SCHOOL OF MEDICINE
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UTILIZATION OF THE PARTOGRAPH TO MONITOR PROGRESS OF LABOUR BY MIDWIVES AT THE THREE PUBLIC HOSPITALS IN ZAMBIA

MWEWA BEATRICE

RN /RM /BSC NURSING

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Signature…….…… **Date**…….…….

Head of Department

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Department of Nursing Sciences, School of Medicine, University of Zambia

CERTIFICATE OF APPROVAL

This dissertation of MWEWA BEATRICE on UTILISATION OF A PARTOGRAPH TO MONITOR PROGRESS OF LABOUR BY MIDWIVES AT THE THREE PUBLIC HOSPITALS IN ZAMBIA has been approved in partial fulfilment of the requirements for the award of the Degree of Master of Science in Nursing by the University of Zambia.

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ABSTRACT

A partograph is a graphic pre-printed paper that provides visual display of recorded observations carried-out on a mother and foetus during labour for early detection of abnormalities. The World Health Organisation (WHO) has advocated and recommended compulsory use of partograph in the monitoring process of labour. Despite WHO's position, partographs are still being under-utilised especially in developing countries including Zambia. Most health workers do not document findings on a partograph after reviewing a labouring woman. Hence, labour progress may not be closely monitored or labour monitoring may not translate into actions required when need arises.

The present research was done to determine the utilisation of the partograph to monitor progress of labour by midwives at Kamuchanga District Hospital, Ronald Ross General Hospital in Mufulira and University Teaching hospital in Lusaka. The objectives of the study were to: establish existence of utilisation of the partograph and to review records of partographs retrospectively to identify maternal, foetal and labour parameters which were not completely recorded. This was a quantitative descriptive cross-sectional study comprising 27 midwives from Kamuchanga, 18 from Ronald Ross General hospital and 42 from University Teaching Hospital. Data were collected by use of questionnaires. Partographs were also reviewed in retrospective from Kamuchanga (26), Ronald Ross General Hospital (38) and University Teaching Hospital (320). A two stage sampling technique was used to sample both midwives and partographs. Convenient sampling was used to select study sites while random sampling was applied to choose respondents. Data analysis was done with the assistance of computer software Statistical Package for Social Sciences (SPSS) version 20. The analysed data were presented in frequency tables and cross tabulations.

The major findings of the study showed that 88.5% of respondents were utilising the partograph. For respondents who were using partographs, 89.7% indicated that pre-printed partographs were available in delivery centres with 58.6% saying that there was no shortage of pre-printed partographs at their centres. On the other hand, 63.8% of respondents who had never attended any workshop or orientation on partographs used them. Respondents who said that they had protocols on partograph use at their delivery centres were 84.5%. The study recommend that further research should be done to determine best ways midwives can utilise the partograph and probably adopt other ways that could be as feasible and sustainable as a partograph to monitor labour.

Key words: *partograph, partograph utilization, labour management tool, progress of labour.*

DEDICATION

This research is dedicated to my late brother, Mr. Chabala Chabatama Mwewa and my late father Mr. Timothy Mwewa Chabatama who had always wanted to see me succeed in life. From their encouragement I have always worked hard. Dedicated also is to my children Mwila and Mwewa who suffered most whilst I was away pursuing this programme.

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C/section	Caesarean section
CIOMS	Council for International Organization of Medical Sciences
CPD	Cephalo-Pelvic Disproportion
DCMO	District Community Medical Office
FHI	Family Health International
FHR	Foetal Heart Rate
ICM	International Confederation of Midwives
JHPIEGO	John Hopkins Programme for International Education in Gynaecology and Obstetrics
KDH	Kamuchanga District Hospital
LDCMO	Lusaka District Community Medical Office
MDG	Millennium Development Goal
MMR	Maternal Mortality Rate
MMSH	Murtala Muhammad Specialist Hospital
NICU	Neonatal Intensive Care Unit
PLc	Private Limited company
PPH	Post-Partum Haemorrhage
RRGH	Ronald Ross General Hospital
SCBU	Special Care Baby Unit
SCI	Skilled Care Initiative
SPSS	Statistical Package for Social Sciences
SVD	Spontaneous Vaginal Delivery
UNICEF	United Nations International Children's Emergency Fund
UTH	University Teaching Hospital
W HO	World Health Organization
WMA	World Medical Association

CHAPTER ONE

1.0 INTRODUCTION

Chapter one provides information on the background of the study, statement of the problem and factors influencing use of the partograph to monitor progress of labour by midwives at Kamuchanga District Hospital, Ronald Ross General Hospital in Mufulira district and the University Teaching Hospital in Lusaka city. It discusses the research theory, justification, objectives, research questions and hypothesis. The definition of terms, operational definitions and study variables are outlined.

1.1 BACK GROUND INFORMATION

A partograph is a graphic pre-printed paper that provides a visual display of recorded observations carried-out on the mother and foetus during labour for early detection of abnormalities (Sellers, 2012 and Khonje, 2012). It has been widely accepted as a tool to monitor progress of labour under the Safe Motherhood Initiative for improving labour management and reducing maternal and foetal mortality and morbidity (Sellers, 2012). The partograph is used to identify and reduce maternal complications from prolonged labour such as post-partum haemorrhage (PPH), sepsis, uterine rupture and its sequelae and for the new-born; anoxia, infections and death (Sellers, 2012). These complications if not detected and reduced early enough could lead to maternal and neonatal mortality and morbidity (Khonje, 2012). It is used as a tool for risk assessment and is more effective in detecting abnormal labour during the first stage of labour. When used correctly, the partograph helps to identify problems so that interventions can be initiated timely thereby preventing maternal and or foetal mortality and morbidity (Khonje, 2012). The graph is plotted from when the woman is in active phase of labour (Radhakrishnan, 2012 and Sellers, 2012).

1.1.1 History of the Partograph and its Use in Monitoring Labour

Partograph use dates back to 1954, when it was developed by an obstetrician, Friedman, who used it to monitor cervical dilation and named it the 'cervicograph' (World Health Organization (WHO), 1988 and Khonje, 2012).

In 1972, Philpott constructed a nomogram into the partograph which became a practical tool for recording cervical dilation and all intra-partum observation (WHO, 1988). A nomogram or nomograph is a graph with three scales or lines graduated so that a straight line intersecting any of the two lines at their known values intersects the third at the value of the related variable (WHO, 1994). It was constructed to show the normal progressive dilatation of the cervix for prim-gravidae admitted at different stages of cervical dilatation (WHO, 1994). This means that Philpott drew a diagram in the partograph representing the relationship between foetal and maternal well-being and progress of labour. In this way it helped to separate normal labour from labour destined to result in an abnormal outcome such as longer first and second stages, a greater incidence of instrumental delivery and babies with low Apgar score.

Philpott designed the alert and action lines which helped to identify deviations from normal and provided a scientific basis for early intervention leading to prevention of prolonged labour (WHO, 1988; Khonje, 2012). Since then various authors developed similar nomograms in other geographical areas with no major differences. WHO later modified and simplified it.

In 1988, the Safe Motherhood Initiative launched partograph use as an international standard practical tool to monitor labour and prevent prolonged or obstructed labour (Khonje, 2012).

WHO, in 1994 extensively tested its efficacy and established its scientific basis and reason for its use in prevention of prolonged labour (Khonje, 2012). Since it first came into use, the WHO partograph has been modified and adapted by many hospitals and government authorities to suit their own needs (Nolte, 2008).The use of the partograph reduces the incidence of prolonged and or obstructed labour and can detect deviation from normal of foetal heart rate which can result in intra-partum foetal hypoxia. In 1994, WHO declared universal application of the partograph in all settings where women deliver (Khonje, 2012).

In Zambia, the partograph has been in use since 1970s (Dangal, 2006). It has been the only tool used for intra-partum management and is also obligatory at all levels of maternal care services and it is modified and presented as a three-paged labour chart (Dangal, 2006).

The front page of the labour chart is formed by the graphic partograph that has three main components: (i) the component for recording foetal condition; foetal heart rate (FHR), moulding of foetal skull in cephalic presentation and colour and amount of liquor, (ii) the component for recording progress of labour; effacement and dilation of the cervix, descent of foetal head, flexion, rotation and presentation, uterine contractions for frequency and duration, (iii) the component for recording maternal condition; vital signs, urinary output or vomitus, drugs and intravenous fluids and Oxytocin regime (Radhakrishnan, 2012, and WHO, 1988).

The partograph provides a context for assessing maternal and foetal condition and progress of labour during the process of labour. Foetal condition is monitored to assess the well-being of the foetus.

If the condition of the foetus is compromised, even when the mother is healthy, normal labour may be discontinued by any form of intervention to save the life of the foetus. Foetal heart rate monitoring is done to identify foetuses at risk of reduced oxygen supply (hypoxia) (Radhakrishnan, 2012). The state of membranes indicates the risk of mother and foetus to ascending infections if ruptured for long.

The state of colour of liquor can tell if foetal life is compromised or not (Khonje, 2012). Vaginal delivery would be anticipated by the health care provider if there is no excessive moulding and caput.

Maternal condition is monitored by assessing the well-being of the mother. With compromised maternal well-being, certainly foetal condition is also compromised and labour may not be allowed to continue to save the lives of both. Mother's condition is monitored through checking of blood pressure and helps to detect pre-eclampsia and eclampsia. Pulse rate is checked to detect severe dehydration or sepsis during labour. Sepsis is also identified by checking temperature and is usually raised. Urine output is measured to exclude proteinuria, ketonuria and dehydration but also to keep bladder empty. A full urinary bladder obstructs descent of foetal head (WHO, 1988). Progress of labour is captured through monitoring cervical dilation and tells whether labour is normal, precipitated and or prolonged or obstructed. Precipitate and prolonged labours are potential risks of PPH and sepsis (Oladapo et al, 2006).

Meaningful interpretation of cervical dilation is aided by the alert and action lines on the graph. The alert line is a graphic line drawn from 4cm to 10cm cervical dilation. Its role is to separate normal labour from abnormal labour.

Crossing of the alert line is associated with foetal distress which increases the need for new-born resuscitation (Tayade and Jadhao, 2012; Khonje, 2012). The action line is a graphic line drawn 4 hours to the right of the alert line. The action line represents slow progress of labour. Slow labours tend to be prolonged and are a potential source of maternal and foetal sepsis, maternal dehydration, exhaustion and uterine rupture (WHO, 1988; Khonje, 2012).

Consistent and regular monitoring of contractions can show whether the progress of labour is normal or not.

Contractions that are efficient and effective predict normal progress of labour. If labour is not normal, interventions such as augmentation can be instituted.

Descent shows compatibility of foetal head to maternal pelvis. Failure of the presenting part to descend in the presence of strong uterine contractions indicates cephalo-pelvic disproportion (CPD) which is a common cause of obstructed labour (WHO, 2012). Consistent and regular monitoring of foetal descent can guide the health care provider on the method of delivery to anticipate or institute.

The first page of the partograph also has information about personal details, past obstetric history of the woman to give the health care provider knowledge about their client and what risks she may have. The first examination on admission helps to exclude or detect any existing problems in the woman. Information on how to use the partograph is contained on its back page. Explanations are given on how often to check and record different parameters of the partograph from foetal well-being to maternal well-being (Figure 2: Appendix).

The third page of the partograph contains information on the first vaginal examination and pelvic assessment.

This guides the health worker to make decision on whether the woman will deliver vaginally or will need instrumental delivery by estimating the actual size of the pelvis in comparison with foetal head. The first examination also helps to assess if the woman is in established labour. The part on the second stage of labour gives details about the process of the labour outcome while the third stage of labour is the recording of information about the products of conception; placenta and membranes. If conceptual products are retained the woman is at risk of PPH or sepsis and can even die (Fawole et al, 2008).

The fourth stage of labour is the time the woman is closely monitored to determine how she is coping with the delivery and is checked for raised blood pressure, raised body temperature, shock and or uterine contractility and ability to pass urine (Figure 3: Appendix).

In the post-partum period, both mother and neonate are observed to exclude sepsis, PPH, pre-eclampsia and anaemia in the mother (Figure 4: Appendix).

Labour should be monitored in a systematic way by using the partograph. Partograph use is advocated for even in low income countries because it is an inexpensive tool to prevent possible child birth complications (Tayade and Jadhao, 2012). It also increases the quality and regularity of all observations on the foetus and the mother in labour, and aids early recognition of problems with either and therefore reduces maternal and perinatal mortality and morbidity (Tayade and Jadhao, 2012).

Complications related to child birth are a major cause of maternal and perinatal mortality. Half a million women lose their lives every year because of pregnancy related complications (Fawole et al, 2008).

The majority of these deaths in low income countries occur from complications of eclampsia, prolonged labour, obstructed labour, haemorrhage and sepsis (Khonje, 2012). Obstructed labour and ruptured uterus contribute up to 70% of maternal mortality (Tayade and Jadhao, 2012). Every year four million neonates die worldwide and one million are fresh still births (Khonje, 2012). The majority of these deaths and complications could be prevented by cost-effective and affordable health interventions like the partograph. The same measures that could prevent maternal deaths could also prevent morbidity and improve neonatal outcome. The partograph is an effective tool for monitoring labour, and when used effectively, could prevent prolonged or obstructed labour, which accounts for about 8% of maternal deaths (Fawole et al, 2008). The partograph thus serves as an 'early warning system' and assists in early decision on transfer, intervention decisions in hospitals and ongoing evaluation of the effect of interventions (Lavender et al, 2009). Most of these maternal deaths can be prevented, but are unpredictable.

A significant number of these deaths occur in women who are in good condition at onset of labour (Khonje, 2012). Performing risk assessment in the ante-natal period is not sufficient enough to identify women who would develop complications during labour and delivery. Therefore, every labouring woman should be attended to by a skilled birth attendant who can accurately observe, regularly monitor, interpret the partograph and act accordingly should complications occur because pregnancy and labour are considered to be risks (Radhakrishnan, 2012 and Khonje, 2012). Failure by the health care provider to identify problems during labour adds to the already calculated risks of the woman dying because of pregnancy.

In Zambia, maternal mortality ratio (MMR) was at 440 per 100, 000 live births in 2010 (Zambia Demographic Health Survey in World Bank Fact book, 2013). This ratio was far from the expected Millennium Development Goal (MDG) target of 155 per 100, 000 live births (Khonje, 2012). Neonatal mortality rate is 34 per 1, 000 live births (United Nations International Children's Emergency Fund (UNICEF) 2007). Partograph utilisation in monitoring the process of labour is associated with good outcomes of labour (Square, 2006).

Mufulira district is situated on the Copperbelt province of Zambia. It shares its international boundary 18km in the north with the Democratic Republic of Congo and also shares boundaries with other Copperbelt towns, namely; Kitwe, Kalulushi, Ndola, Chingola and Chililabombwe (Mufulira District Health Office (DHO), 2013). The 2013 population was estimated at 216,228 with 7, 203 estimated pregnancies for the district (Mufulira DMO, 2013). Kamuchanga District Hospital (KDH), Ronald Ross General Hospital (RRGH) and Malcolm Watson Mine Hospital are located within Mufulira district which has an area of 1, 258 square kilometres.

Kamuchanga district hospital and RRGH provide 1st and 2nd level care respectively.

The district has two delivery centres that are run by the government. The rest of the health centres which were conducting deliveries no longer do so because of inadequate number of midwives. The only delivery centre that is in operation is Kamuchanga district hospital which refers complicated cases to Ronald Ross general hospital.

Malcolm Watson mine hospital which is owned by Mopani Copper Mines Plc is about 2km from RRGH. It has over 20,000 mine employees (Mufulira DHO, 2013). It provides maternity services alongside other general health care services.

It attends to miners and other pre-registered family members only. Non-miners are attended to at a high-cost fee which few people can afford.

On the other hand, the University Teaching Hospital (UTH) is both a teaching and tertiary hospital. It is situated off Nationalist road in Lusaka, the capital city of Zambia. Within its catchment area are several health service providers of which the major ones are the Levy Mwanawasa General Hospital and the health centres administered by the Lusaka District Medical Office (LDMO) (UTH Public Relations Office, 2013). There are other several privately owned clinics and hospitals that complement public health care but few individuals can afford to access delivery services because the fees charged are high.

Maternal and neonatal mortality and morbidity is high at Ronald Ross general hospital. In 2013, the hospital recorded 4 maternal deaths, 19 fresh still births and 48 cases of asphyxia (Demographic Health Information System, 2013). Kamuchanga district hospital had 3 maternal deaths, 15 fresh still births and 28 perinatal deaths (Mufulira DMO, 2013). The University Teaching Hospital recorded 588 fresh still births, 144 neonatal deaths and 55 maternal deaths (UTH Statistics Office, 2013). The partograph has been widely accepted as an effective means of recording the progress of labour (WHO, 1994).

It is a graphical record of cervical dilatation in centimetres against duration of labour in hours. Active management of labour advocates early recognition of non-progressive labour.

This can be done by using a partograph, or graphical depiction of a labour “curve”. The first stage of labour has two phases, a latent phase and an active phase. In primi-gravidae, the latent phase is often long (about 8 hours) during which effacement occurs. In multi-gravidae, the latent phase is short (about 4 hours) and effacement and dilatation occur simultaneously.

Dilatation of the cervix should be at the rate of 1 cm per hour in primi-gravidae and 1.5 cm in multi-gravidae, beyond 3 cm dilatation could be considered satisfactory (Dangal, 2006). The alert line drawn from 3 cm to 10 cm in active stage represents the rate of dilatation. Therefore, if cervical dilatation moves to the right of the alert line, it is slow and an indication of delay in labour (Dangal, 2006). If the woman is in a health centre, she should be transferred to hospital: if in hospital, she should be observed more frequently. A partograph must be started only when a women is in labour.

The utilisation of a partograph by midwives in the management of active phase of labour is one of the strategies put in place to prevent maternal and foetal mortality. If properly utilised, a partograph can help a midwife to identify prolonged and obstructed labour early. The midwife will be able to decide when to seek for help, when to accelerate labour and when to transfer a client to the next level thereby preventing complications. The consequences of not using a partograph are that, a midwife can miss or delay in identifying prolonged or obstructed labour, hence delayed interventions and this can lead to complications such as death of a woman or foetus or both.

The expectation is that the partograph should be used on every woman admitted in labour to guide in monitoring of labour and assist in identifying problems. The partograph is also part of a woman's health records and an official document which can be used in legal issues.

Despite all this usefulness, the partograph has not been adequately used at the delivery units under study in Mufulira district and UTH in Lusaka city.

During an assessment of maternal deaths at RRGH in Mufulira district, it was discovered that maternal deaths were high and in some cases partographs were either filled-in retrospectively (as showed by alterations) or incompletely or not used at all (RRGH, 2013). No justification was given for failure or inadequate documentation on the partographs.

The aim of the study was to determine the utilisation of the partograph on monitoring labour among midwives at KDH, RRGH in Mufulira district and UTH in Lusaka city.

1.2 STATEMENT OF THE PROBLEM

WHO has advocated and recommended compulsory use of the partograph in monitoring the process of labour. Several studies have also justified the use of the partograph as the best tool for establishing prolonged and obstructed labour (Lavender, Hart and Smyth, 2009; Orji, 2008). From the many studies reviewed, it is clear that using the partograph is evidence-based practice. The aim of a partograph is to facilitate maximum monitoring of mother and foetus during labour. In case of problems arising in an anticipated normal birth, the midwife should be able to make quick clinical decisions.

Despite being advocated for and recommended by WHO, the partograph is still being under-utilized especially in developing countries including Zambia (Maimbolwa, Ransjo-Arvidson, Ngandu, Sikazwe and Diwan 1997; Windrim, Seaward, Hodnett, Akoury, Kingdom, Salenieks, Fallah, and Rayan, 2007) especially in health centres where most of the deliveries are conducted (Okechukwu, Adesegun, Niyi, Babalola, and Uche, 2007).

This leads to missed opportunities to identify problems and address complications in a timely manner.

Complicated deliveries are more detrimental as they cause severe psychological and physical harm to women, serious economic and social change as well as adverse maternal and foetal outcomes (Dangal, 2006).

Managing complications is expensive for the mother, family and institution. This is not exceptional for Zambia as is shown by the high maternal and perinatal mortality rates. Post-partum haemorrhage and obstructed labour are the most common causes of maternal deaths in Zambia (Zambia Demographic Health Survey in World Bank Fact book, 2013). These deaths are preventable.

The partograph is an effective tool to recognize such problems during labour. It also assists in early decision making and early interventions that can reduce maternal and foetal morbidity and mortality. In Zambia, Square (2006) evaluated the use of the partograph at Chipata general hospital in Eastern province. The study revealed that the partograph was under-utilized by midwives. Under-utilization of partograph cannot help to identify problems such as prolonged labour.

