ENSIGN COLLEGE OF PUBLIC HEALTH, KPONG,

EASTERN REGION, GHANA

ASSESSMENT OF EMERGENCY OBSTETRIC AND NEWBORN CARE (EmONC) AT KADJEBI DISTRICT OF THE VOLTA REGION

By

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A Thesis submitted to the Department of Community Health in the Faculty of Public Health in partial fulfilment of the requirement for the degree

MASTER OF PUBLIC HEALTH

Date submitted (May, 2016)

DECLARATION

I hereby declare that except for references to other people work, which I have dully cited, this project submitted to the school of Graduate Studies, Kwame Nkrumah University of Science and Technology, Kumasi is the results of my own investigation, and has not been presented for any other degree elsewhere.

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(Student) Signature Date

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(Supervisor) Signature Date

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Dr. Christopher N. Tetteh …… …….

(Dean) Signature Date

DEDICATION

This work is dedicated to my dear wife Elizabeth and my children Eveanunye and Dziedzorm who through their prayers, encouragement, sacrifice and understanding made this work possible. Also my supervisors who sacrificed for me in spite of the challenges she was going through and not the least Mr. Patrick Lotsu who struggled with me throughout.

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Lastly my gratitude goes to all the heads of the health facilities for their patience in enduring my questions.

ABBREVATION/ACRONYMS

AMDD.	Averting Maternal Death and Disability Program.
BEMOC.	Basic Emergency Obstetric Care.
CEmOC.	Comprehensive Emergency Obstetric Care.
DDHS	District Director of Health Services.
DHMT.	District Health Management Team.
EmNC.	Emergency Newborn Care.
EmOC	Emergency Obstetric Care.
EmONC.	Emergency Obstetric and Newborn Care.
EsOc.	Essential Obstetric Care.
GDHS	Ghana Demographic Health Survey.
GHS.	Ghana Health Service.
H/C.	Health Centre.
IV	Intra Venous.
MCH	Maternal and Child Health.
MDG.	Millennium Development Goals.
MMR.	Maternal Mortality Ratio.
MOH	Ministry of Health.
NHIA	National Health Insurance Authority.
NHIS	National Health Insurance Scheme.
SDHT	Sub-District Health Team.
UNFPA	United Nations Population Fund.
UNICEF	United Nations Children's Fund.

WIFA	Women In Fertility Age.
WHO	World Health Organization.

ABSTRACT

The functionality of emergency obstetric and newborn services (EmONC) is very important in the management of obstetric complications and reduction of maternal mortality. A descriptive and qualitative study was conducted in the Kadjebi District to assess the functionality of EmONC, and identify factors that affected it. Six facilities in the district a mission and public that provided obstetric services were studied. The EmONC Needs Assessment module 5, supervision checklist for hospitals and clinics was used to assess functionality. The following signal functions: ability to administer parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants for pre-eclampsia and eclampsia, perform manual removal of placenta, retained products of conception, resuscitation of newborn and assisted vaginal delivery were used to identify a facility as providing basic essential obstetric care services. A comprehensive emergency obstetric care facility was identified as one able to perform all the signal functions for a basic essential obstetric care facility and in addition be able to perform caesarean section surgery and blood transfusion. An interview guide was designed and used to conduct key informant interviews with selected heads of facilities where obstetric services were provided. The key informant interviews were conducted to determine factors associated with functionality of services. Out of the 6 health facilities in the district, only one provided comprehensive emergency obstetric and newborn care services while the rest, provided basic obstetric care services however, none could perform all the signal functions needed to be identified as a facility providing basic essential obstetric care services. The function performed by all these facilities was newborn resuscitation and oxytoxic administration. None of them performed assisted vaginal deliveries. The factors found to be associated with functionality of emergency obstetric and newborn care services were lack of trained personnel due to inadequate number of midwives, managerial, supply and policy issues.

To improve availability of essential obstetric services in the district these recommendations are being proposed to the District Director of Health Services. There should be continuing in-service training for all staff to upgrade their skills especially on lifesaving skills. The need for collaboration with stakeholders for regular supply of basic equipment, drugs for efficient service delivery.

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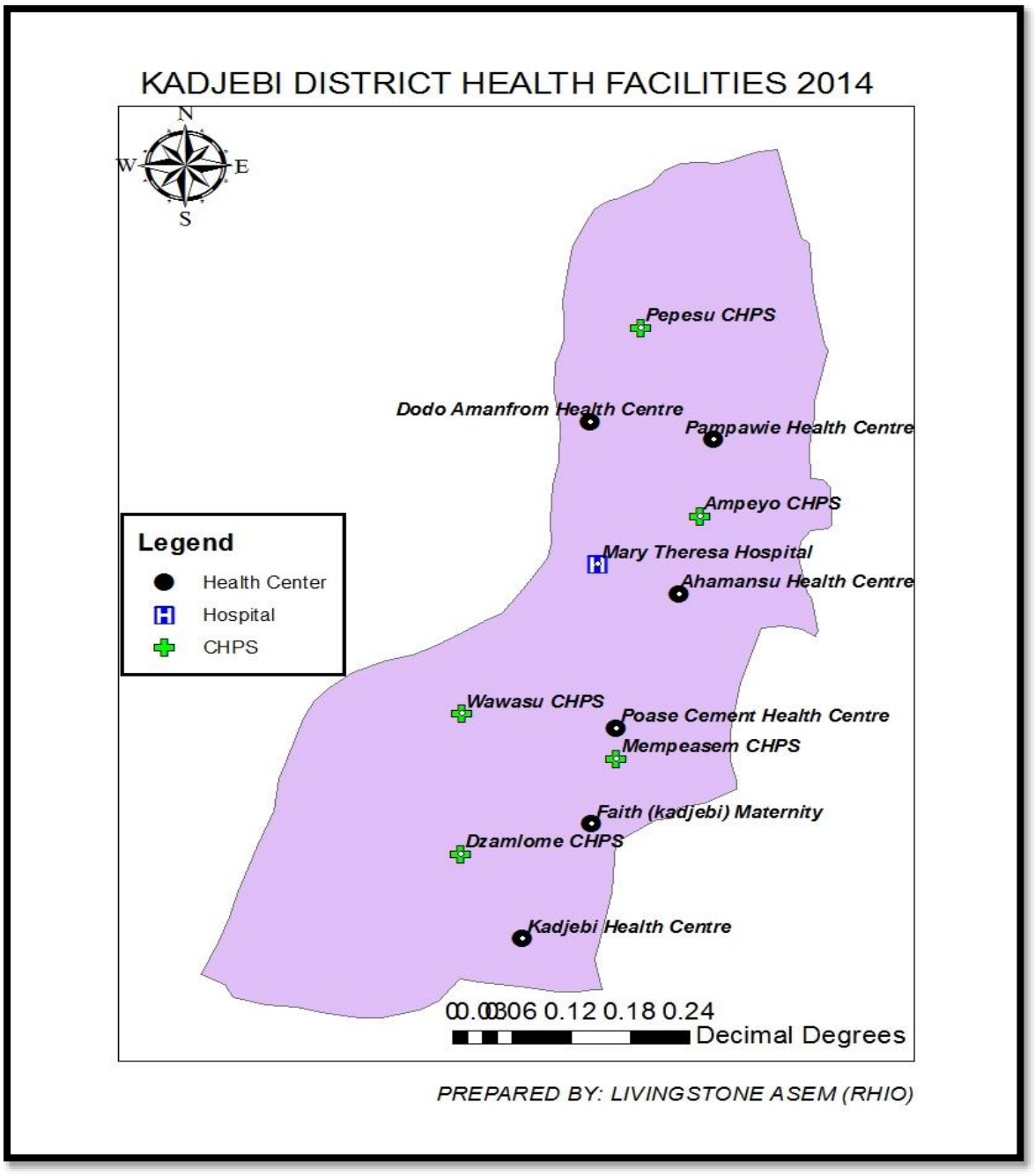
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Chapter 1

1.0 INTRODUCTION

1.1 Background Information

All pregnant women, even healthy ones, face some risk of complications that can result in death or serious disabilities if not effectively managed (Ijadunolal et al. 2007). Each year, an estimated 515,000 women die from pregnancy-related causes, with most cases occurring in developing countries of Africa and Asia (Mavalankar & Rosenfield 2005), however it declined to 298,000 in 2013 (WHO). Globally over three million neonates die every year, overall under-5 mortality over the past decade has been significantly curtailed however the burden of neonatal deaths is more or less the same and these now represent about 40% of all deaths in children under the age of 5 (Turab et al. 2013). Majority of these neonates die in rural areas of underdeveloped countries and approximately two thirds are due to infection and complications related to low birth weight (LBW) and prematurity (Turab et al. 2013). The World Health Organization (WHO) estimates that 515 000 women die each year from pregnancy related causes, and almost all of these deaths occur in developing countries with over 287,000 mothers died in 2010 worldwide (Turab et al. 2013). Globally maternal mortality ratio (MMR) has declined by nearly 50% from 1990 to 2012 and in Sub Saharan Africa (SSA) by 41%; from 920 deaths per 100,000 live births in 1990 to 500 deaths per 100,000 birth in 2010 (Bakari et al. 2015). The maternal mortality ratio for Africa is approximately1000 per 100000 live births, compared to 8 to 12 per 100 000 live births in North America (Ronsmans & Graham, 2006). Ghana per the 2014 DHS has a maternity ratio of 350 per 100,000 live birth

with neonatal death of 28/1000 (World Bank Report, 2015). Although maternal mortality has declined dramatically in the developed world, the risk of such death remains a serious threat for women in much of Asia, Latin America, and Africa, particularly in rural settings (Mavalankar & Rosenfield 2005). This situation is particularly tragic because no new technologies or drugs are needed to radically lessen maternal mortality (Mavalankar & Rosenfield 2005). Rather, access to emergency obstetric and newborn care (EmONC), and more generally to community-based and hospital maternity care services, would lead to dramatic reductions in these unacceptably high ratios (Mavalankar & Rosenfield 2005). Significant declines in maternal mortality in Sri Lanka and Malaysia over the past 50 to 60 years provide evidence that the implementation of maternal health interventions in developing countries is feasible (Mavalankar & Rosenfield 2005). Increased access to skilled birth attendance accompanied by the development of EmONC and other complementary health services were key contributors to the reductions achieved in those countries (Mavalankar & Rosenfield 2005). Appropriately trained personnel and the provision of necessary supplies and equipment are critical to the development and implementation of effective EmONC services (Gething et al. 2012). There must be at least five emergency obstetric care facilities (including at least one comprehensive facility) for every 500 000 population (WHO, 2011). The availability of EmONC determines the health care system ability to respond to obstetric and newborn complications and the contribution towards reducing maternal and newborn mortality and morbidity (Mavalankar & Rosenfield 2005).

