

UNIVERSITY OF CAPE COAST

KNOWLEDGE AND UTILISATION OF PARTOGRAPH BY
MIDWIVES IN PUBLIC HEALTH FACILITIES IN THE CAPE COAST
METROPOLIS

ANNA PEACE ASSIFUAH

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METROPOLIS

ANNA PEACE ASSIFUAH

Thesis submitted to the Department of Health, Physical Education and
Recreation of the Faculty of Science and Technology Education, College of
Education Studies, University of Cape Coast in partial fulfilment for the award
of Master of Philosophy Degree in Health Education.

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DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature..... Date.....

Name: Anna Peace Assifuah

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with guidelines on supervision of thesis laid down the University of Cape Coast.

Principal Supervisor's Signature..... Date.....

Name: Dr. Thomas Hormenu

Co-supervisor's Signature..... Date.....

Name: Dr. Charles Domfeh

ABSTRACT

The purpose of this study was to find out midwives' level of knowledge and utilisation of the partograph in the Cape Coast Metropolis. Five public health facilities within the Cape Coast Metropolis were selected for the study. Quantitative cross sectional study design was adopted to collect data from 150 midwives at the maternity units of the five public health facilities. Univariate analysis was used to summarize data in terms of frequency distributions of the variables under study. The findings revealed that 78% of midwives in the Cape Coast Metropolis have fair knowledge on partograph and why it is necessary to use it in the management of labour. A significant percentage of the midwives perceived that using the partograph would improve the maternal and neonatal morbidity and mortality situation in the Metropolis. Over 97% of the midwives reported that they used the partograph to monitor mothers in labour. The study also found that the use of the partograph was affected by factors like inadequate knowledge, lack of periodic training of obstetric care givers on the use of new versions of partograph and lack of positive attitude towards the use of the partograph charts. There was no significant difference between the years of service and utilisation of partograph. The Cape Coast Metropolitan Health Directorate needs to offer occasional orientation for all midwives on the newer versions of partograph and their use. This will ensure their maximum utilisation as intended by the World Health Organization.

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DEDICATION

To my parents, Mr. and Mrs. Assifuah and my children Nana Yaa, Nana Yaw
and Kojo Nyameyie.

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ACRONYMS

ACTH	Adrenocorticotrophic Hormone
APGAR	Appearance Pulse Grimace Activity Respiration
APH	Antepartum Haemorrhage
BP	Blood Pressure
CPD	Cephalopelvic Disproportion
EmOC	Emergency Obstetric Care
GDHS	Ghana Demographic Health Survey
GHS	Ghana Health Service
ICM	International Configuration of Midwives
LSS	life savings skills
MM	Maternal Mortality
MMR	Maternal Mortality Rate
MOH	Ministry of Health
NMR	Neonatal Mortality Rate
PPH	Postpartum Haemorrhage
SDG	Sustainable Development Goal
SM	Safe Motherhood
SMNH	Safe Motherhood and Newborn Health
UNICEF	United Nations International Children's Emergency Fund
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

Background to the Study

Maternal health refers to the health of women during pregnancy, childbirth and postpartum period. It encompasses the health care dimensions of family planning, pre-conception, conception and postnatal to ensure a positive and fulfilling experience in most cases and reduces maternal morbidity and mortality in other cases. For many women, motherhood is associated with ill health, suffering and even death (WHO, 2017).

Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy irrespective of the duration and site of pregnancy, from a cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. The global maternal mortality ratio declined by 44% from 350 deaths to 216 per 100, 000 live births. The death of a woman from a pregnancy-related complication is a tragedy and also represents a serious risk to her existing children (Senah, 2003).

Maternal mortality (MM) has nearly halved since 1990, but levels are far from the target set for 2015. There was an estimated number of 287,000 maternal deaths in 2010 and a ratio of 210 deaths per 100 000 live births. 85% of these deaths occurred in sub-Saharan Africa including Ghana. In addition, the African Union Commission (2012) reported that the lifetime risk of dying due to pregnancy or child birth related complications for woman in Africa is 1 out of 39 while in developed countries the risk is 1 out of 3. There is therefore the need to bridge this gap.

Maternal mortality data in Ghana is collected by each individual institution, rather than compiled nationally and the institutions are judged by their individual performance. The current population of Ghana is 29, 129, 032 as at December, 2017. According to the United Nation's estimates, 3100 women died that year due to the reasons related to pregnancy or childbirth. According to Trends in Maternal Mortality Estimates by World Health Organisation from 1990 to 2013, most of the maternal deaths in Ghana are preventable and about 65% of them are due to four causes. These are Postpartum Haemorrhage, Hypertensive Disorders, Abortion and Sepsis. Following haemorrhage, infection and pre-eclampsia/eclampsia, a significant cause of maternal mortality in Africa is prolonged labour (WHO, 2013). Prolonged labour is a leading cause of death among mothers and newborns in the developing world. If labour does not progress normally, the woman may experience serious complications such as obstructed labour, maternal dehydration, exhaustion, or rupture of the uterus. Prolonged labour may also contribute to maternal infection or haemorrhage and to neonatal infection (WHO, 2013).

Obstructed labour results from a disproportion between the fetal presentation and the mother's pelvis. Statistics from the World Health Organization (WHO) show that 8% or 42,000 of all maternal deaths are caused by obstructed labour (WHO, 2013).

The provision of quality care during child birth is believed to make a difference between life and death or lifelong maiming for millions of women during child birth (Ganesh, 2007; WHO, 2013). Over half a million women lose their lives every year because of complications of pregnancy and

childbirth. Obstructed labour is one of the five major causes of maternal death in many countries. Eight percent of all maternal deaths or approximately 42000 deaths a year are attributed to prolonged labour (WHO, 2013). Prolonged and obstructed labour may result in maternal dehydration, ruptured uterus, vesicovaginal fistula and deaths among others.

Many of those who survive suffer long term disabilities, and often become outcast from society especially with vesicovaginal fistula. In infants, prolonged and obstructive labour may cause aphasia, brain damage, infection and death. Therefore steps to recognizing the act on the abnormally prolonged labour are important ways to reduce maternal and perinatal mortality and morbidity worldwide. Global report on MM shows that the rate continues to be a global burden since about 85 women die from pregnancy or childbirth related complications around the world every day. As part of the Sustainable Development Goals (SDGs) the target is to reduce the Global MM Ratio to less than 70% per 100,000 live births between 2015 and 2030.

According to Magon (2011) majority of maternal deaths and complications attributable to obstructed and prolonged labour could be prevented by cost-effective and affordable health interventions like the use of partograph. To address this problem, the World Health Organization developed the partograph, a simple and reliable graph used in recording the progress of labour and monitoring the health of both the mother and the fetus.

The partograph serves as the early warning system and assists in early decision-making on interventions in labour. These interventions may range from augmentation of labour or delivery by caesarian section to transfer of woman in labour to a referral center. The use of partograph also increases the

quality and regularity of all observations on the woman in labour and her fetus and helps in early recognition of problems with them. The partograph has been used for more than 30 years. It is inexpensive, effective and pragmatic. It can be effectively used in a variety of different settings in developed and developing countries. It is effective in preventing prolonged labour, reducing operative intervention and in improving perinatal outcomes. Floyd (2011) is of the opinion that to avoid the risk of complications or maternal death, women should be assisted during delivery by personnel who have received training in normal child-birth and who are able, if needed, to diagnose, treat, and refer complications.

Midwives provide an essential role in ensuring safe maternity care and their presence at a birth is regarded as key to this. Their skills and abilities are more important than their presence. Global initiatives to strengthen policy intervention for maternal mortality started with the Safe Motherhood Initiative in 1987 by WHO (Horton, 2010). The aim was to raise awareness about the number of women dying each year from complications of pregnancy and childbirth. The target was to reduce maternal morbidity and mortality by 50% by the year 2000 (Magon, 2011). According to Horton (2010) the initiative did not succeed although maternal health has always been a major focus of the WHO's effort. In 1994, the International Conference on Population and Development intensified its commitment to reproductive health by establishing the Millennium Development Goals (MDGs) and the target of MDG was to reduce maternal mortality by three-quarters (75%) from 1990 to 2015 (Horton 2010). In Ghana for instance, where skilled assistance is available, most maternity care is provided by registered midwives. Midwifery

and nursing education is based on the British model where most midwifery education is now provided at degree level.

With accelerated investment into providing access to the essential reproductive health services, such as Family Planning, Clean Delivery, Oxytocin and Misoprostol for management of postpartum haemorrhage, and Magnesium Sulphate for treatment of hypertensive disorders, it is possible to reduce the number of maternal deaths by more than half, bringing the maternal mortality rate to 230 per 100,000 live births.

In the Central Region of Ghana, and for that matter in Cape Coast, the health facilities had made significant strides in the reduction of maternal mortality as it recorded 61 maternal deaths in 2013 as against 64 and 74. To further bring the maternal mortality rate down and achieve the Millennium Development Goals four and five, the Health Administration had made it a top priority to encourage Community Health Nurses and Enrolled Nurses to undertake the Post-basic Midwifery Programme to replace the large number of aging and retiring midwives.

One of the major components of quality care is the presence of skilled attendants at birth. Access to and utilization of skilled care during child birth is, however, extremely limited in many developing African countries particularly in Ghana. The need to increase women's access to skilled birth attendance is highlighted by the MDG 5 and also in Sustainable Development Goal 3 (SDG 3) which seeks to the provision of skilled care of women and new borns.

Skilled management of labour using a partograph, a simple chart for recording information about the progress of labour and the condition of a

woman and the baby during labour, is a key to the appropriate prevention and treatment of prolonged labour and its complications (WHO, 2013). A partograph is one of the valued suitable technologies in use for an improved monitoring of labour progress, maternal and fetal well-being for women in labour.

It is believed that the early detection of abnormal progress of labour by the use of partograph will prevent prolonged labour and its attendant risks of postpartum haemorrhage and sepsis eliminate obstructed labour, uterine rupture and its sequel; all of which are the major causes of maternal mortality and morbidity in our environment (WHO, 2013). However, a study conducted in Ridge Hospital in Accra, Ghana by Floyd (2011) revealed that midwives rarely or only partially used the partograph and that midwives never wrote in the patient's notes.

Literature suggests the utilization of partograph enhances close follow-up of expectant mothers during labour and early postpartum. The partograph offers health professionals with a pictorial overview of the labour to allow early identification and diagnosis of the pathological labour. The WHO recommends using the partograph to monitor labour and delivery, with the objective to improve health care and reduce maternal and fetal morbidity and death (Magon, 2011). According to Soni (2009), WHO advocates the use of partograph as a necessary tool in the management of labour and recommends its universal use during obstetrical labour, therefore, prevention of complications related to labour using the partograph is an important intervention towards reducing maternal and perinatal mortality and morbidity, and in achieving the Sustainable Development Goals 3.1. The tool was also

appreciated in Ghana as an effective instrument to safely monitor expectant mothers during labour, however, skilled birth attendants have not consistently 'bought in' the partograph use. According to Gans-Lartey, O'Brien, Gyekye & Schopflocher (2012) this tool was only completed adequately at 25.6%.

The goal five of the Millennium Development Goals (MDGs) and Sustainable Development Goal 3.1 is to reduce maternal mortality and have a skilled attendant at every birth by 2015 and 2030. This is because maternal mortality represents the single greatest health disparity between high and low income countries especially in the sub-Saharan Africa and Southeast Asia (Gans-Lartey, O'Brien, Gyekye, & Schopflocher, 2012)

The use of partograph is recommended by the WHO (2010). The Ghana Nursing and Midwifery Council (G-NMC), is a signatory to the Key Midwifery Competencies Framework of the International Confederation of Midwives (ICM) that involves the improvement of midwifery care and practices using partograph.

Statement of the Problem

Several articles in the literature justify the use of the partograph as the best tool to establish prolonged and obstructed labour based on the outcome of controlled trials, clinical audits and systematic reviews of randomized trials (Lavender et al., 2009; Hofmeyr, 2004; Mercer et al., 2006; Orji, 2008). Despite the WHO advocating and recommending that the partograph be compulsorily used in monitoring the labour process, it is still reported to be used to a limited extent in Africa or elsewhere in developing countries (Maimbolwa et al., 1997; Windrim et al., 2007), especially in primary health care centres where most of the deliveries take place (Okechukwu et al., 2007).

Studies on partograph utilization show that most parameters on the partograph are not monitored and most health care workers in Sub-Saharan Africa do not document their findings on the partograph after reviewing a woman in labour. Hence the progress of labour may not be closely monitored or labour monitoring may not translate into actions required when need arise. In addition, skilled providers often feel that completing the partograph is an additional time-consuming task, and they do not always understand how it can save women's lives. Observations I have made in some maternity units also showed that some clients were not monitored on partograph.

Recent studies in some African countries such as Ethiopia and Nigeria among others have reported a significant gap between knowledge and practice with the use of partograph in obstetrics. A host of researchers including Yisma, Dessalegn, Astatkie and Fesseha (2013) indicated that to effectively use the partograph, requires knowledge and skills. These studies showed that although majority of the participants knew what partograph is and believe utilization of partograph would reduce maternal and newborn death, their knowledge about components of the partograph was poor.

Similarly, Yisma et al. (2013) in a cross-sectional quantitative study to assess knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, affirms that knowledge of the function of both alert line and action lines on the partograph were poor. In addition, there is limited literature highlighting nurses and midwives' knowledge of partograph in health facilities in Ghana.

Purpose of the Study

The purpose of this study was to establish and describe the factors that contribute to the utilisation of the partograph by midwives during the management of women in labour.

Research Questions

The following research questions guided the study:

1. What is the knowledge level of midwives on partograph utilization in the Cape Coast Metropolis?
2. What is the perception of midwives on utilization of partograph in the Cape Coast Metropolis?
3. What are the challenges of partograph utilization by midwives in the public health facilities in the Cape Coast Metropolis?
4. Is there any association between years of experience of midwives and partograph utilization in the Cape Coast Metropolis?

Significance of the Study

It is expected that findings of this study will identify barriers to the use of the partograph in the health facilities in the Cape Coast Metropolis. It will also serve as basis for health policy-makers to instill good management practices in the healthcare delivery system, with respect to improvement of quality of care in labour and early post-partum wards.

In addition, the findings from this study could provide baseline information for further studies on the use of partograph and quality care in the labour and early post-partum wards in Cape Coast health facilities in particular, and Ghana in general. It would also be useful in designing

professional and continuing education programmes for nurses and midwives as well as formulating policies that may influence delivery of care to pregnant mothers in labour.

Delimitation

The study was delimited to only practicing midwives who were working in the maternity units in selected public health facilities in the Cape Coast Metropolis. Five health facilities within the Cape Coast Metropolis namely; The Cape Coast Teaching Hospital, Metropolitan Hospital, Ewim Polyclinic, Adisadel Urban Health and Efutu Health Centres were selected for the study.

Limitations

The sample size was part of the limitations for the present study. The study was only conducted in five health facilities in one metropolis in Ghana out of 216 MMDAs. This implies that the findings cannot be generalized to the whole country since it is limited to health facilities in Cape Coast Metropolis.

Definition of Terms

Asphyxia: Failure of the newborn baby to initiate and sustain respiration at birth

APGAR score: A scoring system used to assess the condition of a baby within the first and fifth minute after birth.