During a review of maternal and perinatal deaths at RRGH, it was reported that maternal and perinatal deaths were high and that in some cases partographs were either not correctly completed or used at all. Some partographs continued to be filled-in on to second page for an individual woman. A study conducted in South Africa by Basu, Hoosain, Leballo, Leistener, Masango, Mercer, Mohapi, Petkar, and Tshiovhe (2009) attributed the high maternal morbidity and mortality rate to poor usage of the partograph.

There are only two delivery centres that can be accessed at no cost by women in Mufulira district which has a total population of 216,228 and 7, 203 expected pregnancies, with 13 midwives based at KDH and 30 at RRGH. People living in urban areas of Mufulira access maternity services at RRGH without any cost and without being referred.

This, however, has adversely contributed to the increased demand for delivery services with a ratio of one (1) midwife to at least one hundred and sixty eight (168) pregnant women. This implies that the two hospitals receive lots of women seeking maternity services. Therefore, the increase in demand for these services does not match with the number of midwives offering labour and delivery services. With the increase in demand not matching the number of midwives, partograph utilisation cannot be consistent once commenced or can be ignored.

The number of midwives is inadequate such that the standard ratio of one midwife per two clients is not practical (Hapwaya, 2012). The midwife may look after six or more clients in an eight-hour shift; as such mistakes could be made while plotting the partograph or its use could be ignored.

Trainee midwives are taught about the partograph both theoretically and practically. However, in most instances, students may not assimilate the information and this could have a bearing on utilization of partograph upon graduating. On the other hand, midwives who take care of women in labour have different levels of training and thus different exposure to the partograph. It is important to continue with programmes such as work-shops with hands-on experience to update both knowledge and skills for the midwives.

Therefore, this study intends to determine the utilisation of a partograph by midwives at the three hospitals in Zambia. This study will help the relevant authorities to develop strategies to encourage partograph utilisation by midwives.

1.3 RESEARCH THEORY

A set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena (Thesaurus of English Language, 2002).

In attempting to understand the utilisation of a partograph by midwives in the three hospitals in Zambia, the Donabedian model was used.

1.3.1 **The Donabedian Model**

The Donabedian Model is a conceptual model that provides a framework for examining health services and evaluating quality of care (Donabedian, 2005). According to the model, information about quality of care can be drawn from three categories namely structure, process, and outcome (McDonald, Sundaram, Bravata, 2007; Kunkel and Gantz, 2007).

Structure describes the context in which care is delivered, including hospital buildings, staff, financing, and equipment. Process denotes the treatment or service being provided to the patient throughout the delivery of healthcare and outcome refers to the effects of healthcare on the health status of patients and populations. For instance, a woman in normal or low risk labour is expected to deliver a live infant with no complications to both new-born and mother.

Donabedian was a physician and health services researcher at the University of Michigan. He developed the original model in 1966. While there is the WHO-Recommended Quality of Care Framework, the Donabedian Model continues to be the dominant paradigm for assessing quality of health care.

1.3.1.1 **Dimensions of care**

The chain of three boxes represents three types of information that may be collected in order to draw inferences about quality of care in a given system.

Dimensions of care are the various aspects or components of service delivery that have to operate together as a unit in a facility to deliver quality health care. According to the Donabedian Model, there are three types of information that may be collected to evaluate quality of care; structure, process and outcome. In this study, these represent staffing, maternity services provided and effects of health-care on clients or patients that is, client or patient satisfaction.

Structure

Availability of modern essential obstetric equipment, the partograph and adequate staffing of well-trained midwives would improve utilisation of the partograph and consequently maternal and foetal outcome.

These factors control how providers and patients in a healthcare system act and are measures of the average quality of care within a facility or system.

The Donabedian Model provides a patient safety framework, and permits an examination of how risks and hazards embedded within the structure of care have the potential to cause injury or harm to patients. Individual or team failures in a health care delivery setting are consistently identified as a leading cause of problems identified in process and negative maternal-foetal outcomes. Structure is easy to observe and measure.

Process

The Process is the sum of all actions that make up healthcare.

Processes refer to what is done and the way things are done (Kunkel et al 2007). These commonly include diagnosis, treatment, preventive care, and patient education but may be expanded to include actions taken by patients or their families (Donabedian, 2005). Processes can be further classified as technical processes, how care is delivered, or interpersonal processes, which all encompass the manner in which care is delivered. According to Donabedian (2005) the measurement of process is nearly equivalent to the measurement of quality of care because process contains all acts of healthcare delivery. Information about process can be obtained from medical records such as the partograph. Interviews with patients and practitioners, or direct observations of healthcare visits can also give information on how maternal health services are delivered.

Outcome

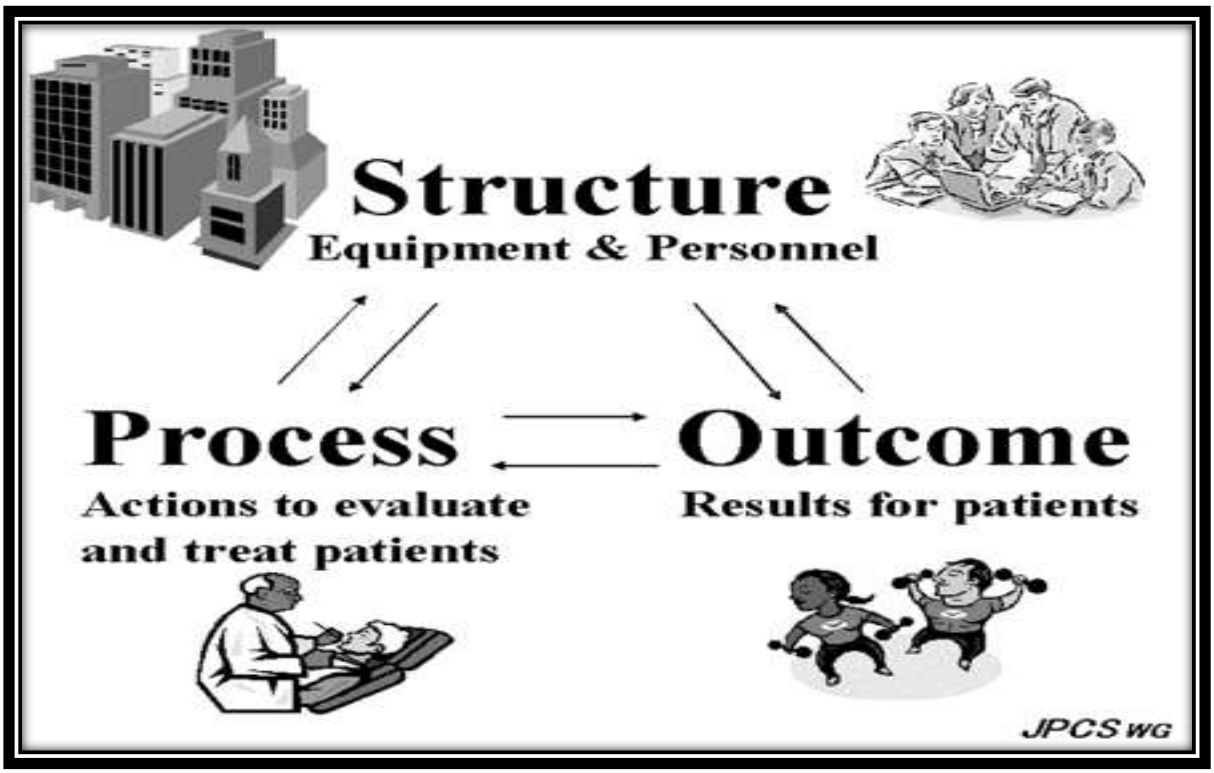
Outcome includes changes to health status, behaviour such as arriving early at facility for delivery, or knowledge as well as patient satisfaction and health-related quality of life (Kunkel et al 2007). Outcomes are sometimes seen as the most important indicators of quality because improving patient health status is the primary goal of healthcare (Donabedian, 2005).

If there is effective use of the partograph when monitoring a woman in active phase of labour, good outcome is having a live infant in good condition and a health mother with no complications. In Donabedian structure-process-outcome Model, problems are addressed by looking at all three areas - structure, processes, and outcomes at the same time.

The relationship between the constructs of the framework is indicated by the pictorial representation displayed in Figure 2. To reach the results for patients in the framework (the outcomes), the prerequisites must first be in place (equipment and personnel) in order to work with the care environment, to enable the delivery of effective care through the care processes. The Model further reveals that, factors such as staffing, availability of items or equipment to use and motivation could be some of the enablers or barriers for the Donabedian Model in a clinical setting.

This Model was applied to midwives in their respective duties. Midwives utilise the partograph to give individualized midwifery care. These health care providers are expected to assess the clients and patients to elicit client/patient needs and provide appropriate interventions to identified needs. The ability to care for the client/patient as a whole person is considered the essence of good healthcare practice in the Donabedian Model and achieves better health outcomes.

Figure 2: Dimensions of Care of the Donabedian Model (Donabedian, (2005)



1.4 RESEARCH JUSTIFICATION

The partograph has been used sparingly at delivery facilities; KDH, RRGH in Mufulira district and UTH in Lusaka city. It is therefore, necessary to determine utilization of the partograph in these facilities. The information or knowledge gained can be used to intervene or implement use of partograph in a more useful manner or institutions participating in the study can audit themselves. The results of this study will provide information of how the partograph is utilised by midwives at participating institutions thereby enabling midwifery care providers on how effective use of the partograph can be increased. This can lead to improvement in maternal and foetal outcomes. The results also enlightened on areas where teaching strategies needed to be enhanced. Therefore, this study provided baseline data for further research as no study of this kind had ever been conducted at KDH and RRGH in Mufulira district.

The study findings gave information about the phenomenon of partograph utilisation.

The findings can also be used by policy makers to better the use of a partograph then, eventually lead to improved safe motherhood provision and ultimately improve maternal and foetal outcomes.

1.5 OBJECTIVES OF THE STUDY

1.5.1 General Objective

The general objective of the study is to determine the utilization of the partograph by midwives to monitor progress of labour with a view to strengthen its use.

1.5.2 Specific Objectives

The following are the specific objectives of the study:

i. To establish how midwives at KDH, RRGH and UTH utilise the partograph to monitor progress of labour
ii. To review records of partographs used at KDH, RRGH and UTH
iii. To determine factors that influence utilisation of the partograph to monitor progress of labour by midwives at KDH, RRGH and UTH

1.6 RESEARCH QUESTION

i. How do midwives at KDH, RRGH and UTH utilise the partograph to monitor progress of labour?

1.7 HYPOTHESIS

For the purpose of this study, the Null hypothesis will be used.

1.7.1 **Null Hypothesis**

There is no association between use of the partograph to monitor progress of labour and the following factors:

- Availability of partograph
- Shortage of midwives
- Attitude of midwives
- Supportive supervision
- Midwifery training
- Workload on midwives
- Resistant to change

1.8 CONCEPTUAL DEFINITIONS OF TERMS

Partograph: a graphic record of progress of labour and salient features in the mother and foetus, to detect labour that is not progressing normally, to indicate when labour augmentation will be appropriate and to recognize cephalo-pelvic disproportion long before labour becomes obstructed (WHO, 2008).

Maternal well-being: health of mother while in labour (Woodford and Jackson, 2003).

Maternal morbidity: refers to serious disease, disability or physical damage such as fistula and uterine prolapse, caused by pregnancy-related complications (Woodford and Jackson, 2003).

Maternal mortality: maternal mortality 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 the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2005).

Midwife: A midwife is a person who, having been regularly admitted to a midwifery education programme, duly recognized in the country in which it is located, has successfully completed the prescribed course

of studies in midwifery and has acquired the requisite qualifications to be registered and or legally licenced to practice midwifery (International Confederation of Midwives (ICM), 2011).

Utilization: is conceptually defined as, **"**to make use of something in an effective way, or find a practical use for something", (Woodford and Jackson, 2003).

Use: employ an object for a particular purpose (Woodford and Jackson, 2003).

Foetal well-being: refers to health of unborn baby during pregnancy and labour (Woodford and Jackson, 2003).

1.9 OPERATIONAL DEFINITION OF TERMS

1.9.1 Utilization **of the partograph**: use of a partograph by midwives to monitor progress of labour.

1.10 VARIABLES

"A variable is an attribute or characteristic that can have more than one value" (Basavanthappa, 2007: 568).

1.10.1 Independent Variables

In this study, the independent variables are: availability of partograph, staffing, midwifery training, supportive supervision, attitude of midwives, and workload on midwives and resistance to change.

1.10.2 Dependent Variable

The dependent variable in this study is utilization of the partograph.

Table1.1: Variables and Cut-off Points

VARIABLES	CUT-OFF POINTS	INDICATORS	QUESTION NO.
INDEPENDENT VARIABLES			
Availability of partograph	4-6 points	Available	Questions 8-9
	0-3 points	Not available	
Ratio between midwives and clients	1:2	Not good staffing	Questions 10-12
	1: more than 2	Good staffing	
Midwifery training	~~4~~ – 6 points	Adequate	Questions 13-15
	0 – 3 points	Inadequate	
Supportive supervision	Scores 4-6	Provided	Questions 16-19
	Scores 0-3	Not provided	
Attitude of midwives	Agreeing to points on utilisation of partograph	Positive	Questions 20-22
	Any disagreement to points on utilisation of partograph	Negative	
Workload on midwives	Scores of 3-4	Overworked	Questions 23-26
	Scores of 0-2	Not overworked	
Resistant to change	Uses partograph	Not resist	Questions 27- 28
	Not use partograph	Resists	
DEPENDENT VARIABLE			
Utilization	Able to score 3 – 6 points on utilisation category	High	Questions 6 -7
	Able to score 0 – 3 points on utilisation category	**Low**	

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

One of the significant advances in the management of labour in recent decades is the use of partograph. The purpose of the partograph is to detect complications during labour and reduce maternal and perinatal mortality and morbidity (Dangal, 2006). The consequences of prolonged and obstructed labour for the mother include: maternal dehydration, infection, haemorrhage, ruptured uterus and obstetric fistulae (Dangal, 2006). In the case of an infant, prolonged and obstructed labour may cause asphyxia, brain damage, infection and death (Lavender et al, 2009). The partograph therefore, is a vital tool for health care providers which should help them to identify complications during childbirth in a timely manner to intervene and at the same time refer women to appropriate facilities for specialised management. However, partograph utilization by midwives tend to decline usually after training because of various factors such as different designs of partographs in areas of practice (Mati et al., 1994) inadequate resources and staffing.

In this study, the researcher reviewed literature to help her become aware of what has already been done to build the basis for justification and avoid duplication. Literature review for the present study was presented under the following variables: availability of partograph, shortage of midwives, midwifery training, and supportive supervision, attitude of midwives, workload and outcome of labour as factors affecting effective utilization of a partograph in monitoring the active phase of labour.

2.2 VARIABLES

2.2.1 A**vailability of Partograph**

Since the introduction of the partograph by Philpott in 1972, evidence show that its use reduces maternal and foetal mortality and morbidity (Magon, 2011).

Although the partograph is a simple and inexpensive tool, it is not as widely utilized, as it should be. Magon (2011) reports that a study done in Nigeria showed that only 25% to 33% of caregivers surveyed were using partograph for routine monitoring. Partograph use was more in tertiary level facilities and less at primary and secondary levels. Ideally it should have been perhaps more important at primary and secondary levels. One of the reasons revealed by Magon's (2011) study conducted in Nigerian for not utilizing the partograph were non-availability of the pre-printed ones.

Opiah (2001) conducted a study in Nigeria to examine factors that mediate utilization of the partograph in monitoring labour. The results in this study revealed that respondents who were the midwives knew what the partograph was and indicated that it is used to reduce maternal and neonatal mortality and morbidity. However, the hindering factors, according to this study, were the non-availability of the pre-printed documents.

Square conducted a study in 2006 on factors affecting partograph implementation by midwives in Chipata, Zambia. The results of the study were that, the midwives who were the respondents had adequate knowledge that the partograph showed deviations from normal labour at a glance and helped in decision making. The identified barrier to partograph use was shortage of supplies of pre-printed documents. Therefore, most clients could not be monitored using partographs.

2.2.2 **Staffing**

Midwives may have a good attitude towards partograph use, however; inadequate staffing could be a reason for not using it when monitoring women in active phase of labour.

A study conducted in Nigeria by Opiah (2001) revealed that shortage of staff hindered partograph utilization on labouring women. Therefore, more midwives on duty were associated with high utilization of the partograph.

Opiah, Ofi, Essien, and Monjok (2012) conducted also conducted a study on the utilization of the partograph among midwives in the Niger Delta Region of Nigeria. Results showed that midwives (92.7%) indicated that partograph use reduced maternal and child mortality. One of the factors that hindered effective partograph use was shortage of staff. Poor staffing levels affected partograph use negatively because even if a midwife knew its importance of reducing maternal and foetal complications, he or she could ignore initiating its use due to pressure of work.

Hapwaya (2012) carried out a study in Lusaka, Zambia on partograph utilization by midwives working in delivery centres of Lusaka district. Her research findings were that 70% of respondents had low partograph utilization. The reason given by 96% of respondents was shortage of midwives where 1-3 of them could be on an 8-hour shift with an average of 8 deliveries.

2.2.3 **Midwifery Training**

Recognizing the unacceptable high maternal mortality; the preventable nature in the majority and social consequences of a mother's death to the family and children, WHO, World Bank and the United Nations Fund for Population Activities held a conference in Kenya in 1987 which concluded with a 'call to action' (WHO, 1988). This call to action demanded that health workers involved in the care of mothers and children to take positive action to reduce maternal mortality and morbidity (WHO, 1988). Of the actions called for was the need to ensure that all pregnant women be screened and supervised by appropriately trained health workers who should be using relevant technology such as partographs to identify those at risk and provide care during labour as expeditiously as possible (WHO, 1988).

Training of attendants on the use of the partograph among other things were the competences WHO and International Confederation for Midwives had come up with to offer life-saving skills to reduce maternal and neonatal mortality and morbidity (WHO, 2005). The alert and action lines on the partograph enable the midwife to recognize abnormal from normal progress of labour and when to act appropriately.

It is widely recognized that a high percentage of maternal and neonatal deaths could be prevented if pregnant women had access to caregivers who have the competencies required to recognize the need for, and then to provide, proven, effective, and timely interventions with the help of the partograph (Fullerton and Leshabari, 2010). Successful and accurate use of the partograph calls for quality training of midwives.

A Safe Motherhood Demonstration Project at a provincial general hospital in Kenya observed an increase in partograph utilization from 11% to 85% following in-service training (Mugerwa, 2008).

Family health international (FHI), (2005) through Skilled Care Initiative (SCI) emphasized that skilled care at delivery had been identified as one of the key interventions for reducing maternal mortality and improving neonatal outcomes. Therefore, ensuring that all women had access to skilled care was particularly critical because most obstetric complications are difficult to predict, and any woman could suddenly, without warning, develop a life-threatening emergency.

FHI (2005) had been developing and testing a tool for improving women's access to skilled care during pregnancy and child birth whose key component was ensuring that maternity care providers were equipped with the cognitive, clinical, and interpersonal competencies needed. FHI (2005) had been initiating training to improve skills deficit in four districts of remote and rural areas of Kenya, Tanzania, and Burkina Fuso where health personnel were in short supply and the government had difficulty meeting norms for refresher training for providers.

WHO recommended that maternity care providers receive refresher training or updates in midwifery every three to five years (FHI, 2005).

In the three countries where FHI has been running these projects, the maternity service providers (midwives) interviewed revealed that on average, they had been in service for 11 years since completing their basic training, and 36% had never received any refresher training in midwifery (FHI, 2005).

At the same time these midwives high-lighted critical gaps in their clinical skills because only 30% of them reported that they had used a partograph within the three-month period prior to this assessment conducted by FHI.

In addition, many midwives had never been trained in some of the core competencies required for managing obstetric complications, as these procedures traditionally were limited to physicians alone (FHI, 2005). Therefore, to address these gaps and ensure that midwives are equipped to provide skilled care to women during pregnancy, labour and delivery, FHI has taken intensive efforts to train and improve midwives' clinical skills. In this way maternal and neonatal mortality and morbidity can be reduced.