1.2 Problem Statement

The United Nations Millennium Development Goals which are eight goals that all 191 UN countries adopted with emphasis on Millennium Development Goals (MDGs) 4 and 5, call for a reduction in the child mortality rate by two thirds and the maternal mortality ratio by three quarters, respectively, between 1990 and 2015 (Undesa 2012). Interventions to improve emergency obstetric and newborn services will have a significant positive impact on these two goals (Undesa 2012). Maternal death was, however, chosen as the outcome with which to judge progress towards this goal, thus bringing renewed attention to what is a 21st century problem essentially only for the poor, and one virtually eliminated for people with the means and status to access health care (Ronsmans & Graham, 2006). Such a marker of global inequity is an indication of wider development issues targeted in some of the other MDGs, especially on poverty, education and gender (Ronsmans & Graham, 2006). The Millennium Declaration is, however, the first time that maternal mortality has featured so prominently in the high ranks of a global pronouncement, providing an opportunity to galvanize action and so help ensure that the risk of maternal death is minimized for all women (Ronsmans & Graham, 2006). Each year it is estimated 358,000 maternal deaths occurred worldwide in 2008, a 34% decline from the levels of 1990. About 99% of deaths occurs in developing countries (355,000). Asia and sub-Saharan Africa accounted for 87% (313,000) of global maternal deaths (WHO). Maternal deaths are not uniformly distributed throughout the world, and obstetric risk is highest by far in sub-Saharan Africa which is estimated to be nearly 1000 per 100,000 live births: almost twice that of south Asia, four times as high as in Latin America and the Caribbean, and nearly 50 times higher

than in industrialized countries (Bakari et al. 2015). Most maternal deaths occur in sub-Saharan Africa, with a staggering lifetime risk of 1 in 16, and south Asia with a lifetime risk of 1 in 43 (Ronsmans & Graham, 2006). Ghana maternal ratio is estimated to be 350 (GDHS 2015), 186 in 2009 by RCH report,2009. Achievement of the MDG will end by the year 2015 after which the Sustainable Development Goals come into force. Out of 17 goals, Goal 3 which is to ensure healthy lives and promote well-being for all at all ages has a component which by 2030, there must be reduction in the global maternal mortality ratio to less than 70 per 100,000 live births. In 2003, in an effort to improve maternal health and survival, the government of Ghana implemented a new policy that removed delivery fees in Health facilities in the four most-deprived regions of the country. Less than two years later, the government extended the policy to the rest of Ghana, removing delivery fees in all public, private and mission facilities (Immpact, PRB, 2007). On July 1st, 2008 the president of Ghana announced that the government is providing free maternal care for pregnant women to improve the attainment of MDG 4 and 5. The decision was made to implement this through NHIS (National Health insurance scheme) so that mothers have the full package of antenatal, prenatal and postnatal care (NHIS, 2008). Reducing maternal mortality and reaching the MDG5 target by 2015 is proving a serious challenge for many countries, including Ghana. The estimate of MMR in Ghana in 2014 was 350 per 100,000 live births (GDHS 2015).The institutional MMR is around 210 per 100,000 live births (Opoku 2009). Translating MDG 5 for Ghana, a national target to reduce the (MMR) from 214 in 1990 to 54 by 2015 (MMR = maternal deaths per 100,000 live births) was set (MOH, 2008). Ghana is in the category of countries with a high-burden of maternal mortality and Kadjebi

district is one of the district with the highest maternal mortality in the Volta Region and therefore there is the need to investigate the factors contributing to this.

1.3 Rationale of Study

The justification of this project is based on the problem identified. The problem identified is that, in 2015 out of 22 maternal mortality recorded in Volta Region, 6 was recorded in Kadjebi District with 17 neonatal death. The high number of deaths demonstrates that most facilities might be having challenges with the functionality of emergency obstetric and newborn care in the district. Maternal mortality ratio is 4\100,000 live births for Kadjebi District. If it is accepted that most pregnancy related complications are unpredictable then it is just humane to ensure availability, access and use of emergency obstetric and newborn care services to reduce maternal mortality and newborn if women and neonate really must live.

1.4 Hypothesis/Conceptual framework

In the Kadjebi District one of the health problems identified was high maternal and neonatal mortality. The 2015 annual report of the district shows that maternal mortality was high, that is 6 with neonatal deaths of 17. Unsupervised delivery is associated with high risk to babies and mothers. The large proportion of unsupervised deliveries suggest that women are delivering in facilities that lack the capacity to handle obstetric complications. Evidence shows that at least 15% of all pregnant women develop sudden serious complications that require lifesaving access to essential obstetric care. Since complications are sudden and cannot be predicted during pregnancies and deliveries, but can be treated, adequate preparations should be in place to handle such complications. Obstetric

complications are one of the causes of maternal mortality in Ghana, and the Kadjebi District for that matter has high maternal mortality. The national maternal mortality is 315\100,000 live births while that in the Kadjebi District is 4 \100,000 live births. (Source Institutional data 2016). These unacceptable figures could be due to the unavailability of emergency obstetric and newborn care services. The District Director of Health Services and his team want all pregnant women to have access to emergency obstetric and newborn care services in case of obstetric complications, but are the facilities, equipment, personnel and drugs available to cater for them? This study therefore seeks to assess the functionality of emergency obstetric and newborn care services in the Kadjebi District.

1.5 Research Questions

This study aims to address the following questions;

The availability of equipment's at the health facilities?

Provision of basic and comprehensive essential obstetric care at various health institutions?

Functionality of emergency obstetric and newborn care?

What are the major factors affecting accessibility of emergency obstetric and newborn care?

Do facilities have adequate numbers of health workers with the right mix of skills?

1.6 General Objective(s)

An assessment of Emergency Obstetric and Newborn Care (EmONC) at Kadjebi District

1.7 Specific Objectives

1. To describe the basic and comprehensive essential obstetric services in the district.

2. To identify factors that affect the functionality of essential obstetric care services.

3. To make recommendations on improving the ability of the health system.

1.8 Profile of Study Area

The Kadjebi District is one of the 25 districts in the Volta Region. Its located about 150km to the north of Ho the Regional Capital. The district has a projected population of 67,095 according to the 2010 census. The district has a n approximate size of about 675 sq. Km measuring 56-60 Km North to the South and 15-30 Km East to West. It shares boundaries with Nkwanta District on the north, south by Jasikan District, west with Woraworwa District and east by the Republic of Togo. The district is also mountainous with an average height of about 450-850 Ft above sea level. Kadjebi District is traverse by many rivers and streams. Notable among them are Menu, Wawa and Asukawkaw all of these are tributaries of the River Volta, The road network in the district is among the worst in the region making accessibility to many communities difficult. This is further compounded with communication accessibility. The district is divided into five (5) sub-districts namely Kadjebi-Asato, Dodo, Dodi, Ahamansu and Dapaa-Pampawie sub-districts. The district has six (6) government health centres and one mission hospital, which serves as the district hospital. Agriculture is the main occupation of the people in the district.There are mixed ethnic groups in the district with the predominant groups being Akans, Ewes, Kotokoli and Basari , etc. The district health system is

made up of the District Health Management Team (DHMT) at the district level and six Sub-District Health Teams (SDHT's). Various types of health facilities and service providers are found in the district.. Even though most women received antenatal care, only about half had supervised deliveries. Antenatal coverage for 2015 was 89.5%, while supervised deliveries was 58.4%. (The average national figure of supervised deliveries is 56.7%. GDHS, 2014). The percentage of unsupervised deliveries shows that most pregnant women were delivering in facilities that lack the capacity to handle obstetric complications. The total number of women in the fertility age (WIFA) is 16,104 (WIFA =24% of total population) and the expected pregnancy is 2,684 (4% of total population).