Alert and Action lines: These are two diagonal lines which travel diagonally upwards to the point of expected full cervical dilatation (10cm) at a rate of 1cm per hour. They are designed to give warning sign to the health care provider to take decision quickly if labour is not progressing normally.

Caput succedaneum: An oedematous swelling on the fetal head which develops after rupture of membranes.

Fetus: human embryo from eight weeks of conception until birth.

Fetal Distress: a condition in which oxygen supply to fetus is depleted.

Intrapartum: Period within or during labour and delivery.

Maternal distress: condition in which maternal condition is compromised during labour.

Maternal mortality: death of a woman while pregnant or within 42 days of termination of 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.

Moulding: process by which the fetal skull bones overlap or override each other at the sutures and fontanelles during its passage through the birth canal. This leads to alteration in the size and shape of the fetal skull to allow smaller diameter to present at pelvic outlet.

Midwife: A midwife is a person who has successfully completed a midwifery education programme which is duly recognized in the country where it is located, and which is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of ICM Global Standards for Midwifery Education; who has acquired the requisite qualifications to be registered and or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competency in the practice of midwifery.

Multiparous: Women who have borne more than one viable infant.

Neonatal: Newborn up to four weeks old.

Neonatal Mortality Rate: Number of deaths of infants up to four weeks old per 1000 live births in a year.

Nullipara: A woman who has never given birth to a child, this may include those who have had miscarriage before.

Obstetric labour: Obstetric labour is a physiological process whereby the conceptus is expelled out from the uterus and delivered. It is also known as parturition or confinement.

Obstructed Labour: Situation in which there is no evidence of the part of the fetus despite strong uterine contractions, which commonly occurs at the pelvic brim but may occur at the outlet.

Partograph: Partograph is a composite graphical record of key data (maternal, fetal and progress of labour) during labour entered against time on a single sheet of paper.

Postpartum Heamorrhage: Excessive bleeding that occur after delivery

Spontaneous vagina delivery: Ability of the woman to experience normal vaginal birth.

Sepsis: Infection by pathogenic bacteria.

Vertex: An area of the fetal head bounded by the anterior and posterior fontanel, and laterally by parietal eminences which is the favorable presentation in normal labour.

Organization of the Study

The study is organized into five chapters. The first chapter addresses the background of the study which includes the research question that guided the study. The remaining chapters, starting from chapter two discusses both the relevant theories and empirical studies of the research as well as views of

other writers related to the study. The third chapter is the methodology that deals with the research design, research instruments, population of the study, sample and sampling techniques, and data collection procedure and data analysis.

Chapter four presents the results and discussion of the study. Chapter five which is the final chapter presents the summary of the research findings, conclusions and recommendations based on the specific findings and ends with suggested areas for further research.

CHAPTER TWO

LITERATURE REVIEW

The purpose of the study was to find out midwives level of knowledge and utilization of the partograph in the Cape Coast Metropolis. This chapter reviews literature related to both theoretical and empirical sources that documents the current knowledge on partograph utilization. It explores a number of studies that have been conducted in Africa and overseas pertaining to the utilization of partograph. It also explores knowledge gap that needs to be filled which led to this study. Major items discussed were process of Labour, Assessment of mother and fetus during labour, historical Overview of Partograph, maternal Mortality, and Partograph as a Safe Motherhood Initiative (SMI) and programmes to reduce maternal mortality. It also covered the knowledge on Utilization of the Partograph, and midwives' working experience and utilization of partograph, components of the WHO Partograph and conceptual framework were covered as well.

Process of labour

Labour is a physiological process during which the product of conception, that is; fetus, amniotic fluid, membranes, umbilical cord and placenta are expelled out of the uterus. Normal labour starts spontaneously, low risk at the start of labour and remaining so with rhythmic painful uterine contractions at term, that is, between 37 and 42 completed weeks of gestation (WHO, 2017). The fetus presents by the vertex or head. The duration of labour is within 18 to 24 hours and occurs without maternal or fetal trauma; this physiology depends on interaction between the uterus, maternal pelvis and fetus.

During the first stage of labour, cervical effacement and dilatation occur. Contractions and retractions occur at the upper segment of the uterus and dilatation in the lower uterine segment. The second stage of labour is from full dilatation of the cervix until complete delivery of the baby. The third stage involves separation and expulsion of placenta and membranes and control of heamorrhage.

Occasionally labour may be obstructed in which the fetus is unable to negotiate the pelvic canal, with no descent of the presenting part despite good uterine action. Maternal causes of obstructed labour are; a contracted bony pelvis or soft pelvic mass, example fibroids or tumour, and fetal causes include; malpresentation, malposition or abnormality, e.g. hydrocephalus and big size fetus. The dangers associated with obstructed labour may include uterine rupture, post-partum haemorrhage especially in multiparae, sepsis, fistula formation neonatal sepsis, and death.

The actual cause of labour is unknown, but it is believed to be multifactorial in origin; that is a combination of hormonal and mechanical factors. It is believed that, Adrenocorticotrophic hormone (ACTH) stimulates the fetal adrenal glands to secrete cortisol which changes the levels of placental hormones leading to a fall in progesterone and a rise in oestrogen. The hormone oxytocin is also released by the maternal posterior pituitary gland. The rising level of oestrogen causes a release in prostaglandins from the decidua (the lining of uterus). Both oxytocin and prostaglandin causes uterine contractions. The mechanical stimulation of the uterus and cervix is brought about by pressure on the cervix over distention of the uterus, progressive Braxton hick's contractions and other factors.

Other factors may include fear and shock, febrile illnesses and some pregnancy related conditions like eclampsia are also associated with onset of labour. This shows that physical and mental factors play a role in the onset of labour which is not fully understood. There is therefore the need to monitor the condition of the mother, baby and the progress of labour in order to detect and treat any deviation. The partograph is a managerial tool that is used to monitor a woman in labour to prevent complications.

Assessment of Mother and Fetus During Labour

The management of labour used to be largely expectant-“wait and see or “never let the sun set twice on a labouring woman.” This implied that a labour taking up to 48 hours was acceptable. Labours of this length are often emotionally traumatic for women, may complicate fetal condition, and are very demanding on staff resources. In the 1960’s ,’70s and 80s, O’Driscoll and colleagues promoted “active management” of labour for women in their first labour which included regular assessment of cervical dilatation, early intervention, augmentation with uterotonic drug by a skilled birth attendant . Subsequent studies showed that, although this approach reduces the length of labour by a small amount, the only component with a clear benefit in promoting spontaneous vaginal birth is the continuous presence of the birth attendant.

Women have declared their intolerance of long labours, however, by increasingly requesting delivery by caesarian section. Most women who had ever experience difficult childbirth normally may request for caesarean section for subsequent births. In many major maternity units in the developed world, the rate of caesarian section is now 16% or higher. Throughout the ages

women have depended upon a skilled person, usually, another woman to be with them during childbirth (Fraser & Cooper 2009). That person is the midwife, literally “with woman”. Her skill is based on a mixture of art and science. An art because it requires her to be able to understand the woman’s need to encourage her and build her confidence and a science because it demands a high degree of knowledge and decision making. The midwife makes a comprehensive recordings of all the observations made on a woman during labour. This include the physical, psychological and sociological state .This include any problem that arises as well (Marshall & Raynor, 2014). It is the responsibility of the midwife to offer intervention whenever necessary. The partograph has been widely accepted as an effective means of recording the progress of labour as salient features of labour are entered in a visual graphic form. It provides an opportunity for early identification of deviations from normal.

The initial studies done on dilatation of cervix during labour by Friedman in 1954, refers to as Cervicograph, is a diagrammatic representation of the dilatation of cervix charted against the hours in labour. This graph has a sigmoid curve which is divided into two distinct parts: the ‘active and latent’ phases. This was later modified by the WHO for use in health facilities.

Thorough grounding in the knowledge and experience allows the midwife to work skillfully and efficiently (Fraser & Cooper, 2003). I n Ghana when a midwife or a traditional birth attendant cares for a pregnant woman, she becomes an important and central part of that woman’s life story.

The health of neonate is thus closely related to the mother during labour therefore there is the need for continuous monitoring of maternal and

fetal conditions throughout labour. This is because any deviation from maternal condition can also affect the unborn baby. Birth is a dynamic and transforming experience, both on an individual and a societal level, and has the power to profoundly affect the lives of those involved (Lavender et al., 2009; Walsh 2012).

Women have differing needs and the way they approach and experience birth is unique and will depend on a number of factors, including cultural background, education, personal beliefs and previous life experience. In order to meet these varying needs, the midwife should possess wide-range of skills and knowledge, and have the willingness to place the woman at the centre of the care that is provided for her (Marshall & Raynor, 2014).

According to Marshall and Raynor (2014) women and their chosen birth companion(s) should have an equal partnership with health professionals in all decision-making processes, so that they can make informed choices about their own labours and births.

Historical Overview of Partograph

The partograph was designed by Philpott in 1971 in Harare, Zimbabwe. By 1973 the partograph was already considered a simple device used to distinguish normal labour from abnormal labour as it was adopted and used to monitor 15,000 deliveries within 18 months (Studd, 1973). The normal pattern of labour, including two phases (latent and active) of cervical dilation, was first documented on a graph in the 1950s. In the 1960s and 1970s, further research helped to chart the progression of labour and to build a scientific basis for interventions to prevent prolonged labour. These early partographs formed the foundation for the WHO model of the partograph, which was

developed as an international standard following the launch of the worldwide Safe Motherhood Initiative. In 1990–1991, to evaluate the impact of the new partograph, WHO conducted a multicenter trial involving more than 35,000 women in Indonesia, Malaysia, and Thailand. The study showed that when the partograph was introduced into clinical practice along with a management protocol, labour outcomes were greatly improved. Use of the partograph reduced the number of prolonged labours (those labours that lasts longer than 18 hours), the need for augmentation of labour with oxytocin, rates of cesarean section, and the incidence of infection. As a result of this study, WHO recommended that the partograph be used in monitoring all labours to help identify abnormal progress of labour and women who might need further interventions during labour. The observations which are carried out on the woman during labour and the accurate recording of these observations are known as the monitoring of labour. World Health organization launched the partograph in 1987 as a safe motherhood initiative following a multicentre trial in South Asia that involved 35,484 women (WHO, 1994).

The partograph serves as a warning system of arising complications during labour as it assists with intervention decisions and the on-going evaluation of the effects of implemented interventions (Fawole et al., 2008), further-more, the partograph has been widely accepted as one of the measures that assist in reducing maternal and neonatal mortality resulting from obstructed labour (Hofmeyr, 2004). The focus of using the partograph in developing countries including South Africa, as stated by Windrim et al. (2007) is on the prevention of maternal and fetal morbidity and mortality related to prolonged labour, whereas the focus in developed countries is on

early identification and management of dystocia in order to offer appropriate intervention. The skilled management of labour using a partograph, has been endorsed by the WHO and the Society of Obstetricians and Gynecologists of Canada, who cited the identification and management of dystocia as a major priority (WHO, 1994).

A clinical audit of intra-partum care at the Delek Tibetan Hospital in North India from 1996 to 2003 led to the findings of a sustained 50% reduced incidence of postpartum haemorrhage following an introduction of the routine use of the partograph in the management of labour (Mercer et al., 2006). The Saving Mothers Fourth Report on Confidential Enquiries into Maternal Deaths in South Africa from 2005 to 2007 (Department of Health, 2009), led to the development of ten recommendations about the prevention of maternal mortality rate. Recommendation 8 states that “The correct use of the partograph should become the norm in each institution conducting births”. One of the Departments of Health’s targets is that all institutions conducting births must use the partograph. The department further stated an implementation strategy in a form of a policy regarding the use of the partograph. Dating back 25 years on the intrapartum care guidelines in South Africa, the findings led to the notation that the partograph is used in a very small proportion of patients to monitor the progress of labour. Even when one used the partograph, it was often incomplete. The findings recorded on the partograph were often misinterpreted. In some instances the partograph was filled in retrospectively, when women have already given birth, an observation made by the researchers in this study noted during their placement in the labour ward for clinical experience. This brought about a concern that it

seemed midwives uses the partograph as a midwifery record rather than as a labour management tool.

Of all the health indicators monitored by WHO, maternal mortality rates (MMR) demonstrate the largest disparity between higher and lower income countries. The disparity of MMR between countries can largely be attributed to knowledge gap and lack of human, financial and material resources available to women of low socioeconomic status with less education and living in poorer countries. To help bridge this gap, series of activities were designed by the WHO under its Safe Motherhood Programme to update the knowledge and skills of providers of maternity services. The Life Saving Skill (LSS) training programme for midwives and doctors was developed to provide clinical training and practice in such areas as use of the partograph. It is anticipated by those concerned with maternal and neonatal health that if the partograph is adequately used and necessary interventions are promptly initiated, most complications occurring during childbirth will be prevented. This will reduce maternal and neonatal deaths to a level comparable to those observed in higher income countries (Lavender, Lugina & Smith, 2009).

There three levels of prevention, that is, primary, secondary and tertiary. Primary prevention relates to general knowledge applied to client assessment in an attempt to identify stressors before they occur. Secondary prevention relates to symptomatology which includes interventions that are initiated after an encounter with a stressor. Nurses and midwives uniquely use this model to assist individuals, families and other groups to attain and maintain maximum levels of total wellness by purposeful interventions. The use of the partograph is a secondary prevention strategy. It enables providers

to monitor labour effectively so that timely interventions can be taken as needed to ensure the safety of the mother and the newborn.

Research done by Oladapo, Daniel and Olatundji 2006 also revealed that a partograph has clear demarcations which if arrived at or exceeded, clearly indicate the need to address existing imminent complications like poor progress labour, fetal distress and in the worst cases obstructed labour and ruptured uterus.

Ghana adopted the use of partograph in the year 1987 at a safe motherhood conference held in Nairobi after it has been tested and approved for labour monitoring to reduce complications.

The original composite partograph includes a latent phase of eight hours and an active phase of three centimeters cervical dilation. This was modified by the WHO to enable users to use effectively. The WHO modified partograph therefore excludes the latent phase, and the active phase commences at 4cm cervical dilatation.

The partograph gives a pictorial view of observations made on condition of mother and fetus as well as the progress of labour. These observations alert the care giver to take an action promptly when there is a deviation from normal progress. The chart serves as record for all labour observations and a clinical decision making tool. It also functions as a referral system and improve efficiency and effectiveness of labour care. It prompts the user for a timely and appropriate action based on pictorial view when used effectively (Gans-Lartey et al., 2012). This means that progress of labour can be seen at a glance. The picture that a partograph gives when used in monitoring labour can therefore predict the outcome of a particular labour.

The partograph is therefore the best monitoring tool which helps in monitoring and rendering quality care to women in labour. Yisma et al., (2013)

Many users of the composite partograph found its use to be difficult especially when transferring the cervical dilation and other parameters from the latent phase of 0-3cm to the active phase of 4cm above Mottey (2016). Other problems include prolonged latent phase which sometimes calls for the need for caesarean section. The WHO modified partograph has been simplified and excludes the latent phase, when used it reduces the rate of caesarean section as fewer women cross the action line. It is therefore described as a user friendly in terms of plotting the information made on the laboring woman. (Orji, 2008). GHS, 2008 reported that only about half of Ghanaian women receive skilled care at birth. This shows that many pregnant women still prefer to deliver at home and other unrecognized health facilities.