> According to Dr Jemima Dennis-Antwi's presentation, as a regional advisor, at ICM for Anglophone Africa; the safety of the mother and child during delivery depended on midwives. Therefore, it was important for midwives to apply all knowledge and tools such as a partograph for a safe and successful delivery.
> Dr. Dennis-Antwi also said that children born in a country with sufficient and competently trained midwives, nurses and doctors were five times likely to reach the age of five than those born in countries where such facilities and personnel were lacking (Issah, 2011).
>
> The findings of a study by Mathibe-neke (2009) on the facilitation of midwifery students regarding the use of a partograph revealed that students mostly recorded the maternal observations during the first stage of labour, with limited access to recording of cervical dilatation and descent of the presenting part as the latter are traditionally recorded by registered midwives only.
>
> This practice reflects an inadequate exposure of midwifery students to the clinical implementation of the partograph which might lead to them as future registered midwives not being competent in the use of the partograph.

2.2.4 **Supportive Supervision**

Supportive supervision is a management function that is planned and carried out in order to guide, support and assist staff in carrying out assigned tasks (Magon, 2011). It involves on-the-job transfer of knowledge and skills between the supervisor and the one being supervised. The aim of supervision is to determine staff performance in relation to quality and standards in implementing planned activities.In his study on utilization of the partograph, Magon (2011) found out that ineffective partograph utilization can be addressed by local managerial support. This correlates with the study done by Kushwah, Singh and Singh (2013) in India, which revealed that lack of supportive supervision hindered effective use of the tool. Similar evidence was also discovered by Yisma, Dessalegn, Astatkie and Fesseha (2013) in Ethiopia.

The studies showed the need for regular supportive supervision, provision of guidelines and mandatory health facility policy and periodic on-job training of health workers on the proper completion of the partograph.

FHI initiated a project through Skilled Care Initiative (SCI) in Kenya, Tanzania and Burkina Fuso.

The project aimed at ensuring that all women had access to high-quality skilled care so that pregnancy and labour-related problems could be detected and treated before they became fatal.

The Initiative was working in selected districts in Burkina Faso, Kenya, and Tanzania to improve provider performance through supervisory support for midwives and other skilled health professionals (FHI, 2005). For midwives to continue providing quality maternity care by using partographs, they needed on-

going support in the form of supervisory and problem-solving visits from the ward in-charge and other superiors.

Such follow-up support is particularly critical for those working in difficult and isolated rural conditions so that they seek clarity on any grey areas and help them resolve problems, implementing the partograph and its use in monitoring active phase of labour and also to provide individualised on-the-job training. Most midwives need to receive these visits every three to six months after re-training and should at least be followed up at six-to-nine-month intervals thereafter (FHI, 2005). It is also important to conduct regular audit of the partograph because the general practice is that this instrument is reviewed only when there is a bad outcome such as maternal or perinatal mortality.

2.2.5 **Attitude of Midwives**

A study conducted in Nigeria by Opiah (2001) on utilization of the partograph in the management of labour revealed that, 8.6% of respondents who were midwives viewed the partograph as a sheer waste of time. The study unveiled that despite midwives' good knowledge of the partograph, there was poor utilization because of bad attitude by some midwives.

Family Health International, (2005) conducted an assessment in Kenya when implementing a project; 'strengthening provider competencies and performance in skilled care'.

The assessment revealed that it was very difficult to motivate midwives to routinely use the partograph when monitoring labour, despite considerable attention given to the partograph during re-training both in the classroom and practicum rotations. Many midwives did not use the partograph upon returning to their work-stations, arguing that it was too time-

consuming and difficult to use because facilities were too short-staffed to monitor maternity clients at 30-minute intervals as recommended (FHI, 2005). In certain facilities where training opportunities tend to be viewed as rewards, some members of staff were resentful of those who were selected for a re-fresher course. These midwives were often unwilling to learn from their colleagues about use of the partograph, or managing various obstetric complications because they felt they should have attended the training themselves (FHI, 2005). Such attitude creates tension at work place and it is a labouring woman who suffers in the end (FHI, 2005). Therefore, much need to be done to have such attitudes change and make midwives understand that the partograph improves quality of care and saves time as providers interpret labour progress more efficiently.

2.2.6 **Work-load**

Filling the partograph is seen as an additional chore for a busy health worker and may not be motivated to complete the partograph (Magon, 2011).

Pizano (2013) a midwife at Murtala Muhammad Specialist Hospital (MMSH) in Kano; the busiest maternity unit in the whole West African sub-region with more than 13,000 deliveries per annum lamented at increased workload.

She reported that, the hospital had only two midwives on the shift in most cases and wondered how partographic monitoring of labour would be possible in such circumstance. Pizano (2013) stated that some midwives endeavoured to open the partograph but following it up was always very difficult due to workload.

With the busy nature of certain delivery centres, if a patient decided not to be on her bed at the time she was due for examination, the midwife may find it difficult to keep track of her due to patient load, and the tendency was that she would be shouted at and probably harassed.

In addition, Dr Nelson Damale, a consultant obstetrician at the Korle-Bu Teaching Hospital in Ghana presented a paper at a seminar; 'midwives sensitised to use the partograph'. The seminar was aimed at promoting quality reproductive health by encouraging health workers to use life-saving interventions to reduce the high maternal mortality rates in Ghana (Issah, 2011). In his presentation he said that, when the annual deliveries peak, it posed a challenge as the increase in the workload could not allow for quality monitoring of patients. He further explained that the active phase of labour required quality and intensive monitoring for early detection and intervention but the workload at the various health facilities and number of midwives available, made this impossible (Issah, 2011). He emphasized that, the partograph is an easy and simple tool to use in effective monitoring of labour but there was need to promote its use and probably find practical solutions to challenges militating against its use. Midwives were urged to overcome the obstacles that faced them and do well in providing the care they offered to pregnant women and their unborn babies if Ghana had to reduce maternal and foetal mortality and morbidity (Issah, 2011).

2.2.7 **Resistant to Change**

Change has been described by WHO (2013) as a means of improving availability and quality of health services, expanding utilization and ultimately improving health outcomes. Some midwives resist change in partograph use because they felt that they would be spending more time with each client and

therefore, longer working hours for the same salary (John Hopkins Programme for International Education in Gynaecology and Obstetrics (JHPIEGO, 2004).

Wilkinson, (2004) did a project assessment on the Nepal Safe Motherhood Project: A Model for Change to reduce maternal mortality ratio for that country.

However, Wilkinson (2004) met health workers especially from government institutions who resisted change because of cultural background and personal reasons. Amongst the Nepalese midwives was a common understanding that "your future is already written down for you - it is your *karma* or your *fate* (Wilkinson, (2004). Consequently, many midwives were immersed in a mood of cynicism and apathy - 'kegarne', which roughly translates as 'don't give yourself a headache because nothing can change" (Wilkinson, 2004). *Kegarne* manifested itself in the belief that "Women die as a result of childbirth and there is nothing we could do about it". It was clear to the project team that the kegarne attitude was a major point of resistance and Nepal is one of those countries with a higher maternal mortality rate in the world (Wilkinson, 2004).

2.2.8 **Utilisation of the Partograph to monitor progress of labour**

The partograph serves as an "early warning system" and assists in early decision on transfer, augmentation and termination of labour (Tayade and Jadhao, 2012).

It also increases the quality and regularity of all observations on the foetus and the mother in labour, and aids early recognition of problems thereby preventing complications in both (Tayade and Jadhao, 2012).

WHO produced and promoted a partograph as part of the safe motherhood initiative which was launched in 1987 with a view to improving labour management and reducing maternal and foetal morbidity and mortality.

The partograph was tested in a multi-centre trial in south east Asia and was found to reduce both prolonged labour from 6·4% to 3·4% of labours and the proportion of labours requiring augmentation from 20·7% to 9·1% and emergency caesarean sections fell from 9·9% to 8·3%, and intra-partum stillbirths from 0·5% to 0·3% (WHO, 1994). It was due to these research findings that WHO recommended the use of a partograph in all labour wards because it clearly differentiates normal from abnormal progress in labour and identifies women likely to require intervention. In this way maternal and foetal mortality and morbidity could be reduced significantly. Tayade and Jadhao (2012) conducted a study on the impact of modified WHO partograph on maternal and perinatal outcome in India. Their research findings were that the use of modified WHO partograph significantly improved the outcome of labour in both maternal and neonatal perspective (Tayade and Jadhao, 2012).

Tayade and Jadhao, (2012) recommended the use of a modified WHO partograph in all maternity units because when used appropriately neonatal and maternal morbidity and rate of caesarean section were reduced.

Another study conducted by Khonje (2012) on the use and documentation of the partograph in urban health centres of Malawi to find out if the probability of foetus dying was associated with monitoring of foetal parameters.

The findings showed that chances of delivering a dead foetus were significantly reduced; 59.5% when monitoring of foetal

heart rate was done and 32.4% in monitoring moulding. If Liquor was not monitored the chances of foetus dying increased by 53.5% while monitoring descent reduced the odds of foetal death by 99.7%.

A study was conducted in Mozambique by Christensson, Pettersson, Bugalbo, Manuela, Dgedge, Johansson, and Bergesrom, (2006) on observations of midwifery practice. The findings were that the graphic part of the partograph was inadequately and inappropriately used both in low and high risk deliveries. Very few partographs were initiated and therefore, could not serve as a tool for early detection of prolonged labour or as a guide for timely intervention to prevent neonatal complications such as asphyxia (Christensson et al, 2006). Although, the midwives were engaged in partograph documentation and were positive about this activit, they still failed to use it effectively. However, the reasons for failure were not stated by this study.

Gans-Lartey, Gans-Lartey, O'brien, Gyekye and Schopflocher, (2011) conducted a study on the relationship between use of the partograph and birth outcomes at Korle-Bu Teaching Hospital (Ghana). The research findings were that, partographs were adequately completed according to WHO guidelines for 25.6% of the time, though some data appeared to have been entered retrospectively. Partograph use was associated with less maternal blood loss and neonatal injuries (Gans-Lartey, 2011).
When the action line was crossed, timely action was taken which was associated with less assisted delivery and few low Apgar scores and few Neonatal Intensive Care Unit (NICU) admissions. These study findings are a clear indication that when adequately used and timely interventions taken, the partograph is an effective tool in the reduction of maternal and foetal mortality and morbidity with their long term sequelae.

After more than 50 years of training and investment in the partograph in low-resource settings, most would agree that the tool has failed to reach its potential.

Cases of prolonged or obstructed labour are still being recorded and are a major contributor to maternal and new-born mortality and morbidity; that can also lead to postpartum haemorrhage, infection, obstetric fistula, and foetal injury or death (Engender Health: Fistula Care Project, 2011). In the Cochrane review on the usefulness of the partograph, some health professionals were for the continued use and others wanted further research so as to find strategies to put forth to encourage use of the partograph (Sullivan, 2013). Marianne Littlejohn from South Africa had a different view of partograph use. Her view was that even though the partograph had been designed to save lives by acting as a guideline, it is extremely restrictive and patriarchal (Sullivan, 2013).

Littlejohn (in Sullivan, 2013) reported that, a vaginal examination must be done at least every 4 hours after the membranes rupture because many clients have long slow labours with periods of rest and go on to give birth normally and healthily. Therefore, to impose 4-hourly or more frequent vaginal examinations seem overly invasive and may impede the mother's progress. She stated that there must be better ways to observe and ensure the safety of women giving birth.

She lamented that a partograph was used by the inexperienced to ascertain progress of labour as if mothers were machines. Education, mentoring and the experience of being at many different births should help midwives to be less invasive. A partograph should be a guide, not a rule! Littlejohn in (Sullivan, 2013) continued to lament that vaginal examinations are being performed every two hours by various people, interns, midwives, doctors and students.

She imagined being a woman and having to submit to a vaginal examination every two hours and strongly felt that women could not progress because they were being subjected to examinations that added to their fear, which released adrenalin and shut down the release of oxytocin.

She emphasised that partograph use in active phase of labour was just another way to subjugate women when they were most vulnerable, and was unconsciously institutionalised by the medical profession as a way to keep women on their backs (Sullivan, 2013). Littlejohn in (Sullivan, 2013) observed that women screamed and writhed in pain while the staffs did their job, gloves were dumped in the bin and the examiner walked away. Sometimes after performing vaginal examination, findings were discussed in a medicalised tone forgetting that there was a person and a woman behind our hand.

Sabrina Speich from south-eastern Mexico agreed with Littlejohn from South Africa that health workers induced more pain and inhibited progress of labour by performing vaginal examination on a labouring woman in the name of plotting the parameter on the partograph, (Sullivan, 2013). Therefore, vaginal examination and partograph use were viewed by most women in Mexico as a form of obstetric violence and rape (Sabrina Speich, in Sullivan, 2013).

In this way fears of a vaginal examination by most women induced adrenaline production consequently, threatening normal progress of labour. Many doctors in Mexico performed either epidural anaesthesia or caesarean section as women screamed throughout a vaginal examination that they did not want any pain. Basing on the findings of this review, researchers could not recommend routine use of the partograph as part of standard labour management and care. Its use could be determined locally.

WHO, (1994) recommended universal use of a partograph during labour to aid in clinical decision-making after conducting a study between 1990 and 1991 that resulted in reductions in prolonged labour, augmented labours, emergency caesarean operations, and stillbirths. However, the 1994 WHO recommendation has not changed despite a Cochrane (2009) review of five randomized controlled trials that found that using a partograph had no benefit on reducing caesarean section rates, instrumental vaginal delivery, or Apgar scores of less than seven at five minutes post-birth. Cochrane reviewers, however, did concede that it was possible that partographs may be useful in settings with less access to health care resources as studies in Mexico and South Africa showed some reduction in caesarean section rates with partograph use and early intervention for delayed progress in labour (WHO, 2014). The use of and complete documentation on the partograph has been notoriously low in low-resource countries. This is evidenced by the findings in a study conducted by Okechukwu , Adesegun, Niyi, Babalola, Uche (2007); that less than 10% of providers; nurses and midwives routinely used the partograph in peripheral centres in Nigeria because of non-availability of partographs, high patient load, low staffing at the facilities, lack of supervision, and negative attitudes among some of the health workers.

These challenges highlight a need for developing new technologies that were suitable for monitoring labour in low-resource countries and or promote consistent and correct use of the partograph. In a view of such findings on partograph use, other methods of labour monitoring could be developed to address major causes of maternal and perinatal death by using technologies that would monitor labour with wireless biosensors.

On the other hand, some studies such as Mathai and Matthews, (2009) and Yisma, Dessalegn, Astatkie and Fesseha (2013) recommended further research to examine the buy-in of partograph use by nurse-midwives. Why the partographs have not been utilized effectively has been briefly addressed in most research studies such as Fawole, Hunyinbo, and Adekanle, (2008); Hapwaya, (2012) and Rotich, Maina, Njihia, Christensson, (2011). A common finding was that the time it took to complete a partograph was a factor affecting its utilization. Maternal cervical dilation upon admission to hospital was a factor because when women arrived at the institution fully dilated, a partograph obviously could not be started. Awareness and utilization of the partograph among study participants in one study was low, and lack of continuing education and lack of quality assurance measures on the unit were identified as probable reasons.

Several articles in the literature justify the use of the partograph as the best tool to establish prolonged and obstructed labour (Engender Health: Fistula Care Project, 2011). The justification is based on the outcome of controlled trials, clinical audits and systematic reviews of randomized trials (Mathibe-Neke, Lebeko and Motupa, (2013). However, partograph use has not taken hold in the United States (Neal and Lowe, 2012).

Low income countries needed to learn from developed countries what methods are used to monitor labour to help them detect complications early in order to prevent maternal and neonatal mortality and morbidity.

2.3 **CONCLUSION**

It is evident from the literature review that the partograph gives health care providers objective data to base their clinical decisions and timely intervention. The aim of using the partograph is to differentiate normal

from abnormal progress in labour. The partograph acts as an early warning system identifying those women who are likely to require some form of intervention. Success of its use requires knowledge and skills gained through formal education and on- going regular in-service training. It requires resources to conduct observation on the labouring woman and documentation of parameters. Maternal mortality can be preventable if there is a skilled birth attendant who is able to utilise the partograph effectively to detect complications early.

Most of the studies reviewed show that the partograph is the main key to early detection, prevention and intervention of prolonged and or obstructed labour and its complications. In Zambia, a partograph is not an option but a necessity to the reduction of maternal and neonatal mortality and morbidity.

Despite respondents displaying reasonable understanding of and the importance of the utilisation of the partograph in many studies, there is evidence of limited use. Some researchers therefore feel that the partograph has failed to achieve its intended purpose and should be done away with so that other methods of monitoring labour are implemented such as wireless biosensors.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the design and methodology that was used to answer the question under study. It describes the study settings, study population, sample size and sampling procedures, methods, tools used to collect data and ethical considerations.

3.2 RESEARCH DESIGN

A descriptive cross-sectional study design utilising the quantitative approach was used to achieve the objectives of the study.

A descriptive cross-sectional study was opted for in this study because it is the most appropriate way to get a snap shot of the current situation to assess and review obstetric charts such as the partograph. This research design enabled the researcher to get an overall picture of the problem under study. The descriptive study design helped the researcher to describe and document the utilisation of partograph on monitoring the progress of labour by midwives at Kamuchanga District Hospital, Ronald Ross General Hospital in Mufulira district and the University Teaching Hospital in Lusaka city.

The descriptive study also helped the researcher to determine the utilization of a partograph to monitor labour by midwives at Kamuchanga district hospital, Ronald Ross general hospital in Mufulira district and at the University Teaching Hospital in Lusaka city.

3.2.1 STUDY SETTINGS

The study was conducted at KDH, RRGH in Mufulira district and UTH in Lusaka city.These sites were conveniently selected because they were busy units and were teaching institutions to midwifery, general nursing students, intern doctors and other students in the medical field from other colleges within the country.

3.2.1.1 Kamuchanga District Hospital (KDH)

Kamuchanga district hospital is 7 Km from Ronald Ross general hospital. It has 60 beds and is government-owned offering first level health services. It services 14 health centres with about 3, 988 deliveries conducted annually by skilled birth attendants (Mufulira DHO, 2013). Mufulira District health office has a total number of 42 midwives who have been distributed to health centres offering maternal and child health services. Out of the 42, four are in administrative positions, another four are studying, 21 are working in various district health centres while 13 work at KDH's labour ward (Mufulira DHO, 2013). The 21 midwives working in the district health centres are from time to time allocated to the district hospital's labour ward to beef-up staffing.

3.2.1.2 **Ronald Ross General Hospital (RRGH)**

Ronald Ross general hospital is a government-owned facility providing 2nd level health care. The hospital as a whole has 268 beds (RRGH, 2014). Ronald Ross general hospital belonged to the mines for 46 years but the government took-over management on 1st June, 2000 after Zambia Consolidated Copper Mines got defunct (RRGH, 2014). Being a secondary care facility; it receives referrals from KDH and all other primary health care centres in the district that conduct ante-natal care on an out-patient basis.

The hospital provides antenatal care to nearly 300 women yearly (RRGH, 2015). In 2015, the health facility recorded 329 ante-natal attendances and conducted around 200 deliveries in a month and the year 2015 recorded 2 166, (RRGH: Demographic Health Information System, 2015).

The hospital has 33 midwives of which 16 work in maternity department (Neonatal, Labour and Post-natal wards), (RRGH, 2014).

3.2.1.3 University Teaching Hospital (UTH)

UTH has among its various departments, obstetrics and gynaecology department that opened in 1969 and houses several wards where ante-natal, post-natal, labour, delivery and gynaecological services are provided. The labour ward has a bed capacity of 24; with 7 beds reserved for very ill patients needing special observation and seventeen beds are used for delivery (UTH Public Relations Office, 2015).

In 2013, UTH recorded 23 477 admissions, 20 992 deliveries, of which 588 were fresh still births (UTH Statistics Office, 2013). The hospital also recorded 144 neonatal deaths and 55 maternal deaths (UTH Statistics Office, 2013). At the time of conducting this study, the labour ward had 54 midwives of which two were supervisors (in-charge), 34 were registered midwives, eight were enrolled midwives and 10 were certified

midwives (UTH Public Relations Office, 2013). As was the case for RRGH and KDH, the midwives in UTH also worked 3 shifts; morning, afternoon and night. On average, there are two midwives per each day shift and 7 on night shift.

Night shift is the longest as it starts at 18:00 hours and ends at around 08:30 hours the following day. Morning shift starts at 07:30 hours to 13:00 hours with afternoon shift beginning at13:00 hours to 18:00 hours. Staffing levels are supplemented by midwives on part-time. However, most of them have withdrawn their services because of inefficiencies in the pay system.

3.3 STUDY POPULATION

The study population for this research comprised midwives who work in labour ward at KDH and RRGH in Mufulira district and UTH in Lusaka city. The midwives had varied ages, experiences and qualifications. This study population was chosen because they are the persons likely to use the partograph and also met the criteria set by the investigator.