Chapter 2

2.0 LITERATURE REVIEW

Efforts to improve the lives of women and children around the world have intensified since world leaders adopted the United Nations Millennium Declaration in September 2000 and committed themselves to reaching Millennium Development Goals 4 and 5, on child mortality and maternal health. The original targets for these Goals were a two thirds reduction in the mortality of children under 5 and a three-quarters reduction in the maternal mortality ratio between 1990 and 2015. There is worldwide consensus that, in order to reach these targets, good-quality essential services must be integrated into strong health systems. The addition in 2007 of a new target in Goal 5—universal access to reproductive health by 2015—reinforces this consensus: all people should have access to essential maternal, newborn, child and reproductive health services provided in a continuum of care. In order to reduce maternal mortality, Emergency Obstetric Care (EmOC) must be available and accessible to all women..(Maine et al. 2009). One way of reducing maternal mortality is by improving the availability, accessibility, quality and use of services for the treatment of complications that arise during pregnancy and childbirth. These services are collectively known as Emergency Obstetric and Newborn Care (EmONC). Essential obstetric care (EOC or EsOC), which, in some definitions, includes a broad array of services including family planning and antenatal, intrapartum, and postpartum care; and Emergency Obstetric Care (EOC or EmOC), which includes more specific interventions such as blood transfusions, intravenous antibiotics, caesarean section, the management of abortion complications, vacuum or forceps delivery. There is a fundamental difference

between the two approaches: EsOC, in some definitions, focuses on all pregnant women and is based on the idea that obstetric complications can be predicted and prevented, employing the concept of “high risk, EmOC, on the other hand, focuses on the prompt identification, referral, and treatment of women with obstetric complications (Measham & Kallianes n.d.). Over the years, the terminology has been adjusted so that the indicators relate specifically to treatment of the emergency obstetric complications that cause most maternal deaths. Emergency Obstetric and Newborn Care is defined for two different levels of the health care system: Basic essential obstetric care services at the health centre level should include at least the following:

(1) Administer parenteral antibiotics:

(2) Administer uterotonic drugs (i.e., parenteral oxytocin2)

(3) Administer parenteral anticonvulsants for preeclampsia and eclampsia (i.e., magnesium sulfate).

(4) Manually remove the placenta

(5) Remove retained products (e.g. manual vacuum extraction, dilation and curettage)

6) Perform assisted vaginal delivery (e.g. vacuum extraction, forceps delivery)

(7) Perform basic neonatal resuscitation (e.g., with bag and mask)

Comprehensive essential obstetric care services at the district hospital level (first referral level) should include all the above plus:

(8) Perform surgery (e.g., caesarean section)

(9) Perform blood transfusion. (Qazi 2011)

Routine New born Care involves,

Thermal protection, immediate and exclusive breastfeeding, hygienic cord care anti-biotics to mother if preterm/prolong PROM, corticosteriods in preterm mother, resuscitation with bag and mask of non-breathing baby, KMC for premature/very small babies, alternative feeding if baby unable to breastfeed, Injectable antibiotics for neonatal sepsis, (PMTCT) if HIV positive mother. Comprehensive EmNC includes Intravenous fluids, safe administration of oxygen, availability of incubator (Gabrysch et al. 2012). For the services at a facility to be considered functional, the elements of care must have been provided during the 6 months previous to data collection.Skilled delivery care providers working in the right environment can prevent, detect, and treat complications, thus contributing to a reduction in stillbirths and maternal and neonatal mortality. Skilled care is most often approximated by assessing whether women deliver with a midwife, doctor, or other skilled birth attendant, but ensuring an enabling environment for uncomplicated (routine) and complicated childbirth is an equally important requirement for skilled care. Emergency obstetric care (EmOC) signal functions, a shortlist of key life-saving obstetric interventions, have been used to assess the functionality of health facilities with respect to EmOC and to construct indicators of service provision. They are thought to reflect responsiveness of the health services to the main obstetric complications at basic and comprehensive level, roughly corresponding to health centre level (with midwives) and first referral hospital level (with physicians).The

availability and density of facilities capable of providing EmOC have been suggested as useful health system output indicators for monitoring supply-side progress towards having sufficient services for reducing maternal mortality. In 1986 the World Health Organization (WHO) published Essential Obstetric Functions at First Referral Level, which describes key obstetric functions that hospitals should provide. These functions focused on emergency treatment for complications (surgical obstetrics, anaesthesia, blood replacement, manual procedures) but also included a monitoring function (the partograph), a preventive function (family planning support, which prevents pregnancy rather than complications in pregnant women), and an emergency newborn function (neonatal resuscitation). EmOC signal functions, described in the 1997 UN guidelines, focused more sharply on eight signal functions for treating the five main causes of maternal mortality (haemorrhage, hypertensive diseases of pregnancy, sepsis, obstructed labour, and unsafe abortion), and the monitoring, prevention, and neonatal treatment signal functions (partograph, surgical contraception, and newborn resuscitation). EmOC was subdivided into basic and comprehensive EmOC, with the former comprising six medical functions (parenteral antibiotics, parenteral oxytocic drugs, parenteral anticonvulsants, manual removal of placenta, removal of retained products, and assisted vaginal delivery) and the latter adding surgical capability (Caesarean section) and blood transfusion. There have been attempts to develop signal functions for children [but no similar signal functions have been widely agreed for newborns, except for newborn resuscitation. The latter function had been part of the 1986 Essential Obstetric Functions, was removed from EmOC as defined in 1997, and then reintroduced as a basic EmOC signal function in the 2009 UN

handbook . Similarly, there has been little focus on signal functions for routine care for mothers or newborns; routine care saves lives by preventing complications or by intervening early before life-threatening complications develop. For example, effective elements of routine care which should be provided to all women and all newborns include using a partograph to detect prolonged labour in time, ensuring a clean delivery, providing active management of the third stage of labour to reduce the risk of post-partum haemorrhage, and encouraging early breastfeeding and keeping the baby warm. In view of the emerging consensus on the continuum of care linking mother and child, and the links between routine care and care for complications (Gabrysch et al. 2012). The UN guidelines contained in monitoring emergency obstetric care: A handbook, recommend that there should be at least 5 EmONC facilities for every 500,000 population, at least one of which provides comprehensive care. National standards recommend five EmONC facilities for every 200,000 people, at least one of which is a comprehensive facility. The National Assessment for Emergency Obstetric and Newborn Care Ghana, November 2011 reports indicates Ghana's total population of 24,232,431, should have 606 EmONC facilities. According to the assessment it has 89, which points to a gap of 517 facilities. Ghana's 76 comprehensive EmONC facilities are 45 short of the mark. Whereas Ghana should have 485 basic sites to meet the national standard of care, the country has 13, leaving a gap of 472. Out of the facilities surveyed, 97 percent provided parenteral oxytocics. This signal function had the highest coverage, followed by parenteral antibiotics (78 percent). Signal functions with the lowest coverage were assisted vaginal delivery (13 percent of facilities; nonperformance of this function kept many facilities out of the basic category), removal of retained

products (29 percent of facilities), and manual removal of placenta (46 percent of facilities. Oxytocin is the drug of choice for active management of the third stage of labour; it was the only drug used in 36 percent of facilities. Most facilities (62 percent) used both oxytocin and ergometrine. Few used only ergometrine. Only 642 (55 percent) of the 1157 facilities that were surveyed and had data to share had administered anticonvulsants in the three months preceding the survey (Table 3.06). This proportion is low given the high incidence of severe preeclampsia and eclampsia in the country as well as the degree to which these conditions contribute to maternal mortality, find that only 29 percent of facilities provided removal of retained products; 53 percent of these used MVA. The share of facilities using MVA was lowest for health centres (35 percent) than for other facility types. We find that removal of retained products is least likely to be performed in lower-level facilities such as health centres (13 percent), health clinics (18 percent), maternity homes (20 percent), and CHPS compounds (3 percent), find that assisted vaginal delivery was performed by only 13 percent of facilities, making it the least commonly performed signal function. Among facilities that did perform this procedure, most (94 percent) used only a vacuum extractor (Nations et al. 2011). A research conducted in 2014 at Hai District, Northern Tanzania indicate that the two comprehensive EmOC facilities (CEmOC) could provide all nine required signal functions while none of the basic EmOC facilities (BEmOC) could provide the seven required signal functions. For a population of 214,454 in the district, the total number of health facilities designated to provide EmOC services exceeded the minimum required number which was 1 for CEmOC and 2 BEmOC (Bakari et al. 2015). To further understand what actions are needed to save women's lives, we must also understand why so many women are

dying. In Ghana, as in many developing countries, deaths during pregnancy and childbirth are often linked to the three delays (GHS, 2006):

1. Delays in the Home

2. Delays in Accessing Health Facility

3. Delays at Health Facility

Causes of Maternal Deaths

The major causes of newborn deaths include bleeding, hypertension, anaemia, unsafe abortions, infections and obstructed labor. A majority of these deaths can be prevented with adequate care (GHS, 2006).

Infections 10%, Anaemia 12%, unsafe abortion 11%, other causes 24%, Obstructed labour 7%, Bleeding 17%, Hypertension 19%.

Haemorrhage

The prevalence of severe anaemia is substantial, so that a given degree of blood loss is more likely to cause hemodynamic instability; many women deliver at home and are often attended by unskilled providers (traditional birth attendants, family members) who are unable to recognize the signs of excessive bleeding (Gijs Walraven MD, Wanyonyi, & Stones, 2008). Once the problem is recognized and the decision to take the woman to a health facility is made, emergency transport might not be available or affordable, and distances might be long; gender relations can present barriers to care seeking; for example, it might not be possible to arrange transfer to a health facility without the authority of male relatives (Gijs Walraven MD, Wanyonyi, & Stones, 2008). Whether or not a pregnant woman arrives at a

health facility or hospital in time; the facility might not have the trained staff available or the necessary supplies and equipment to treat her. The provision of effective care for women with haemorrhage is often beyond the capacities of health systems and communities in countries where maternal mortality is high (Gijs Walraven MD, Wanyonyi, & Stones, 2008)

Other Causes

In developed countries, the most important cause of maternal death is "other direct causes" (21%), which includes largely complications during interventions such as those related to caesarean section and anaesthesia, followed by hypertensive disorders and embolism (WHO, 2006). It also includes ectopic pregnancy, renal failure and cardiac disorders (Senah, 2003).

