 5). This is because practice depends on finances, accessibility of facility and other social issues that have to deal with the home.

About 85% of respondents had an experience or knew someone with obstetric bleeding or obstructed labour and therefore had an idea of what an obstetric emergency was. This is important

since it is expected that people should be able to identify an obstetric emergency quickly to enable them seek prompt medical attention. This is necessary since in seeking medical attention other factors such as finance, distance and transportation will also come into play.

The confidential enquiries conducted on the maternal deaths demonstrated that all the maternal deaths occurred during an attempt to access medical attention or had their problems compounded by their inability to gain access to prompt adequate medical attention. One never reached a health facility before she died.

According to respondents of the client interviews 89.4% of known cases of obstetric emergencies went to the hospital and 89.4% recovered with no residual problems. Respondents of the in-depth interviews had also said that women from their various communities made use of the available health services because the health personnel knew best when it came to the management of health problems. However two of the respondents for the confidential enquiries added that people in their communities also make use of herbalist for their health problems and even for some obstetric emergencies such as bleeding after delivery.

This is a healthy perception of the health system, which encourages people to utilise the available health facilities.

As an intervention site in the Ejisu-Juaben district for the prevention of maternal mortality, the use Juaben district hospital is limited. About 35.2% of respondents did not know Juaben district hospital had facilities for catering for the critically ill woman during pregnancy or after delivery. About 56% of respondents also said women in their communities did not use the services provided at the Juaben district hospital but used services outside the district (Figure 2). The reasons given from the confidential enquiries for this action was that Juaben was too far from their communities and way off the main Kumasi-Accra trunk road. Others do not go there for fear of being referred to a bigger centre such as Komfo Anokye teaching hospital. About 35.3% of the respondents for the

client interviews were simply not aware of the existence of the Juaben district hospital. This demonstrates that planning during the initial stages for the proper siting of the intervention site was not properly done. This however requires further studies to throw more light on factors that influenced the siting of the PMM intervention site at Juaben.

The institution of the PMM programme was devoid of a health education component. Thus poor knowledge was displayed by 35.3% of respondents of the client interviews who knew nothing about the services at Juaben district hospital. About 30% of the midwives interviewed who work in various health institutions in the district did not know about the PMM programme (Figure 6).

Within Ejisu-Juaben district delays in reaching the Juaben hospital is often due to the fact that the site is often not the first point of call. All the sub-districts have referral sites for their obstetric emergencies. According to the confidential enquiries done communities from Bomfa and Achiase sub-districts use Agogo Mission hospital, Konongo Government hospital and sometimes the Nkawkaw Holy family hospital as referral points for the obstetric emergencies. According to the respondents, they are easily accessible. Those from Kwaso and Ejisu sub-districts use Komfo Anokye Teaching hospital and occasionally the Juaben district hospital. This is an attempt by would-be clients to reduce delays in accessing medical care.

About 70% of respondents from the client interviews who said they knew Juaben district hospital said that drugs were readily available, 62.2% said the cost of treatment was affordable, and 86.7% said they were happy with the services offered at Juaben district hospital (Figure 3). Even though 82% of the respondents who knew about Juaben district hospital thought that their services were improving, 11.2% said it was declining (Figure 4). These figures tend to enhance the decision by those with easy access to Juaben district hospital to use the services at the intervention site of the PMM.

Areas of obstetric care that were suggested for improvement by respondents in the district included availability of drugs and logistics, affordability in terms of reduction in hospital treatment fees and the waiving of payments of any form for emergency obstetric cases until they were well enough to pay. Improvements in accessibility and transportation, by way of building hospitals closer, and improving facilities and human resources at the existing health centres (Figure 5). The community respondents also asked for the provision of ambulances. All the above suggestions reduce delays in reaching and acquiring adequate health care. These are all issues that the programme model of the PMM sought to address.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

From this study the PMM programme has been sustained since it became a local entity and part of the Regional network for the Prevention Maternal Mortality. The factors that are associated with survival of obstetric emergencies, which is the direct aim of the PMM programme, are:

- ◆ Geographic accessibility of major health facilities
- ◆ Financial accessibility of these facilities
- ◆ Practices of health seeking behaviour of the people
- ◆ Knowledge of emergency obstetric cases
- ◆ Knowledge of the appropriate place to go for help
- ◆ Knowledge of the availability of a functioning blood bank
- ◆ Knowledge of the availability of drugs
- ◆ Competence of the health staff