There was also a retrospective review of all partographs of the deliveries conducted one month before data collection in all the three hospitals which were study sites.

3.4 SAMPLING METHODS

A two-stage sampling procedure was used to sample partographs. Firstly, sampling of study sites was done, and then the second stage was systematic sampling of partographs.

A two-stage sampling technique was also used to sample midwives. The first stage was convenient sampling of study sites then the second stage was random sampling of midwives from each study site. Respondents were only taken from the three hospitals; KDH and RRGH in Mufulira and UTH in Lusaka city.

3.4.1 Inclusion Criteria

3.4.1.1 Midwives

1. Midwives working in labour ward at KDH and RRGH in Mufulira district and UTH in Lusaka city who gave consent to participate in the study were included.

3.4.1.2 Partographs

i. Partographs for all women admitted in labour with cervical dilatation of 4cm and above but not 10cm.

ii. Pregnancy at any gestation age that was monitored by partograph

iii. Partographs for all women who delivered one month before date of starting data collection

iv. Partographs for all methods of delivery were included.

3.4.2 Exclusion Criteria

3.4.2.1 Midwives

1. Midwives who did not consent to participate in the study and those working in other departments other than labour ward at the time of study were excluded.

3.4.2.2 Partographs

i. Partographs for women who were admitted with cervical dilatation of 10cm (in second stage of labour) were excluded.

3.5 SAMPLE SIZE

To get sample for the partographs; since no study had been done to look at the outcomes of labour in women whose labour progression was monitored by partograph in terms of what proportion had better or bad outcomes, 50% was taken as prevalence of better outcomes:

That is; P = 50% = 0.5

1 – P = 1 – 0.5 = 0.5

D = precision = $\pm$ 5%

= $\pm$ 0.05

Therefore:

$$n = \frac{Z^2 P (1-P)}{d^2}$$

$$= \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2}$$

= **384**

Where Z = 1.96 is a standard normal variate at 95% confidence interval.

To get the actual sample of partographs, proportions of average deliveries per hospital sample sizes for respective study sites were calculated as follows: number of deliveries for the period of 1 month were counted and calculated for each hospital (UTH: 1,700; RRGH: 200; and KDH: 140 deliveries.

That is, 1,700 + 200 + 140 = 2040

$$\text{UTH} = \frac{1{,}700 \times 384}{2040}$$

= **320** partographs were reviewed

RRGH = $\frac{200 \times 384}{2040}$

= **38** partographs were reviewed

KDH = $\frac{140 \times 384}{2040}$

= **26** partographs were reviewed

So, to calculate the number of deliveries per day for each hospital:
UTH = 1,700 ÷30 days =56.6 =57 deliveries
RRGH = 200 ÷30 days= 6.6 = 7 deliveries
KDH= 140 ÷30 days = 4.6 = 5 deliveries

Therefore, to randomly select the partographs that were reviewed, the investigator divided the number of partographs to be sampled at each hospital by the number of deliveries per day in that particular hospital:

That is, UTH = 320 partographs ÷56.6 deliveries = 5.6 deliveries per day. Hence, the partographs sampled in UTH were for each 5^{th} delivery.

RRGH = 38 ÷ 7 =5.4. Thus, the partographs to be sampled at RRGH were for each 5^{th} delivery.
KDH = 26 ÷ 5 = 5.2. So, the partographs to be sampled at KDH were also for each 5^{th} delivery.
The population of midwives in this study was 111. This was the actual number of midwives in all health facilities under study, RRGH, KDH in Mufulira district and UTH in Lusaka city.
Therefore, using the formula for partographs (as shown in calculation above):

n = $\frac{Z^2 P (1-P)}{d^2}$

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{(0.05)^2}$$

$= 384$

Since the population size for midwives is small = 111

That is, $n < 1\ 000$

The researcher used the calculated n to get the final sample size adjusting for population size.

That is, final $n = \frac{n}{1 + \frac{n}{N}}$

Where N = population size

n = calculated n

Final $n = \frac{384}{1 + \frac{384}{111}}$

$= \frac{384}{4.46}$

$= 86.09$

= **87 respondents**

Total number of midwives = 111

Therefore:

KDH: $\frac{34 \times 87}{111}$

= **27 midwives**

RRGH: $\frac{23 \times 87}{111}$

= **18 midwives**

UTH: $\frac{54 \times 87}{111}$

= 42 **midwives**

3.5.1 **Sampling Procedure**

For partographs, the sample for each site was calculated using the proportion on the number of deliveries for the period of one month before data collection. Using the delivery register, the total number of deliveries for the above period was noted. Clients' files were then pulled out and compared with the delivery register and making sure that partographs were filled. Therefore, to randomly select the partographs that were reviewed, the investigator divided the number of partographs to be sampled at each hospital by the number of deliveries per day (as already shown in calculation under sample size) in that particular hospital:

That is, UTH = 320 partographs÷56.6 deliveries = 5.6 deliveries per day. Hence, the partographs to be sampled at UTH were for each 5^{th} delivery.

RRGH = 38 partographs ÷ 7 deliveries = 5.4 deliveries per day. Thus, the partographs to be sampled at RRGH was for each 5^{th} delivery.

KDH = 26 partographs ÷ 5 deliveries = 5.2 deliveries per day. So, the partographs to be sampled at KDH was for each 5^{th} delivery.

Partographs for a period of one month from date of data collection were counted to counter check the number as shown in the delivery book and to identify any missing files. Then, the fifth delivery was reviewed.

In case the researcher failed to locate certain clients whose partographs were sampled to obtain consent because of attrition, then the process of sampling was repeated as explained above till the required number was obtained.

To select the respondents, the researcher used simple random sampling method; fish-bowl with replacement technique.

These methods of selection give respondents an equal chance of being selected and participate in the study and also reduce

biasness on the part of the investigator (Basavanthappa, 2007). To use fish-bowl with replacement technique of probability random sampling, names of all midwives working in labour ward from each study site (KDH, RRGH and UTH were written on small pieces of paper. These papers or slips were put in a box which was shaken vigorously. After that the investigator picked or drew one slip, took note of the name of the midwife and put it back in the box. The box was shaken again and a second name was drawn. The procedure was repeated till the desired sample size was reached at each study site (as already shown in calculation under sample size: KDH 27, RRGH 18 and UTH 43 midwives. If the name was selected twice the duplicate was ignored. This method ensured an equal and independent chance of each participant being selected each time.

3. 6 DATA COLLECTION METHOD

The data collection methods used in this study were self- administered questionnaire and record review.

3.6.1 Self-Administered Questionnaire

Data from the midwives was collected by using a self-administered questionnaire.

3.6.2 Record Review

A retrospective client file review was carried out on deliveries conducted one month before date of collecting data. The labour ward delivery book was used to check number of deliveries. The researcher worked with ward clerks to retrieve files of clients. The investigator reviewed files and collected data from 384 partographs. All deliveries were included irrespective of mode of delivery and time admitted in labour ward, as long as labour was monitored by partograph.

Data from 384 partographs was extracted and filled in a check-list. Partograph review was done to determine the degree to which partograph parameters were documented and obtained more data about deliveries conducted retrospectively. Using the main parameters on the partograph; foetal and maternal monitoring and progress of labour were assessed by inspection of the documentation of the parameters as filled in or not filled in (yes or no, complete or not complete). The degree to which these parameters were filled in (adequate or not) was also assessed.

The variables of the main interest included the following:
Foetal monitoring which was assessed through foetal heart rate, status of membranes, liquor, and moulding, maternal condition which was assessed through temperature, blood pressure, and pulse rate and labour progress which was assessed through cervical dilatation, uterine contractions, and descent of foetal head. The alert line was also assessed if it was crossed and the action line if reached.

Apart from the mentioned parameters, other parameters such as name, age, residential address, gravida and parity; admission details; date of admission, date and time of onset of labour, date and time of rupture of membranes and any abnormal symptoms were noted. Documentation (yes or no) was inspected on first examination performed on admission, first vaginal examination, pelvic assessment and second stage of labour. On the second stage of labour the partograph was checked on documentation (yes or no) on date and time of delivery, method of delivery, Apgar score at 1 minute and at 5 minutes.
Status of the new born was assessed for documentation (yes or no) on sex, weight, length, head circumference, abnormalities and if baby was sent to nursery or transferred out.

The third stage was assessed for documentation (yes or no) on date, time and mode of placenta delivery, blood loss, completeness of placenta and membranes. Perineum, immediate postnatal care and subsequent puerperal care were assessed. The duration of labour in hours was also calculated.

The outcome variables on status of the mother were: method of delivery; spontaneous vertex delivery (SVD), vacuum extraction (V/Ext), breech delivery and caesarean section delivery.

The outcome variables on foetal outcomes were: status of new-born at birth; alive or dead. Alive included: live full term (LFT), premature (Prem); dead included: fresh still-born (FSB) or macerated still-birth (MSB).

To assess staff workload, ward and delivery registers were used, data was also collected on number of admissions per day, per month and per year, and the total number of midwives on duty per day was compared with the number of deliveries. This helped to weigh workload for midwives.

3.7 DATA COLLECTION TOOLS

Two data collecting tools were used namely: a self-administered questionnaire and a checklist.

3.7.1 Self-Administered Questionnaire

A self-administered questionnaire was used to collect data from respondents. The questionnaire had both pre-determined alternative responses and open-ended questions. The questionnaire consisted of two sections. Section A elicited information on the respondents' socio-demographic data. Section B consisted of questions on use of the partograph.

Questions were based on all the eight variables under study; independent variables included availability of partograph, shortage of midwives, midwifery training, and supportive supervision, attitude of midwives, workload, resistant to change and the dependent variable was utilization of the partograph to monitor the process of labour.

According to Polit and Beck (2004), a self-administered questionnaire has the following advantages:

1. It is cheaper and quicker as it requires less energy and time to administer,
2. It can offer anonymity especially if questions are personal or sensitive,
3. There is no interviewer bias and effect because of absence of interviewer,
4. It facilitates easy organization and analysis of data; and
5. Many questions can be asked within a short time.

The disadvantages of a self-administered questionnaire are as follows:

1. Researcher is unable to probe a topic,
2. Participant may omit or disregard item without giving an explanation,
3. The amount of information gathered is limited to respondent's available time and interest span,
4. Some items may be misunderstood; and
5. The sample is only limited to literate respondents (Mitchell and Jolley, 2009; Colorado State University, 2011).

The mentioned questionnaire disadvantages were minimized by constructing clear and simple questions that were within the domain and experience of the respondents. The researcher also

ensured that the questions were in a logical sequence and avoided questions that could raise bias in respondents.

3.7.1.1 Validity

Validity in quantitative research determines objectivity of the results thus whether the research truly measured what it was intended to measure. Credibility of the results depends on instrument construction (Basavanthappa, 2007). To ensure validity, adequate relevant literature search on variables of interest were conducted and the questionnaire were based on the study objectives. The content in the questionnaire was further compared to similar studies and instruments.

3.7.1.2 Reliability

In this study, reliability of the data collecting tool was ensured by conducting a pilot before the main study which was done in a similar environment with similar characteristics with the main study sites. The sample of the pilot study was 10% of the entire sample. That was, 10% of 87 midwives was 8.7; rounded of to 9.

3.7.2 Checklist

A retrospective partograph review on sampled deliveries conducted for a period of one month from the date of starting

data collection was done. This was to determine the degree to which parameters on the partograph were filled-in (adequate or not) and compare with the outcome of labour.

3.8 DATA COLLECTION TECHNIQUE

Two data collecting techniques were used to collect data for this study. Combining different techniques maximises the quality of data to be collected and reduce the chances of bias (Basavanthappa, 2007). The following techniques were used to collect data:

Self-administered questionnaire: Data were gathered in form of self-report from respondents through self-administration of questions in a paper format. To gather needed information from respondents, the researcher started by introducing herself to participants to create rapport. Respondents were allowed to go through the research tool before answering it for orientation and clarification. Questions were clarified there and then to avoid mistakes, the respondents were given ample time of two days to answer the questionnaire before collection and were assured of confidentiality.

Record review by use of check-list: These were obtained from sampled hospitals to assist researcher in establishing existence of utilization of the partograph by determining the degree to which partograph parameters were documented that is, foetal and maternal monitoring and progress of labour.

3.9 PILOT STUDY

A pilot study was conducted at Malcolm Watson mine hospital which was built in 1937. It has a bed capacity of 110 (Mufulira DCMO, 2013). The site has 60 average admissions per month and 45 – 55 deliveries in a month.

It had a catchment population of over 20 000 miners. Maternity department had nine midwives who are spread through neonatal, post-natal and ante-natal wards, and they work two per shift. Deliveries are usually conducted by a consultant obstetrician. It had similar setting to main study sites in terms of obstetric services offered; equipment and types of professionals. The pilot study enabled the investigator to determine the likely responses from the respondents to the actual research study and thereafter made necessary adjustments to the questionnaire and other study tools accordingly.

3.10 ETHICAL CONSIDERATION

The researcher obtained ethical approval to conduct the study from the Research Ethics Committee of the University of Zambia. Written permission to conduct the study was obtained and granted from the Senior Medical Superintendent of UTH, the Medical Superintendent for RRGH and the District Medical Officer for KDH before commencing the study. This was important because it facilitated co-operation from authorities and respondents for smooth data collection.

Participation in the study was strictly voluntary so that respondents' rights were not violated. The uses of the research information that was obtained were explained to participants and were reassured of their privacy at all times. A written consent was obtained from each participant and informed of the right to withdraw from the study at any time even though they had signed consent and would not be remunerated in any way.

For old partographs that were accessed retrospectively, letters were written to Medical Superintendents and the District Community Medical Officer of the study sites seeking permission to access clients'/ patients' documents. A written consent was also obtained from participants whose partographs were accessed retrospectively. It is a requirement to obtain voluntary written consent from respondents

as it is a fundamental principle of research ethics (Council for International Organizations of Medical Sciences (CIOMS), 2002; Declaration of Helsinki, 2013).

The researcher took note of participants' residential addresses to easily locate respondents who had delivered to obtain written consent before accessing their obstetric records. Attrition was taken care of by the researcher by repeating the sampling procedure. The partographs that were not sampled earlier were re-counted and the fifth ones were sampled till the required number was obtained. The researcher informed the respondents to contact the Research Ethics Committee in case of any further questions, comments or complaints. Respondents were informed that their names would not be indicated on the questionnaire or checklist to maintain anonymity. Serial numbers were used instead.

All the information collected from the respondents was treated as confidential and the data collecting instruments were only handled by the researcher.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter describes procedures used for analysis of data and presentation of findings. Eighty seven practicing midwives participated in the study by answering the self-administered questionnaires. The questionnaires were administered by the investigator herself in three selected hospitals of which two were within Mufulira district and another in Lusaka city and the response rate was 100%. The retrospective check of partographs with a sample of three hundred and eighty four (384) was also done in the same institutions with the help of

research assistants. The results have been presented in frequency tables and cross tabulations according to the sequence and sections of the questionnaire and checklist.

4.2 DATA PROCESSING AND ANALYSIS

4.2.1 Quantitative Data

Following data collection, self-administered questionnaires and checklists were sorted-out and checked for internal consistency, completeness, legibility and accuracy. The groups were then assigned numerical codes (1, 2, 3...). The codes were then entered and analysed using SPSS version 20. Chi-square test was used to test the association between dependent and independent variables. The dependent variable was utilization of the partograph by midwives monitoring labour. The independent variables included; availability of partograph, shortage of midwives, midwifery training, supportive supervision, attitude of midwives, work-load on midwives and resistant to change.

Multivariate logistic regression was used to determine true predictors of utilisation. The cut-off point for statistical significance was set at five percent.

Therefore, only p-value of less than or equal to 0.05 was considered to be statistically significant thereby rejecting the null hypothesis.

4.2.2 Qualitative Data

Qualitative data on the ways to improve utilisation of the partograph by midwives to monitor labour were described and interpreted. All opinions that were obtained from respondents were written down according to the way they were expressed. Then, similar opinions were grouped together and coded for easy analysis and presentation.

4.3 PRESENTATION OF FINDINGS

The findings of this study were presented according to the sequence of questions and sections of the self-administered questionnaire in forms of tables and cross tabulations. The tables summarize the findings in meaningful ways thus giving understanding. The cross tabulations are helpful in showing relationships between variables.

Section A of the self-administered questionnaire represented the demographic characteristics of the respondents while section B dealt with questions on utilisation of partograph: non-availability of partograph, shortage of midwives, low level of midwifery training, lack of supportive supervision, negative attitude of midwives, workload, resistant to change, knowledge on importance of partograph use and ways to improve use of partograph by midwives to monitor labour.

4.3.1 DEMOGRAPHIC DATA

The self-administered questionnaire consisted of the respondents' socio-demographic data which included age, sex, marital status, professional qualification and months / or years spent practising as a midwife. These variables were chosen because they were the ones considered to have an effect on partograph utilisation when monitoring woman in labour. The results are presented in one frequency table on the next page:

Table 4.1: **Respondents' demographic data (n = 87)**

Variable	**n**	**%**
Hospital		
UTH	42	48.3

RRGH	18	20.7
KDH	27	31.0
Total	**87**	**100.0**
Age (Years):		
< 35	41	47.1
35 – 50	38	43.7
> 50	8	9.2
Total	**87**	**100.0**
Gender:		
Male	9	10.3
Female	78	89.7
Total	**87**	**100**
Marital Status:		
Single	30	34.5
Married	57	65.5
Total	**87**	**100.0**

Table 4.1: cont…

Variable	**n**	**%**
Profession: (level of training)		
Registered Midwife	54	62.1
Enrolled Midwife	12	13.8
Certified Midwife	21	24.1
Total	**87**	**100.0**
Years in Practice:		
0 – 5 Years	53	60.9
6 – 10 Years	20	23.0
> 10 Years	14	16.1
Total	**87**	**100.0**

Majority of respondents (89.7%) were females, 65.5% were married, 62.1% were registered midwives, 60.1% had 0 – 5 years of midwifery practice and 47.1% were aged below 35 years.

4.3.2 SECTION B: UTILISATION OF PARTOGRAPH

Table 4.2: **Always utilises partograph to monitor women's progress of labour (n = 87)**

Always utilises partograph to monitor women's progress of labour	**Frequency**	**Percent**
Yes	77	88.5
No	10	11.5
Total	**87**	**100.0**

Table 4.2 shows that majority of respondents (88.5%) always utilised the partograph to monitor women's progress of labour while only 11.5% did not.

Table 4.3: **Where labour observations were recorded (n=85)**

Where labour observations are recorded	**Frequency**	**Percent**
Partograph	75	88.2
Observation chart made on plain paper	2	2.3
Narrating findings in patient's file	4	4.7
Other	4	4.7
Total	**85**	**99.9**

Out of the 85 respondents who recorded labour observations, the majority (88.2%) used partograph.

Table 4.4: **Partograph always readily available at your facility (n = 87)**

Partograph always readily available at your facility	Frequency	Percent
Yes	64	73.6
No	23	26.4
Total	**87**	**100.0**

Majority of respondents (73.6%) affirmed that partographs were always readily available at their facilities.

Table 4.5: **Number of midwives working in labour ward per shift (n = 87)**

Number of midwives working in labour ward per shift	Frequency	Percent
0 – 5	44	50.6
Above 5	43	49.4
Total	**87**	**100.0**

In the present study, half of the respondents (50.6%) said the number of midwives working in labour ward per shift ranged between 0 – 5 while 49.4% indicated that they were more than 5 per shift.

Table 4.6: **Staffing levels having direct bearing on use of partograph (n = 85)**

Staffing levels having direct bearing on use of partograph	Frequency	Percent
Yes	60	70.5
No	25	29.4
Total	**85**	**99.9**

Out of 85 respondents, the majority (70.5%) said that staffing levels had direct bearing on use of partograph.

Table 4.7: **Taught about partograph during midwifery training (n = 87)**

Taught about partograph during midwifery training	Frequency	Percent
Yes	85	97.7
No	2	2.3
Total	**87**	**100.0**

Table 4.7 shows that almost all respondents (97.7%) were taught about partograph during midwifery training.

Table 4.8: **Topics taught about partograph (n = 87)**

Topics taught about partograph	Frequency	Percent

Definition	71	23.6
Benefits of partograph	74	24.6
Uses of partograph	73	24.3
Foetal well-being, progress of labour and maternal well-being	83	27.6
Total	**301**	**100.0**

A large percentage of the respondents (27.6%) said they were taught about foetal and maternal well-being and progress of labour. Those taught benefits of a partograph were 24.6% with 24.3% being taught uses of partograph and 23.6% definition of partograph.