The partograph is used by trained skilled birth attendant, and studies show that effective use of this simple and inexpensive chart can prevent intrapartum related deaths (Lawn et al, 2009). The partograph remains an integral part of intrapartum recordings at frequent intervals. This includes:

1. Fetal heart rate
2. Colour of amniotic fluid
3. Moulding/ Degree of caput succedaneum
4. Maternal vital signs, which include; temperature, pulse, blood pressure
5. Fluid balance
6. Urine analysis
7. Drug administered
8. Frequency and strength of contractions

9. Cervical dilatation

10. Descent of presenting part.

Labour is expected to start and end naturally with minimized risk or no risk to mother and baby, that is mother and baby alive and healthy, for this reason, the partograph was recommended by the WHO as a Safe Motherhood Protocol in monitoring labour (WHO, 2000; Safe Motherhood, 2008). Findings from these studies also show that the introduction of partograph reduced prolonged labour from 6.4% to 3.4% (WHO, UNICEF/UNFPA 2000, GHS 2008).

Lawn et al. (2009) confirms that about 42% of intrapartum deaths and complications will be prevented if a partograph is used effectively in monitoring labour. Obstetric care givers including midwives are the major contributors to the achievement of SDG 3, therefore they must adopt a positive attitude towards the use of the partograph to help curb maternal mortality rate in Ghana. It is therefore important that the essence of partograph and its positive effect on the birth outcome is understood by midwives so as to increase its usage. (Mottey, 2016).

The Ghana government adopted the use of the partograph and formulated policies and guidelines for its appropriate use. These policies and guidelines of the partograph demand that the three components, fetal condition, maternal condition and progress of labour should be correctly and completely charted. The guideline also spells out the category of laboring women for which the partograph should be maintained, For instance, the partograph should be maintained and commenced only when cervical dilatation is between 4cm to 7cm. On the other hand the partograph is not

recommended for use when the cervical dilation is 8cm - 10cm, initial assessment indicates immediate referral, is indicated or a laboring woman is diagnosed of antepartum haemorrhage (Ghana National Safe Motherhood Service Protocol, 2008). The staff side considered knowledge and skills of staff, training on the use of partograph and attitude of staff were considered for the appropriate use of the partograph.

Midwifery

Midwifery is an art and science of caring for women undergoing normal pregnancies, labour and puerperium. The practitioners of midwifery also provide care for the newborn and prepare and support mothers for successful breastfeeding. They provide family planning service, health education and counsel for couples as well.

A practitioner of midwifery is known as a midwife, a term used in reference to both women and men, although most midwives are females (Tiran & Sullivan, 2008). In addition to providing care to women during pregnancy and birth, many midwives also provide reproductive health care to women, annual gynecological examinations, and menopausal care. They are educated and trained to recognize the variations of normal progress of labour and deal with deviations from normal to discern and intervene in high risk situations. Midwifery is a profession on its own and in many developed nations it is the entry point for maternity care having demonstrated safety, satisfying and cost-effectiveness for decades. Midwives generally trust the developmental and physiological process that is normal for most women, and utilize interventions as needed whereas obstetricians provide surgery and instrumental deliveries in complex situations and complicated pregnancies. Midwives refer women to

specialists such as obstetricians in complications related to pregnancy and birth when a pregnant woman requires care beyond the midwives' scope of practice. In many part of the world, these professions work in tandem to provide care to childbearing women. For normal births, midwives offer care at a lower cost, use lower intervention.

A midwife is a person who is 'with woman', that is, during the events which concerns childbearing, before conception, pregnancy, perinatal period and postpartum period. A midwife may be a male or female, that is the population of midwives include masculine (Fraser & Cooper, 2003). The feminine pronoun is used for convenience in this study since all the midwives in the Cape Coast metropolis are all female at the time conducting this research.

The WHO definition of a midwife assumes that a midwife must undergo a recognized course of preparation, acquire a qualification and be licensed to practice. Her special remit is the care of women during pregnancy, labour and the postpartum period. She is a practitioner of normal midwifery but must also practice preventive care, identify abnormalities and call in assistance when needed. She has a role in health counseling and education which extends to the family and the whole community. This will involve preparing couples for parenthood and may include family planning (Bennett & Brown, 1987).

International Definition of the Midwife

In English, the word 'midwife' means 'with woman', and in French, the midwife is called 'sage - femme', meaning, a wise woman. In Latin *cumnator* is used for midwife. The international definition for midwife

therefore is a person who has successfully completed a midwifery education program that is, fully recognized in the country where it is located, and that is based on the ICM Essential Competencies for basic midwifery practice and the framework of the ICM Global Standards for Midwifery Education; who has acquired the requisite qualifications to be and or has registered and or legally licensed to practice midwifery and use the title midwife; and who demonstrate competency in the practice of midwifery.

Scope of Practice of a Midwife by ICM

She gives the necessary supervision, care and advice to women during pregnancy labour and intrapartum, conducts delivery on her own responsibility and to care for the newborn and infant. This care includes preventive measures, promotion of normal births, the detection of abnormal conditions in mother and child, and the procurement of medical assistance and execution of emergency measures in the absence of medical help. She has an important task in health counseling and education, not only for women, but also within the community, This work include antenatal education and preparation for parenthood, and extends to certain areas of gynaecology that is woman's health, sexual or reproductive health, family planning and child care. She may practice in hospitals, clinics, health centers, domiciliary conditions or in any other service (ICM, 2011).

Caring for humans has progressed throughout the years, responding to psychological, social environmental physiological needs of society. Throughout the ages women have depended upon a skilled person, usually another woman, to be with them during childbirth (Fraser & Cooper 2009). When a midwife cares for a woman, she becomes an integral part of that

woman's life story Wilkison et. al. (2008). Reproductive and child health is a fundamental human right of all females, individuals and communities irrespective their race, sex, religion, creed, belief and values. Health therefore is the purpose of all reproductive health actions (Nursing and Midwifery Council of Ghana [NMC-G], 2015). The NMC aims at educating the midwife to prepare her to function effectively and improves her knowledge and skills by participating professional and community activities.

Global Maternal Mortality

Maternal mortality is a key indicator of international development, and its reduction has long been a challenge in developing countries, despite the existence of effective interventions. The Universal Sustainable Development Goal 3.1 aims at reducing the global maternal mortality ratio to less than 70 per 100,000 live births by 2030. The focus on maternal mortality as an important development measure dates back at least to the 1980s, when researchers first highlighted the role of complications related to pregnancy and childbirth in death rates among women of reproductive age and noted the inadequacy of attention paid to addressing these largely preventable deaths (Boerma, 1987).

In the mid-1980s, the WHO estimated that approximately half a million women died yearly from maternal health related causes. The 1987 Safe Motherhood Conference in Nairobi, which was the first of a series of international meetings that highlighted the worldwide problem of maternal mortality, called for reducing maternal mortality in developing countries by half in one decade. Strategies for achieving this goal included making family planning universally available, providing prenatal care and trained assistance

at delivery, and ensuring access to emergency obstetric care. Subsequent international conferences in the 1990s, including the World Summit for Children in 1990, the International Conference on Population and Development in 1994, and the Fourth World Conference on Women in 1995, also called for a substantial reduction in maternal mortality.

In September 2000, the UN General Assembly adopted the United Nations Millennium Declaration. The following year, the Millennium Development Goals (MDGs) were articulated. MDG 5 called for a three-quarters reduction between 1990 and 2015 in the maternal mortality ratio (MMR), the number of maternal deaths per 100,000 live births. At the same time, it was acknowledged that it would be difficult to track progress toward achieving this target, since reliable data were lacking in the very countries thought to have the greatest burden. A second target of achieving universal access to reproductive health by 2015 was added in the subsequent reformulation of the MDGs (UN, 2007).

It has been challenging for many countries to produce timely and accurate data on levels of maternal mortality that would indicate the extent of their progress in reducing maternal deaths. To address the gap in data availability on maternal mortality, WHO and the United Nations Children's Fund (UNICEF) published, in 1996, the first interagency estimates of maternal mortality, including Maternal Mortality Rates (MMRs), numbers of maternal deaths and lifetime risks of death. The estimates, which referred to the year 1990, covered 174 countries (Zureick-Brown Newby, Chou, Mizoguchi, Say, Suzuki & Wilmoth, 2013). Of these countries, 77 had no direct or indirect estimates of maternal mortality, and their estimates were derived entirely from

a statistical model. An additional 14 countries lacked data for predictor variables and thus had no estimate provided.

A report from Zureick-Brown et. al., (2013) showed that the total number of maternal deaths observed annually fell from 546,000 in 1990 to 358,000 in 2008, a 34% decline over this period. Similarly, the global maternal mortality ratio declined from 400 to 260 maternal deaths per 100,000 live births, a decline of 34% over the entire period and an average annual decline of 2.3%. The rates of decline in maternal deaths and maternal mortality ratio are similar because the global trend in births was essentially flat over the period 1990 to 2008. Globally, maternal mortality had reduced by 45% between 1990 and 2013. However, Zureick-Brown et al. (2013) pointed out that although these estimates appear to suggest progress in reducing maternal mortality at the global level, the decline is not rapid enough to achieve the MDG 5 target.

Examining regional trends in Maternal Mortality Ratio for the developing world, Zureick-Brown et al. (2013) observed the growing disparities in the risk of maternal mortality over the period 1990–2008. In 1990, Sub-Saharan Africa exhibited the highest MMR among the developing regions, 870 maternal deaths per 100,000 live births. The next highest MMRs were observed in Southern Asia (590) and Southeastern Asia (380). Disparities in MMR between Sub-Saharan Africa and other developing regions grew over the period 1990–2008, as the rate of decline in MMR in Sub-Saharan Africa, 1.7% per year slower than the declines observed in all other developing regions with the exception of Oceania, 1.4% per year. In Southern and Southeastern Asia, average annual declines in MMR over the

period were much more rapid, at 4.2% (3.6–4.8%) and 4.7% (3.8–5.6%), respectively. The estimated absolute decline in MMR between 1990 and 2008 was largest in Southern Asia (590 to 280) and similar in Sub-Saharan Africa and Southeastern Asia (870 to 640 and 380 to 160, respectively). The relative stagnation since 1990 in the decline in MMR observed for Sub-Saharan Africa, relative to other regions of the world, can be attributed partly to the HIV/ AIDS epidemic.

The MMR observed for Sub-Saharan Africa in 2008 was 640; if maternal deaths related to HIV/AIDS were excluded, this figure would be reduced to 580. However, this adjusted figure is still much higher than those observed in Southern and Southeastern Asia (280 and 160, respectively). It is important to note that, as is the case for the global estimates, there is considerable uncertainty surrounding regional MMR estimates in both 1990 and 2008. Also, there is significant heterogeneity in country-specific trends within regions (Zureick-Brown et al., 2013).

According to a report by Ministry of Health (MOH, 2013) while in Ghana the total number of maternal deaths increased from 899 in 2012 to 1,016 in 2013, the institutional Maternal Mortality Ratio remained stable at just over 150 maternal deaths per 100,000 live births. Since the total number of women delivering in facilities is increasing, it is also expected to see an increase in the total number of maternal deaths everything being equal. Moreover, if the increase in institutional deliveries was a result of improved access to emergency obstetric care, e.g. access to ambulance or other emergency services, one would expect to see a more high-risk profile of the women delivering in facilities.

Maternal Mortality in Ghana

What is known about maternal mortality in Ghana is fragmented. Ampofo reviewed the causes of maternal death from 1963 to 1967 at Korle-Bu Maternity Unit in Accra. Korle-Bu is one of the teaching hospitals in Ghana and a major referral point for patients within the Greater Accra Region. It is also a referral centre for other parts of the country and neighboring West African countries. During the five-year period reviewed by Ampofo, 238 maternal deaths were recorded for 35,193 births, giving a ratio of 676 per 100,000 births. Out of the 238 deaths, 63 were attributed to haemorrhage, retained placenta and hypofibrinoginaemia (reduced level of blood clotting factors leading to excessive bleeding). Sixty-one deaths were attributed to obstructed labour, including 33 who suffered from ruptured uterus. Twenty-four died of puerperal sepsis. Ghana has the additional infection burden caused by unregistered patients self-treating with herbs and various medicinal potions applied to the vaginal canal prior to admission in the form of pessary (Ampofo, 1970).

Seven deaths were attributed to severe anaemia of pregnancy and 23 deaths were attributed to sickle cell anaemia. Due to the difficulty in obtaining laboratory confirmation, these diagnoses were made clinically or from autopsy findings. Twenty-seven of the deaths were due to ectopic pregnancy, four of which were advanced extra-uterine pregnancies. Within the study period 952 ectopic pregnancies were diagnosed with a mortality rate of about 3 percent. Abortion accounted for only 33 deaths in this study. Abortion, though a common practice, was illegal in Ghana during that period. Treatment of complications of abortion was the most common condition seen during the

study period and this could be due to sepsis (Ampofo, 1970). Nine women died from trophoblastic disease, two from hydatidiform mole and seven from choriocarcinoma. Though it was noted that these women ran a rapid course to death, it is clear that these deaths were within 42 days of delivery. Thirty-five deaths were due to eclampsia; 30 of these women died prior to delivery. Of the indirect obstetrical deaths, liver disease was the leading cause of death claiming 31 women (Ampofo, 1970).

Korle-Bu teaching hospital was the site for a broader maternal and child health study conducted by Family Health International, North Carolina. This Maternity Care Monitoring Project was a multi-site study, which eventually included deliveries of more than half a million women in 64 countries. Information was collected on a uniform data collection sheet, which ran one page per mother-child unit. Information was collected at Korle-Bu teaching hospital on 4,990 deliveries occurring between August 1981 and August 1982. Eleven deaths were recorded from this study group of women for a ratio of 230 per 100,000 live births. Only in-hospital deaths were recorded. Any of these women who died after discharge but before 42 days postpartum were lost to follow up and not included; therefore, the number of maternal deaths was underestimated. Although an incomplete ratio, this represents a tremendous change from the 1,080 deaths per 100,000 live births noted in the previous study. Within the study group, 5.2 percent of the women delivered by caesarean section and 12.7 % of the births were attended by a physician.

The maternal mortality rate remains high in Ghana with estimates ranging from 214 to 740 deaths (WHO, 1996) per 100,000 live births.

Institutional data estimated the Maternal Mortality Ratio (MMR) in 2001 as 260/100,000 live births. Central and Western regions continued to record the highest rates with 450 deaths per 100,000 live births, the Greater Accra region registered the lowest MMR with 150/100,000 live births (RCH Annual Report, 2001). Other health issues of specific concern to women involve a very low level of knowledge among women about causes, prevention, risk factors and signs of gynaecological malignancies such as cancer of the cervix. Cervical cancer deaths are high at 57.8 percent, followed by ovarian cancer at 25.3 percent of all female genital tract malignancies. Global experience suggests that the majority of pregnancy-related deaths are preventable, and a significant body of research on strategies for reducing maternal mortality has been generated but there appears to be no decrease in the maternal mortality rate since 1975. Specific attention to women's health is thus warranted and in fact well overdue.