6.2 RECOMMENDATIONS

Some aspects of the PMM programme have been sustained since it became a local entity but it has since not expanded to make its impact felt in the other sub-districts of the Ejisu-Juaben district. Its impact has been limited to the Juaben sub-district and part of Ejisu sub-district. In order to improve on survival of emergency obstetric cases, plans should be put in place to expand the programme. All community midwives should be trained in life-saving skills and also provided with the basic tools to enable them practice the skills acquired. Support services in the form of regular

in-service training programmes for the maternity staff in the district should be strengthened.. These plans should have an education component and methods of improving the financial situation of the people of the sub-districts at the community level. The communities should be encouraged to establish community funds, which can be used to offer financial support to women who become obstetric emergencies.

This expansion of the programme should be in collaboration with district assemblies, unit committees and village health workers. Community leaders should provide solutions to the issues of transportation for obstetric emergencies and also revitalise the community-funding scheme.

Training of midwives in the district on life-saving skills should be done locally at the intervention site. It should ensure that all practising midwives in the district are trained in life-saving skills.

Efforts should be made to ensure that all trained midwives in the public sector practice as such.

A second doctor should be provided at the intervention site to make the running of the 24-hour services at the intervention site feasible and forestall referral of emergencies that report at the hospital.

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APPENDICES

A REVIEW OF THE PMM PROGRAMME IN EJISU-JUABEN DISTRICT**QUESTIONNAIRE**

(Pregnant Women/ Mothers/ Household Heads/ Others.)

Serial Number [.....]

A. Background Information

1. Locality.....
2. Age:.....
3. Sex: Male [] Female []
4. Marital status: Married [] Single [] Divorced/Widowed []
5. Educational level: None [] Primary JSS/Middle [] Secondary [] Tertiary []
6. Ethnicity: Akan [] Northerner [] Other, Specify:.....
7. Religious Affiliation: Christian [] Moslem [] Traditional [] Other, Specify
8. Occupation: Unemployed [] Farmer [] Trader [] Teacher [] Artisan [] Apprentice []
Other, Specify.....
9. Total number of children:[.....] Number alive[.....] Number dead [.....]

B. Health Seeking Behaviour.

10. What do you normally do when you are ill? Self Medication [] Seek help [] Go to the hospital []
11. Where do you normally go when you are ill? Chemical Seller [] Pharmacy [] Maternity home [] Hospital [] Herbalist [] Other, Specify.....
12. Where should pregnant women deliver? Home [] TBA's [] Maternity home [] Hospital [] Other, Specify.....
13. Who delivered your last child / children ? Doctor [] Nurse/Midwife [] TBA []
Other, Specify.....

C. Knowledge of Emergency Obstetric Cases

14. Has self/close relative/friend ever had a problem during pregnancy/delivery/within 40 days of delivery. Yes [] No []
15. What problem was it ? Profuse vaginal bleeding [] Obstructed labour []
Other, Specify.....
16. Where did you/she go? Hospital [] Maternity Home [] TBA's [] Shrine []
Other, Specify.....
17. A) What was the outcome?
- Recovered with no problem []
 - Recovered with a problem []
 - Recovered with severe debilitating illness []
 - Dead [] (for persons other than interviewee)
- B) If she had a problem or died can you narrate the problem and what must have happened.....
.....
.....
.....

D. Knowledge of Emergency Obstetric Services

18. Do you think immediate attention is necessary for a woman who is bleeding while pregnant, in labour or within 40 days of delivery.
Yes [] No [] Don't know []
19. Are you aware of any services that cater for pregnant women with a profuse bleeding problem in the district?
Yes [] No [] Don't know []
20. If Yes what services are these?.....
21. Do you know what happens to women who are sent to the hospital with complications in pregnancy, in labour and after delivery. Yes [] No []
22. If yes what was done for the patient.
- She was admitted and treated
 - She was treated and discharged
 - She was referred
23. Does the hospital have a functioning blood bank? Yes [] No [] Don't know []
24. When a pregnant woman needs blood in the hospital what procedure do they have to go through in order to acquire the blood?
- There is blood readily available from the blood bank
 - A relative has to donate before blood can be given
 - Patient has to be referred
 - Don't know

Any comments

.....