Table 4.9 Attended workshop or orientation on use of partograph (n = 87)

Attended workshop or orientation on use of partograph	**Frequency**	**Percent**
Yes	28	32.2
No	59	67.8
Total	**87**	**100.0**

Majority of respondents (67.8%) never attended a workshop or orientation from the time they qualified as midwives on use of partograph and only 32.2% attended.

Table 4.10: **Having hospital protocol on use of partograph (n = 87)**

Having hospital protocol on use of partograph:	**Frequency**	**Percent**
Yes	69	79.3
No	18	20.7
Total	**87**	**100.0**

Table 4.10 indicates that majority of respondents (79.3%) had a hospital protocol on use of partograph and only 20.7% did not have.

Table 4.11: **Reported having problems using the partograph (n = 87)**

Reported having any problems using the partograph	**Frequency**	**Percent**
Yes	2	2.3
No	85	97.7
Total	**87**	**100.0**

The findings in table 4.11 revealed that almost all respondents (97.7%) had no problems using the partograph.

Table 4.12: **Reasons for a midwife not to use a partograph when monitoring a woman in labour (n = 69)**

Reasons for a midwife not to use a partograph when monitoring a woman in labour	**Frequency**	**Percent**
Lack of orientation on how to use partograph	40	57.9
Lack of supervision	11	15.9
Availability of other methods to observe woman	9	13.0
Other	9	13.0
Total	**69**	**99.8**

Out of 69 respondents, the majority (57.9%) said that lack of orientation would make a midwife not to use a partograph with 15.9% citing lack of supervision and 13.0% mentioning availability of other methods to observe woman.

Table 4.13: **The partograph is beneficial (n = 87)**

The partograph is beneficial:	**Frequency**	**Percent**
Agree	81	93.1
Disagree	6	6.9
Total	**87**	**100.0**

Table 4.13 shows responses on whether the partograph was beneficial or not. Almost all respondents (93.1%) agreed that the partograph is beneficial.

Table 4.14: **Partograph alerts midwife of labour deviating from normal (n = 87)**

Partograph alerts midwife of labour deviating from normal	**Frequency**	**Percent**
Agree	81	93.1
Disagree	6	6.9
Total	**87**	**100.0**

Majority of the respondents (93.1%) agreed that a partograph alerted a midwife of labour deviating from normal.

Table 4.15: **When to fill-in partograph (n = 87)**

When to fill-in partograph	Frequency	Percent
After woman has delivered	1	1.1
Soon after checking the parameter	86	98.9
Total	**87**	**100.0**

The findings showed that almost all respondents (98.9%) said that the partograph should be filled-in soon after checking the parameter.

Table 4.16: **Number of deliveries conducted per shift at your hospital (n = 85)**

Number of deliveries conducted per shift at your hospital	Frequency	Percent
0 – 10	27	31.7
11 and above	58	68.2
Total	**85**	**99.9**

Out of 85 respondents, 68.2% indicated that they conducted more than eleven (11) deliveries per shift.

Table 4.17: **Number of labouring women looked after in an 8–hour shift**: **(n = 85)**

Number of labouring women looked after in an 8-hour shift	Frequency	Percent
0 – 5	47	55.2
6 – 11	35	41.1
More than 11	3	3.5
Total	**85**	**99.8**

The study revealed that almost half of the respondents (55.2%) looked after 0 – 5 labouring women in an 8 – hour shift with 41.1% looking after 6 – 11 women.

Table 4.18: **Overworked (n – 87)**

Overworked	**Frequency**	**Percent**
Yes	80	92.0
No	7	8.0
Total	**87**	**100.0**

The findings revealed that almost all respondents (92.0%) indicated that they were over-worked.

Table 4.19: **Preference of what to use when monitoring a woman in labour (n = 87)**

Preference of what to use when monitoring a woman in labour	**Frequency**	**Percent**
Partograph	86	98.9
Narrating parameters in patient's file	1	1.1
Total	**87**	**100.0**

Almost all respondents (98.9%) preferred using a partograph when monitoring a woman in labour.

Table 4.20: **Labour complications detected by using partograph (n = 87)**

Labour complications detected by using partograph	**Frequency (n)**	**Percent**
Foetal distress	76	31.5
Prolonged labour	75	31.1
Obstructed labour	58	24.1
Ruptured uterus	10	4.1
Maternal distress	7	2.9
Cervical dystocia	6	2.5
Hypertonic uterine contractions	6	2.5

Other	3	1.2
Total	**241**	**100.0**

Table 4.20 above table shows labour complications detected by using partograph when monitoring woman in labour. Respondents that mentioned foetal distress were 31.5%, prolonged labour 31.1%, obstructed labour 24.1%, ruptured uterus 4.1%, maternal distress 2.9% and cervical dystocia 2.5%.

Table 4.21: **Suggestions by respondents on how to improve use of partograph (n = 87)**

Suggestions by respondents on how to improve use of partograph	**Frequency (n)**	**Percent**
a) Conduct workshops and orientation on partograph	40	36.7
b) Pre-printed partograph to be readily available	27	24.8
c) Increase number of midwives	30	27.5
d) Emphasise and encourage use of partograph	12	11.0
Total	**109**	**100.0**

The table (4.21) above shows that 36.7% of respondents suggested that workshops and orientation on partograph use needed to be done, while 24.8% indicated that pre-printed partographs needed to be readily available and 27.5% suggested that the number of midwives needed to be increased to improve partograph utilisation.

SECTION C: CHECKLIST FOR ASSESSMENT OF PARTOGRAPH

Data were extracted from 384 files of women who had delivered. The study extracted more forms from UTH (320) than at RRGH (38) and KDH (26). This was according to calculated sample size considering number of deliveries conducted at each study site. The presentation of the findings had focussed on use and completeness in documentation on the partograph other than the whole labour chart. Other components on the labour chart have been presented but with less discussion. This section presents the degree to which the parameters on the partograph were completed.

Table 4.22: **Documentation by Hospital on biological data**

Variable	**UTH**		**RRGH**		**KDH**	
	(n = 320)	%	**(n = 38)**	%	**(n=26)**	%
Name	260	81.2	37	97.4	23	88.4
Gravida	246	76.8	37	97.4	24	92.3
Parity	239	74.6	37	97.4	24	92.3
Hospital No.	145	45.3	30	78.9	22	84.6

The findings in the table above revealed that out of the 320 partographs that were reviewed at UTH, only 260 (81.2%) had ‘name of client’ documented with RRGH

having 37 out of 38 (97.4%) and KDH 23 out of 26 (88.4%). The most minimal documented by all three sites was 'hospital number' with UTH having 145 out of 320 partographs (45.3%), RRGH 30 out of 38 (78.9%) and KDH with 22 out of 26 partographs recording 84.6%.

Table 4.23: **Documentation by Hospital on history of labour**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n =38**)	%	(**n =26**)	%
Date of admission	222	69.3	37	97.4	22	84.6
Time of admission	195	60.9	36	94.7	22	84.6
Date and time membranes ruptured	91	28.4	11	28.9	14	53.8
Hours passed after membranes ruptured	60	18.6	9	23.7	13	50.0

The above table (4.23) shows that, out of 320 partographs reviewed at UTH, 222 (69.3%) had 'date of admission' documented with RRGH having 37 out of 38 (97.4%) and KDH 22 out of 26 (84.6%).

The least documented was 'hours passed after membranes ruptured' where UTH had 60 (69.3%) out of 320 partographs, RRGH 9 (23.7%) out of 38 partographs and KDH 13 (50.0%) out of 26 partographs.

Table 4.24: **Documentation on Foetal Monitoring**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n=38**)	%	(**n = 26**)	%
Foetal heart rate	281	87.8	38	100.0	25	96.1
Liquor	240	75.0	32	84.2	24	92.3
Moulding	214	66.9	31	81.6	23	88.5

The table (4.24) above shows that UTH had 281 (87.8%) out of 320 partographs where foetal heart rate was recorded, for RRGH all the 38 partographs (100%) had documented foetal heart rate and KDH 25 out of 26 (96.1%). For moulding UTH had 214 (66.9%) out of 320 partographs, KDH 23 out of 26 (88.5%) and RRGH 31 out of 38 (81.6%).

Table 4.25: **Plotting Foetal Well-being**

Variable	**UTH**		**RRGH**		**KDH**	
	Median	Range	Median	Range	Median	Range
Foetal heart rate	2.0	0 - 18	5.0	0 - 19	0.0	0 - 16
Liquor	1.0	0 - 16	1.0	0 - 19	1.0	0 - 16
Moulding	1.0	0 - 12	1.0	0 - 4	1.0	0 - 14

As depicted in table 4.25 above, parameters for foetal well-being were not normally distributed after data were aggregated from all hospitals. Median; shows the times participants (midwives) at each hospital checked foetal well-being on women who were in labour. Foetal heart rate was inadequately checked and documented by KDH (0 times) with UTH 2 times only.

Range was 0 – 19 times, with minimum of 0 times and maximum of 19 times. Liquor and moulding were checked once by all three hospitals.

Table 4.26: **Documentation on Progress of Labour**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n = 38**)	%	(**n = 26**)	%
Cervical dilation	296	92.5	38	100.0	26	100.0
Descent	286	89.3	38	100.0	26	100.0
Uterine contractions	286	89.3	38	100.0	24	92.3

Table 4.26 above shows that UTH had 296 partographs (92.5%) out of 320 which had documentation on 'progress of labour' with RRGH and KDH having all 38 (100.0%) and 26 (100.0%) partographs respectively. Descent and uterine contractions were documented by UTH with 286 partographs (89.3%) out of 320, RRGH 38 (100.0%) for both and KDH 26 partographs (100.0%) for descent and 24 (92.3%) out of 26 for uterine contractions.

Table 4.27: **Plotting Progress of labour**

Variable	**UTH**		**RRGH**		**KDH**	
	Median	Range	Median	Range	Median	Range
Cervical dilation	1.0	0 - 21	2.0	0 - 3	0.5	0 - 5
Descent	1.0	0 - 9	2.0	0 - 3	0.0	0 - 6
Uterine contractions	2.0	0 - 18	4.5	0 - 18	0.0	0 - 7

The analysis shows parameters for progress of labour namely cervical dilatation, descent and uterine contractions (Table 4.27). These were adequately documented in all the three hospitals. Median; shows the times participants who were midwives at each hospital checked parameters on progress of labour on women who were in labour. RRGH showed adequate documentation for all parameters on progress of labour.

Table 4.28: **Documentation on Maternal Monitoring**

	UTH		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n = 38**)	%	(**n = 26**)	%
BP	203	63.4	35	92.1	24	92.3
Pulse	142	44.3	28	73.7	23	88.5
Temperature	101	31.6	26	68.4	21	80.8

Table 4.28 above shows that out of 320 partographs that were reviewed at UTH for maternal monitoring, 203 (63.4%) had documentation on BP with RRGH having 35 (92.1%) out of 38 and KDH 24 (92.3%) out of 26. For documentation on temperature; UTH had 101 (31.6%) partographs out of 320; RRGH 26 (68.4%) out of 38 and KDH 21 (80.8%) out of 26.

Table 4.29: **Plotting Maternal Monitoring**

	UTH		**RRGH**		**KDH**	
	Median	Range	Median	Range	Median	Range
BP	1.0	0 - 10	1.0	0 - 4	0.5	0 - 10
Pulse	1.0	0 - 13	6.0	0 - 16	0.0	0 - 10
Temperature	1.0	0 - 13	1.0	0 - 3	0.0	0 - 6

Table 4.29 shows that UTH had inadequate documentation on parameters for maternal well-being; blood pressure, pulse and temperature with median of 1.

Table 4.30: **Documentation on Second Stage of Labour Parameters**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n= 38**)	%	(**n = 26**)	%
Full cervical dilation Date and time	125	39.0	17	44.7	24	92.3
Date of delivery	285	89.1	22	57.9	26	100.0
Time of delivery	298	93.1	36	94.7	26	100.0

Table 4.30 shows that 125 (39.0%) partographs out of the 320 that were reviewed at UTH had documentation on 'full cervical dilatation', RRGH 17 (44.7%) out of 38 and KDH 24 (92.3%) out of 26. For 'time of delivery', out of the 320 partographs that were checked for UTH, 298 (93.1%) had documentation, RRGH 36 (94.7%) out of 38 and KDH 26 (100.0%).

Table 4.31: **Documentation on Apgar scoring**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n = 38**)	%	(**n = 26**)	%
Apgar score: at 1 minute	301	94.0	38	100.0	26	100.0
Apgar score: at 5 minutes	208	65.0	16	42.1	22	84.6

Table 4.31 above shows that out of the 320 partographs that were reviewed at UTH, 301 (94.0%) had documentation on Apgar scoring at one minute; RRGH 38 (100.0%) and KDH 26 (100.0%). Apgar scoring at 5 minutes UTH had 208 (65.0%) out of 320 partographs, RRGH 16 (42.1%) out of 38 and KDH 22 (84.6%) out of 26.

Table 4.32: **Documentation on Quick new-born assessment at birth**

Variable	**UTH**		**RRGH**		**KDH**	
	(**n = 320**)	%	(**n = 38**)	%	(**n = 26**)	%
Sex	312	97.5	38	100.0	26	100.0
Abnormalities	36	11.1	1	2.6	1	3.8
Weight	305	95.3	38	100.0	26	100.0
Length	66	20.6	38	100.0	4	15.3
Head	64	20.0	38	100.0	3	11.5

circumference						
Delivered by:	272	85.0	21	55.3	27	100.0

The findings in table 4.32 above indicate that, for new-born assessment at birth; UTH had for sex 312 (97.5%), weight 305 (95.3%) and 'delivered by' 272 (85.0%) out of 320 partographs that were reviewed. For abnormalities UTH had36 (11.1%), length 66 (20.6%) and head circumference 64 (20.0%) out of 320 partographs. For RRGH sex, weight, length and head circumference were all 38 (100.0%) for the 38 partographs sampled. However, RRGH had for abnormalities 1 (2.6%) and 'delivered by'21 (55.3%) for the 38 partographs that were reviewed. For KDH out of the 26 partographs that were sampled sex was at 26 (100.0%), weight 26 (100.0%) and 'delivered by' 26 (100.0%). However, documentation on abnormalities was at 1 (3.8%), length 4 (15.3%) and head circumference 3 (11.5%).

Table 4.33: **Documentation on Parameters in Third Stage of labour**

Variable	**UTH**		**RRGH**		**KDH**	
	(n = 320)	%	**(n =38)**	%	**(n = 26)**	%
Time placenta delivered	220	68.8	8	21.1	8	30.8
Mode of placenta delivery	243	75.9	26	68.4	12	46.2
Blood loss	294	91.9	32	84.2	26	100.0
State of placenta	286	89.4	36	94.7	24	92.3
State of membranes	280	87.5	33	86.8	23	88.5

	UTH		RRGH		KDH	
	(**n = 320**)	%	(**n = 38**)	%	(**n = 26**)	%
State of perineum documented	299	93.4	34	89.5	25	96.1
Post-delivery readings of vital signs and other observations documented	267	83.4	36	94.7	25	96.1

As shown in table 4.33 above, UTH had documentation on time placenta delivered 220 (68.8%), mode of placenta delivery 243 (75.9%), blood loss 294 (91.9%), state of placenta 286 (89.4%), state of membranes 280 (87.5%), state of perineum 299 (93.4%) and post-delivery readings of vital signs 267 (83.4%) out of the 320 partographs that were reviewed. For RRGH time placenta delivered 8 (21.1%), mode of placenta delivery 26 (68.4%), blood loss 32 (84.2%), state of placenta 36 (94.7%), state of membranes 33 (86.8%), state of perineum 34 (89.5%) and post-delivery readings of vital signs 36 (94.7%) out of the 38 partographs that were sampled. KDH had documentation on time placenta delivered 8 (30.8%), mode of placenta delivery 12 (46.2%), blood loss 26 (100.0%), state of placenta 24 (92.3%), state of membranes 23 (88.5%), state of perineum 25 (96.1%) and post-delivery readings of vital signs 25 (96.1%) out of the 26 partographs that were reviewed.

SECTION D: ASSOCIATIONS AMONG MAJOR STUDY VARIABLES

Section D discusses associations between utilisation of the partograph (dependent variable) and Independent variables (availability of partograph, shortage of midwives, attitude of midwives, supportive supervision, midwifery training, workload on midwives and resistant to change).

Table 4.34: **Association between utilization of the Partograph and Demographic characteristics of the respondents (n= 87)**

Variable	Utilization of the Partograph		p-value
	Yes	No	
	n (%)	n (%)	
Hospital			0.033
UTH	33 (56.9)	9 (31.0)	
RRGH	12 (20.7)	6 (20.7)	
KDH	13 (22.4)	14 (14.4)	
Age			0.141
< 35	27 (46.6)	14 (43.3)	
35 – 50	28 (48.3)	10 (34.5)	
> 50	3 (5.2)	5 (17.2)	
Gender			0.709
Male	5 (8.6)	4 (13.8)	
Female	53 (91.4)	25 (86.2)	

Table 4.34 cont…

Variable	Utilization of the Partograph		p-value
	Yes	No	
Marital Status	n (%)	n (%)	0.017
Single	15 (25.9)	15 (51.7)	
Married	43 (74.1)	14 (48.3)	

Profession			0.127
Registered Midwife	39 (67.2)	15 (51.7)	
Enrolled Midwife	5 (8.6)	7 (24.1)	
Certified Midwife	14 (24.1)	7 (24.1)	
Years in Practice			0.313
0 – 5	34 (58.6)	19 (65.5)	
6 – 10	16 (27.6)	4 (13.8)	
> 10	8 (13.8)	6 (20.7)	
Partograph is readily available			< 0.001
Yes	52 (89.7)	12 (41.4)	
No	6 (10.3)	17 (58.6)	

Partograph utilisation was higher (89.7%) in respondents who had pre-printed partographs readily available compared to 10.3% who did not have pre-printed ones. This test result shows a statistically significant relationship between making pre-printed partographs readily available to utilisation of the partograph (P-value < 0.001).

Table 4.35: Association between utilisation of partograph and shortage of midwives

Variable	**Utilises partograph**		**p-value**
	Yes	No	
	n (%)	n (%)	
Number of Midwives in Labour ward per shift			
0 – 5	24 (41.4)	20 (69.0)	0.015

> 5	34 (58.6)	9 (31.0)	
Staffing levels have direct bearing on use of Partograph			1.000
Yes	41 (70.7)	19 (70.4)	
No	17 (29.3)	8 (29.6)	

Partograph utilisation was low (69.0%) in respondents who were 0 – 5 in number per shift compared to 58.6% who were more than five in number. This test result shows a statistically significant relationship between having a high number of midwives per shift to utilisation of the partograph (P-value < 0.015).

Table 4.36: **Association between utilisation of partograph, taught partograph during midwifery training, and attended workshop on partograph**

Variable	**Utilises partograph**		**p-value**
	Yes	No	
	n (%)	n (%)	
Was taught about partograph during midwifery training			0.206

Yes	58 (100.0)	27 (93.1)	
No	0 (0.0)	2 (6.9)	
Had attended workshop on partograph			0.372
Yes	21 (36.2)	7 (24.1)	
No	37 (63.8)	22 (75.9)	

As indicated in table 4.36, more than half of the respondents (63.8%) who did not attend a workshop or orientation on partograph utilised them. Chi square test was used to test associations between utilisation of the partograph and workshop attendance. However, this result was not statistically significant (P value = 0.372). The study also showed no significant association between utilisation of the partograph and whether the partograph was taught during midwifery training or not.

Table 4.37: **Association between utilisation of partograph, supportive supervision and attitude of midwives (n= 58)**

Variable	**Utilises partograph**		**P-value**
	Yes	No	
	n (%)	n (%)	
Hospital had protocol on use of Partograph			0.160

Yes	49 (84.5)	20 (69.0)	
No	9 (15.5)	9 (31.0)	
Had problems in using partograph			0.206
Yes	0 (0.0)	2 (6.9)	
No	58 (100.0)	27 (93.1)	
Lack of orientation on use of partograph would make a midwife not to use it			1.000
Yes	27 (46.6)	13 (44.8)	
No	31 (53.4)	16 (55.2)	
Supervision on use of partograph would make a midwife not to use it			0.425
Yes	9 (15.5)	2 (6.9)	
No	49 (84.5)	27 (93.1)	

Table 4.37 cont…

Valuable	**Utilises partograph**		**p-value**
	Yes	No	
	n (%)	n (%)	
Midwife attitude towards use of partograph			< 0.001

Good	54 (93.1)	16 (55.2)	
Bad	4 (6.9)	13 (44.8)	

Table 4.37 above shows associations between utilisation of the partograph, supportive supervision and attitude of midwives. However, there was no positive association between utilisation of the partograph and supportive supervision (P value 0.425). The findings showed a significant association between respondents (93.1%) who had good attitude towards the partograph utilised it (p-value < 0.001).