Ghana has recorded a decline in its Maternal Mortality Rate (MMR) by 49 percent between 1990 and 2013 but still far behind the Millennium Development Goal (MDG) 5. According to the new report released by 'Trends in maternal mortality: 1990 to 2013' a Maternal Mortality Estimation Inter-Agency Group (MMEIG) of the United Nations (UN), while the country's maternal mortality ratio had reduced from 760 in 1990 to 380 in 2013, there remains a substantial amount of effort to reach the MDG 5 target of 185 deaths per 100,000 live births. The report indicated that 3,100 women died from pregnancy-related complications in Ghana between January and December 2013. It however pointed out that despite the high maternal deaths recorded,

Ghana is considered as one of the countries in Sub-Saharan Africa 'making progress' towards the MDG 5 target.

According to myjoyonline the Minister of Health indicated that Ghana is still recording high maternal and neonatal mortality (Ibrahim, 2017). The minister stated that statics have been carried with the aim of finding solutions to this menace. Since 1990, The MMR in Ghana has been 216 per 100,000 live births. The reduced to 164 per 100,000 live births in 2010. The report further stated that the lifetime risk of for pregnant women was 1 in 66. The causes of perinatal and maternal deaths are almost the similar, these include, heamorrhage, hypertensive disorders in pregnancy, eclampsia obstructed labour and infection. The lives of mothers and babies can be saved during delivery if births were attended by trained health professionals. In the neonate the cause of death may be prolonged and obstructed labour, infection, asphyxia The global target set by United Nations General Assembly in 1999 were 80% by 2005, 85% by 2010 and 90% by 2015. This shows that the achievement is far below the target set and there is a great need for endeavor.

Programmes to Reduce Maternal Mortality

Over the past several decades, the World Health Organization has witnessed some surprising global health success stories from the eradication of diseases such as smallpox to expanding control of other vaccine-preventable diseases to the widespread provision of effective treatment for HIV/AIDS to millions of people. Yet, for all these public health and medical advances, a significant number of women still die each year from causes linked to pregnancy and childbirth: 287,000, according to the most recent consensus. Eighty-five percent of these deaths occur in Sub-Saharan Africa and south

Asia. Most of these deaths are thought to be avoidable given adequate maternal access to emergency obstetric care (WHO, 2012).

Over the last 25 years, some countries, including those with poor resources have made striking progress in reducing maternal mortality. For instance, in the year 2000, the United Nations, concerned about limited progress being made global reproductive health goals, had included improved women's health as one of eight new Millennium Development Goals (MDGs) intended to address a series of important global development challenges by 2015. The millennium development goals 2000-2015 – MDG 5 on maternal health incorporated two targets, the first of which is for country to achieve a 75% reduction in maternal mortality, relative to their 1990 levels. The following are the indicators of millennium development goals on 'Improved Maternal Health': Target 5A: to reduce maternal mortality rate by three-fourth between 1990 and 2015

1. Maternal mortality ratio (number of maternal deaths per 100,000 live births)
2. Proportion (%) of births attended by skilled health attendant

In 1987, the WHO and other groups launched the safe motherhood initiative – a global campaign to raise awareness among policymakers about maternal mortality. However, maternal mortality did not decrease significantly over the subsequent decade, a shortfall attributed to the initiative's lack of strategic focus and actionable agenda and goals.

Several years later, in 1992, a landmark publication by McCarthy and Maine provided a framework for examining the causes of maternal mortality and highlighted the three events that must occur before a maternal death can

result (McCarthy & Maine). These events are conception, serious complication and adverse effect of the complication. Today, the three major categories of interventions available to avert adverse pregnancy outcomes are drawn directly from the following:

1. Preventing unplanned pregnancies;
2. Preventing or treating complications of pregnancies and
3. Averting deaths or disabilities from such complications

Current structural level interventions that aim to address Ghana's maternal mortality burden include: The Safe Motherhood programme, which aims to improve access to Emergency Obstetric Care; Family Planning Programme; High Impact Rapid Delivery (HIRD); policy oriented data gathering using Maternal Mortality Surveys, Maternal Death Notification and Maternal Death Audits. The existing global data on successful maternal health interventions provides important insights on what can be done to improve maternal health and reduce maternal mortality. At least three responses are identified:

1. Family Planning: to prevent pregnancy and reduce fertility rates.
2. Skilled Care at Delivery: to prevent pregnancy complications. In their presentation Monir Islam and Sachiyo Yoshida noted that “the higher the proportion of deliveries attended by skilled attendant in a country, the lower the country's maternal mortality ratio”.
3. Emergency Obstetric Care: to prevent death by timely management of life-threatening complications

Graham (2008) argues that these three responses can be further “strengthened by ante-natal and postnatal care, built upon a functioning health system, political commitment, finance and support for status and rights of women.”

Antenatal Care

Participation in antenatal care programmes has been demonstrated to increase markedly the proportion of women who deliver at health facilities. It is also an opportunity to provide or reinforce women and their families’ issues about HIV prevention and postpartum access to family planning. Although the assessment of the antenatal health status of pregnant women has not proven useful for predicting the eventual occurrence of severe complications of pregnancy, antenatal care provides the opportunity to educate women about the danger signs that sometimes occur in pregnancy and labour and the need for birth preparedness and complication readiness plan, including planning for emergencies like blood donation prior to delivery.

Skilled Birth Attendants

The presence of a skilled birth attendant at delivery has been shown to markedly reduce postpartum haemorrhage and other causes of maternal mortality. Much of the benefit of having a skilled attendant at delivery occurs through the process of ‘Active Management of the Third Stage of Labour, a concept that refers to minimization of maternal blood loss during and after delivery of the placenta by administration of oxytocic, a drug that causes strong contractions of uterine muscle followed by measures to ensure complete delivery of the placenta and control of uterine haemorrhage (Lalonde and Safe Motherhood and Newborn Health Committee [SIMNH], 2012).

Emergency Obstetric Care (EmOC)

The six capacities required to basic emergency obstetric care include:

1. Providing anti-seizure medication by injection or intravenously
2. Delivering the newborn
3. Manually removing the placenta
4. Providing uterotonic drugs by injection or intravenously to stop uterine bleeding
5. Manual removal of any retained products of conception from the uterus and
6. Providing appropriate antibiotics by injection or intravenously

In addition to providing EmOC as needed, health facilities at the next higher level of care must also be equipped and staffed to provide blood transfusions and caesarian sections as needed. However, Nyametema, Urassa and Roosmalen (2011) noted that even successful maternal mortality interventions were not always scaled up, for reasons including insufficient political commitment; absence of enabling policies, inadequate funding and human resources and some end-user related factors such as poverty, illiteracy, early marriage, and lack of women's autonomy in decision-making. Beyond the structural interventions, a range of Best Practice case studies were presented that offer templates for innovative interventions at facility and community levels.

Knowledge on Utilisation of the Partograph

The utilization of partograph requires skills, as part of the Safe Motherhood Initiative. WHO's partograph clearly differentiates normal from abnormal progress in labour and identifies those women likely to require

intervention. The purpose of a graph used to present data that are too numerous or complicated to be described adequately in the text and in less space (Slustky, 2012). Medical diagrams, graphs and charts are used to visually display the relationship between facts and figures. They make data easier to understand and only key information is presented which often has been collected from voluminous medical or scientific sources. Graphs are a common method to visually illustrate relationships in the data. The use of the partograph in all labour wards is recommended (Berglund et al., 2010). Findings from the study on knowledge and utilization of the partograph among midwives in the Niger Delta region of Nigeria, inferred that despite midwives' good knowledge of the partograph there was poor utilization in labour monitoring in both centers. Assessment of utilised partograph charts revealed that only 37.5% in Federal Medical Centers and 32.6% in Niger Delta University Teaching Hospital were properly filled (Opiah et al., 2012). The problem of filling the partograph was also felt in the study conducted by Khonje (2012) in Malawi where by high proportions of incompletely recorded parameters on the partograph were identified. Likewise, Diarra, Camara & Maiga (2010) in a study conducted in Mali only 18, 85% partograph were found to be correctly filled.

Similarly, Fawole, Adekanle and Hunyinbo (2008) in a cross sectional study analyzed the utilization of the partograph in primary health facilities in Southwestern Nigeria. Gross deficiencies have been highlighted in relation to knowledge about normal characteristics during labour. Furthermore, a gap in quality of using partograph has been the subject of discussion in the study by Nyamutma, Urassa, Massawe, Lindmark and Roosmalen (2008) conducted in

Dares Salaam. Ogwang et al. (2009) confirms poor use of partographs during labour and recommend training of health workers on partograph use, provision of guidelines and adequate resources. Nausheen, Jalil, Anwer and Akhter (2010) confirm insufficient skills by findings from a study conducted to assess the improvement in knowledge and skills among trainees of a workshop on "labour and partograph". The ability to monitor pregnant mothers during labour using the partograph continues to be the subject of discussion by many authors. For instance, Maroof, Al- Hadithi and Al-Towil (2012) in their study using criterion-based audits of medical care and services, reported that, overall quality of care was poor with non-use of partograph. A need for development of clinical guidelines and protocols was felt.

Fawole et al. (2008), also conducted a cross sectional study to understand why the problem of maternal mortality persists in Nigeria by assessing knowledge and utilization of the partograph among obstetric care givers in South West Nigeria. Their findings showed that only 32.3% used the partograph to monitor women in labour. Partograph use was reported significantly more frequently by respondents in tertiary level compared with respondents from primary/secondary levels of care. The health system in Ghana is no different from Nigeria, and the partograph is more likely to be well used in secondary and tertiary level than in primary level. Though, in some developing countries a paper-based partograph still needs improvement, in order to improve its utilization, in some other countries technology has been advanced to monitor pregnant mothers during labour. Nunes, Ayres-de-Campos, Figueiredo and Bernardes (2013) assert that a variety of systems for centralised viewing of fetal signals during labour are currently available,

allowing simultaneous monitoring of multiple tracings in one or more locations. This system displays maternal vital signs, and an electronic partograph is available in majority of these systems. Underwood, Sterling and present the “PartoPen Maternal Health Monitoring System” in their paper. As explained, the goal of the PartoPen project is to increase the effectiveness of the partograph, using an interactive digital pen with custom software, together with partograph forms printed with a background dot pattern that is recognized by the pen (Underwood et al., 2013).

The key long term objective of the Ghana Health Service is to raise maternal health care standards throughout Ghana to bring them in line with World Health Organization (WHO) global standards. The partograph is a universal tool for monitoring of labour (Ogwang, Karyabakabo & Rutebemberwa, 2009). A study by Yisma et al. (2013) showed that the use of the partograph is a well-known best practice for quality monitoring of labour and subsequent prevention of obstructed and prolonged labour. However, a number of cases of obstructed labour still occur in health facilities due to poor quality of intrapartum care.

For effective monitoring of pregnant mothers in labour, the Yisma et al. (2013) recommended that pre-service and on-job training for obstetric care givers on the use of partograph should be given emphasis.

The source of knowledge on partograph was identified in the study conducted by Oladapo, Daniel and Olatunji (2006). They highlighted that Life Saving Skill training workshop was reported as the primary source of knowledge by one-third of those aware of the partograph and these individuals generally had fair and good levels of knowledge. Opiah, Bola, Ekere and

Monjok (2012) in a cross-sectional study to assess knowledge and utilization of the partograph among midwives in two tertiary health facilities in the Niger Delta Region of Nigeria, 86.2% of respondents had partograph training while in school of midwifery, 13% said they were not trained in the midwifery school.

With regard to the knowledge of different components of the partograph, Yisma et al. (2013) in a cross-sectional quantitative study to assess knowledge and utilization of partograph among obstetric care givers in public health institutions of Addis Ababa, affirmed that knowledge of the function of both ‘‘alert’’ and ‘‘action’’ lines were poor. The above studies revealed that even though midwives may have good knowledge of the partograph, there is poor utilisation of the partograph in monitoring women in labour in health facilities. Though the utilization of partograph is part of pre-service education programme of health professionals namely nurses and midwives, the reality on the field may be affected by different factors.

The WHO’s partograph clearly differentiates normal from abnormal progress in labour and identifies those women likely to require intervention. Findings from the study on knowledge and utilization of the partograph among midwives in some regions of Nigeria, inferred that despite midwives good knowledge of the partograph, there was poor utilization in labour monitoring (Opiah et al., 2012). The problem of filling the partograph was also felt in the study conducted by Khonje (2012) in Malawi where by high proportions of incompletely recorded parameters on the partograph were identified. Likewise, Diarra, Camara and Maiga (2010) in a study conducted in Mali only 18, 85%

partograph were found to be correctly filled. Such poor level of utilization is yet to be determined in Ghana.

Components of the WHO Partograph

The partograph is a graphic record of the progress of labour and relevant details of the mother and fetus. It allows for a timely medical intervention and indicates when augmentation of labour is needed. It therefore increases the quality and regularity of observations made on mother and fetus during labour and can also points to possible cephalopelvic disproportion (CPD) before labour can become obstructed. It therefore serves as a one – page visual summary of the relevant details of labour. It is important to ensure that adequate supplies of the form are always available.

When using the WHO modified partograph it commences only when the woman is the in the active phase of labour, that is, when the cervical os is 4 cm or more dilated. The latent phase of first stage has been removed and this makes it easier to use. After entering client`s particulars and time membranes ruptured, specific observations on the mother and fetus are documented on the graph sections of the partograph. These are subdivided into three main sections referred to as: fetal condition, progress of labour and maternal condition.