Anaemia

The WHO has estimated that 52 percent of pregnant women in Africa – 56 percent in West Africa- have haemoglobin levels below 10.0 g/L (WHO 1982). Severe anaemia can contribute to maternal mortality by impairing a pregnant woman's ability to resist infection or severe haemorrhage, hi Ghana, parasitic infestation, especially malaria, significantly contributes to this condition (Senah, 2003).

Obstructed Labour

This is a complication in which the process of labour does not function normally due to mechanical blockage of the birth canal. In very severe cases, it may lead to fistulation in which urine and faecal matter gain entry into the reproductive system.

Obstructed labour may be due to early pregnancy, inadequate nutrition during childhood, fetal-pelvic disproportion, multiparity and abnormal fetal presentation (Senah, 2003).

Abortion

This is voluntary or involuntary termination of pregnancy before 20 weeks of gestation. It is characterized by bleeding, lower abdominal pains, and passage of fetal and placental tissue (Senah, 2003).

Hypertensive Disorders (Hypertension)

In pregnancy these are associated with pedal and facial oedema and protein in urine. They are the most difficult of the obstetric emergencies to prevent and manage. Yet they are an important cause of maternal death in Africa (Senah, 2003). If untreated, they may progress to eclampsia characterized by convulsion, brain damage, renal failure and death (Senah, 2003).

Sepsis

Infection occurs when aseptic procedures are not followed, when the amniotic sac ruptures long before delivery occurs, when vaginal examinations are too frequent or when obstructed labour occurs. Long term consequences of puerperal sepsis include pelvic inflammatory diseases, secondary infertility and in rare cases, maternal tetanus.

Chapter 3

3.0 METHODOLOGY

3.1 Research Methods and Design (Study methods and design)

The study was descriptive and qualitative study to assess emergency obstetric and newborn care by facility at Kadjebi District in the Volta Region of Ghana to inform a community-level quality improvement intervention and to promote maternal and newborn health services access and utilization. . Both qualitative and quantitative methods were used since this approach offers a good way of ascertaining the views of the heads of the different health facilities where obstetric services were provided, and gives the opportunity to explore further emerging issues. An EmONC and supervision checklist were administered to one hospital and five health centres and were all answered by midwives after consent form signed. An in-depth interview using an interview guide were administered. A convenience sampling method was used to select the health staffs depending on their expertise of work and six health staffs comprising four midwives, one medical officer and the district director were selected after prior information given and consent sought. Each were interviewed at their respective place of work.

3.2 Data Collection Techniques and Tools

The EmONC Needs Assessment module 5: EmOC Signal Functions and Other Essential Services in addition to newborn checklist , a supervision checklist for hospitals and clinics was used to assess functionality of services (AMDD Data Collection Module(Anon n.d.). Signal functions were used to identify Basic and

Comprehensive facilities in the district. The identified obstetric care facilities were selected based on facilities with midwives conducting deliveries and checklist were administered. Health records were reviewed to determine the delivery being conducted. A key informant interview was then conducted with midwives in-charge of selected health facilities where obstetric services were provided to find out some of the problems they encountered with availability of equipment and personnel needed to provide essential obstetric care services. The materials used included available information from the district profile, health facility records and annual reports. Interviews using supervision checklist for hospitals and clinics and an interview guide were used.

Supervision checklist (Appendix C): some of the variables on the list are:

i. Number of trained personnel. .

ii. Key drugs such as Oxytocics, Anticonvulsants, local anaesthetic and oxygen.

iii. Equipment in the labour room such as vacuum extractor, IV infusion sets and fluids, vaginal speculum, curettes, and sphygmomanometers.

A list of signal functions (Appendix A) was then used to identify a facility as basic or comprehensive EmONC facility. The variables on the list included ability to:

i. Administer parenteral antibiotics

ii. Administer parenteral oxytocic drugs

iii. Administer parenteral anticonvulsant for pre-eclampsia and eclampsia

iv. Perform manual removal of placenta

V. Perform removal of retained products (e.g., manual vacuum aspiration)

vi. Perform assisted vaginal delivery

vii. Perform surgery (Caesarean section)

viii. Perform blood transfusion

An interview guide was designed and used to conduct a key informant interview with heads of the facilities where obstetric services were provided and the District Director of Health. (Appendix D). Some of the variables included:

i. Ability to perform manual removal of placenta and manual vacuum aspiration.

ii. The frequency training sessions were organized for staffs.

iii. The source logistics were received from and the frequency of receipt of logistics.

iv. Some of the reasons for the unavailability of essential obstetric care services in the facility.

v. Recommendations for improving the availability of obstetric services.

3.3 Study Population

All the five (5) health centres and one (1) hospital providing obstetric care and 6 staffs (midwives, medical officer and district director) in the Kadjebi District

3.4 Study Variables

i. Administer parenteral antibiotics

ii. Administer parenteral oxytocic drugs

iii. Administer parenteral anticonvulsant for pre-eclampsia and eclampsia

iv. Perform manual removal of placenta

V. Perform removal of retained products (e.g. manual vacuum aspiration)

vi. Perform assisted vaginal delivery

vii. Perform surgery (Caesarean section)

viii. Perform blood transfusion

3.5 Pre-testing

This was carried out in Jasikan District at the Jasikan Hospital and one health centre since they have almost the same demographics and to assess if health personnel understands it.

3.6 Data Handling

Answered questionnaires and checklist were kept in files with the in-depth interview recordings being kept on a memory card.

3.7 Data Analysis

Data was analyse using Microsoft Excel.Facilities were grouped into health centres, and a hospital to facilitate analysis. Frequency distribution of all the variables was run and description, explanation and interpretation of findings were made.The results are presented using diagrams.

3.8 Ethical Consideration

It was sought from ethics review board of GHS and ENSIGN College of public health.

The import of the study was discussed and a verbal informed consent obtained from the District Health Administration. The heads of the health facilities were

reassured that the study was not meant to identify problems for criticism and blame.

3.9 Limitations of StudyInadequate funds and time constraints limited the study.

For example, the head of the hospital was not met for an in-depth interview on how to improve the assessment of emergency obstetric and newborn care services in the Kadjebi District due to lack of time. Also due to familiarity with staffs some of the answers from the in-depth interview might have been compromised. Not all heads of facilities were interviewed as this could have given different perspectives to their unique challenges.

Chapter 4

4.0 RESULTS

4.1 Introduction

I administered checklist on EmONC with routine newborn care for both basic and comprehensive facilities, supervision checklist for Health Centre's and Hospitals, in-depth interviews with key health workers. Six health care facilities at the district provides EmONC and they include;

- One mission hospital
- Five health centres

This shows the various basic signal functions provided by the five various health centers in the district.

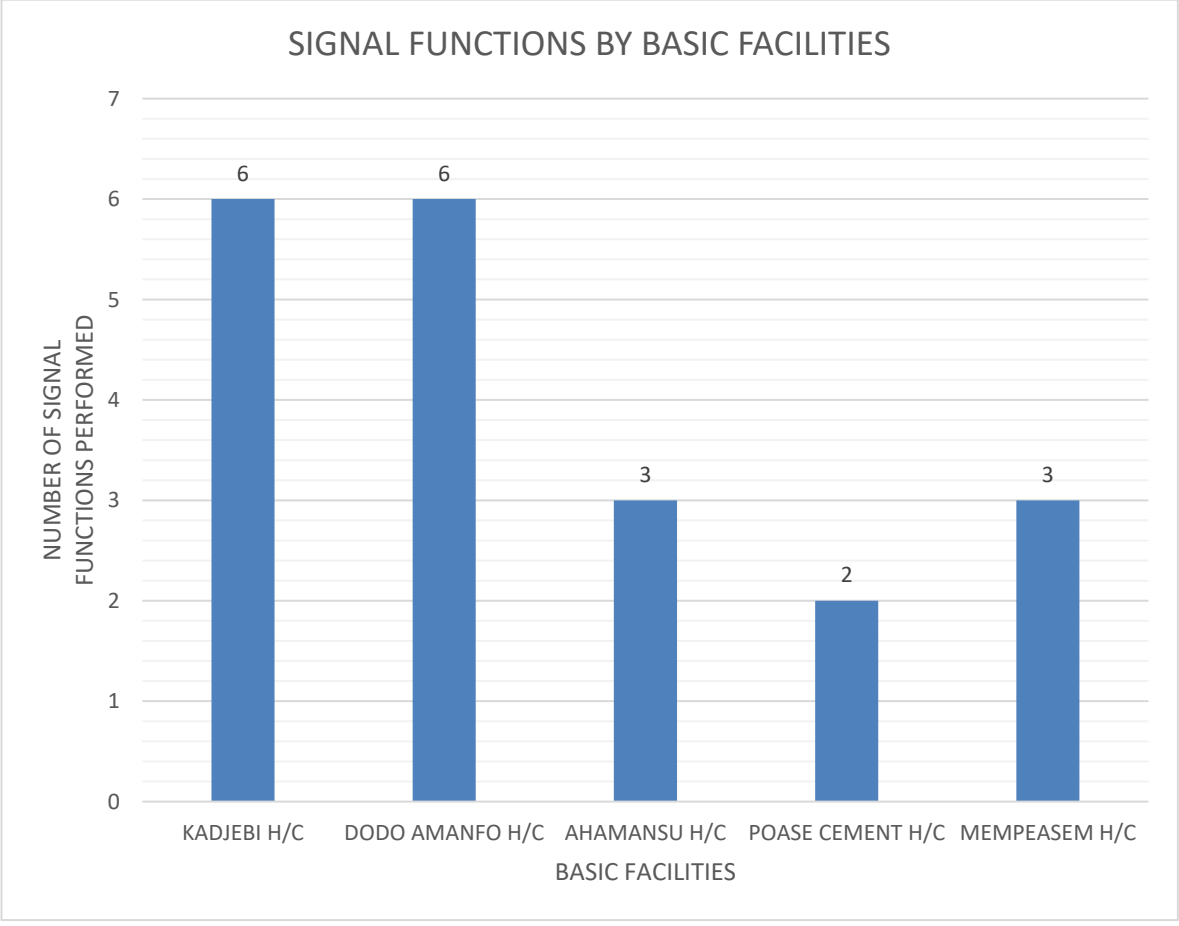
Table 1. Signal functions provided by basic EmONC facilities in last three months