Table 4.38: **Association between utilisation of partograph and workload (n= 58)**

Variable	**Utilises partograph**		**P-value**
	Yes	No	
	n (%)	n (%)	
Number of deliveries per shift			0.052
0 - 10	24 (41.4)	18 (66.7)	
> 10	34 (58.6)	9 (33.3)	
Number of labouring women looked after per shift			0.412
0 – 5	33 (56.9)	14 (51.9)	
6 -– 11	24 (41.4)	11 (40.7)	
More than 11	1 (1.7)	2 (7.4)	

Table 4.38 cont…

Valuable	**Utilises partograph**		**p-value**
	Yes	No	
	n (%)	n (%)	
Thinks they are overworked as			1.000

midwives			
Yes	53 (91.4)	27 (93.1)	
No	5 (8.6)	2 (6.9)	

Respondents (33.3%) who had more than 10 deliveries per shift did not utilise the partograph (p-value 0.052).

Table 4.39: **Association between utilisation of the partograph and resistance to change (n=58)**

Variable	**Utilises partograph**		**P-value**
	Yes	No	P
	n (%)	n (%)	
Preference for monitoring			0.722
Partograph	58 (100.0)	28 (96.6)	
Other Methods	0 (0.0)	1 (3.4)	
Would document parameter on partograph			0.036
Yes	56 (96.6)	24 (85.7)	0.162
No	2 (3.4)	4 (14.3)	

All respondents (100%) preferred partograph for monitoring labour to other methods (p-value 0.722) and 96.6% indicated that they would document parameters on partograph (p-value 0.162).

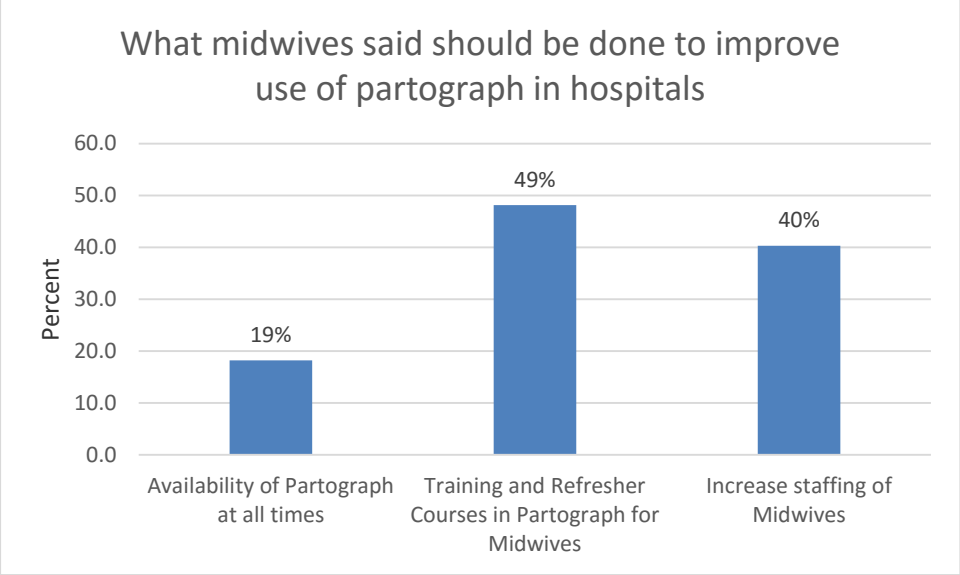
Table 4.40: **Logistic Regression of Utilisation of partograph controlling for marital status, availability of partograph, and attitude toward partograph and being able to document parameters on partograph**

Variable Label	**p-value**	**Odds**	**95% CI**
UTH	1.000	0.00	

RRGH	0.186	4.34	0.49, 38.19
Is single	0.010	0.99	0.02, 38.19
Partograph readily available (yes)	< 0.001	49.94	7.64, 326.35
Midwives per shift (0 – 5)	1.000	0.00	
Has good attitude toward partograph	< 0.000	43.33	5.79, 324.17

Respondents who had good attitude towards the partograph utilised them (p-value < 0.000) and if pre-printed ones were made readily available, they were also utilised (p-value < 0.001).

Table 4.41: Suggestions by respondents to improve use of partograph in hospitals



4.4 SUMMARY

The researcher collected data from 87 respondents using a self-administered questionnaire and 384 partographs retrospectively with the use of a checklist. The respondents were randomly selected from UTH labour ward, Kamuchanga District Hospital and Ronald Ross General Hospital labour wards. The researcher analysed data using

computer software SPSS version 20 and used Chi-square test and t-tests to test associations between dependent and independent variables. The results were presented in frequency tables and cross tabulations according to the sequence and sections of the questionnaire and checklist.

The variables included availability of partograph, shortage of midwives, level of midwifery training, supportive supervision, attitude of midwives, workload, resistant to change and knowledge on importance of partograph use. Data were also collected on how to improve use of partographs by midwives to monitor labour. Cross-tabulations on the relationship between utilisation of partograph and the above variables were presented.

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

5.1 INTRODUCTION

This chapter discusses the findings in relation to available literature and makes conclusions grounded in the data and supported by other research findings where possible.

5.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

There were 87 midwives who were sampled to participate in the study. The demographic characteristics revealed that the study population comprised more of those aged below 35 years and those between 35 – 50 years with a few being above 50 (Table 4.1). This could be attributed to the fact that all respondents belonged to the civil service and are governed by the regulations, which state that the minimum employment age is 18 and the retirement age being 65 (Government of the Republic of Zambia, GRZ, 2014). All the respondents were within employment age.

The study sample consisted of both males and females. Most of the respondents (89.7%) were females only 10.3% were males (table 4.1). This could be attributed to the fact that the nursing profession, predominantly consists of females as documented by the General Nursing council; GNC (2004).

GNC also has training guidelines which state that 90% of students recruited for each intake should be females and 10% as males (GNC, 2006). The result of this study also supports Central Statistical Office (CSO) (2010) demographic survey that, there are more females than males in the population.

Most (65.5%) of the respondents were married while 34.5% were single. This indicates that, most respondents were married because marriage is accepted as normal and as an important socio-cultural activity in the Zambian society.

Single respondents were also present because most people only think of getting married after completing college or university education (CSO, 2002).

Most of the respondents (62.1%) were registered midwives (table 4.1). This is because there are many Government-owned institutions that have been training registered midwives from as early as 1969, showing that many had been trained since then. The certified midwives were 24.1% as compared to enrolled midwives at 13.8%. It is worth noting that the Government recently introduced direct entry midwifery (DEM) in a quest to increase the number of midwives to provide care to women during the process of labour and delivery with a view of preventing maternal and neonatal morbidity and mortality. For instance, in 2008 Direct Entry Midwifery schools were opened to train Direct Entry Midwives for a period of 2 years at Nchanga, Luanshya and Chipata general hospitals.

Most enrolled midwives have converted to registered nursing and midwifery because the Government had upgraded most enrolled nursing schools to registered nursing schools reducing the numbers of enrolled midwives on the market.

This study also revealed that, respondents whose length of practice was 0 – 5 years were 60.9% probably

because of government's recently introduced policy on training direct entry midwives which has off-loaded this cadre to most health facilities (Table 4.1).

Respondents that have had 6 – 10 years of practice were 23.0% implying that probably most of them had furthered their education to university level moving away from direct midwifery care or obstetric provision. Those respondents that had been in practice for more than 10 years were only16.1%. This could be attributed to promotion because once someone acquires a specialty such as midwifery; they are liable to being promoted to a supervisory position.

Such could work in other departments where they were not directly involved with partograph use and were excluded from the study population according to criteria set by the investigator.

Furthermore, this study endeavoured to consider whether these demographic variables could be associated with utilisation of the partograph. This study showed that utilisation of a partograph was higher (89.7%) among those who had pre-printed ones readily available (Table 4.34).

This study finding is similar to the studies conducted by Opiah (2001) and Magon (2011) in Nigeria which revealed the midwives' failure to utilise the partograph as being due to non-availability of the pre-printed ones.

A study conducted by Square in 2006 in Chipata, Zambia also cited inadequate supplies of pre-printed

partographs as a hindrance to implementation of partographs by midwives.

However, this study revealed that demographic variables had no statistical significant relationship with utilisation of partograph ($p < 0.05$).

5.2.1 DISCUSSION OF VARIABLES

5.3.2 Utilisation of the partograph

In this study, questions on utilisation of partograph were included in the questionnaire. To find out about partograph utilisation, respondents were asked if they always utilised the partograph to monitor women's progress of labour; 88.5% of respondents indicated that they used the partograph and 11.5% did not (table 4.2). The present study findings are in agreement with Opiah's study (2001) where respondents indicated that they used partographs routinely in their delivery centres to monitor progress of labour. However, the hindering factors were non-availability of pre-printed partographs.

In the present study, respondents were also asked about availability of the partograph at their delivery centres and 73.6% indicated that the pre-printed partographs were readily available (Table 4.4). This was one of the indicators which showed that respondents had pre-printed partographs available any time they needed to use them at their delivery centres. The outcome of proper monitoring of

a woman in labour is affected by the standard of monitoring and accuracy in documentation and prompt intervention. This can only be achieved if pre-printed partographs were readily available where a midwife could document the observation as it had been exhibited by these respondents who had partographs available at their delivery centres. These findings are however, in disagreement with the research findings obtained by Opiah (2001) who conducted a study in Nigeria to examine factors that mediated utilisation of the partograph in monitoring labour. The results in Opiah's study (2001) revealed that respondents knew what the partograph was and indicated that it is used to reduce maternal and neonatal mortality and morbidity. However, the hindering factors to its utilisation were the non-availability of the pre-printed ones. In addition to Opiah's study (2001), Square also conducted a study in 2006 on factors affecting partograph implementation by midwives at Chipata General Hospital in Zambia.

The midwives had adequate knowledge that the partograph shows deviation from normal labour at a glance and helps in decision making but the barriers to its use were shortage of supplies of pre-printed ones. Apart from studies done by Opiah (2001) and Square (2006), Magon (2011) also conducted

a similar study in Nigeria where it was reported that only 25% to 33% of caregivers surveyed used the partograph for routine monitoring of the woman in labour. The reasons revealed for not utilising the partograph were non-availability of the pre-printed partographs.

This means that the midwife cannot improvise a partograph because it is not easy to draw all lines on it. Therefore, most clients may not be monitored by use of a partograph because of its non-availability and could be at risk of prolonged and obstructed labour.

A partograph is recommended as a sine qua non tool for intra-partum monitoring in all delivery facilities including Zambia to reduce maternal complications (Tayade and Jadhao, 2012).

Respondents were also asked about number of midwives working in labour ward per shift and if staffing levels had direct bearing on use of partograph to determine shortage of midwives and 50.6% of respondents said there was 0 – 5 midwives per shift and 70.5% said staffing levels had direct bearing to partograph use (Tables 4.5 and 4.6)

respectively. Such study findings are an indication that midwives are operating at half capacity and may lead to under-utilisation of the partograph. Poor staffing levels affect partograph use negatively because even if the midwife knows its importance that it reduced maternal and foetal complications, he or she may ignore initiating its use due to pressure of work. These study findings were similar to research findings obtained by Opiah et al (2012) in a study conducted on the utilisation of the partograph among midwives in the Niger Delta Region of Nigeria which showed that 92.7% of midwives indicated that partograph use reduced maternal and child mortality. However, factors that hindered effective partograph utilisation were shortage of staff.

In another related study conducted by Hapwaya (2012) in the Lusaka district delivery centres on partograph utilisation, the study revealed low utilisation.

The reason given by 96% of respondents (in Hapwaya's study) was shortage of midwives where 1-3 of them could be on an 8-hour shift with an average of 8 deliveries. This is a clear indication that women in labour are never monitored closely by using the partograph and are at risk of pregnancy related complications in labour that could result in maternal and or foetal death.

Almost all respondents (97.7%) were taught about partograph during midwifery training (table 4.7. However, 67.8% of respondents indicated that they had never attended any workshop or orientation on use of partograph. WHO, international council of midwives (ICM) and international federation of gynaecologists and obstetricians (FIGO) observed that training on use of partograph among others is one of the competencies within life-saving skills to reduce maternal and neonatal mortality and morbidity (WHO, 2005). Such research findings could mean that midwifery training schools apply the curriculum as they teach their students as enshrined in GNC curriculum. Successful and accurate use of the partograph calls for training of midwives.

WHO (1994) stated that sustained encouragement and educational supervision were required to ensure sustainability of partograph utilisation. According to the findings of the present study, 67.8% of respondents acknowledged not having received any refresher course; attended workshop or orientation on the partograph (table 4.9). The findings of the present study further revealed that of the respondents that never attended a workshop or orientation on partograph, 63.8% of them

utilised the partograph (table 4.36). Such study result is an indication that respondents received adequate training on partograph during their midwifery course.

Positive attitude comes about when the skilled attendant knows what they do and are well motivated with good conditions of service, constant supportive supervision, refresher courses, availability of resources to use, and adequate staffing.

The present study revealed that 93.1% of respondents who had good attitude towards partograph utilised them (table 4.37). For instance, 93.1% of respondents agreed that the partograph is beneficial in managing the process of labour (table 4.13). Mugerwa et al (2008) conducted a study in public health facilities in Kenya on factors that influenced partograph use; of the factors that were noted was poor attitude. Another 93.1% of respondents also agreed that the partograph alerts a skilled birth attendant of labour deviating from normal (table 4.14).

This is very true because a partograph serves as an early warning tool for labour that is deviating from normal (WHO, 1994).

Filling the partograph is seen as an additional chore for a busy health worker and may not be motivated to complete the partograph once initiated. In the present study, 91.4% (53) of respondents thought they were over-worked; out of those who thought they were overworked 93.1% did not utilise the partograph. This is in

line with the response of participants where 58.6% indicated that if they conducted more than 10 deliveries in an eight-hour shift partograph utilisation was low (33.3%). Even if they conducted 0 – 10 deliveries, partograph utilisation was still low (66.7%) (table 4.38). These findings are in agreement with Pizano's study results of 2013 in Kano; West African sub-region where only two midwives were on the shift in most cases and wondered how partographic monitoring of labour would be possible in such circumstance. Pizano (2013) stated that some midwives endeavoured to open the partograph but following it up was always very difficult due to workload thereby under-utilising the partograph.

With the busy nature of certain delivery centres, if a client decided not to be on her bed at the time she was due for examination, the midwife would find it difficult to keep track of her due to client and patient load, and the tendency was that she could be shouted at and probably harassed. On the other hand, all respondents (100.0%) preferred using the partograph to monitor labour to other methods and 96.6% said they would document parameters on the partograph (table 4.39).

Respondents also mentioned labour complications that they had detected before by using the partograph such as foetal distress (31.5%), prolonged labour (31.1%), obstructed labour (24.1%) and ruptured uterus (4.1%) (Table 4.20). This is a clear indication that midwives know the partograph is a very useful tool in the provision of quality care of a woman in labour especially in low resource settings.

5.3.1.1 **Availability of the partograph**

Since the introduction of the partograph by Philpott in 1972, evidence show that its use reduces maternal and foetal morbidity and mortality (Magon, 2011). The WHO modified partograph and variations of it are usually photocopied onto letter paper and are therefore, supposed to be available at a cost of photocopying.

To determine availability of partograph, respondents were asked if they always utilised partograph to monitor women's progress of labour at their delivery facilities and if they did, what they had been using to record labour observations and also if the pre-printed partographs were readily available.

Majority of respondents (88.5%) indicated that they always utilised the partograph to monitor women's progress of labour while 11.5% did not (table 4.2).

This smaller percentage of midwives not utilising the partograph to monitor progress of labour put the life of the woman and her unborn baby at risk because any abnormality may not be detected early resulting in late intervention as well.

Majority of respondents (88.2%) recorded labour observations on the partograph (Table 4.3). This is a clear indication that not all midwives utilise the partograph to record labour observations. About 11.5% of respondents used other methods such as narrating labour observations in clients' obstetric records. This research result is similar to Hapwaya's (2012) findings who did a study in Lusaka's delivery centres on partograph use and discovered that midwives did not always record on the partograph as they had other available charts. This could mean that if there were no other provisions for recording labour findings, midwives could probably use the partograph. On the other hand even if midwives used other provisions to record labour findings, they probably could not detect labour that was deviating from normal. Philpott designed the alert and action lines on the partograph which helped to identify deviations from normal graphically and provided a scientific basis for early intervention leading to prevention of prolonged labour (WHO, 1988 and Khonje, 2012).

Majority of respondents (73.6%) affirmed that pre-printed partographs were readily available at their delivery facilities while 26.4% did not

(Table 4.4). These study findings are similar to Opiah's (2001) research result conducted in Nigeria on factors mediating partograph utilisation to monitor labour; it was discovered that the partograph was not fully utilised due to non-availability of pre-printed ones.

5.3.1.1 **Staffing**

To find out about staffing, respondents were asked about number of midwives working in labour ward per shift and 49.4% said there were more than five implying that there was no shortage of staff (table 4.5). Partograph utilisation was negatively affected if midwives giving care to women in labour were few. More midwives on duty were associated with higher utilisation of partograph as it was evidently shown in the study conducted by Opiah et al (2012) in Nigeria where midwives lamented that poor staffing levels would make midwife ignore initiation of use of partograph due to pressure of work. Hapwaya (2012) had similar findings when she conducted a study in Lusaka on partograph utilisation.

The partograph was under-utilised as midwives complained of staff shortage as 1–3 of them could be on duty in an 8–hour shift with an average of 8 deliveries. This scenario compromised on partograph utilisation; hence care rendered to women while in labour was also compromised.

5.3.1.2 **Level of midwifery training**

To find out about level of midwifery training, respondents were asked if they were taught about the

partograph during their midwifery training and 97.7% indicated that they were taught about the partograph (table 4.7) Respondents were also asked if they had attended a workshop or orientation on partograph use and 67.8% of respondents had never attended a workshop or orientation on the partograph (Table 4.9). This could probably mean that in-service training could improve utilisation of the partograph as it updates midwives on latest information concerning the partograph. This is in agreement with results of a Safe Motherhood demonstration project in the Provincial General Hospital in Kakamega, Kenya which observed an increase of partograph use from 11% to 85% after in-service training (Mugerwa et al, 2008).

Training of attendants on the use of the partograph among other things is the competences WHO and international council for midwives have come up with to offer life serving skills to reduce maternal and neonatal mortality and morbidity (WHO, 2005).

It is widely recognized that lots of maternal and neonatal deaths could be prevented if pregnant women had access to caregivers who had competencies required to recognize the need for, and provide effective and timely interventions with the help of the partograph (Fullerton and Leshabari, 2010). Successful and accurate use of the partograph calls for quality training of midwives.

Furthermore, the present study revealed that there is no relationship between utilisation and training as all the respondents (100%) who were taught about partograph

during their training only 6.9% did not utilise it (table 4.36).

5.3.1.3 **Supportive supervision**

Supportive supervision involves on-the-job transfer of knowledge and skills between the supervisor and one being supervised. To find out about supportive supervision, respondents were asked if they had any hospital protocol on the use of partograph and majority (79.3%) indicated that they had (table 4.10). A protocol guides a midwife on when and how to use the partograph. The present study also showed that there were 20.7% of respondents who had no protocol at their delivery facilities. The present study finding indicates that those midwives who are in the 20.7% may or may not be utilising the partograph. Respondents were also asked if they had any problems in using the partograph and almost all of them (97.7%) indicated that they had no problems (table 4.11).

When further asked on what could make a midwife not to use the partograph, 12.6% cited lack of supportive supervision.

Supportive supervision is an important factor in promoting partograph use because it can be offered by local managers. The findings of the present study do not correlate with results in the study done by Kushwal et al (2013) in India which revealed that lack of supportive supervision hindered partograph use. Similar evidence was also discovered by Yisma et al (2013) in Ethiopia who also cited lack of supportive supervision as a hindrance to partograph use. Follow-up support is critical especially for those working in difficult and isolated rural conditions so that they seek clarity on any

grey areas and help them resolve problems by providing individualised on-the-job training.

It is also important to offer supportive supervision even to those midwives using the tool properly so that they feel encouraged. Family health international (FHI) (2005) recommended regular audits of the partograph, for instance, in three to six months in form of supervisory and problem solving visits by ward in-charge and other superiors. This encourages midwives to continue dispensing quality maternity care by using the partograph.