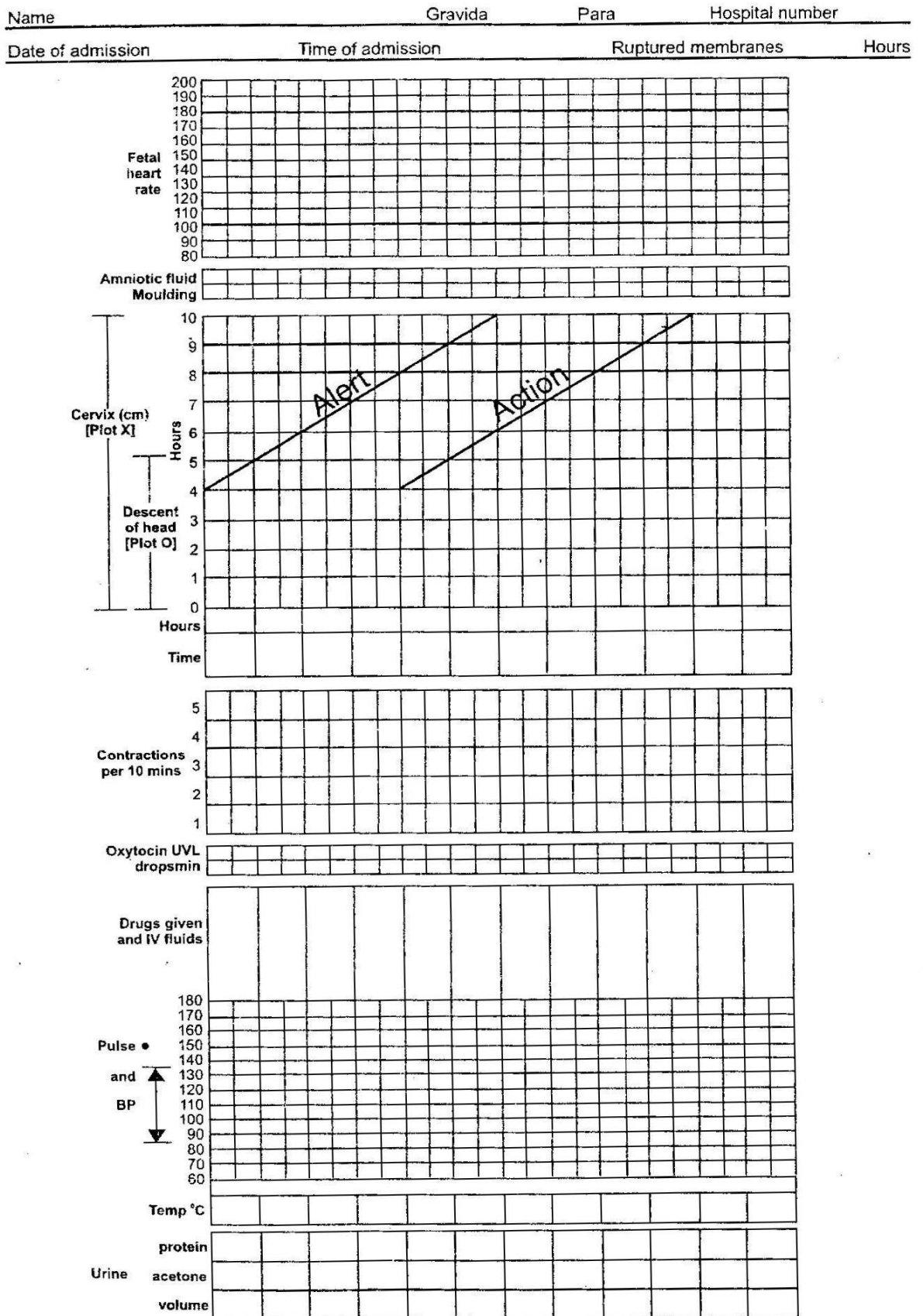


Figure 1: Sample of the WHO modified partograph showing the patient identification and graph sections of the chart.




A) **Fetal Condition:** This includes, the fetal heart rate, liquor amnii (amniotic fluid), and moulding.

1. The Fetal Heart Rate (FHR) is recorded for one full minute every 30 minutes during the first stage labour and every 5 minutes during the second stage. The volume, rhythm and regularity are noted. This can best be auscultated after a uterine contraction. If abnormalities are noted, urgent delivery can be considered. The scale for fetal heart rate covers the range from 80 to 200 beats per minute and it is recorded as a (dot) on the time line.
2. Liquor: Below the FHR are two rows close to each other, the first being the column for recording liquor or amniotic fluid. This is checked and recorded at every vaginal examination. When the bag of membranes has ruptured the colour of the amniotic fluid is recorded. The findings may include clear liquor (C), meconium- stained liquor (M), blood- stained liquor (B) or absence of fluid (A). Thick meconium suggests fetal distress, and closer monitoring of the fetus is indicated. If the membrane is intact it recorded as (I).
3. Moulding: the next row below the liquor' is moulding. As the fetal head descends into the birth canal overlapping of the skull bones occurs. The degree of moulding is also assessed during vaginal examination as follows: (0) means no moulding, (+) bones are apposed or touching each other (++) bones overlapped but reducible and (+++) bones are overlapped but not reducible. The state of liquor and degree of moulding are therefore assessed initially and four hourly.

B) Progress of Labour: The next section on the partograph is an area for recording the progress of labour. This includes cervical dilatation, descent of fetal head and uterine contractions.

- 1) Cervical dilatation is assessed every hour and at each vaginal examination and marked with a cross. The diameter of the cervical os is estimated in centimeters. Plotting of cervical dilatation commences on the partograph at 4 centimeters. The first cervical dilatation should be plotted on the alert line. It is expected that in the active phase of labour the cervix dilates from 4 cm to 10 cm at an average rate of 1cm per hour. This area of the partograph is also where descent of the head is recorded.
- 2) Descent of fetal head is assessed by abdominal palpation. This refers to the part of fetal head palpable above the symphysis pubis. This is recorded as a circle (O) every four hours. The descent of the head is assessed to determine how far the fetal head has gone down the birth canal. This area of the partograph is also where descent of the head is recorded. These measurements are recorded as either X or O, initially and every 4 hours. There are two rows at the bottom of this section of the partograph to document the number of hours that has elapsed since onset of active phase of labour.
- 3) Uterine Contractions: The next section of the partograph is for recording the contractions every 30 minutes. The number or frequency of contractions is timed in ten minutes noting their duration and strength in seconds. The symbols for the duration of contractions are as follows:

UTERINE CONTRACTIONS

-  **Less than 20 seconds**
-  **Between 20 and 40 seconds**
-  **More than 40 seconds**

In a normal progress of labour the active phase lasts six hours with contractions occurring three to four times(3-4) times in ten minutes, each lasting 40-60 seconds (Ghana Health Service SM Protocol 2008),

Alert line: this line begins at 4cm of cervical dilatation to the point of expected full dilatation at a rate of 1 cm per hour.

Action line: this is a line parallel drawn obliquely four hours to the right of the alert line. When cervical dilatation crosses the alert line it moves to towards the action line, then immediate referral of the woman has to be done, either to a hospital or call for the obstetrician to take a decision.

Oxytocin: Below the section for uterine contractions are two rows for recording administration of oxytocin. This is uterotonic drug used to augment labour when uterine contractions are ineffective and also to control bleeding during active management of third stage of labour. The amount of oxytocin per volume of intravenous fluids per minute every thirty minutes are recorded.

C) Maternal Condition: The partograph gives a picture of maternal condition during labour. Parameters that are checked under maternal condition include:

- 1) **Drugs given and IV fluids** given to the mother. Any additional drug given is recorded in the section next to oxytocin used.

2) Near the bottom of the partograph is where the mother's vital signs are recorded. On the chart it is labeled **Pulse and BP** (blood pressure) with a possible range from 60 to 180. Below that you record the mother's temperature **Temp 0^C**. The BP is recorded every four hours and marked with arrows in front of a time line likewise the temperature but the latter is written in figures in a space. Maternal pulse is checked and recorded every 30 minutes and marked as a dot (●). The vital signs of a woman in labour is assessed frequently to detect deviations from normal. A steady pulse rate is an indicative of good maternal condition. A pulse rate of more than 100 beat per minute may indicate an infection, ketosis or haemorrhage and occasionally a sign of ruptured uterus. When the partograph is used to monitor the woman in the active phase of first stage, the pulse rate is monitored every 30 minutes.

The temperature should remain in the range of 36.2 – 37.2⁰C. A rise in body temperature thus; pyrexia is a sign of infection or ketosis.

The effect of labour may sometimes elevate an already existing raised blood pressure (BP) especially in women with history of pre-eclampsia or essential hypertension during pregnancy. On the other hand, hypotension may be due to supine position or shock whereby a gravid uterus presses on the inferior venacava (a large vein that carries blood to the right side of the heart). This must be borne in mind by the attending health care provider or a midwife.

3) **Urine Analysis**

At the very bottom, urine analysis is done and characteristics of the mother's urine (protein, acetone or glucose) are recorded. Ketones if available

should be recorded as well. The urinary output is measured, recorded and tested every two hours. If abnormalities are detected a more frequent observation is required and an intervention may be considered.

Urine is tested for glucose, ketosis and protein anytime the woman passes urine during labour. The presence of ketone in urine may be due to maternal distress or starvation when all available energy has been used up. Under normal circumstance, glucose should be absent in the urine unless a large quantity of carbohydrate has been consumed by the woman or has been given intravenous glucose infusion. When membrane rupture, a trace of protein may be present in the urine. However, a more significant protein in urine may indicate worsening pre-eclampsia (Fraser & Brown, 2013). All urine passed by the labouring woman must be recorded to ensure proper functioning of the kidneys and also to ensure that the bladder is emptied. Effects of a full bladder on labour include poor descent of fetal presenting part, unnecessary pain, ineffective uterine contractions and postpartum haemorrhage. When the partograph is used, deviations from maternal condition can be detected and a timely intervention is done to save her life.

An evaluation done on maternal and child health by Maternal and Neonatal Health (MNH) clinical training indicates that the partograph provides an aid in clinical decision making. This is because its usage helps to ensure that women in labour are carefully monitored. It also avoids unnecessary interventions and help to recognize and respond to complications in a timely manner. It gives providers objective data on which to base their clinical decisions and enhances communication among members of the health team to facilitate decision making when used with management protocols. The

partograph is used by competent health practitioners (Bosse, Massawe et al., 2002). The use of the partograph requires that the health provider should be able to conduct normal labour, perform vaginal and abdominal examination to determine progress of labour, and plot the findings on the graph.

Vaginal examination is performed initially on admission and there after 4 hourly is done to assess cervical dilation, descent of head. Also it is done to rule out abnormalities such as development of cervical oedema, this is because some women start to push prematurely and this causes an initial thin cervix to become thicker. Again if there is there is slow dilatation other abnormalities such as development of caput succedaneum (oedematous swelling on the fetal head) may occur. Occasionally, there may be a change in the amniotic fluid which will indicate fetal distress if membranes have ruptured already. Findings observed are recorded on the partograph for prompt intervention.

According to Kinzie and Gomez (2004), at the onset of the active phase of first stage of labour when the cervix is 4 centimeters dilated, the skilled provider uses a partograph to record information on labour. This is done to evaluate the fetal and maternal wellbeing as well as the progress of labour and clinical decision is made about the woman's labour. From that point through the childbirth findings on observation are recorded on the woman's partograph chart. The rate of cervical dilatation is approximately 1 centimeter per hour.

As the woman enters the late active phase of labour, transition, a more intensive help may be necessary especially in the management of pain and discomfort she may experience. Labour support and comfort measures

are critical during this phase of labour (Kinzie & Gomez, 2004). The uterine contractions become more frequent and increases to 5 in 10 minutes with duration of more than 40 seconds. The woman's care needs also increases as compared with the latent phase of labour (cervical dilatation of 0 – 3cm).She may require a support as her comfort and anxiety increases with frequency and duration of contractions. The midwife stays with the woman at this time and monitors the fetal heart rate after each uterine contraction, with the increasing uterine contractions, the fetal descent begins and the presenting part is usually engaged by this time. The first stage of labour ends when cervix is 10cm dilated and no cervical rim felt. Uterine contractions at this time become progressively stronger and the woman has the urge to push. The head descent progresses until the presenting part of the fetus reaches the pelvic floor.

Once the cervix is fully dilated the woman is said to be in second stage of labour. She is therefore encouraged to assume the delivery position that she prefers and push when the urge is felt.

Closure of the Partograph

The delivery information on both mother and baby that are documented at the completion of labour when a partograph is used in Ghana are;

1. Date and time of delivery of baby
2. Mode of delivery of baby, example, spontaneous vaginal delivery (SVD)
3. APGAR score, first and fifth minutes after birth of baby.
4. Sex of the baby

5. Birth weight of baby
6. Time placenta was delivered
7. Mode of delivery of placenta, example, controlled cord traction (CCT)
8. Time placenta was delivered
9. Amount of blood loss per vaginum
10. State of perineum, whether intact, cracked, laceration/tear, episiotomy.

The WHO Partograph as a SM Intervention

The fact that a majority of global deaths occurs in low-income countries (Kwast, 1991) contributed to the establishment of the Safe Motherhood Initiative which embodies the philosophy that no woman should die or be harmed by avoidable pregnancy or childbirth related causes. According to Mahler (1987), the delay in recognizing the huge disparity in maternal ratios (MMR) between high and low-income countries was caused by sub registration and/or no registration at all of deaths in many countries where it became evident that MMR was high.

As part of its contribution to the Safe Motherhood Initiative (SMI) which was launched in 1987, the World Health Organisation introduced and promoted the use of the partograph with a view to monitoring labour and introducing quick and effective interventions. The magnitude of maternal morbidity and mortality to the family, community and the nation cannot be over emphasized (Tinker, 1997). The death of a mother has an impact beyond that of her immediate family. As such, the SMI had among its objectives to reduce maternal mortality by 50 percent by the year 2000, included supervised delivery as one of its interventions to achieve this objective.

Supervised delivery is defined as the percentage of deliveries attended by skilled health personnel irrespective of the outcome. This is one of the important components of the Safe Motherhood Programme and also an important aspect in midwifery practice. Women's satisfaction with maternity services primarily depends on the quality of communication between the women and their caregivers. This enables women to experience an enhanced sense of recognition and feel more involved in their care as they build a relationship with a "known midwife" (McCourt & Pierce, 2000). Tarkka and Paunonen (1996) also reiterated that the midwife was the main source of emotional support for mothers during labour and that the mothers attached much importance to the presence of the midwives, for the encouragement they offered, and for their individual treatment. The mothers felt safer if they had their own midwife with them throughout childbirth.

The partograph is an instrument used to improve maternal health care through early detection by any trained birth attendant of complications during labour. The progress of labour, especially the rate of cervical dilatation, is recorded in the partograph. It helps to detect abnormal progress in labour so that appropriate interventions can be taken which may save the lives of mother(s) and infant(s). The partograph has been in use in many countries for over 25 years but adoption in lower income countries has been slower. Research on the use of this partograph has taken place mainly in hospital settings. The WHO undertook the largest and best known study in South East Asia through the SMI, in which 35,000 partographs from eight hospitals were surveyed (WHO, 1994). Statistically significant differences were found in numbers of prolonged labour, caesarean sections and labours requiring

oxytocin augmentation when partographs were used. However, the partograph played a minimal role in 47 cases of maternal mortality and 55 cases of uterine rupture, as most of these occurred as a result of delayed presentation of complications. In Ghana, specifically in Accra, the WHO partograph was introduced in the labour wards in 1990 and by the end of 1991 it was used in almost all the regional and district hospitals in the country. The partograph was intended to be used routinely for every delivery attended by midwives and other health care practitioners from all levels of health care.

There is increasing awareness of the extent of maternal ill health, and more knowledge about interventions that can be effective in reducing this burden. Yet there has not been enough progress. It is an international disgrace that mothers in poor countries, at the beginning of the 21st century, should be experiencing unimaginable suffering and death, due to a lack of effective care during pregnancy and childbirth, which is resulting in approximately 600,000 women dying annually (Walley, 2002). Unlike higher income countries, birth for most women in Ghana is quite hazardous, especially in the rural areas where most women give birth in their homes or rural clinics, far from emergency maternity care. The majority of the women are delivered by traditional birth attendants (TBAs) or village women who have minimal or no formal training.

The introduction of the use of the partograph in maternity care is to help reduce prolonged labour and the sequelae of maternal morbidity and mortality for both women and infants, to improve the quality of care for women in labour and to increase the observation and interpretation skills of all birth attendants including midwives and other health professionals. The potential

benefits of partograph use are highlighted in the findings by Bouvier-Colle, Breart and Chalumeau and the MOMA Group (2001).

However, its implementation needs continuous reinforcement and quality assurance. Concerns that the partograph leads to higher rates of caesarean section were not supported by the data. The sample size may be too small to make any definitive statement. The use of the partograph in monitoring labour in a woman who had a caesarean section was studied at Korle-Bu Teaching Hospital in 1991 and 1992 (Amaniampong, Seffah, & Wilson, 1994). They analysed the case notes of 15,347 deliveries and confirmed that prolonged labour can be prevented using the partograph as described in the WHO manuscripts.