	KADJEBI H/C	DODO AMANFO H/C	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C	NUMBER	%
PARENTERAL ANTIBIOTICS	YES	YES	NO	NO	NO	2	40
OXYTOXIC ADMINISTRATION	YES	YES	YES	YES	YES	5	100
ANTICONVULSANT ADMINISTRATION	YES	YES	NO	NO	NO	2	40
MANUAL REMOVAL OF PLACENTA	YES	YES	YES	NO	YES	4	80

REMOVAL OF RETAINED PRODUCTS	YES	YES	NO	NO	NO	2	40
ASSISTED VAGINAL DELIVERY	NO	NO	NO	NO	NO	0	0
NEWBORN RESUSCITATION	YES	YES	YES	YES	YES	5	100

The result shows that not all the signal functions were performed by the facilities.

Graph 1. Facilities offering the number of basic EmONC



The results shows that two facilities practice six of the signal functions.

A checklist on routine newborn care services by basic facilities was administered and the results were as follows,

Table 2. Routine Newborn care services by basic facilities

	KADJEBI H/C	DODO AMANFO H/C	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Thermal protection	YES	YES	YES	YES	YES
Immediate and exclusive breastfeeding	YES	YES	YES	YES	YES
Hygienic cord care	YES	YES	YES	YES	YES
Antibiotics to mother if preterm/prolong PROM	YES	YES	YES	YES	YES
Corticosteriods in preterm mother	NO	NO	NO	NO	NO
Resuscitation with bag and mask of non-breathing baby	YES	YES	YES	YES	YES

KMC for premature/very small babies	YES	NO	NO	NO	NO
Alternative feeding if baby unable to breastfeed	NO	NO	NO	NO	NO
Injectable antibiotics for neonatal sepsis	YES	YES	YES	NO	NO
(PMCT) if HIV positive mother	YES	YES	YES	NO	NO

The results shows that majority of the facilities practice newborn care.

A checklist on the availability of supplies/equipment/human resources were used to administer on basic facilities and the results were as follows,

Table 3. Supplies/equipment/human resource of basic facilities

	KADJEBI H/C	DODO AMANF H/C	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Medical Officer	YES	YES	NO	NO	NO
Physician Assistant	YES	YES	NO	NO	NO
Midwives	YES	YES	YES	YES	YES
Oxytocics	YES	YES	YES	YES	YES
Anticonvulsants	YES	YES	NO	NO	NO
Penicillin	YES	YES	NO	NO	NO
Gentamycin	NO	NO	NO	NO	NO

Metronidazole	YES	YES	YES	YES	YES
Ampicillin	NO	NO	NO	NO	NO
I.V infusion sets	YES	YES	YES	YES	YES
I.V fluids	YES	YES	YES	YES	YES
Ovum forceps	YES	YES	YES	YES	YES
Vaginal speculum	YES	YES	YES	YES	YES
Artery forceps	YES	YES	YES	YES	YES
Needles	YES	YES	YES	YES	YES
Sutures	YES	YES	YES	YES	YES
Syringes	YES	YES	YES	YES	YES
Sterilizer	YES	YES	YES	YES	YES
Scissors	YES	YES	YES	YES	YES
Curette	YES	YES	YES	YES	YES
Sphygmomanometer	YES	YES	YES	YES	YES
Test tubes	YES	NO	NO	NO	NO
Slides	YES	NO	NO	NO	NO

The results indicate most facilities have issues with supplies.

A checklist on reasons for non-administration of antibiotics by some basic facilities were administered and the results were as follows,

Table 4.Reasons for antibiotics not administered

	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Human resource	YES	NO	NO
Training issues	NO	NO	NO
Supplies/equipment/drugs	YES	YES	YES
Managerial issues	YES	YES	NO

Policy issues	YES	YES	YES
No indication	NO	NO	NO

The result shows that policy issues account mostly for this.

A checklist on reasons for anticonvulsants not being used by some basic facilities were administered and the results were as follows,

Table 5. Reasons for anticonvulsants not administered

	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Human resource	NO	NO	NO
Training issues	NO	NO	NO
Supplies/equipment/drugs	NO	YES	YES
Managerial issues	NO	YES	NO
Policy issues	NO	NO	YES
No indication	YES	YES	NO

The result shows supplies being a contributing factor.

A checklist for reasons accounting for non-removal of retained products by some basic facilities administered shows results as follows,

Table 6. Reasons for non-removal of retained products

	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Human resource	NO	NO	NO
Training issues	NO	NO	NO
Supplies/equipment/drugs	NO	YES	YES
Managerial issues	NO	NO	YES
Policy issues	NO	NO	YES

No indication	YES	YES	YES

Most of the facilities did not encounter cases that have indication for retained products.

A checklist on the type of oxytoxic and anticonvulsants being administered by basic facilities shows the following results,

Table 7. Types of oxytoxics and anticonvulsants given by facilities

	KADJEBI H/C	DODO AMANFO H/C	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C	ST MARY THERESA HOSPITAL
OXYTOCIN	YES	YES	YES	YES	YES	YES
ERGOMETRINE	YES	NO	NO	NO	NO	YES
MAGNESSIUM SULFATE	YES	YES	YES	NO	NO	YES
DIAZEPAM	YES	YES	NO	NO	NO	YES
MISOPROSTOL	YES	NO	NO	NO	NO	YES

The result indicates all the facilities using oxytocin.

A checklist on reasons why some basic facilities were not performing assisted vaginal delivery were used and the results were as follows,

Table 8. Reasons for non-performance of assisted vaginal delivery

	KADJEBI H/C	DODO AMANFO H/C	AHAMANSU H/C	POASE CEMENT H/C	MEMPEASEM H/C
Human resource	NO	NO	NO	YES	YES
Training issues	YES	NO	YES	NO	YES
Supplies/equipment/ drugs	NO	YES	YES	YES	YES

Managerial issues	NO	YES	YES	NO	YES
Policy issues	YES	YES	YES	YES	YES
No indication	NO	NO	YES	NO	YES

Result shows that policy issues accounting for the reasons why it is not being carried out.

A checklist on signal function services administered on a comprehensive facility and the results were as follows,

Table 9.Signal functions of comprehensive EmONC

	SAINT MARY THERESA HOSPITAL
PARENTERAL ANTIBIOTICS	YES
OXYTOXIC ADMINISTRATION	YES
ANTICONVULSANT ADMINISTRATION	YES
MANUAL REMOVAL OF PLACENTA	YES
REMOVAL OF RETAINED PRODUCTS	YES
ASSISTED VAGINAL DELIVERY	YES
NEWBORN RESUSCITATION	YES
BLOOD TRANSFUSION	YES
CESAREAN SECTION	YES

The result shows that all the signal function is being performed.

A checklist on newborn care services were administered on a comprehensive facility and the results were as follows,

Table 10. Comprehensive newborn care for Hospital

BASIC EmNC	SAINT MARY THERESA HOSPITAL
Thermal protection	YES
Immediate and exclusive breastfeeding	YES
Hygienic cord care	YES
Antibiotics to mother if preterm/prolong PROM	YES
Corticosteriods in preterm mother	YES
Resuscitation with bag and mask of non-breathing baby	YES
KMC for premature/very small babies	YES
Alternative feeding if baby unable to breastfeed	YES
Injectable antibiotics for neonatal sepsis	YES
(PMCT) if HIV positive mother	YES
COMPREHENSIVE EmNC	
Intravenous fluids	YES
Safe administration of oxygen	YES
Availability of incubator	NO

The result shows that the facility does not have an incubator.

A checklist on the availability of supplies/equipment/human resources by the hospital and the results were as follows,

Table 11. Supplies/equipment/human resource of comprehensive facility

	SAINT MARY THERESA HOSPITAL
Doctors	YES
Aneasthetist	YES
Nurse/midwives	YES
Theatre attendant	YES
Oxytocics	YES
Anticonvulsants	YES
Procaine penicillin	YES
Crystalline penicillin	YES
Gentamycin	YES
Metronidazole	YES
Ampicillin	YES
Local anaesthetics	YES
General anaesthetic	YES
Oxygen	YES
Labour Room	
Vacuum extractor	YES
I.V infusion sets	YES
I.V fluids	YES
Ovum forceps	YES
Vaginal speculum	YES
Artery forceps	YES
Needles	YES

Sutures	YES
Syringes	YES
Sterilizer	YES
Scissors	YES
Curette	YES
Sphygmomanometer	YES
Microscope	YES
Test tubes	YES
Slides	YES
Blood Bank	
Blood bags	YES
Anti-sera	YES
Storage capability	YES
Operating Theatre	
C-section set	YES
Laporatory set	YES
Neonatal intubation set	YES

The result shows that the facility is well equipped.