5.3.1.4 **Attitude of midwives**

Attitude is a basis of performance in all aspects of life. Good attitude yields good results while bad attitude gives rise to bad results. Midwives with good attitude towards partograph will utilise it unlike those with bad attitude. To establish attitude of midwives towards partograph, respondents were asked if the partograph was beneficial and 93.1% agreed that it was beneficial (table 4.13).

Respondents (93.1%) also agreed that the partograph alerted a midwife of labour deviating from normal (table 4.14) and 98.9% said the partograph was filled soon after checking labour observations (table 4.15). The result of this study is in agreement with the study results by Opiah (2001) done in Nigeria on factors affecting partograph utilization where 84% of respondents knew what the partograph was. They also agreed that it reduces maternal and neonatal mortality and morbidity if utilised well but the hindrance was that it was viewed by some few midwives (8.6%) as a waste of time. It is therefore, vital to emphasise the need to

have such attitudes change and make midwives understand that the partograph improves quality of care and saved time as providers interpret labour progress more efficiently.

5.3.1.5 **Workload on midwives**

Filling the partograph is seen as an additional chore for a busy midwife in such a situation and may not be motivated to initiate and complete the partograph. To confirm work-load on midwives, respondents were asked how many deliveries they conducted per shift at their facilities and 66.6% of respondents said 11 and above (table 4.16).

They were also asked on the number of labouring women looked after 54.0% respondents indicated 0-5 (table 4.17). When asked if they thought they were over-worked as midwives, 92.0% indicated yes (Table 4.18).

These study findings are in agreement with the statement given by Issah (2011) in Ghana that the active phase of labour required quality and intensive monitoring for early detection and intervention but the work-load at the various health facilities and number of midwives available, made this impossible. When respondents were further asked for opinion why they thought over-worked, they cited having had little or no time to plot labour observations as they were done manually with interval too closely spaced and had too many clients to look after.

5.3.1.6 **Resistant to change**

WHO (2013) describes change as a means of improving availability and quality of health care by expanding utilisation and ultimately improving health outcomes. To detect resistance to change, respondents were asked what they preferred to use when monitoring labour and 98.9% mentioned partograph (table 4.19). The 1.1% that could not document parameters on the partograph mentioned narrating findings in client's file. Such are the midwives that resist change and hinder partograph utilisation. According to Jhpiego (2004) some midwives resist change in partograph use because they feel that they would be spending more time with each client resulting in longer working hours for the same salary. Wilkinson (2004) conducted a project assessment in Nepal on change to reduce on maternal mortality ratio.

However, midwives especially from government institutions resisted change for cultural and personal reasons.

Some Nepalese midwives were immersed in cultural belief with an understanding of 'your future is already written down for you' – 'women die as a result of child birth and there is nothing we can do about it'. Such resistance by midwives is detrimental to the life of the woman in labour and her unborn baby.

5.3.1.7 **Knowledge on importance of partograph use**

Knowledge is a requirement for proper utilisation of any given material (Central Statistical Office, CSO 2003), in this case a partograph. A midwife who is knowledgeable of the partograph is instrumental in preventing complications of child-birth. To determine knowledge on partograph use, respondents were asked

about labour complications detected by using partograph. Respondents who mentioned foetal distress were 31.5%, prolonged labour 31.1% and obstructed labour 24.1%, ruptured uterus 4.1%, maternal distress 2.9, cervical dystocia and hypertonic uterine contractions 2.5% (table 4.20). Findings of the present study revealed that respondents had knowledge on partograph and therefore had the ability to effectively utilise the partograph since knowledge is a pre-requisite for utilisation. These findings are however, contrary to the findings in the study done by Oladopo et al (2006), in Nigeria to evaluate knowledge and use of partograph where it was observed that only 9.8% of staff was knowledgeable.

5.4 ASSOCIATIONS AMONG VARIABLES

5.4.1 Partograph Readily Available in Relation to Utilisation

Partograph utilisation was high (89.7%) in respondents who had pre-printed partographs readily available (table 4.34). This study finding shows a statistically significant relationship between making pre-printed partographs readily available to utilisation of the partograph (p-value < 0.001).

5.4.2 Work-load on Midwives in Relation to Utilisation of Partograph

Workload can be classified as quantitative; amount of work to be done (Carayon and Gurses, 2007). The present study results show that 58.6% of midwives (respondents) conducted more than 10 deliveries per shift and of those 33.3% did not utilise the partograph (table 4.38).

In addition, (33) 56.9% of respondents who looked after 0-5 women in labour during an 8 hrs shift; out of this number (14) (51.9%) did not utilise the partograph (table 4.38). Therefore, 91.4% of respondents thought they were over-worked (table 4.38). Out of the 91.4% of respondents who thought of being over-worked, 46.5% did not utilise the partograph. The over-working could be due to handling complicated cases, consequently demanding for more advanced intervention *procedures* to be done and also carrying-out other responsibilities. These present study results support what Carayon and Gurses (2007) and Ministry of Health (MoH) (2006-2011) National Health strategic plan meant when stating that as work-load increases, staff shortage seemingly occurs. Carayon and Gurses (2007) further revealed that work overload and shortage of staff seems to be related to sub-standard client/patient care which leads to reduced client/patient satisfaction which could also include under-utilisation of the partograph.

During the retrospective assessment of the partograph, it was discovered that foetal heart rate was inadequately checked and documented by KDH (0 times) (table 4.25) with UTH 2 times only but RRGH had it done 5 times.

The range for checking foetal heart rate was 0-19 times, with minimum of 0 times and maximum of 19 times (table 4.25). Liquor and moulding were checked once by all three hospitals. This is an indication that midwives had been experiencing work overload due to increased demand for midwifery services and inadequate staffing. According to Coopers (2005), workload is a key job stressor of health care providers in a variety of care settings; such as delivery centres. Heavy clinical work-load can lead to distress such as sarcasm, anger and emotional exhaustion and burn-out which impede provision of quality midwifery care. Many are a time when complaints about midwives being negligent have been published and aired in the media without realising

that they are over-stretched due to under-staffing. Furthermore, the three hospitals were checked for documentation on maternal monitoring. This study discovered that UTH had inadequate documentation on parameters that determine maternal wellbeing while in labour such as blood pressure, pulse and body temperature with median of 1 (table 4.29). RRGH and KDH documented better than UTH.

By virtue of being midwives, this cadre of health care providers are independent practitioners who are expected to make independent decisions that should improve the outcome of labour. For registered midwives they perform both client/patient care and other responsibilities when on duty which compromises the quality of documentation on the partograph and also the health care given to clients and patients. Work overload contributes negatively to midwifery care delivery as midwives are obliged to work without considering the quality of care but provide service at whatever level (Mathibe-Neke et al, 2013).

This statement is consistent with the findings of a study done in UK by Carayon and Alvarando (2007) which revealed that higher client and patient population, work system factors and expectations also contribute to the increasing work-load while midwives are also expected to perform administrative tasks such as co-ordinating to make sure that supplies (pre-printed partographs, sphygmomanometers and foetoscopes) were well stocked.

These findings have answered specific objective number two which sought to review records of partographs used at KDH, RRGH and UTH.

5.5 APPLICATION OF THE DONABEDIAN MODEL TO THE CURRENT STUDY

This study used the Donabedian Model. The model suggests that the care given to clients and patients should be of good quality if positive outcomes are expected.

This study established that majority of respondents (88.5%) always utilised partograph to monitor progress of labour. Respondents who recorded labour observations on the partograph were 88.2%, with 73.6% affirming that pre-printed partographs were readily available at delivery centres. This explains the model's 'structure' in the dimensions of care that includes presence of equipment (such as pre-printed partographs) to use in the process of monitoring labour if quality midwifery care was to be provided. Not having pre-printed partographs would make labour monitoring difficult because a partograph helps to identify deviations from normal graphically and provided a scientific basis for early intervention leading to prevention of prolonged labour.

The model's structure also emphasises presence of enough human resource if quality care was to be provided. This study found out that 58.6% of respondents said there were more than five (5) midwives working in labour ward per shift implying that human resource was not in short supply. Partograph utilisation was negatively affected if midwives on duty were few because of pressure of work. This scenario compromised on quality of midwifery care rendered to women in labour.

The model's structure puts emphasis also on training. In this study, 97.7% of respondents who were midwives were taught about the partgraph during their midwifery training. However, 63.8% of respondents had never attended a workshop or orientation on partograph.

In-service training could improve partograph utilisation as midwives would be updated on latest information concerning the partograph. This could result in quality care being provided to clients and patients; the basis for the Donabedian Model.

The Donabedian Model also talks about 'processes' in its dimensions of care. Processes are classified as how care is delivered and such information could be obtained from medical/obstetric records such as partograph. This study showed that there was inadequate documentation on partograph parameters such as foetal heart rate which was inadequately checked and documented by KDH (0 times), UTH (2 times) with RRGH (5 times). The range was 0-19 times.

Liquor and moulding were checked once by all 3 hospitals, indicating that probably midwives experienced work load due to increased demand for midwifery services and inadequate staffing. Such a scenario could lead to distress, sarcasm and anger and would impede adequate documentation resulting in provision of poor quality midwifery services. Poor or inadequate documentation would affect continuity of care negatively.

The Donabedian Model further looks into outcomes which are seen as most important indicators of quality care delivery. If the partograph is utilised whilst monitoring women in labour, prolonged labour and other problems could be detected early and interventions instituted early as well.

In the present study, respondents mentioned complications that they detected using partograph such as foetal distress (31.5%), prolonged labour (31.1%), and obstructed labour (24.1%). This is an indication that if a partograph was well utilised; it helped in early detection of problems in labour resulting in early interventions with positive outcomes.

5.6 IMPLICATIONS TO NURSING

The partograph was produced and promoted by the World Health Organization and adopted by Zambia with a view to improve management of labour and reduce maternal and foetal morbidity and mortality of which the MMR for Zambia is 440 per 100, 000 live births in 2010 (Zambia Demographic Health Survey in World Bank Fact book, 2013).

During training, midwives acquire knowledge and skill to manage expectant women. Utilization of the partograph is one of the skills that they are taught. It is therefore, imperative that they understand the importance of using the partograph during labour because it is the only tool which Zambia is using as at now to monitor the process of labour. Moreover, it is an inexpensive tool which any delivery facility can afford as it can be made available at a cost of photo-copying only. It is from this background that Ministry of Health, Kamuchanga district hospital, Ronald Ross general hospital and University Teaching Hospitals' midwives ought to make full use of this tool in the fight

against potential and actual labour complications affecting women. By doing so, the higher maternal and neonatal mortality the country faces today could be reduced.

5.6.1 **Nursing practice**

The study revealed that all respondents (100%) who were taught about partograph also utilised it as was showed by 93.1% of respondents. These findings show that midwives had knowledge and skill for the provision of midwifery care to women in labour through the use of partograph.

It is therefore, necessary that midwives maintain these high levels of knowledge and utilization by putting in place deliberate measures such as providing enough human resource for client care by nurse managers. This study further revealed that almost half of the respondents (50.6%) said the number of midwives working in labour ward per shift was between 0 and 5 with 68.2% indicating that they conduct 11 and above deliveries per shift at their delivery centres while 70.5% stated that staffing levels had direct bearing on use of partograph.

This could indicate that women in labour do not receive quality midwifery care and may result in increased maternal and perinatal deaths and pregnancy related complications during labour. A good staffing system should be considered and worked-out to improve use of partograph in management of a woman in labour.

The other reason could be lack of workshops or orientation on partograph use as indicated by the result of this study that 67.8% of respondents never attended any workshop. Workshops on partograph use help midwives to refresh their knowledge which will help them identify complications and intervene early enough to prevent further complications and death.

Findings of this study further revealed that 79.3% of respondents said they had protocol on partograph at their delivery centres and 73.6% had pre-printed partographs readily available. Availability of protocol probably motivated midwives to use the partograph because they were

reminded on how to use it whereas, having pre-printed ones serve on time of searching for what to improvise the partograph with.

5.6.2 Nursing administration

The study revealed that 67.8% of respondents had never attended a workshop or orientation on partograph. This could be contributing to the low or non-utilisation of the partograph at KDH, RRGH and UTH. Periodic refresher courses can improve utilisation of the partograph as it helps to remind midwives on what they had forgotten and also update them on latest information on the partograph. In addition, 79.3% of respondents said they have hospital protocol on partograph. This is very important as it helps improve utilisation because a midwife can be guided when stuck.

Staffing levels also came out to be a concern as with 70.5% of respondents saying staffing levels have direct bearing on use of partograph, it means utilisation of partograph tends to be inconsistent as it is thought to increase workload.

This means that where there is shortage, midwives are not likely to utilize the partograph consistently which would lead to poor labour management putting a woman's life at risk.

5.6.3 Nursing Education

This study revealed that 97.7% of respondents were taught about partograph during midwifery training.

A student who received adequate training about the partograph was more likely to utilise it. It is therefore, mandatory for educators of midwifery to continually emphasise to students the importance of a partograph in the management of labour. In this way, after qualifying they will embrace and utilise it even more. The study also revealed that, 67.8% of respondents never attended a workshop or orientation on partograph.

A workshop or orientation helps to update one's knowledge especially that WHO modifies the partograph from time to time with a view to improve its utilisation. This means that midwives who qualified some

years back before certain modifications on the partograph were made would obviously be at a loss not knowing how to fill it. Such are the midwives who could benefit from workshops or any form of orientation. A workshop could be a source of motivation to a midwife as she or he would be away from a busy schedule and this could just be refreshing.

5.6.4 Nursing research

The implications of study findings on nursing research means that there is need to conduct more research on utilisation of the partograph which include the extent of partograph use and quality of documentation of parameters on the partograph. The study revealed that 88.5% of respondents utilised the partograph to monitor progress of labour. However, the quality of the documentation left a lot to be desired as there was lack of continuity on some parameters and in this way could end up missing problems and put the life of the woman and foetus at risk.

This means that further research on the partograph is required to find convincing ways and means of midwifery actions and also find answers for many puzzles on the partograph that are not answered. A study on determining best ways midwives can utilise the partograph could be conducted and probably adopt other ways that could be as feasible and sustainable as a partograph to monitor labour.

5.7 CONCLUSION

The study was done to determine the utilisation of the partograph at KDH, RRGH in Mufulira district and UTH in Lusaka city. The study revealed that majority of respondents (88.5%) always utilised the partograph to monitor progress of labour and 88.2% recorded labour observations on the partograph of which 73.6% of respondents said pre-printed ones were readily available at their delivery centres. However, almost half of the respondents (50.6%) said the number of midwives working in labour ward per shift ranged between 0 – 5 with 70.5% of respondents bemoaning that staffing levels had direct bearing on partograph use especially that 68.2% of

respondents stated that they conducted 11 and above deliveries per shift at their delivery centres. Therefore, 92.0% of respondents thought they were over-worked as midwives. The study further revealed that 97.7% of respondents were taught about partograph during midwifery training, though 67.8% of them had never attended a work-shop or orientation on partograph. On the other hand, 57.9% of respondents said lack of orientation would make midwife not to use a partograph. In addition to these findings, 79.3% of respondents said they had hospital protocol on use of partograph and 97.7% stated that they had no problems using the partograph. Results from this study showed that 88.5% of respondents were utilising the partograph. However, retrospective review of its utilisation showed that it was improperly utilised as most parameters were inadequately documented by all three study sites. The partographs were assessed for completeness or if they had all necessary parameters documented. The findings showed that not many forms had complete information.

A large proportion of the partographs was inadequately filled and lacked continuity in documentation. Partographs were started but most of them were not completed.

The respondents expressed the need for refresher courses on partograph to be updated with any new information.

They also suggested increasing number of midwifery staff as inadequate number of midwives contributed to inadequate documentation of parameters on the partograph.

Midwives are an indispensable part of the solution to maternal, neonatal and child morbidity and mortality. Unless midwives were encouraged and supported, partograph utilisation will remain a strain.

5.8 RECOMMENDATIONS

Based on the findings of this study, the following recommendations have been made:

5.8.1 A study to determine best ways midwives can utilise the partograph should be conducted and probably consider other ways that could be as feasible and sustainable as a partograph to monitor labour.

5.8.2 Continued refresher courses should be conducted in order to provide knowledge updates on partograph use and keep pace with the rapid advances in midwifery.

5.8.3 Pre-printed partographs should be made available at delivery centres all the time for midwives to utilize them as a partograph cannot be improvised.

5.8.4 The number of midwives should be increased in delivery centres to improve on the quality of documentation.

5.9 LIMITATIONS OF THE STUDY

The following were the limitations of this study:

i. Validity was compromised because the questionnaire was given to participants two days before it was collected by the investigator. This was to allow participants to attend to their duties and answer the questionnaire at their convenient time. This could have given room for discussion among participants.

ii. Accessibility to obstetric records: obtaining written consent from participants to review their obstetric records retrospectively was strenuous as the researcher had to follow them in their homes and this was time consuming.

iii. Financial constraints: the researcher had to source for funds from elsewhere to complete the research as the sponsor (MoH) delayed to release money to support her thesis. This scenario constrained the researcher financially.

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APPENDICES

Appendix I: **STUDY BUDGET**

SERIAL NO.	ITEM	UNIT COST IN KWACHA	QUANTITY	TOTAL
1	**Personnel** Lunch Allowance:			
	(a) Investigator	50.00	10 days	500.00
	(b) Research Assistant	50.00	10 days	500.00
	Subtotal			**1, 000.00**
2	**Stationery**			
	(a) Bond paper	30.00	10	300.00
	(b) Pens	1.00	10	10.00
	(c) Pencils	1.00	10	10.00
	(d) Note book	10.00	1	10.00
	(e) Sharpener	2.50	4	10.00
	(f) Ruler	2.50	4	10.00
	(g) Eraser	2.50	4	10.00
	(h) Stapler	50.00	1	50.00
	(i) Correction fluid	15.00	2	30.00
	(j) Scientific calculator	100.00	1	100.00
	(k) Staples	10.00	1 pkt	10.00
	(l) Flip chart	50.00	1	50.00
	(m) Markers	7.50	5	37.50
	(n) Research bag	20.00	2	40.00
	(o) Perforator	60.00	1	60.00
	(p) Spiral binders	5.00	2	10.00
	(q) Folder	15.00	2	30.00

	(r) Cartridges	200.00	5	1,000.00
	(s) Printer/Photocopier	2,500.00	1	2,500.00
	(t) Desk top	3,500.00	1	3,500.00
	Subtotal			**7,777. 50**
SERIAL NO.	**ITEM**	UNIT COST IN KWACHA	QUANTITY	**TOTAL**
3	**Typing Services**			
	(u) Printing questionnaire& check list	1.50.00	15 pages x 160 copies	3,600.00
	(v) Printing proposal	1.50.00	170 pages	255.00
	(w) Printing dissertation	1.50.00	200 pages	300.00
	(x) Binding of dissertation	60.00	5 copies	300.00
	(y) External drive	800.00	1	800.00
				5,255.00
	Subtotal			**14,032.50**
4	**Dissemination workshop**			**5,000.00**
	Total			**19,032.50**
	Contingency Fund 10%			**1,903.25**
	Grand Total			**20,935.75**

JUSTIFICATION OF THE BUDGET

For the research study to be carried out successfully, stationery and personnel will be needed.

Stationery

The reams of paper will be used for drafting the research proposal, the survey questionnaire and checklist and research report. The scientific calculator will be used during data analysis. The external drive will be used for storage of data. The desk top computer and printer will be used to type and print the research report respectively. The other accessories will be required for the routine collection of data.

Secretarial Services

Secretarial services will be used for printing and photocopying of the research proposal and the research report with the appendices. Binding of the research proposal and research report will need to be done as well.

Personnel

Lunch Allowance

Lunch allowance will be paid to the investigator and research assistant as they collect data. 10% of the total budget will be for the unseen circumstances and for possible inflation.

Appendix II: GANTT CHART

TASK TO BE PERFORMED	RESPONSIBLE PERSON	2014												2015												2016		
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Formulating study topic	Investigator & Supervisor																											
Formulating background information	Investigator & Supervisor																											
Problem statement	Investigator & Supervisor																											
Literature review	Investigator & Supervisor																											
Study methodology	Investigator & Supervisor																											
Compiling research proposal	Investigator & Supervisor																											
Handing-in proposal to Ethics Committee	Investigator & Supervisor																											
Pilot study	Investigator & Supervisor																											
Data collection	Investigator & Supervisor																											
Data analysis	Investigator & Supervisor																											
Data presentation	Investigator & Supervisor																											
Discussion of findings	Investigator & Supervisor																											
Compiling research report	Investigator & Supervisor																											
Submission of draft research	Investigator & Supervisor																											
corrections of the research	Investigator & Supervisor																											
Submission of final research	Investigator & Supervisor																											

APPENDIX III: **INFORMATION SHEET FOR THE RESPONDENTS**

Study title: Utilisation of the partograph by midwives to monitor labour

Introduction

I Beatrice Mwewa, a Student of Master of Science in Nursing at the University of Zambia, School of Medicine, Department of Nursing Sciences, Lusaka, Zambia is requesting you to participate in a research study 'utilisation of partograph by midwives at Kamuchanga district hospital, Ronald Ross general hospital in Mufulira district and the University Teaching hospital in Lusaka city'. If you agree to take part in the study, you will be required to sign a consent form before completing the questionnaire. Participation in this research project is completely voluntary. You have the right to say no. You may change your mind at any time and withdraw.