Other studies have shown that using the partograph can be highly effective in reducing complications for the mother from prolonged labour for the mother (postpartum haemorrhage, sepsis, uterine rupture) and in preventing newborn death from anoxia and infections. Some researchers argued that the partograph can be used as a traditional format with separate pages for the delivery summary and midwifery notes, whereas others incorporated the summary of the partograph and notes into one comprehensive document. Thus, the use of the partograph reduces excessive documentation on the part of the midwife as well as reducing prolonged labour as asserted by other researchers.

Poor quality of maternal healthcare service has been recognized as a major factor contributing to maternal and newborn deaths in most low and middle income countries (Kambala, Lohmann & Allegri, 2017). These researchers also identified insufficient human resources, poor training of staff.

Inadequate infrastructures and shortage of equipment and medicines due to insufficient financing. It is the heart beat of the health sector to improve maternal healthcare service during labour and delivery in every nation. Therefore in Ghana measures have been put in place to train more midwives to help in providing maternal and neonatal healthcare. Every pregnant woman is expected to receive quality care from a skilled birth attendant. Midwives are equipped with requisite skills to provide care to women during the preconception, prenatal, and intrapartum period where a more comprehensive care is rendered with aid of a partograph.

Problems related to pregnancy can cause severe pain, discomfort, or disability, if they are not identified and treated properly. Infections, asphyxia and prematurity are the leading causes of death in the newborn especially in the first week of life (Sory, 2008).

Challenges Midwives face with Utilisation of Partograph

A challenge is something new and difficult which requires great effort and determination. People face challenges at work places in the course of executing their duties. Health care professionals including midwives also face challenge in delivering care to clients. Studies done by Opia et al., (2012); Bizarette (2014), Lumadi et al. (2016) explored the challenges that contribute to the under utilisation of partograph at some health facilities. Some of the challenges that highlighted on were lack of resources such as staff, time, photocopy machines, lack of knowledge and support. Findings from Bizartte's study revealed that health professionals face challenges such as shortage of skilled birth attendant as one of the factors that nurses and midwives face when using the partograph to monitor labour. She further indicated that there

was shortage of staff per shift in the labour ward and non-availability of charts in some health facilities, guidelines protocols and medical logistics.

Midwives form the bulk of skilled birth attendants in all levels of health care and the knowledge of partograph in labour monitoring is thus an important factor for the prevention of prolonged and obstructed labour which is the leading causes of maternal morbidity and mortality worldwide (WHO, 2013). However, there is shortage of such qualified staff and some faculties are compelled to use other staff including nurses and medical assistants (Opia et al., 2012).

A study done in Tamale in the northern region of Ghana showed that the Ghanaian midwives knew the use of the partograph as a monitoring tool for labour, however inadequate knowledge and understaffing militated against its effective use. The participants also viewed the use of the partograph as charts as an extra workload (Kolan et al., 2016). They recommended constant refresher training on the use of the partograph as well as training of more midwives to enhance its effective utilisation of the partograph. Ongwang et al., (2009) also confirmed in their study that the utilisation of the partograph was an additional time consuming task as some of the staff were the opinion that the partgraph was not practical to use especially where there is only one midwife at post as has to execute other duties like administering treatment managing labour, providing health education among others. This may even be one of the reasons for poor utilisation of the partograph.

In addition to the challenges mentioned above Nwaneri et al. (2017), found that inability to interpret findings after assessing with the partograph, inadequate provision of resources necessary for observation such as

sphygmomanometer and fetoscope in the labour wards impedes the utilisation of partograph.

Years of Working Experience and Utilisation of Partograph

Work experience is any experience that a person gains while working in specific field of occupation (Harvey, 1998), defines work experience as a period of work that is designed to encourage reflection on the experience and to identify the learning that comes from work. The numbers of years health professionals experience have been found by some researchers as predictor to use of the partograph. Some studies revealed that the more years of professional experience nurses and midwives in practice, the more they properly use the partograph (Opia et al., 2012; Bizarette, 2014). Research conducted by Bizarette showed that there was a significant relationship between the years of experience of midwives and their utilisation of partograph. Opia et al., (2012) support the relationship between knowledge and years of professional experience and utilisation of partograph. This also responds to the conceptual frame work of Patricia Benner's model of nursing practice. She ascertains that nurses and midwives develop and improve their skills by exposure to and experience of real situation in a clinical field (Benner, 1984).

In the study that was conducted by Opiah, Ofti, Essien and Monjok (2012), the result of the study showed that there was a significant relationship between years of experience and knowledge of the partograph. Those with more years of experience scored highlighted percentage, and therefore in the researcher's opinion the midwife requires time to get use to the partograph. Watson (1994) indicated that unless a midwife learns from experience the

learning will not be adequate, and further stated that the experience should be based on qualitative assessment instead of quantitative assessment. Quantitative would be based on time whereas qualitative would be based on the amount of learning that took place such as the quality of experience, pre-service and in-service training.

Conceptual Framework

Patricia Benner's model of nursing practice was used as a theoretical foundation for this study. Benner (1984) has identified five levels of competency based on the five stages of skills development and attainment as described in the Dreyfus model (Christensen, 2009:13). The five stages, in ascending order, are novice, advanced beginner; competent, proficient and expert (Figure 2).

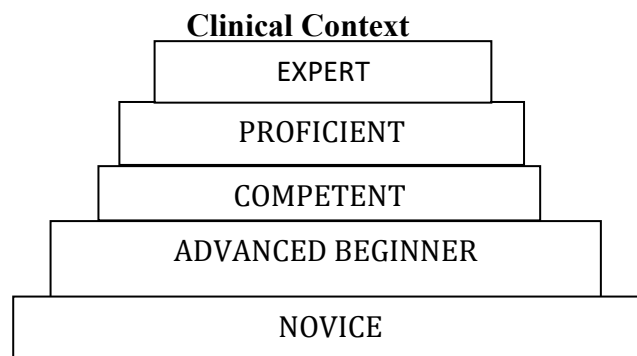


Figure 2: Diagram of Benner's levels of competency in nursing practice

Novice stage: The first stage of skills development, the clinical environment is new and unusual to the novice nurse/midwife. Without prior experience of the clinical situation, the nurse/midwife relies on rules and principles to guide the achievement of attributions (Quinn & Hughes, 2007).

Advanced beginner stage

At this stage, the nurse/ Midwife start to demonstrate improved skills. Based on regular experience on the clinical ground, the nurse/ midwife builds up and utilizes guidelines to produce adequate work performance (Benner, 2004).

Competent stage

Within two to three years of working in the same work environment, Benner proposes that the nurse is competent. Competency is reflected in the ability of the nurse/midwife if he or she is able to assess, plan and evaluate patient care, and or amend care when necessary (Quinn & Hughes, 2007).

Proficient stage

This stage is the felt crisis in the limits of formalism and limits of planning and prediction along with an enhanced ability to read the situation that may propel the nurse into the proficient stage of performance. Whereas skills development, up until this point, has been incremental, to progress, the learner must make a qualitative leap in the way he or she engages and performs in the situation. The nurse/midwife must literally learn to situate himself or herself differently in relation to his or her work (Benner, 2004 p.194). Although timelines are not the only benchmark, the nurse can be recognized as proficient after three to five years. The nurse provides holistic nursing care to patients based on constant exposure within the same clinical environment.

Expert stage

The expert nurse/midwife is able to take up theories and ends of practice in multiple

ways, often creating new possibilities in the situation. **Application of Benner's Model of Nursing Practice to the Study**

According to Benner (1984), nurses/midwives develop and improve their nursing skills by exposure to, and experience of real situations in the clinical field. Therefore, in the present study, the model was applied to determine whether there is a relationship between clinical experience and knowledge and use of partograph among midwives. The knowledge and clinical skills of midwives with utilization of the partograph is expected to improve she passes through the competency levels of Benner's model.

CHAPTER THREE

RESEARCH METHODS

The purpose of the study was to investigate the knowledge of midwives in the Cape Coast metropolis on the use of partograph in monitoring labour, in health facilities. This chapter presents the research design and methodology employed in the study research design, the target population, the sample and sampling procedure, the data collection procedure and the data analysis of the study.

Research Design

The study adopted a descriptive cross - sectional design. This research design was employed to collect data, analysed and interpreted to measure and describe the knowledge and utilisation of partograph in monitoring labour among midwives in the Cape Coast Metropolis. This further covered perception and challenges midwives face when using the partograph. It also sought to find out whether there was an association between the years of experience and utilisation of the partograph among the participants.

A descriptive cross sectional design can be used in accordance with particular questions of special interest or value to the researcher as it offers meaningful picture of events that explains people's opinion and behavior based on the data gathered (Fraenkel & Wallen, 2000).

Secondly, quantitative cross sectional design was adopted since the data gathered gives a representation of field conditions only and used when dealing with large numbers. A cross - sectional study can capture a population in a single point in time and can help to remove assumptions and replace them

with actual data on the specific variables studied during the time period accounted for in the cross sectional study. It also provides important data that informs all kinds of actions

Some of the strengths of cross - sectional designs are it can be used to prove or disapprove assumptions and not costly to perform and does not require a lot of time. The data can be used for various types of research within a period of time and contains multiple variables at the time of data collection. Furthermore, many findings and outcomes can be analysed to create new theories/ studies or in-depth research.

However cross sectional designs have some limitations, for instance, it cannot be used to analyse behavior over a period of time and does not help determine cause and effect. Again findings from this type of design can be flawed or skewed if there is a conflict of interest with the source of data collected. It may face some challenges putting together the sampling pool based on the variables of the population being study (Better Thesis, 2018).

Finally, descriptive cross - sectional study is susceptible to bias due to low response and misclassification due to bias.

Study Area

The study was conducted in Cape Coast, a fishing port and the capital city of central region located in the southern part of Ghana. It is the sixth most populous metropolitan area in Ghana with the population of 170, 000 which represented 8% of the total population of central region (Ghana Statistical Service, 2015). According to the metropolitan health directorate the total population as at 2016 was 204,055. The Cape Coast metropolitan area is largely an urban metropolis with less than half of the inhabitants residing in

the rural areas. It is often described as the citadel of education owing to the large number of high rated basic and senior secondary educational institutions in the region. Most of the inhabitants are engaged in fishing and fish related trade and agriculture, few of the people are engaged in trading, government work, arts and craft. At the end of 2013 it was estimated that there were 14 health facilities located within the Cape Coast metropolis to facilitate access to improved health services. The common ailments reported in these health facilities include malaria, cholera HIV/AIDS, tuberculosis in addition to Reproductive and Child Health services (Asiedu Owusu, 2015). Five public health facilities which were tertiary, and primary health care centers were used. These health facilities were the Cape Coast Teaching Hospital, Metropolitan Hospital, Ewim Polyclinic, Adisadel Urban Health Center and Efutu Health Center.

The Cape Coast Teaching and Metropolitan Hospitals are the two main referral health facilities where surgery can be performed in case of emergency. The teaching is a tertiary hospital with about 120 midwives, it is currently a 400 bed capacity referral hospital situated at the northern part of Cape Coast. It is bounded by Abura Township, on the south by Pedu Estate /4th Ridge, Nkanfua on the east and Abura /Pedu Estate on the west. It was established by MOH, and started full operation in August 1998 as regional hospital and transformed into a teaching hospital with the inception of School of Medical Sciences in the University of Cape Coast.

The Cape Coast Metropolitan Hospital is situated at Bakaano which is located at the southern part of Cape Coast. It is bounded by the Saint Augustine's College at the West, the Nursing and Midwifery Collage at the

East, and bounded by the Gulf of Guinea at the south, and Fosu Lagoon at the North. It was formerly the regional hospital but became the metropolitan hospital with the inception of the Teaching Hospital. The hospital has about 60 midwives with a bed capacity of about 90. Ewim Polyclinic started as an urban health center and later rose to the level of a polyclinic.

The rest of the health facilities in the Cape Coast metropolis are all primary health centers which are either manned by a Medical Assistant with few nurses and midwives. Ewim and Adisadel health facilities are located within Cape Coast Township while Efutu Health Center is located about 6 kilometers from away from Cape Coast.

Population

According to Grove, Burns and Gray (2013) the entire population may be the target of a study when the population is small and well defined. The study population and sample included all midwives and health professionals who provide obstetrical care to pregnant mothers during labour in health facilities in Cape Coast Metropolis.

All midwives who offer obstetric and gynecological services from the public health facilities in the Cape Coast Metropolis with maternity units formed the study population but only midwives who provide direct care to women in labour were chosen. About 300 midwives were working at the maternity units at the time of the study but due to their shift and workload only 150 midwives were sampled for the study. Midwives were chosen since they are trained professionals who offer care to women during pregnancy and childbirth, postpartum and the newborn.

The partograph is one of the tools they use to monitor the fetal and maternal conditions and progress of labour which gives a warning sign for an appropriate care to provide when there is a deviation from normal process of labour. A total number of 150 midwives willingly participated in the study; these were Cape Coast Teaching Hospital (84), Metropolitan Hospital (54), Ewim Polyclinic (5), Adisadel Urban Health (5) and Efutu Health Center (2).

Sampling procedure

The process of selecting a portion of a population to represent the entire population is referred to as sampling. According to Sarantakos (1998), sampling provides a better portion because it addresses the population sampled and produces comparable and equally valid results. There are also thought to offer more detailed information and a high degree of accuracy because they deal with relatively small number of units. Health care providers from delivery, Antenatal care (ANC), Post Natal Care (PNC), Family Planning (F/P) and Gynecology units were sampled for the study. Those who never worked in delivery unit were excluded from the study. A total number of 150 midwives at the labour units in the selected health facilities were conveniently selected since they agreed to be part of the study. Respondents demographic and midwifery background including professional Qualification, Place of work, Unit/ward of practice and years of experience. Descriptive statistics and percentages were used to describe their background. Out of the 150 midwives who took part in this study, 1 % (n=2) were principal midwifery officers, 6 % (n=9) registered staff midwives, 85.% (n=128) were registered nurse midwives, 5% (n=7) enrolled/community midwives, and others,3% (n=4)

As many as 84.7 % of the midwives who participated in the study were Registered Staff Midwives. Followed by 1.2 % (n =8) who were Registered Nurse Midwives. As such people's ability to understand and use advanced technology is determined by the level of their profession. The professional workers tend to be more responsive in receiving and carrying out instructions and doing new tasks and easily adopt new technology, which increases their ability to innovate and improve job performance. However, the main factors considered to limit the positive effect of professional qualifications on job performance at the workplace include the quality of the work environment, organizational structure and processes, the assignment of employees in posts which did not match their qualifications and the lack of incentive systems; 17.3% (n=26) worked in Health Centers/CHPS Compound and 82.7%(n = 124) worked in hospitals.

Table 1: Midwives Unit/Ward of Practice

Ward	Frequency	Percent %
Antenatal Clinic	22	14.7
Family Planning	10	6.7
Labour Ward	111	74.0
Post-natal Ward	2	1.3
Other units	5	3.3
Total	150	100.0

Examining the unit/wards of practice of the participants, Table 1 shows that 111(74%) majority of the respondents were stationed at the Labour Ward.