The table shows the demographic characteristics of the respondents of the in-depth interview conducted.

Table 12. DEMOGRAPHICS OF RESPONDENTS OF IN-DEPTH INTERVIEW

	SEX	AGE		YEARS OF WORKING EXPERIENCE	CURRENT POSITION	NO. OF YEARS IN CURRENT POSITION
1.	MALE	56	DISTRICT DIRECTOR OF HEALTH SERVICES	21YRS	DISTRICT DIRECTOR	7
2.	MALE	28	MEDICAL OFFICER	2YRS	MEDICAL OFFICER	2
3.	FEMALE	48	SNR MIDWIFERY OFFICER	18 YRS	IN-CHARGE MATERNITY WARD-KHC	7
4.	FEMALE	49	MIDWIFERY OFFICER	15 YRS	IN-CHARGE MATERNITY WARD-AHAMANSU H/C	5
5	FEMALE	31	STAFF MIDWIFERY	6YRS 9MONTHS	IN-CHARGE MATERNITY WARD - POASE CEMENT H/C	9 MONTHS

6.	FEMALE	30	STAFF MIDWIFERY	6 YRS	IN-CHARGE MATERNITY WARD- MEMPEASEM H/C	6 MONTHS

13.0 INDEPTH INTERVIEW

13.1 Issues relating to nonuse of parenteral antibiotics and anticonvulsants

Based on the in-depth interview responses drugs are not administered mainly because of non-availability.

Could not get supplies from regional medical stores and its difficult getting from open market because there is no cash due to delay of reimbursement from National Health Insurance Authority (56years old male from the directorate)

Some of the antibiotics are not at our level of prescription so we cannot use since the health insurance will not pay and those at our level are not supplied from the district medical stores (31 year old female in charge)

Not given from the district medical store although we requested for it because there is none there. (49 year old female in charge)

The in-charge only uses the parenteral antibiotics at the general side (49 year old female in charge)

13.2 Non availability of equipment and supplies

Based on the in-depth interview responses the lack of supplies, equipment are mainly due to issues relating to purchases.

Region did not supply and it is difficult to buy because there is no funds to be use for it (56 years male officer at directorate)

Most of the equipment's are old and cannot be used and need to be replace (30 years female in charge)

The facilities generates less fund and cannot be used in purchasing these equipment (56 years male officer at directorate)

We always request but always they say there is no money because NHIS have not paid (31 years female in charge)

13.3 Availability of ergometrine and its uses

From the in-depth interview varied reasons account for the non-usage of ergometrine

I don't like using it because if the person is hypertensive you can use it for her since it is contraindicated (31 year female in charge)

It is not in the system and when we request it's not given, I asked my colleagues at the other facilities and they say they don't have it (49 year female in-charge)

We prefer using oxytocin because were told not to use ergometrine (48 year female in charge)

13.4 Availability of blood in the blood bank

From the in-depth interview although efforts are made for blood to be stocked in the blood bank, however human attitude plays a key role.

There is reluctance of relatives to replace blood with the perception that if they donate, it will not be used on their relatives (28 year male officer at the hospital)

Consumption is high due to other medical condition from general practice apart from obstetric cases as the need arises (28 year male officer at the hospital)

A lot donate but upon screening some cannot be used (28 year male officer at the hospital)

13.5 Frequency of in service training

From the in-depth interview although efforts were made to organize in service training as frequent as possible, financial constraints affected it.

We most often depend on region to organize it and when we are selected we send the staffs (56 year male officer at the directorate)

Since I came to the district I have not attended any workshop before because it has not been organized before (30 year female officer in charge)

There are not enough funds to organize workshop for staff so the district depends on stakeholders (56 year male officer at the directorate)

Chapter 5

5.0 DISCUSSION

5.1 Introduction

Information on the study of the assessment emergency obstetric and newborn care in the Kadjebi District will not only be use by health managers and planners to assess the functionality of EmONC but also on how to improve on the health system.

5.2. Provision of Basic and Comprehensive Essential Obstetric Care at various health institutions

The number of facilities in the district, 1 comprehensive and 5 basic EmONC meets the minimum acceptable level. From Table 9, St. Mary Theresa Hospital which serves as the district hospital which could provide full comprehensive EmONC, none of the 5 basic EmONC facilities could provide all the services required to identify a facility as providing basic EmONC. It can thus be said that apart from the district hospital no facility in the district provided full basic EmONC services. There is the need therefore to upgrade the existing services to meet the signal functions. This will ensure prompt management of complicated cases and reduction in the number of referrals and delays in attending to complications thus, help reduce maternal mortality. In a study by Djan et al, (1994) an inventory checklist used to evaluate Juaben Teaching Health Center (JTHC), revealed shortages of basic drugs, equipment and supplies such as lack of surgical facilities and blood transfusion equipment. Material improvement in the form of upgrading the existing facility was made by converting 3 existing rooms into a surgical suite: one room was converted into a changing room, one into a sterilization and scrubbing area and one into an

operating room. The study showed that there is no need to wait for long periods to establish sophisticated health institutions at unaffordable cost before tackling obstetric problems. Also a study by Cynthia Sottie , (2000) in the Brim South of the Ashanti Region found out that out of the 12 facilities only 1 provided full comprehensive essential obstetric care and the remaining 11 could not provide all the services needed to identify a facility as providing basic essential obstetric services.

5.3 Functionality of emergency obstetric and newborn care

From Table 1 and graph 1, none of the basic health facilities provided all the seven signal functions needed to identify the EmOnc status of a facility as providing basic EmONC. Two of them performed six of the seven signal functions. All the facilities provided parenteral oxytocic and newborn resuscitation, two of them gave parenteral antibiotics, anticonvulsants in the form of magnesium sulphate, and also performed removal of retained products needed to identify the facility as providing basic EmONC services. None of the facilities performed assisted vaginal delivery such as vacuum extraction, since none of them had vacuum extractor although a few have been trained to do so. All the nine signal functions needed to identify the EmONC status of the St. Mary Hospital as a comprehensive facility were available and performed during the year under consideration. (Ref table 9). The 2011 Ghana EmONC national report find that the country should have 606 EmONC facilities. According to the assessment it has 89, which points to a gap of 517 facilities (Ghs et al. 2011). Ghana's 76 comprehensive EmONC facilities are 45 short of the mark (Ghs et al. 2011). Whereas Ghana should have 485 basic sites to meet the national

standard of care, the country has 13, leaving a gap of 472. Also a similar study by Cynthia Sottie , (2000) in the Brim South of the Ashanti Region found out that only twelve of the thirty public and private health facilities in the Birim South District, provided obstetric services.

5.4 What are the major factors affecting the functionality of emergency obstetric and newborn care

From Table 4, 5, 6, 8, 10, the major issues hindering the functionality of EmONC in the district includes human resource where there are inadequate midwives, training issues were most of the practicing midwives have not been trained in EmONC services, managerial issues with essential drugs are not available and policy issues due to the non-availability of medical officers or physician assistants at most of the facilities resulting in lower level of prescription. From Table 16 one major factor was the capacity to store adequate number of blood in the facility blood bank. As one officer revealed during the in-depth interview "there is reluctance of relatives to replace the blood with the perception that if they donate it will not be used on their relatives". A similar study conducted by Dr. Zaitoon Qazi in Puntland, Somali (2011) indicate reasons cited for not performing the signal functions, mainly the infrastructure, HR and supply constraints. The referral hospital though designated as CEmONC facilities, could not offer full range of CEmONC signal functions. Lack of skills, human resources, supplies and equipment were the common explanation for not performing newborn resuscitation (Qazi 2011). Many MCH facilities did not provide a signal function because there were no supplies (Injectable antibiotics, oxtyocics and anticonvulsants), space limitations or there was no indication – not necessarily because they were not capable of providing it(Qazi 2011). The majority

of facilities, however, failed to provide signal functions even when they were indicated. The reasons cited for not performing the removal of retained products included lack of human resources, training issues, lack of supplies and equipment, and management issues. While the reason for not doing assisted vaginal deliveries was the lack of supplies and equipment's.

5.5 The availability of equipment/supply at the facilities.

Lack of equipment and supplies or malfunctioning equipment necessary for management of obstetric emergencies plagues health facilities in most developing countries. There is little question that this situation is due in part to the very real issue of limited resources but this is often perpetuated by poor management and organization of available resources. Sensitive equipment often is left unused for a long time because of minor faults. From Table 3, most of the equipment's were available at the facilities. The key drugs needed were unavailable and inadequate. Oxytocic and anticonvulsant in the form of magnesium sulphate were available and adequate, however only 3 of the facilities are using oxytocics, magnesium sulphate, diazepam, and two uses misoprostol (Table 7). The rest of the items on the checklist needed in the labour room were all available, adequate and functioning, (see Table 3). On laboratory equipment there was adequate equipment at two facilities with four having nonfunctional laboratories. Reagents needed in the blood bank were available and adequate with 10 bags of blood available.