Purpose of the study

The purpose of the study is to find out the extent to which the partograph is used as a tool in labour management. The study is funded by the Ministry of Health. You have been selected to participate in the study because you work in labour ward where the partograph is used. It is hoped that the study will contribute to improvement of maternal and neonatal care.

Procedure

After signing the consent form, you are expected to complete self-administered questionnaire which will comprise of questions on non-availability of partograph, shortage of midwives, low-level of midwifery training, and lack of supportive supervision, attitude of midwives, workload, resistant to change and outcome of labour as factors that affect use of the partograph. After data collection, analysis will be performed and a report will be written and information disseminated. The questionnaires will be destroyed 5 years after publishing the work.

Benefits of participating in the study

There is no direct benefit to you for your participation in the study but the information you will provide will give an insight into the current situation.

These insights will help with developing or adapting interventions on how to remedy the problem for instance, increasing the number of midwives and/or resource allocation for making partographs readily available every time they are needed.

Risks and discomforts

The study will enquire only on your experiences and opinions on use of the partograph.

There is no risk involved in this research though part of your time will be utilized to answer some questions. Some questions may seem to be sensitive and personal. Care will be taken not to embarrass you. If at any time you will feel emotionally upset or guilty of how at one time you had managed women in a way that was morally wrong and unprofessional in relation to use of partograph, you are free to write it down in the space provided on the questionnaire on questions that need explanation.

Confidentiality

Your research records and any information you will provide will be kept confidential. Only the researcher and her supervisors will have access to the information. No names will be indicated on the questionnaire. You will be identified by a number and personal information will not be released without your written permission except when required by the law.

APPENDIX IV: **CONSENT FORM**

The purpose of this study has been explained to me and I understand the purpose, benefits, risks, discomforts and confidentiality of the study. I further understand that if I agree to take part in this study, I can withdraw at any time without having to give an explanation and that taking part in this study is purely voluntary.

I_____ (Names)

Agree to take part in this study.

Signed_____ Date_____

Participant's signature or thumb print

Signed_____ Date_____ (Witness)

Signed_____ Date_____ (Researcher)

PERSONS TO CONTACT FOR PROBLEMS OR QUESTIONS

1. The Head, Department of Nursing Sciences, School of Medicine, P.O. Box 50110, Lusaka. Phone No. 211252423
2. The Chairman, Biomedical and Research Ethics Committee, School of Medicine, University of Zambia, P.O. Box 50110, Lusaka. **Phone No. 260-1-256067**

APPENDIX V: **DATA COLLECTION TOOL**

7.3.1 **SELF ADMINISTERED QUESTIONNAIRE FOR MIDWIVES**

TOPIC: UTILIZATION OF PARTOGRAPH TO MONITOR LABOUR

Serial No. ☐

Date……..

Place…….

Time.....

INSTRUCTIONS TO PARTICIPANTS

1. Please do NOT write your name on this questionnaire.

2. Answer ALL questions.

3. Circle the letter(s) of the most appropriate answer(s).

4. Write responses by filling in the blank spaces provided for questions that require explanations.

5. The information that you will give will be treated confidentially.

SECTION A: DEMOGRAPHIC DATA **OFFICIAL USE ONLY**

1. How old were you on your last birthday? ..... years.

2. What is your sex?

   (a) Male

   (b) Female

3. What is your marital status?

   (a) Single

   (b) Married

   (c) Widowed

   (d) Divorced

4. What is your professional qualification?

   (a) Registered Midwife

   (b) Enrolled Midwife

   (c) Certified Midwife

5. For how long have you been practicing as a midwife?

   …… months /years

SECTION B: UTILISATION OF PARTOGRPH

6 Do you always utilise partograph to monitor women's progress of labour at this facility?

a) Yes

b) No

7. If your answer to question 6 above is yes, what have you been using to record labour observations?

a) Partograph

b) Observation chart made on plain paper

c) Narrating findings in patient's file

d) Other specify…….

……..

i) Availability of partograph

8. Is the partograph always readily available at your facility?

a) Yes

b) No

9. If no to question 8 above, give reasons…….

…….

…….

ii) Shortage of midwives

10. How many Midwives work in labour ward per shift?

.....

11. Do you think staffing levels have direct bearing on use of partograph?

(a) Yes

(b) No

12. Give reasons to your answer in question 11 above.

…….

…….

iii) Level of midwifery training

13. During your midwifery training, were you taught about the partograph?

(a) Yes

(b) No

14. If yes to question 13, what were you taught?

(**Circle all correct answers**)

(a) Definition

(b) Benefits of a partograph

(c) Uses of a partograph

(d) Foetal well-being, progress of labour and maternal well-being

(e) Others, specify ……

15. Have you ever attended a workshop or orientation about use of partograph?

(a) Yes

(b) No

iv) Supportive supervision

16. Do you have any hospital protocol on the use of the partograph?

(a) Yes

(b) No

17. Do you have any problems in using the partograph?

(a) Yes

(b) No

18. If yes to question 17 above, specify problem.

……..

……..

19. What would make a midwife not to use a partograph when monitoring a woman in labour?

(a) Lack of orientation on how to use a partograph

(b) Lack of supervision

(c) Availability of other methods to observe the woman

(d) Other specify……..

……

……

v) Attitude of midwives

Rate your views and feelings about the following statements

20. The partograph is beneficial:

(a) Strongly agree

(b) Agree

(c) Disagree

(b) Strongly disagree

(e) I do not know

21. A partograph alerts a Midwife of labour deviating from normal:

(a) Strongly agree

(b) Agree

(c) Disagree

(d) Strongly disagree

(e) I do not know

22. When do you fill-in the partograph?

(a) At the end of the shift

(b) After delivery

(c) Soon after observation

vi) Workload

23. How many deliveries are conducted per shift at your hospital?

(a) 0 – 5

(b) 6 – 10

(c) 11 – 15

(d) 16 and above

24. How many labouring women do you look after in an 8 hour shift?

(a) 0 – 2

(b) 3 – 5

(c) 6 – 8

(d) 9 – 11

(e) 12 and above

25. Do you think as a midwife, you are over-worked?

(a) Yes

(b) No

26. Give reason(s) for your answer in question 26 above.

……..

……..

……..

vii) Resistant to change

27. What would you prefer to use when monitoring a woman in labour?

(a) Partograph

(b) Narrating parameters in patient's file

(c) Observation chart made on plain paper

(d) None of the above

(e) Other specify……..

……

viii) Knowledge on importance of Partograph use

28. Which labour complications have you detected before by using a partograph as you monitored a woman in labour?

(a) Foetal distress

(b) Prolonged labour

(c) Obstructed labour

(d) Other specify ……

……..

29. What do you think should be done to improve use of partograph in the management of women in active phase of labour?

…….

……..

……..

……..

……..

What are the benefits of using the partograph?

……
……
……
……
……
……
……
……
……
……

Thank you for participating in this study!

APPENDIX VI: **CHECKLIST FOR ASSESSMENT OF PARTOGRAPH**

PERSONNAL PARTICULARS

1. Have the following been documented? (**Circle** yes, no, not applicable (N/A) based on what is or not documented. Provide information where applicable.

Name	Yes	No	N/A
Gravida	Yes	No	N/A
Parity	Yes	No	N/A
Hospital No.	Yes	No	N/A

Comment …….

ADMISSION DETAILS

2. Has anything been documented in the following admission details? (Yes, no, N/A).

Date of admission	Yes	No	N/A
Time of admission	Yes	No	N/A
Date & time membranes ruptured	Yes	No	N/A
Hours passed after membranes ruptured	Yes	No	N/A

Comment …….

FOETAL MONITORING

3. Were the following monitored and documented? (**Circle** yes or no, if yes indicate how many times plotted).

Foetal heart rate	Yes	No	…….. times plotted
Liquor	Yes	No	…….. times plotted
Moulding	Yes	No	…….. times plotted

Comment …….

PROGRESS OF LABOUR

4. Were the following parameters for progress of labour monitored and documented? (**Circle** yes or no, if yes indicate how many times plotted).

Cervical dilation	Yes	No	……. times plotted
Descent	Yes	No	……. times plotted
Uterine contractions	Yes	No	……. times plotted
Was alert line crossed?	Yes If yes action taken…….....	No	……. times plotted
Was action line reached?	Yes If yes action taken…….....	No	……. times plotted

Comment…….....

MATERNAL MONITORING

5. Were the following parameters for monitoring maternal well-being documented? (**Circle** yes or no, if yes indicate how many times recorded).

BP	Yes	No	……. times recorded
Pulse	Yes	No	……. times recorded
Temperature	Yes	No	……. times recorded

Comment …….

SECOND STAGE OF LABOUR

6. Were the parameters for second stage of labour monitored and recorded? (**Circle** yes or no, provide extra information where necessary).

Full cervical dilation Date and time	Yes	No	Extra information
Date of delivery	Yes	No	
Time of delivery	Yes	No	

7. Method of delivery (**Circle** method of delivery: SVD, Breech, C/section, Vacuum, Forceps or not indicated). Provide any extra information if appropriate.

Apgar score: at 1 minute	Yes	No	Extra information
Apgar score: at 5 minutes	Yes	No	
New-born resuscitated	Yes	No	Give reason for resuscitation
Method of resuscitation	-	-	Suction, ambu bag, intubation

8. Status of new-born (**Circle** live, full term, preterm, fresh still born, macerated or not indicated. Provide extra information where applicable.

Sex	Yes	No	Extra information
Abnormalities	Yes	No	
Weight	Yes	No	
Length	Yes	No	
Head circumference	Yes	No	
Baby to SCBU	Yes	No	If yes, state reason for transfer ……..
Baby transferred out	Yes	No	If yes, state reason for transfer ……..
Delivered by	Yes	No	

Comment …….

THIRD STAGE OF LABOUR

9. Were parameters for monitoring third stage of labour monitored and documented? (**Circle**).

Time placenta delivered	Yes	No	Extra information	
Mode of placenta delivery	Yes	No		
Blood loss	Yes	No		
Placenta	Complete	Not complete	Not indicated	
Membranes	Complete	Not complete	Not indicated	

Comment …….

PERINEUM

10. Was the state of perineum documented? (**Circle** yes or no and provide any extra information.

Yes	No	Not indicated	Extra information

Comment …….

POST-NATAL CHECK-UP

11. Were the post-delivery readings of vital signs and other observation monitored and documented? (Circle).

Yes	No	Not indicated	Extra information

Post-natal comments ……...

GRADING OF THE PARTOGRAPH

The extent of utilisation will be assessed by determining the proportion of the parameters documented or not documented against the parameters on the partograph. The following grading system will be used:

Fine

If all components (foetal well-being, labour progress and maternal well-being) on the partograph are completely filled-in

Adequately filled-in

If all components on the partograph are filled-in but some parameters left undocumented

Inadequately filled-in

If only two components have information

Grossly inadequately filled-in

If only one component is filled-in or no information on the three components

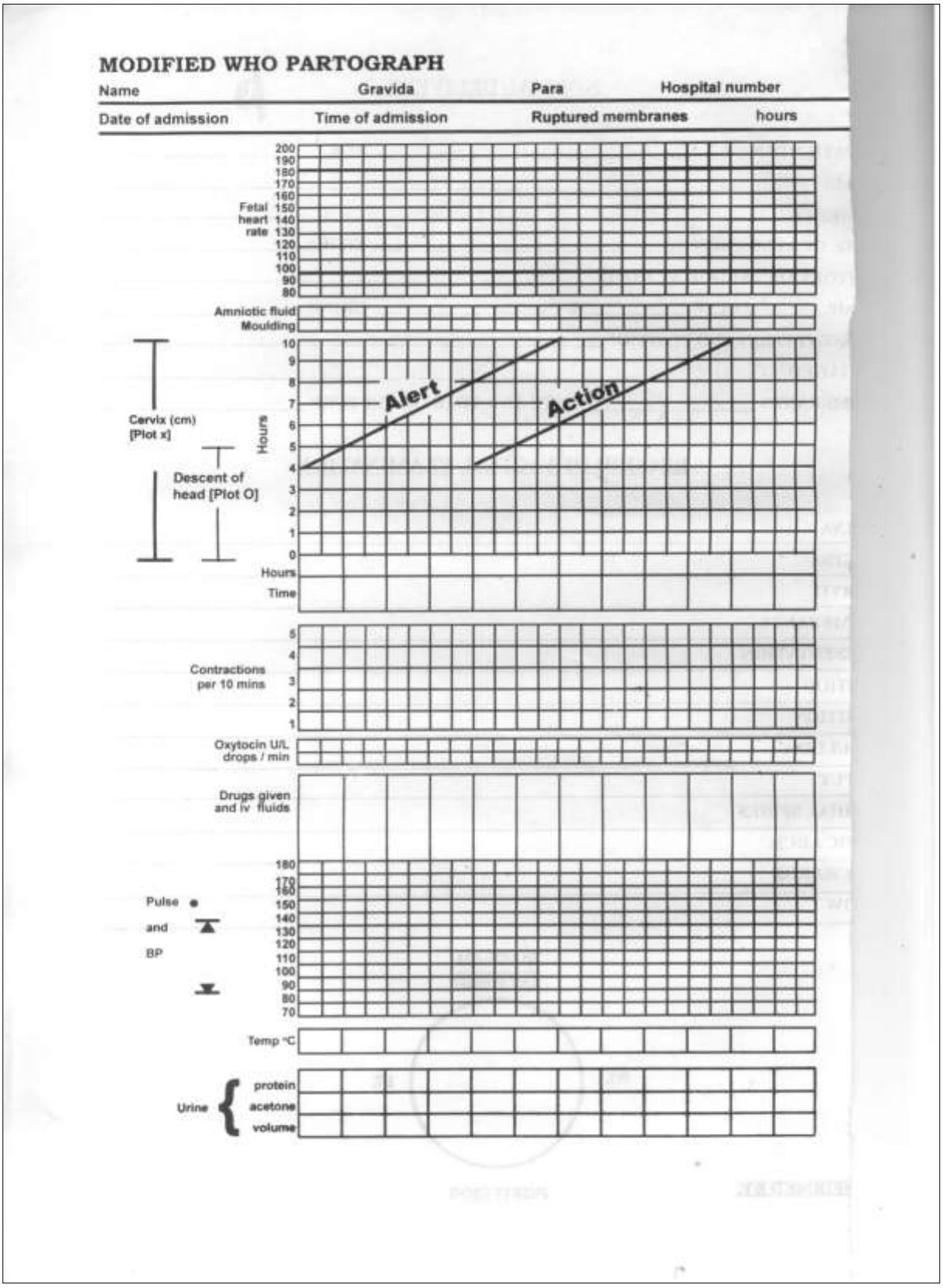
APPENDIX VII: **SCALES FOR MEASURING STUDY VARIABLE (UTILIZATION OF PARTOGRAPH)**

No	Question	Response	Score
6	Do you always monitor women's progress of labour at this facility	Yes	1
7	What have you been using to record labour observations?	Partograph	1
8	Is the partograph always readily available at your facility	Yes	1
9	If the partograph is not always readily available at your facility, what are the reasons?		
10	How many midwives work in labour ward per shift?		
11	Do you think staffing levels have direct bearing on use of partograph?	Yes	1
12	What direct bearing on partograph use is there if staffing levels are good or bad?		
13	Were you taught about the partograph during your midwifery training?	Yes	1
14	What were you taught about the partograph?		
15	Have you ever attended a workshop or any orientation about use of the partograph?	Yes	1
16	Do you have any hospital protocol on use of the partograph?	Yes	1
17	Do you have any problems in using the partograph?		
18	If you have problems in partograph use, what are the problems?		
19	What would make a midwife not to use a partograph when monitoring a woman in labour?		
20	Is the partograph beneficial?	Yes	1
21	Does a partograph alert a midwife of labour deviating from normal?	Yes	1
22	Should midwives use a partograph on every labouring woman?	Yes	1
23	When do you fill-in the partograph?		1
24	How many deliveries are conducted per shift at your hospital?		
25	How many labouring women do you look after in an 8 hour shift?		
26	Do you think as a midwife you are over-worked?	Yes	1

No	Question	Response	Score
27	Why do you think you are or not over-worked?		
28	What do you prefer to use when monitoring a woman in labour?	Partograph	1
29	Would you document parameters on the partograph if labour is progressing normally?	Yes	1
30	Why would you document the parameters?		
31	Is it important to monitor progress of labour?	Yes	1
32	Why is it important to monitor progress of labour?		
33	What labour complications have you detected before by using partograph as you monitored labouring women?		
34	What do you think should be done to improve use of partograph in the management of women in active phase of labour?		
Total			15

APPENDIX VIII: **WHO PARTOGRAPH**

Front page of Zambia's modified WHO Partograph



Back of WHO Modified Partograph

USING THE PARTOGRAPH

Patient information: Fill out name, gravida, para, hospital number, date and time of admission and time of ruptured membranes.

Fetal heart rate: Record every half hour.

Amniotic fluid: Record the color of amniotic fluid at every vaginal examination:

- I: membranes intact;
- C: membranes ruptured, clear fluid;
- M: meconium-stained fluid;
- B: blood-stained fluid.

Moulding:

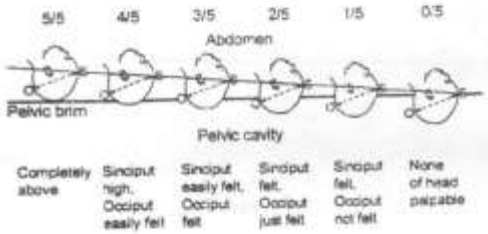
- 1: sutures apposed;
- 2: sutures overlapped but reducible;
- 3: sutures overlapped and not reducible.

Cervical dilation: Assess at every vaginal examination and mark with a cross (X). Begin plotting on the partograph at 4 cm.

Alert line: A line starts at 4 cm of cervical dilatation to the point of expected full dilation at the rate of 1 cm per hour.

Action line: Parallel and 4 hours to the right of the alert line.

Descent assessed by abdominal palpation: Refers to the part of the head (divided into 5 parts) palpable above the symphysis pubis; record as a circle (O) at every vaginal examination. At 0/5, the sinciput (S) is at the level of the symphysis pubis.



Hours: Refers to the time elapsed since onset of active phase of labour (observed or extra polated)

Time: Record actual time.

Contractions: Chart every half hour; palpate the number of contractions in 10 minutes and their duration in seconds.

- Less than 20 seconds: ⬚
- Between 20 and 40 seconds: ▨
- More than 40 seconds: ■

Oxytocin: Record the amount of oxytocin per volume IV fluids in drops per minute every 30 minutes when used.

Drugs given: Record any additional drugs given.

Pulse: Record every 30 minutes and mark with a dot (•).

Blood pressure: Record every 4 hours and mark with arrows.

Temperature: Record every 2 hours.

Protein, acetone and volume: Record every time urine is passed.

WHO Modified Partograph

DESCRIPTION OF LABOUR

MEMBRANES RUPTURED: Spontaneously / Artificially……..

Date ……at……hrs. 1st stage began……
……..at……..duration……hrs}

Abnormality……} TOTAL

2nd stage began……at……duration……..hrs } HOURS

Abnormality…… }

3rd stage began …….at……. duration …….hrs }

Abnormality …… }

CHILD DELIVERED ……at.....As……..

PLACENTA DELIVERED (date)…….at……hrs. Naturally, Brandt-Andrews, CCT method. Manually, AMTSL

Complete / Incomplete……. Type…… weight …… Condition …….....

CORD: Number of blood vessels…… Mode of insertion ……. Cord around neck …….

LACERATIONS/ EPISIOTOMY: Repair ……

BLOOD LOSS: Amount…….before/with/after placenta.

OBSERVATIONS POST DELIVERY:

MOTHER: General condition……..

Temperature……..…… pulse…….. Respirations……BP……

Uterus……... PV bleeding…… Bladder…….

Summary of delivery notes……

……
……
……
……
……
……