Then 14.7% of the participants worked at the Antenatal clinic and 5(3.3%) were working at other units.

Out of 150 respondents, the highest year range in terms of experience was 15 years and above, the majority of the participants 56 % had 10 to 14 years of experience while 10 % of the respondents had 0 to 4 years of experience.

Data Collection Instrument

A researcher generated questionnaire consisting of open and close ended items was used to collect the relevant data in this study. I considered the use of questionnaire appropriate to collect the data for the study since the participants could read and comprehend.

According to Cohen, Manion and Morrison (2004), questionnaire can be extremely efficient at providing large amounts of data, at relatively low cost, in a short period of time. Participants can also be assured of anonymity and so they may be more truthful in responding to the questions than they will be in, for instance, a personal interview, particularly when it involves sensitive or controversial issues. Also the responses are gathered in a standardized way, so questionnaires are more objective, certainly more so than interviews. Generally, it is relatively quick to collect information using a questionnaire. However, in some situations they can take a long time not only to design but also to apply and analyse. To be able to address the research questions, some variables were measured. The variables were categorized into background of the respondents and research variables.

The questionnaire was made up of five sections that is, A, B, C D and E. This was done to cover the scope of the study taking into account the

research questions. Section 'A' of the questionnaire looked at the background information of participants which included; professional qualification, years of working experience, place of work and unit or ward of practice.

Section B sought participants' Knowledge with regard to the use of the partograph. Items 4 to 14 elicited midwives' knowledge on partograph utilisation. A multiple choice questions on midwives understanding of partograph sought information on their knowledge. Some of the items were worded positively and while others were negatively worded. According to Schotte, Maes, Cluydts and Cosyns (1996), a positive response set may result if all questions are worded positively. This explains why the researcher made the items sounded either negative or positive to avoid the phenomenon of response set. Questions such as: whether the partograph is one of the tools for implementing safe motherhood, will not reduce maternal and newborn deaths during labour; whether in a normal progress of labour the records of cervical dilatation should fall on the action line, or on left or right of the alert line; in active phase of labour a woman should have more than 2 uterine contractions in 10 minutes; minimum duration of a strong uterine contractions in the active phase, parameters for assessing progress of labour and partograph is a chart that shows the salient information on labour. The response options were True or False.

Section C was on the utilization of partograph by participants in their facilities and comprised items 15 to 19. Questions asked include, have you ever used the partograph?, is partograph available in your labour ward?, how often do you use the partograph to monitor labour at your facility? How often do you use partograph once active phase of labour starts? And have you

received training on the partograph? Respondents were required to tick, 'Yes', 'No' or write where necessary.

Items 20 to 30 on the questionnaire formed section D and this elicited information on some challenges midwives faced when using the partograph in monitoring labour. A total of 10 challenges were tabulated and respondents 'agreed' or 'disagreed' to the challenge that pertains to their facilities. These included poor graphing skills, language barrier between midwives, introduction of many partograph versions, commitment level of midwives, late admission of clients, poor record keeping, negative attitude of midwives towards the use of partograph, understaffing at the hospital frequent staff rotation, shortage of equipment, clinical supplies and medicines.

Section E contains the rest of the items that elicited respondents' perception on the use of the partograph according to the research questions posed. This instrument is attached to the work as appendix A.

Validity

Validity is a concept that broadly concerns the soundness of the study's evidence that is, whether the findings are cogent and well grounded. It is an important criterion for assessing the methods of measuring variables (Grove, Burns & Gray, 2013; Polit & Beck, 2004). The content validity of the questionnaire was ensured by my supervisors, expert in the field of midwifery and also through peer jury Also validity concerned knowing whether there is evidence to support the assertion that the methods are really measuring the variables that they are supposed to measure.

Reliability Reliability basically refers to the accuracy and consistency of information obtained in a study. According to Polit and Beck (2004),

statistical reliability refers also to the probability that the same results would be obtained with a completely new sample of subjects. Therefore reliability was improved by the expertise of a statistician during the process of interpreting and analyzing the results from this study. The instrument was pretested on 30 midwives who were working at Winneba Municipal Hospital and Adwumako Government Hospital in Central Region. This was done ensure reliability. Findings from the pretest were used to modify the instrument. The instrument recorded a Cronbach's Alpha reliability coefficient of 0.655. The found coefficient showed the homogeneity of the items and revealed that the instrument was reliable.

Data Collection Procedure

A letter of introduction was taken from the Department of Health, Physical Education and Recreation to the various health facilities where the study took place. Besides, a letter was written to the various participants about the purpose of the data. They were also assured of their anonymity and confidentiality. The researcher in collaboration with the hospital directors and officers in charge of health centers fixed a time and met with the midwives. The participants completed the questionnaires within two weeks. The questionnaires were administered personally with the assistance from the heads of the various health units and a research assistant. The 150 midwives were purposively selected for the study. The data was collected with regards to their shift, that is morning and in order to meet the staff who came for night shift as well as the morning staff. The research assistant met the afternoon staff and collected the rest of the data.

Data Processing and Analysis

The data collected was processed with the help of Statistical Product for Social Sciences (SPSS 21.0). The first research question measured the midwives' knowledge on utilisation of partograph in the Cape Coast Metropolis. In order to produce a more objective assessment of knowledge on utilisation of partograph a score for each respondent was obtained for correct answers on knowledge. A score of 5 – 10 indicated a high knowledge while 0–4 indicated a low knowledge. The data was analysed using descriptive statistics of frequencies and percentage counts. Data on research question two and three were also analysed using descriptive statistics of frequency counts and percentages. Data on research question four was analysed using Chi-square test of association.

CHAPTER FOUR

RESULTS AND DISCUSSION

The purpose of the study was to investigate the knowledge level of midwives on utilization of partograph in some selected public health facilities in the Cape Coast Metropolis in the Central Region of Ghana. This chapter presents results based on the research questions that guided the study and the discussion of the findings.

Research Question One: What is the Knowledge Level of Midwives on the use of Partograph in the Cape Coast Metropolis?

This research question was asked to ascertain the knowledge and understanding of midwives with regards to the use of partograph. In responding to this research question, respondents were subjected to test of their knowledge and understanding on the usage of partograph by asking them to respond True or False. The percentage of respondents with high or low knowledge was calculated by dividing the total responses multiplied by 100. The result in Table 2 showed that the participants generally have adequate knowledge on partograph utilisation. The result revealed that 78% (n =1291) responses showed high knowledge on the use of partograph while 22% (n=359) had low knowledge on the use of partograph.

The findings from the research showed that midwives in the Cape Coast Metropolis demonstrated a high knowledge on utilisation of partograph which indicated they are equipped with skills for providing quality obstetric care during the intrapartum period. This high knowledge implies that maternal and infant health can be improved within the Cape Coast Metropolis to prevent mortality and morbidity rates.

Table 2: Midwives Knowledge on the use of Partograph

Responds	Correct		Wrong	
	N	%	N	%
The partograph is one of the tools for implementing Safe motherhood	140	93.3	10	6.7
Partograph will reduce not new born deaths	135	90	15	10
You require 7 minutes to effectively assess adequacy of contractions	134	89.3	16	10.7
In a normal progress of labour, cervical dilatation should fall on the action line	132	88	18	12
The partograph is a chart that shows the salient information on labour	129	86	21	14
Progress of labour is assessed by the degree of cervical dilatation, uterine contractions and descent of the presenting part	120	80	30	20
The partograph will not reduce maternal death	119	79.4	31	20.6
In a normal progress of labour, cervical dilatation should fall on or left of the alert line	105	70	45	30
In the active phase of labour, minimum duration of a strong contraction is 40- 45 seconds	101	67.3	49	32.7
In the active phase labour, a woman should have more than 2 contractions in ten minutes	91	60.6	59	39.4
In a normal progress of labour, cervical dilatation should fall on right of the action line	85	56.7	65	4.3
Total		78.2%		21.8%

Good knowledge of midwives on partograph ensures effective labour monitoring in hospitals, health centres and CHPS compounds which will further prevent maternal and infant mortality and morbidity. This is in accordance with the SDG- 3 that seeks to reduce maternal and infant mortality rates. The partograph charts makes it easier for the obstetric care givers to interpret the data collected on a woman's labour such as abnormal uterine contractions or alterations in fetal and maternal conditions. In such situations a clinical decision is taken for prompt intervention to save lives. The good knowledge exhibited by the midwives in the Cape Coast Metropolis on the use of partograph may also indicate that they render quality care to individual client since the chart provides a means that enhances timely medical intervention and indicates when augmentation of labour is required. The partograph further increases quality and regularity of the observations made on the mother and fetus during labour and can therefore point to possible cause of prolonged and obstructed labour. Studies conducted by WHO (2007), Oladapo et al. (2006) and Yismin et al., (2013) in Addis Ababa and Nigeria respectively on knowledge of the partograph also revealed that midwives generally had fair and good knowledge.

Furthermore, the reason for the high knowledge of midwives in the Cape Coast Metropolis could mean they have received adequate training on partograph utilization through pre-service or on job training for obstetric care givers on partograph usage. Again since midwives provide essential care for women during labour, there is the need for them to acquire the requisite skills and knowledge to work with to save maternal and infant lives. Fawole et al, (2008), Nyamtema et al., (2008) and Dare Salaam, Ogwang et al, (2009)

confirms poor use of the partograph during labour and recommend training of health workers on its use, provision of guidelines and adequate resources. The findings from the research conducted in Nigeria inferred that despite midwives' good knowledge of the partograph there was poor utilisation. This finding is in contrast to the findings revealed from this research as the results revealed that the participants had indept knowledge and are using the charts.

However 22% of the participants had low knowledge on utilisation of partograph. This low knowledge could be due to lack of inadequate information with regards to interpretation of findings on the partograph or probably they might not have been using the partograph regularly in monitoring labour. Low knowledge on partograph utilisation can adversely affect maternal health leading to increased mortality. This could defeat the purpose of implementing the partograph as the main objective for its implementation was to aid in preventing prolonged or obstructed labour and its associated complications like postpartum haemorrhage and asphyxia in the newborn. Research conducted by Opia et al (2012) and WHO (2010) to assess the improvement in knowledge and skills among partograph users also confirmed insufficient skills among obstetric care givers. It is therefore necessary for all midwives to receive training on the use of partograph to improve their knowledge in intrapartum care. Qualified healthcare providers who have knowledge, skills and attitude are required to be at every birth to work effectively towards accomplishing the goals of Safe motherhood, GHS, and MOH to curb maternal and infant mortality and morbidity.

Research Question Two: What is the Perception of Midwives on utilisation of Partograph in the Cape Coast Metropolis?

This research question sought the perception of respondents about the utilisation of partograph. All participants 100% (n = 150) perceived that the use of partograph should be on going and obstetric care givers must be encouraged to use it to monitor women in labour. Similarly all the respondents perceived that there is the need to improve on the knowledge of partograph users in Cape Coast Metropolis. The findings are shown on table 3 below.

Table 3: Perception of Midwives on use of partograph

Responds	Agree		Disagree	
	N	%	N	%
Partograph use should stop	0	0%	150	100%
Partograph use should be encouraged	150	100%	0	0%
Knowledge of partograph users should be improved	150	100%	0	0%

Findings from the study showed that all the participants were of the opinion that the use of partograph to monitor labour should continue and also should be encouraged. Again all the respondents believed that there is the need to improve the knowledge and skills of the partograph users. This findings means that midwives in the Cape Coast Metropolis appreciate the effectiveness of the utilisation of partograph in labour monitoring and would like to continue using it. This positive attitude demonstrated by the midwives in the Cape Coast Metropolis on the use of partograph shows that they are likely to use it in labour monitoring. Since these midwives have a positive perception about partograph utilisation, it could be inferred from this study

that optimal use of the partograph within the Cape Coast Metropolis would be enhanced. WHO (2007), and Soni (2009), all advocate the use of partograph to monitor labour and recommend its universal use during labour.

Again if midwives acquire pre-service training on the use of partograph, it is likely that they would become proficient in its use and would always perceive utilisation of partograph in a positive way. This is because it helps prevent complications related to labour such as prolonged and obstructed labour. Likewise the midwives are able to intervene promptly since they identify early signs of complication associated with labour, thereby reducing perinatal mortality and morbidity when they use the partograph. This will contribute to the achievement of Sustainable Development Goal 3 which seeks to prevent maternal and child mortality. The partograph serve as a warning system of arising complications during labour as it assists with intervention, decisions and ongoing evaluation of the effect of implemented interventions when used effectively. In addition, it is widely accepted as one of the measures that assist in reducing maternal and infant mortality and morbidity. The introduction of the partograph enhances the work of the midwives as it points to deviations from normal progress of labour early for timely medical intervention to be done.

The knowledge and skills of midwives regarding the use of partograph to monitor labour leads to safe delivery hence the need to improve these through trends in- service training to ensure these midwives are abreast with the new versions of partograph. Several articles in the literature justify the use of the partograph as the best tool to establish prolonged and obstructed labour based on the outcome of controlled trials, clinical audits and systematic

reviews randomized trials (Lavender et al., 2009; Hofmeyr, 2004; Mercer et al, 2006; Orji, 2008). Obstetric caregivers who have had a good knowledge about the partograph and who had received on job training in obstetric care are more likely to use the chart during labour and delivery.

Research Question Three: What are the Challenges of Partograph Utilisation in Cape Coast Metropolis?

This research question was asked to find out about the challenges midwives face when using the partograph. Descriptive statistics of frequencies and percentages were used to analyse the data. In responding to research question three, participants were asked to indicate in order of importance the most worrying challenge they faced as far as the use of partograph is concerned. The responses were ranked in order of the most worrying challenges. The results revealed that 63 % (n = 89) of the participants and 62% (n = 89) indicated shortage of equipment, clinical supplies and medicines as well as commitment level of the midwives respectively as the most worrying challenge faced by midwives. Furthermore, the least worrying challenge faced 22 % (n= 29) was introduction of new versions of partograph. Nine out of the total population did not respond at all indicting they did not face any challenge when using the partograph. The results showed that midwives normally face various challenges when using the partograph. Also, the challenges participants encounter during utilisation of partograph were not the same (see Table 4).

Table 4: Challenges Midwives Face with Utilisation of Partograph in Cape Coast Metropolis N = 150

Challenges with the use of partograph	Agree		Disagree	
	n	%	n	%
Shortage of equipment, clinical supplies and medicines	89	63	52	40
Commitment level of midwives	89	62	53	38
Understaffing at the hospital	86	61	55	39
Late Admission of patients	81	57	60	43
Negative attitude of midwives	74	52	67	48
Frequent staff rotation	66	47	75	53
Poor graphing skills	55	39	86	61
Lack of confidence in midwives	45	32	96	68
Introduction of many partographs versions	29	22	112	79

The findings from the research as presented in Table 3 indicate five major challenges with the use of partograph. The five major challenges faced when using the partograph in the Cape Coast Metropolis as indicated by the participants were; shortage of equipment, clinical supplies and medicines, understaffing 61 % (n = 86), negative attitude of midwives towards its use 52 % (n = 74), frequent staff rotation 47 % (n = 66) and poor graphing skills 39% (n = 55) and commitment level of midwives 62 % (n = 89). Also the most worrying challenge midwives face when using the partograph at the metropolis was shortage of equipment, clinical supplies and medicines 62% (n = 89) as well as commitment level of the midwives 62% (n = 89) while the least occurring challenge was introduction of many versions of the partograph. The findings revealed from this research confirms studies conducted on

challenges and factors militating against the use of partograph by Bazirete, (2014), Moleki, Lumadi, Modiba (2015), Limpopo South Africa and Kolan, Bapuah (2016) Tamale, Ghana. They also confirmed lack of resources such as staff, and support when using the partograph.