From point 13.1 0ne officer said "Region did not supply and because there is no funds to be use" and another said "The facilities generates less fund and cannot be used in purchasing these equipment's" A similar study by Cynthia Sottie in the Brim

South (2011), showed that in the labour room of the maternity homes, all had IV infusion sets except one which claimed it had run out of stock the previous day. All had IV fluids and had at least one functioning sphygmomanometer except one, which had none. The Ghana EmONC National report (2011) also indicated that ergometrine injection and oxytocin are the most common oxytocics likely to be found at all levels of the health service. Misoprostol is a prostaglandin which is more likely available in hospitals than in health centres and lower level facilities(Ghs et al. 2011). A similar study by Ijadunal, K.T. et al in Ife South LGA observed that parenteral oxytocics were available in only half of the facilities, while parenteral anti-convulsants for the management of hypertensive diseases of pregnancy were available in 11.5% of the facilities. Further assessment of the availability of equipment and supplies necessary for EOC services showed that intravenous infusion fluids were not available in 20 (77%) health facilities, and there were no latex gloves in more than two-thirds of the facilities. Half of the facilities did not have sterile syringes and needles, while 69% had no vaginal speculums. More than a quarter (27%) of the facilities had no sphygmomanometers to monitor the blood pressure of obstetric clients under their care (Ijadunolal et al. 2007).

5.6 Adequate numbers of health workers with the right mix of skills

All the facilities have at least one midwife with 2 of the basic EmONC facilities having physician assistants (Table 3 and 11). Although there are other category of staffs who are assisting in delivery of services most of the health centres with the exception of Kadjebi health centre (having four), the rest of the health centres has one midwife and this will compromise care delivery since at least there must be two

midwives. The Ghana EmONC National report (2011) also indicated that, most health centres, clinics, maternity homes and CHPS Compounds had only 1 midwife (57%, 61%, 55%, and 41% of facilities, respectively) while 7%, 9%, 1% and 57% of these facilities had no midwife (Ghs et al. 2011). A total of 35% of health centres, 29% of Health clinics, 44% of Maternity homes and 2% of CHPS compounds had two or more midwives currently working (Ghs et al. 2011). A similar study to assess basic emergency obstetric care in mid-level in health facilities in the districts of Ainaro and Manufahi in Timor shown that only two of the facilities admitted to having midwives present twenty-four hours a day every day. On average, midwives interviewed assist with only seven births a month.

Chapter 6

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

There is no doubt as to the effectiveness and contributions of emergency obstetric and newborn services in reducing maternal and neonatal deaths. In the Kadjebi District there were five health facilities providing basic emergency obstetric and newborn services and one hospital providing comprehensive emergency obstetric and newborn services. None of the five facilities were able to provide the full range of signal functions needed to identify a facility as providing basic EmONC however the hospital provides all the signal functions needed for comprehensive EmONC. Most of the basic facilities provided nothing beyond normal delivery, complicated obstetric cases could not be handled at all these facilities and had to be referred to the hospital.

Lifesaving skills such as removal of retained products, administration of parenteral antibiotics and anticonvulsants could not be performed by most of the health facility staff providing basic EmONC with none providing assisted vaginal delivery. The factors found to be associated with these were lack of trained health staff due to inappropriate distribution and inadequate number of trained staff, lack of equipment/supply and policy issues where the NHIS does not pay for such service rendered. Improvement in services is expected to have direct impact on the survival of women with obstetric complications who seek care and their new born. Once services become functional, community education and information activities will enhance utilization. Addressing key areas of improvement such as retention of

human resources and equipment/supply acquisition may increase provision of EmONC services. Increased EmONC availability and readiness across health facilities may help to reduce additional unnecessary delays in seeking and receiving medical services necessary to treat obstetric complications and, in the most serious cases, prevent maternal death.

6.2 Recommendations

In the light of the findings from the study, the following recommendations are being proposed to the District Director of Health Services, Kadjebi District to enable the district provide the needed emergency obstetric and newborn care services

1. The DHMT need to upgrade services in the district to meet the required signal functions. This will mean providing each institution with trained personnel in life saving skills such as removal of retained products and assisted vaginal delivery.

2. There should be regular monitoring and supervision of staff by the DHMT in order to improve performance and ensure also that record-keeping is maintained in all facilities. This will enable problems encountered on the ground are properly documented and addressed.

3. Periodic in-service training must be organized for all midwives by the DHMT especially on lifesaving skills in order to upgrade their skills. The district directorate should have need assessment done on all midwives to be posted to the district. This is to enable the district identify the skills required by the midwives and provide the appropriate training to make them proficient.

4. The DHMT must develop a rotation for remote midwives to practice obstetric skills in facilities with a higher number of abnormal obstetric cases. This facility must provide them with hands-on practice.

5. The management of Saint Mary Theresa hospital must ensure provision of the necessary equipment for adequate obstetric care. The equipment provided must be regularly maintained. There is also an urgent need for education and regular organization for donation at the blood bank to have more blood stored in the blood bank.

Blood donor policy should be instituted where families of all pregnant women will have to donate a pint of blood on their behalf and also the need to identify the period in which blood is used and measures put in place to stock it. This will augment the quantity of blood available at any given time. The study identified that there were periodic shortages of blood at the blood bank.

6. The DHMT must engage the district NHIA for the need to reimbursed services rendered in terms of some of the signal functions. The district has only one hospital which is the mission hospital, but serves as the district hospital.

8. The need for the DHMT to collaborate with stakeholders especially NGO's for regular supply of basic equipment, drugs for efficient service delivery.

9.The DHMT must engage with the Regional Health Directorate to post more staff especially midwives who are equipped with lifesaving skills to the district and in the long term the District Assembly to sponsor midwives who will come back to serve the district. Also motivational packages put in place to entice midwives to willing come and stay at the place and work.

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APPENDEX A

CHECKLIST ON EmONC (MPH ENSIGN COLLEGE OF PUBLIC HEALTH)

Interviewee Name

_____

Date (dd/mm/yyyy): ___ / ___ / ___ INSTITUTION

.....

Instructions: *"parenteral" means by injection, either intramuscular or intravenous.*

1.	Have antibiotics been administered parenterally in the last 3 months?	Yes .....1 No 0	If "Yes," skip to Item 4
2.	If parenteral antibiotics were NOT administered in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify)* _____	Spontaneously mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	
3.	If parenteral antibiotics were NOT administered in the last 3 months, were they administered in the last 12 months?	Yes .....1 No 0	
4.	If parenteral antibiotics were NOT administered in the last 3 months, were they administered in the last 12 months?	Yes .....1 No 0	
5	Have oxytocics been administered parenterally in the last 3 months?	Yes ..... 1 No 0	If "No," skip to Item 7
6	If parenteral oxytoxics were administered in the last 3 months, which type of oxytocic was used? *(circle one)*	Oxytocin ..... 1 Ergometrine ..... 2 Both ..... 3 Other *(specify)*..... 4	All responses to this item skip to Item 10
7.	If parenteral oxtyoxics were NOT administered in the last 3 months, why? *(circle 1 for all spontaneous answer; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify)*	Spontaneously Mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	
8.	If parenteral oxytocics were NOT administered in the last 3 months, were they administered in the last12 months?	Yes ..... 1 No 0	If "No," skip to Item 10
9.	If parenteral oxytocics were administered in last 12 months, which type of oxytoxic was used? *(circle one)*	Oxytocin ..... 1 Ergometrine ..... 2 Both ..... 3 Other *(specify)*..... 4	

10.	Is misoprostol used in this facility for obstetric indications?	Yes ..... 1 No 0	
11	Have anticonvulsants been administered parenterally in the last 3 months?	Yes ..... 1 No 0	If "No," skip to Item 13
12	If parenteral anticonvulsants were administered in the last 3 months, which type of anticonvulsant was used? *(circle one)*	Magnesium sulfate ..... 1 Diazepam ..... 2 Both ..... 3 Other *(specify)*..... 4 _____	All responses to this item skip to Item 16
13	If parenteral anticonvulsants were NOT administered in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify*	Spontaneously Mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	
14	If parenteral anticonvulsants were NOT administered in the last 3 months, were they administered in the last 12 months?	Yes ..... 1 No 0	If "No," skip to Item 16
15.	If parenteral anticonvulsants were administered in last 12 months, which type of medication was used? *(circle one)*	Magnesium sulfate ..... 1 Diazepam ..... 2 Both ..... 3 Other *(specify)*..... 4	
16	Has manual removal of placenta been performed in the last 3 months?	Yes ..... 1 No 0	If "Yes," skip to Item 19
17.	If manual removal of placenta was NOT performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other (specify)	Spontaneously Mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	
18.	If manual removal of placenta was NOT performed in the last 3 months, has it been performed in the last 12 months?	Yes ..... 1 No 0	
19.	Has removal of retained products been performed in the last 3 months?	Yes ..... 1 No 0	If "No," skip to Item 21
20	If removal of retained products was performed in last 3 months, which method was used? *(read options)* a. Vacuum aspiration b. Dilatation and curettage (D&C) c. Dilatation and evacuation (D&E) d. Misoprostol	Yes / No 1 / 0 1 / 0 1 / 0 1 / 0	
21	If removal of retained products was NOT performed in the last 3 months, why?	Spontaneously Mentioned / Not mentioned	

	(circle 1 for all spontaneous answers; otherwise circle 0) a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other (specify	 1 0 1 0 1 0 1 0 1 0 1 0 1 0	
22.	If removal of retained products was NOT performed in the last 3 months, has it been performed in the last 12 months?	Yes .....1 No 0	
23	If removal of retained products was performed in last 12 months, which method was used? *(read options)* a. Vacuum aspiration b. Dilatation and curettage (D&C) c. Dilatation and evacuation (D&E) d. Misoprostol	Yes No 1 0 1 0 1 0 1 0	
24	Has assisted vaginal delivery (vacuum or forceps) been performed in the last 3 months?	Yes .....1 No 0	
25	If assisted vaginal delivery was performed in last 3 months, what instrument was used? *(circle one)*	Vacuum extractor .....1 Forceps .....2 Both 3	
26	If assisted vaginal delivery (vacuum or forceps) was NOT performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify*	Spontaneously Mentioned Not mentioned 1 0 1 0 1 0 1 0 1 0 1 0 1 0	
27	If assisted vaginal delivery (vacuum or forceps) was NOT performed in the last 3 months, has it been performed in the last 12 months?	Yes ..... 1 No 0	If "No," skip to Item 29
28	If assisted vaginal delivery was performed in last 12 months, what instrument was used? *(circle one)*	Vacuum extractor ..... 1 Forceps ..... 2 Both 3	
29	Has newborn resuscitation with bag and mask been performed in the last 3 months?	Yes ..... 1 No 0	If "Yes," skip to Item 32