25. What happens to a pregnant woman with fits?
- She is admitted and treated in the hospital
 - She is referred
 - Don't know
26. What happens to a pregnant woman who cannot deliver on her own
- She is given drugs in infusions to help her deliver
 - She is operated on
 - She is referred
 - Don't know
27. Are the drugs required in such cases readily available in the hospital?
Yes [] No [] Don't Know []
28. Is the cost of such treatment in the district hospital affordable?
Yes [] No [] Don't know []
29. In your opinion are the nurses and doctors in the district hospital competent at handling obstetric emergencies. Yes [] No [] Don't Know []
30. Are you happy with the services offered in the hospital in case of emergencies in pregnant women or women who have just delivered?
Yes [] No [] Don't Know []
31. Are the concerns and perceptions of patients considered during their management?
Yes [] No [] Don't know []
32. What are your impressions about the services within the past few years?
Improving [] Declining [] Don't know []
33. A) Would you use or recommend to others the emergency obstetric services at the district hospital?
Yes [] No [] Don't know []
B) Give reasons for your answer.....
.....
.....
34. Do women in your community with problems such as bleeding in pregnancy, labour or after delivery make use of these services at the Juaben district hospital?
Yes [] No [] Don't know []
- 35 If no where do they go and why?.....
.....

36. What suggestions do you have for improving on help given to pregnant women, women in labour and women who are within 40 days of delivery and have problems such as bleeding?

.....

QUESTIONNAIRE**Healthcare Providers****Serial Number [.....]**

1. Location.....

Sex: Male Female

2. Official Post/Position/Rank:.....

3. Does your work involve the care of pregnant women with complications? Yes No

4. Can you describe your work schedule?

.....

.....

.....

5. Where do pregnant women who develop complications in this sub-district go?

TBAs Maternity home District Hospital Other, specify

6. Do pregnant women with complications such as vaginal bleeding, fitting and obstructed labour present at this institution?

Yes No Don't know

7. Are you aware of the PMM programme in this district?

Yes No

8. In your opinion has the PMM programme helped to prevent maternal deaths in your sub-district?

Yes No Don't know

Explain,.....

.....

.....

9. Are patients with complications often transfused?

Yes No Don't know

10. In your opinion what proportion of these women present with haemorrhage?

25% [] 50% [] 75% [] 100% [] Don't know []

11. What proportion of these women present with obstructed labour?

25% [] 50% [] 75% [] 100% []

12. What are your impressions about the blood transfusion services?.....

.....
.....

13. What are your impressions about the management of women with obstructed labour?.....

.....
.....

14. What are some of the problems pregnant women with complications face in accessing treatment in this district?.....

.....
.....

15. Are healthcare providers able to adequately handle women with complications in pregnancy?

Yes [] No [] Don't know []

16. Have you had any in-service training? Yes [] No []

17. Have you had training in life saving skills? Yes [] No []

18. If yes are you able to practice the skills acquired? Yes [] No []

19. What recommendations do you have for improving the handling of emergency obstetric cases in the district?.....

.....
.....

In-depth Interview Guide (Confidential Enquiry Guide)

1. What is the relationship between you and the dead woman?
2. Where did she die?
3. At what stage in her pregnancy, delivery or post-delivery period did the woman die?
4. Did she attend ANC regularly and what were the problems she faced socially, financially, and medically during her pregnancy?
5. Can you describe the circumstances that led to her death.
6. Can you describe in a logical manner what happened from the time that she started complaining till she died?
7. What in your opinion went wrong?
8. Are you aware of any special facilities available at the district hospital for taking care of the critically ill pregnant women? What are they?
9. How would you describe the emergency obstetric services in this area with respect to the health facilities, health workers, drugs, logistics, transport, and finances.
10. What do women in this area do when they first notice that they are pregnant?
11. Do women in this area make use of the available health services?
12. Do women who have problems in pregnancy, delivery and after delivery use these facilities?
Explain.

CHECKLIST FOR THE REVIEW OF PMM**ACTIVITIES**

(From January 1997 to June 30, 2001.)

Total number of admissions:.....

Total number of cases referred:

Total number of deliveries done:.....

Total number of Caesarian-sections done:.....

Total number of emergencies (Haemorrhage, Eclampsia and Obstructed labour)
seen:.....

Total number of vacuum extractions done.....

Total number of episiotomies sutured.....

Total number of manual removal of placenta done.....

Case Breakdown;

Obstetric bleeding (including abortions).....

Obstructed labour.....

Eclampsia.....

Others

Blood transfusion services