It may be inferred from the findings that these challenges could lead to inadequate provision of care during the time of birth which may adversely affect maternal and neonatal health leading to morbidity and mortality. When using the partograph it gives a pictorial overview of an ongoing labour which helps to alert the midwives and obstetricians to deviations in fetal and maternal wellbeing as well as the progress of labour and prompt medical intervention is carried out. Therefore shortage of medicines that are needed to augment labour if indicated, for instance can lead to prolonged labour and its associated complications such as postpartum bleeding which is one of the leading causes of maternal deaths in the country, fetal and maternal distress. A study conducted by Mottey (2016) to assess partograph utilisation in Accra Metropolitan area also revealed that the charts sometimes come in different forms and new changes do occur in the partograph that are not properly announced to its users. She also found that users do not receive supply of partograph.

Furthermore, irregular supply of logistics for monitoring labour, such as medicines could lead to poor commitment to the use of the partograph. The lack of commitment level of midwives will further lead to low utilisation of the partograph and consequently lead to maternal and neonatal mortality and morbidity. Since the partograph is a managerial tool for labour monitoring its

users must have understanding and appreciate its usage. This will help raise their commitment level to the use of the partograph.

Monitoring labour with the partograph demands enough competent health professionals who have the knowledge and are willing to use the charts well. Therefore, fewer numbers of midwives on duty taking care of many clients is sometimes stressful since every labouring woman needs to be monitored on a partograph so that a comprehensive obstetric care can be rendered. Inadequate staff will then reduce the midwives' interest in the utilisation of the partograph and some will develop negative attitude towards its use since its usage demands a lot of time. This negative attitude will further lead to provision of inadequate care to clients which will further have adverse effects on their health and subsequently lead to labour complications and in the worst situations still birth or maternal death.

Also a significant number of the participants indicated poor graphing skills as a challenge. All the observations made on the woman have to be recorded on the partograph. Users of the partograph charts must be conversant with the symbols and each should be plotted correctly. This gives a pictorial view of the salient information of labour from the active phase till full cervical dilatation. The graph normally alerts the obstetric caregiver on what to do at any given time or points to an action if deviation is detected. For instance, in a normal progress of labour plotting of cervical dilatation is expected to fall on, or left of the alert line and if the plotting move to the right or towards the action line, it indicates that a prompt decision should be taken to save the lives of the mother and baby, that is, either referring to a central unit or hospital.

Sometimes a more intensive management may be prescribed by a medical specialist at the tertiary level.

The various challenges that the midwives face therefore need to be properly addressed through programmes such as provision of logistics needed in providing care in all the health facilities within the Cape Coast Metropolis. This will help prevent complications that may arise during the perinatal period to avoid maternal and infant mortality rates. The management of health facilities and policy makers must come together to find means of ensuring that the labour wards are always equipped with logistics for providing quality care.

The ability to monitor pregnant mothers during labour using the partograph continues to be the subject of discussion by many authors. For instance, Maroof, Al- Hadithi and Al-Towil (2012) in their study reported that, overall quality of care was poor with non-use of partograph.

A study conducted by Nausheen et al (2010) also confirms insufficient skills among trainees of a workshop on "labour and partograph and they recommended improvement in their knowledge and skills". Hence, findings from this current study are vital in improving efficiency in labour management.

Research Question Four: Is there any Association Between the Number of Years of Experience of Midwives and Partograph Utilisation?

This research question was set to determine whether there was an association between years of experience and use of partograph. The analysis was done using Chi-square test of association to find whether there was a relationship between the years of experience and utilization of partograph. The Chi-Square analysis results as presented in Table 2 showed that there was no statistically significant association between years of experience and partograph

usage [χ^2 (df = 3) = 1.330, $\rho = 0.722$]. The results on Table 5 showed that the years of working experience of midwives does not influence the use of partograph in the Cape Coast Metropolis.

Table 5: Chi Square Test on Association between Years of Working Experience and Utilisation of Partograph

Years	Yes	No	χ^2	df	sig
	f %	f %			
0-4	14(9.3)	1(1.7)			
5-9	40 (26)	2(1.3)			
10-14	82 (55)	2(1.3)	1.330	3	0.722
15 and above	9(6)	0 (0.0)			
Total	145 (96.7)	5 (3.33)			

The Chi square analysis showed that there was no significant difference between the years of experience and utilisation of partograph. These findings from the research implied that midwives in the Cape Coast Metropolis probably were equipped with the requisite knowledge and skills on utilization of partograph prior to commencement of their work as the years of experience ranged between 0-15 and above. Studies done by Opiah et al. (2012), Yisma et al. (2013), and WHO 2013, on knowledge and utilisation of partograph among obstetric care givers also confirmed that there was no significant relationship between the years of experience and partograph utilisation among participants. The findings from Yismal et al further points to the need for periodic on the job refresher trainings on the use of partograph. Contrary to this finding, Benner (1984) revealed that the knowledge and skills of a health care provider is expected to improve as the years of experience

increases. She further indicated in her five stage model that the nurse at the beginning of her career is normally at the novice stage. As the years go by, she progresses through the advanced beginner, competency and proficiency stages and then becomes an expert in her work. She further stated that the midwife is expected to reach the competency stage of clinical practice within two to three years of working. However, the midwives in the current study were rather equipped with skills and knowledge even at the start of their work. They seem to have competency in using the partograph to monitor labour in the public health facilities in the Cape Coast Metropolis irrespective of the number of years of experience they might have acquired in the profession. The reason for the competency in using the partograph among these midwives even at the early stages of their career could be attributed to the fact that they acquired the knowledge while in training and also at their various facilities; they are given regular training on the partograph. They are also encouraged to use it as a vital tool in monitoring labour.

The level of competency in using the partograph shown by these midwives is very encouraging especially for those at the early stages of their career. This implies that with the regular refresher courses and encouragement and supervision they will be committed to its usage. This will enable them to effectively monitor women in labour so that complications associated with labour can be identified early and managed. Likewise, this will reduce maternal and neonatal mortality rate in the Cape Coast Metropolis and the country at large. Hence there is still the need for policy makers to put in measures such as regular in-service training that will sustain proper use of the partograph in all health facilities where perinatal care is rendered.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study is to find out the knowledge and utilisation of partograph among midwives in the Cape Coast Metropolis. In this chapter, the summary, conclusions and recommendations of the study are highlighted. The summary highlights the objectives of the study, some aspects of the research methods and the main findings of the study. The conclusions and recommendations are also presented in this chapter.

Summary

The study set out to find the knowledge and utilisation of midwives in the Cape Coast metropolis regarding the use of the partograph in monitoring the progress of labour and also the condition of the mother and fetus during labour. This was to establish and describe the factors that contribute to the utilization of partograph by midwives during the management of women in labour in the Cape Coast Metropolis.

All 150 midwives at the maternity units in all the five health facilities in the Cape Coast Metropolis were purposively sampled for the study. Questionnaire was used to gather the data. Percentages and frequencies were used to analyse the data. The study was guided by the following research questions:

1. What is the knowledge level of midwives on partograph utilization in the Cape Coast Metropolis?
2. What is the perception of midwives on utilisation of partograph in the Cape Coast Metropolis?

3. What are the challenges of partograph utilisation by midwives in the public health facilities in the Cape Coast Metropolis?
4. Is there any association between years of experience of midwives and partograph utilisation in the Cape Coast Metropolis?

Key Findings

The findings from the research show that:

1. Midwives have high knowledge on utilisation of partograph in the Cape Coast Metropolis.
2. There was a positive perception of midwives on the use of the partograph in the Cape Coast Metropolis as they believe that, partograph use should continue, encouraged and knowledge of its users should be improved.
3. The challenges midwives face with utilisation of partograph include; shortage of equipments, clinical supplies and medicines, under staffing, commitment level of midwives, poor graphing skills and poor record keeping are the most barriers to utilisation of partograph in the Cape Coast Metropolis.
4. There was no significant relationship between years of experience and utilization of partograph among the midwives in the Cape Coast Metropolis.

Conclusions

Based on the findings it could be concluded that more than 78% of midwives in the Cape Coast Metropolis have fair knowledge of partograph and why it is necessary to use it in the management of labour. This indicates they are likely to use it to monitor labour in the Metropolis.

High utilisation of partograph as the Cape Coast Metropolis is an indication to the likely reduction in maternal mortality. Also all the respondents had a positive perception of partograph utilisation in the Cape Coast Metropolis. This means that they appreciate the effectiveness of partograph in labour monitoring to help curb perinatal complications and to prevent maternal and infant morbidity and mortality.

Shortage of equipment, clinical supplies and medicines, understaffing as well as commitment level of the midwives can lead to underutilisation of partograph in the metropolis.

Knowledge on partograph utilisation does not depend solely on how long the midwives stay on the job as this forms part of their curriculum during the period of midwifery education. Also the respondents years of working experience ranged from 0 – 15.

Recommendations

The following recommendations are based on the findings of the study;

1. The Cape Coast Metropolitan health administrators should intensify its education on utilisation of the partograph so as to get a 100% maximum usage as intended by The World Health Organization (WHO).
2. The Ghana Health Service should increase supplies and equipments as well as employment of more midwives to ensure the utilisation of the partograph in order to reduce maternal and infant morbidity and mortality.

3. Provision of in service training on the usage of partograph should be regular so as to ensure its continuous utilisation in the Cape Coast Metropolis.

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APPENDICES

APPENDIX A
QUESTIONNAIRE ON PARTOGRAPH UTILISATION
UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
DEPARTMENT OF HEALTH, PHYSICAL EDUCATION AND
RECREATION

Dear valued midwives,

I am MPHIL student in the department of Health, Physical Education and Recreation, University of Cape Coast. I am collecting data for a thesis that looks at **Knowledge and Utilization of Partograph by Midwives in Public Health Facilities in the Cape Coast Metropolis**. This research deals with the practice portrayed by midwives in the public health facilities in the Central region. It has been developed so you can tell what to do that may affect or improve your work, maternal and neonatal health. The information you give will help in policy formulation and strategies to improve clients' health through programmes across the region and to an extent the whole country. **Do not** write your name. The answers you give would be kept confidential so that no one will identify you with your responses. Answer the questions based on what you really do. Your responses would be extremely helpful if they are truthful and reflect the real situation as you remember. This research is solely academic and your health facility's responses would be treated with confidentiality. Please be informed you will meet some questions on your

work and experiences which you must be truthful as much as possible. **Please it will take you about 30 minutes to answer the questions.**

Inform consent. Please complete this informed consent before you respond to this questionnaire.

I fully understand the importance of this research and willingly offer myself to participate in this study.

Signature:.....

Date:

Researcher:

Anna Peace Assifuah

Instruction: please tick [] or write your appropriate response where necessary.

SECTION A: Demographic Data

1. Professional Qualification

Principal Midwifery Officer [] others, specify

Registered Nurse Midwife []

Registered Midwife []

Enroll/Community Midwife []

2. Years of experience :.....(Years)

3. Your place of work: Hospital [] Health Centre/CHPS Compound []

(i). Unit or ward of practice []

(ii). Antenatal Clinic []

(iii).Postnatal []

(iv). Family Planning Unit []

SECTION B: Knowledge on the use of Partograph: Tick as applicable.

Indicate your understanding about the of partograph by choosing TRUE or FALSE

Midwives' knowledge on the of partograph	True	False
4. The Partograph is one of the tools for implementing safe motherhood		
5. The partograph will not reduce maternal deaths during labour		
6. The partograph will not reduce new born deaths during		
7. In a normal progress of labour, cervical dilatation should fall on the action line.		
8. In a normal progress of labour, cervical dilatation should fall on or left of the alert line.		
9. In a normal progress of labour, cervical dilatation should fall on the right of alert line		
10. In the active phase of labour, a woman should have more than 2 contractions in 10 minutes		
11. In the active phase of labour, minimum duration of a strong contraction is 40- 45 seconds		
12. You require 7 minutes to effectively assess adequacy of contractions		
13. Progress of labour is assessed by the degree of cervical dilatation and descent of the presenting part and uterine contractions		
14. The partograph is a chart that shows the salient information on labour		

SECTION C: Partograph Utilisation: Tick as applicable.

15. Have you ever used the partograph? Yes [] No []

16. Is partograph available in your labour ward? Yes [] No []

17. How often is the partograph used to monitor labour at your facility?

Routinely [] Rarely [] Occasionally []

18. How often do you use partograph once active phase of labour starts?

Once every 30 Minutes []

Once every Hour []

Once every 4Hours []

Once every 6 Hours []

Once every 12 Hours []

19. Have you received training on the use of the partograph? Yes [] No []

SECTION D: Challenges midwives face with utilisation of partograph

Challenges with the use of partograph	Agree	Disagree
20.Poor Graphing skills		
21.Language barrier between midwives and patient		
22.Introduction of many partograph versions		
23.Commitment level of midwives		
24.Lack of Confidence of midwives		
26.Late admission of patient		
27.Poor record keeping by the hospitals		
28.Negative attitudes of midwives/nurses		
29.Understaffing at the hospital		
30.Frequent staff rotation		
31.Shortage of equipment, clinical supplies and		

SECTION E: Perception on use of partograph

What is your perception regarding the use of partograph in hospitals? **Tick as applicable.**

32. Partograph use should stop []

33. Partograph use should be encouraged []

34. Knowledge of Partograph users should be enhanced regularly []

APPENDIX B

INTRODUCTORY LETTER

UNIVERSITY OF CAPE COAST
CAPE COAST, GHANA
COLLEGE OF EDUCATION STUDIES
Department of Health, Physical Education & Recreation

TELEPHONE: 233 - 0332130634M, 32480-9 Ext.253
TELEX: 2552, UCC, GH.



Cables & Telegrams:
UNIVERSITY, CAPE COAST

Our Ref: ED/MHL/12/0001/5

4th May, 2016

INTRODUCTORY LETTER

The bearer of this letter, Ms. Anna Peace Assifuah with Registration number (ED/MHL/12/0001) is MPhil student in the Department of Health, Physical Education and Recreation, University of Cape Coast. She is conducting a research on the topic "Knowledge, Attitude and use of the partograph among Midwives in the Cape Coast Metropolis" that may require data collection from your institution. The information collected will be used for academic purposes only and its confidentiality is assured.

We would therefore be very grateful if she is given the assistance she may need from your outfit.

We count greatly on your usual co-operation.

Thank you.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Joseph K. Mintah', written over a horizontal line.

Prof. Joseph K. Mintah
HEAD

APPENDIX D

SAMPLE OF PLOTTED PATOGRAPH SHOWING ABNORMAL

PROGRESS OF LABOUR

Name Madam E.S Gravida 3 Para 2A Hospital number _____
 Date of admission 20-7-17 Time of admission 1 p.m Ruptured membranes 0 Hours _____