30	If newborn resuscitation with bag and mask was NOT performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. *other (specify*	Spontaneously Mentioned / Not mentioned 1 0 1 0 1 0 1 0 1 0 1 0 1 0	
31	If newborn resuscitation with bag and mask was not performed in the last 3 months, has it been performed in the last 12 months?	Yes ..... 1 No 0	
32	Has a cesarean been performed in the last 3 months?	Yes ..... 1 No 0	If "Yes," skip to Item 35
33	If a cesarean was NOT performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify)*	Spontaneously Mentioned / Not mentioned 1 0 1 0 1 0 1 0 1 0 1 0 1 0	
34	If a cesarean was NOT performed in the last 3 months, has it been performed in the last 12 months?	Yes ..... 1 No 0	If "No," skip to Item 36
35	What type of anesthesia is currently used when performing a cesarean delivery? *(read options out loud)* a. General b. Spinal/epidural c. Ketamine d. Other *(specify*	Yes / No 1 0 1 0 1 0 1 0	
36	Has blood transfusion been performed in the last 3 months?	Yes ..... 1 No 0	If "No," skip to Item 38
37	If blood transfusion was performed in the last 3 months, describe the primary supply of blood. *(circle one)*	Blood comes from central blood bank . 1 Blood comes from a facility blood bank .2 Blood is collected from family or friends as needed (i.e., direct transfusion) ..... 3 Other *(specify)* 4	All responses to this item skip to Item 41
38	If blood transfusion was NO performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify*	Spontaneously Mentioned / Not mentioned 1 0 1 0 1 0 1 0 1 0 1 0 1 0	

39	If blood transfusion was NOT performed in the last 3 months, has it been performed in the last 12 months?	Yes ..... 1 No 0	If "No," skip to Item 37
40	If blood transfusion was performed in the last 12 months, describe the **primary** supply of blood: *(circle one)*	Blood comes from central blood bank. 1 Blood comes from a facility blood bank 2 Blood is collected from family or friends as needed (i.e., direct transfusion) ..... 3 Other *(specify)* 4	
41	Does staff routinely practice active management of the third stage of labor?	Yes ..... 1 No 0	
42	Has a partograph been used to manage labor in the last 3 months?	Yes ..... 1 No 0	If "Yes," skip to Item 43
43	If a partograph has NOT been used to manage labor in the last 3 months, why? *(circle 1 for all spontaneous answer; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify)*	Spontaneously Mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	
44	Has a breech delivery been performed in the last 3 months?	Yes ..... 1 No 0	
45	If a breech delivery was NOT performed in the last 3 months, why? *(circle 1 for all spontaneous answers; otherwise circle 0)* a. availability of human resources b. training issues c. supplies/equipment/drugs d. management issues e. policy issues f. no indication g. other *(specify)*	Spontaneously Mentioned / Not mentioned 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0 1 / 0	

APPENDEX B

CHECKLIST ON ROUTINE NEWBORN CARE

46	Thermal protection	YES - 1	NO - 0
47	Immediate and exclusive breastfeeding	YES - 1	NO - 0
48	Hygienic cord care	YES - 1	NO - 0
49	Anti-biotics to mother if preterm/prolong PROM	YES - 1	NO - 0
50	Corticosteriods in preterm mother	YES - 1	NO - 0
51	Resuscitation with bag and mask of non-breathing baby	YES - 1	NO - 0
52	KMC for premature/very small babies	YES - 1	NO - 0
53	Alternative feeding if baby unable to breastfeed	YES - 1	NO - 0
54	Injectable antibiotics for neonatal sepsis	YES - 1	NO - 0
55	(PMTCT) if HIV positive mother	YES - 1	NO - 0
	COMPREHENSIVE EmNC		
56	Intravenous fluids	YES - 1	NO - 0
57	Safe administration of oxygen	YES - 1	NO - 0
58	Availability of incubator	YES - 1	NO - 0

APPENDEX C

SUPERVISION CHECKLIST FOR HOSPITAL

	AVAILABILITY		Comments (Eg .,reasons for nonavailability
Doctors\obstetricians	YES-1	NO-0	
Nurse\midwives	YES-1	NO-0	
Anaesthetist	YES-1	NO-0	
Theatre attendant	YES-1	NO-0	
Oxytocics	YES-1	NO-0	
Anticonvulsants	YES-1	NO-0	
Procaine penicillin	YES-1	NO-0	
Crystalline penicillin	YES-1	NO-0	
Gentamycin	YES-1	NO-0	
Metronidazole	YES-1	NO-0	
Ampicillin	YES-1	NO-0	
Local anaesthetics	YES-1	NO-0	
General anaesthetic	YES-1	NO-0	
Oxygen	YES-1	NO-0	
Labour Room			
Vacuum extractor	YES-1	NO-0	
IV infusion sets	YES-1	NO-0	
IV fluids	YES-1	NO-0	
Ovum forceps	YES-1	NO-0	
Vaginal speculum	YES-1	NO-0	
Artery forceps	YES-1	NO-0	
Needles	YES-1	NO-0	
Sutures	YES-1	NO-0	
Syringes	YES-1	NO-0	
Sterilizer	YES-1	NO-0	
Scissors	YES-1	NO-0	
Curette	YES-1	NO-0	
Sphygmomanometer	YES-1	NO-0	
Microscope	YES-1	NO-0	
Test tubes	YES-1	NO-0	
Slides	YES-1	NO-0	
Blood bags	YES-1	NO-0	
Anti-sera	YES-1	NO-0	
Storage capability	YES-1	NO-0	
IV fluids	YES-1	NO-0	
Ovum forceps	YES-1	NO-0	
Vaginal speculum	YES-1	NO-0	
Artery forceps	YES-1	NO-0	
Needles	YES-1	NO-0	
Sutures	YES-1	NO-0	
Syringes	YES-1	NO-0	
Sterilizer	YES-1	NO-0	
Scissors	YES-1	NO-0	
Curette	YES-1	NO-0	
Sphygmomanometer	YES-1	NO-0	
Laboratory equipment			
Microscope	YES-1	NO-0	

Test tubes	YES-1	NO-0	
Slides	YES-1	NO-0	
Blood Bank			
Blood bags	YES-1	NO-0	
Anti-sera	YES-1	NO-0	
Storage capability	YES-1	NO-0	
Operating Theatre			
C-section set	YES-1	NO-0	
Laparotomy set	YES-1	NO-0	
Neonatal intubation set.	YES-1	NO-0	

SUPERVISION CHECKLIST FOR HEALTH CENTER AND CLINICS

	AVAILABILITY		Comments (Eg .,reasons for nonavailability
Trained Personnel			
Medical Officer	YES-1	NO-0	
Physician Assistant	YES-1	NO-0	
Nurse\midwives	YES-1	NO-0	
Key Drugs			
Oxytocics	YES-1	NO-0	
Anticonvulsants	YES-1	NO-0	
Penicillin	YES-1	NO-0	
Gentamycin	YES-1	NO-0	
Metronidazole	YES-1	NO-0	
Ampicillin	YES-1	NO-0	
Labour Room			
IV infusion sets	YES-1	NO-0	
IV fluids	YES-1	NO-0	
Ovum forceps	YES-1	NO-0	
Vaginal speculum	YES-1	NO-0	
Artery forceps	YES-1	NO-0	
Needles	YES-1	NO-0	
Sutures	YES-1	NO-0	
Syringes	YES-1	NO-0	
Sterilizer	YES-1	NO-0	
Scissors	YES-1	NO-0	
Curette	YES-1	NO-0	
Sphygmomanometer	YES-1	NO-0	
Laboratory equipment			
Test tubes	YES-1	NO-0	
Slides	YES-1	NO-0	

APPENDEX D

KEY INFORMANT INTERVIEW GUIDE.

This will be conducted on selected heads of facilities where emergency obstetric and newborn services are provided and the district director of health services.

1. Do you perform manual removal of placenta?

b) Do you give parenteral antibiotics/anticonvulsants?

2. Do you have trained personnel for the procedures named above?

b) Are they adequate?

3. Give reasons why the procedures named above are not performed?

4. How often are training sessions organized for staff?

When was the last one organized?

5 Where do you receive your logistics? (Drugs, equipment etc.)

i) District medical store

ii) Regional medical store

iii) NGO's

iv) Others (specify).

6. How often do you receive these logistics?

7. When was the last time you received logistics?

8. What do you think are some of the reasons for the non-functionality of EmONC services?

9. What recommendations do you have for improving the availability of this services?

Thank You.

APPENDEX E

CONSENT DECLARATION

"I have read the information given above, or the information above has been read to me. I have been given a chance to ask questions concerning this study; questions have been answered to my satisfaction. I now voluntarily agree to participate in this study knowing that I have the right to withdraw at any time without affecting future health care services"

Name of **participant** _____

Signature of **Participant** _____

Date / /20_ _

Name of **investigator** _____

Signature of **investigator** _____

Date / /20_ _