

IMPLEMENTATION OF PARTOGRAPH AND OUTCOME OF LABOUR AT CHIPATA GENERAL HOSPITAL

BY

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DECLARATION

I declare that the work presented in this Dissertation for the Masters degree in Nursing is my own independent investigation and has not previously been submitted at this or any other institution.

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APPROVAL

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ABSTRACT

Worldwide use of the partograph in monitoring of labour has been proven to reduce maternal and infant morbidity and mortality. Zambia has one of the highest maternal mortality in the world. The Eastern Province of Zambia, particularly Chipata District had the highest levels accounting for 76% of the maternal deaths in the province in a research done in 1998.

The purpose of this study was to provide baseline data on the implementation of the partograph and outcome of labour at Chipata General Hospital with a view to reducing maternal deaths.

A prospective and descriptive study, with both, qualitative and quantitative research components, was conducted in maternity ward at the hospital from May to August 2005.

A review of 246 partographs of women who had delivered at Chipata General Hospital was conducted with the aid of a checklist. In addition, a focus group discussion with ten midwives working in maternity ward was conducted.

In this study, high monitoring of labour means that observations were carried out and partograph was filled in consistently, while medium

monitoring means inconsistent observation and low monitoring referred to inconsistent or no observation having been carried out. Similarly, poor outcome meant that the woman had complication(s) during labour or within the first twenty-four hours of delivery. Good outcome means that labour progressed without complications.

The study revealed that low monitoring was associated with poor outcome of labour. About 50% of the women had low monitoring of the maternal condition during labour and 30.4% of them had moderate monitoring while only 23.7% had consistent monitoring. Further, 10.9% of the women with low monitoring of maternal conditions had poor outcome of labour, while 6.0% of them with moderate monitoring also had poor outcome. Age in relation to maternal outcome showed that poor outcome was high among women aged 20 –29 years.

The study has also revealed that outcomes of labour at Chipata General Hospital do not correlate with partograph use. Monitoring of the fetal condition was low and 8.9% of the babies had severe asphyxia while 11.8% of them had moderate asphyxia.

During the study period there were a total of 729 deliveries, 126 caesarean sections, three maternal deaths, one ruptured uterus and 24 fresh stillbirths. .

Although the partograph is being used at the hospital, this study has demonstrated that it is not being used properly given the poor outcomes of labour during the study period. The equipment and resources needed to implement the use of partograph were usually not available. These included the partographs, gloves, thermometers, and sphygmomanometers. This situation had made it difficult for midwives to use the partograph according to expectations. There was also critical shortage of midwives and a few of those available were observed to have a negative attitude towards the use of partograph.

If the implementation of the partograph has to be effective at the hospital, the midwives should use it correctly everyday. As the study shows, there are a number of negative attitudes notwithstanding shortages and the lack of equipment. The authorities should thus provide adequate supportive supervision to the staff working in the maternity ward and they should also ensure at all times that there is adequate staffing, equipment and reliable source of supplies in the maternity ward. Monitoring of women with the partograph should not be selective. In addition it is necessary for the hospital to develop management protocols that should accompany partograph use. There is also need to have a maternal death audit considering the number of deaths (3) in such a short period of the study.

DEDICATION

This study is dedicated to my family and to the Almighty God, whose love and grace abounds.

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
A/S	Apgar Score
CBoH	Central Board of Health
CGH	Chipata General Hospital
cm	centimetre(s)
CPD	Cephalo-pelvic disproportion
C/S	Caesarean Section
DHS	Demographic and Health Survey
FGD	Focus Group Discussion
FSB	Fresh Stillbirth
GMO	General Medical Officer
GNC	General Nursing Council
HIV	Human Immune Deficiency Virus
ICM	International Confederation of Midwives
MDGs	Millennium Development Goals
MOH	Ministry of Health
MSB	Macerated Stillbirth
PIH	Pregnancy Induced Hypertension
PPH	Post partum Haemorrhage
VVF	Vesico - Vaginal Fistula
UNICEF	United Nations Children's Emergency Fund
UNFPA	United Nations Population Fund
Sida	Swedish International Development Aid
SMI	Safe Motherhood Initiative
SRMO	Senior Resident Medical Officer
SVD	Spontaneous Vaginal Delivery
WHO	World Health Organisation
ZDHS	Zambia Demographic and Health Survey

CHAPTER ONE: INTRODUCTION

1.1 Background Information

Women comprise about 50% of the world's population, carry the burden of the world's work hours, receive 10% of the world's income, and own 1% of the world's property (UNICEF, 1980). In Zambia, there are slightly more women than men, making up 51% of the population (ZDHS, 2001-2002). Worldwide, motherhood is held in high esteem in recognition of the women's contribution to the perpetuation of the human species and the nurturing of its offspring including provision of health services for the family. It is from these very functions that an estimated half a million women in the world die every year due to complications of pregnancy and childbirth (WHO, 2004). Women are vulnerable biologically and socio-economically at the same time. In many less developed countries, to which Zambia belongs, women are viewed as productive and reproductive machines. Their fertility is prized and they are divorced if they bring no offspring, rejected or beaten if they produce female offspring, stigmatised if they are raped and, in India, rejected and sometimes burned if they do not bring enough dowry (Williams et al, 1994).

In the Zambian tradition, every woman is expected to get pregnant and it is a must that she bears a child. Sometimes however, pregnancy may end up as a tragedy where the mother, baby or both may end up with some complications such as vesico-vaginal fistula in the mother, or mental subnormality in the infant as a result of intracranial injury or death of both. The obstetric or direct causes of maternal morbidity and mortality are attributed to postpartum haemorrhage, eclampsia, sepsis, obstructed labour, ruptured uterus and abortion and are a result of the pregnancy state. The indirect causes are pre-existing diseases that are aggravated by pregnancy and are attributed to diseases such as malaria, anaemia, malnutrition, sexually transmitted infections and HIV/AIDS (UNICEF, 1996; MOH, 2004).

Labour has three stages. The first stage of labour is the longest stage of the process of childbirth lasting an average of 16 hours in the first delivery and 11 hours in subsequent deliveries (Sellers, 1997). The second stage is from full dilatation of the cervix to the birth of the baby and lasts 30 minutes in multigravidae and 60 minutes in primigravidae. The third stage is from the birth of the baby to the expulsion of the placenta and membranes. The subsequent stages to a large extent depend on how well the first stage of labour had been monitored. It is during this stage that the partograph is used to monitor the impending complications in the mother, fetus, or both.

1.1.1 Partograph and its use in monitoring labour

The partograph (Appendix 1) is a printed graph representing the stages of labour. Once a woman is in labour the midwife is required to regularly plot the descent of the baby as well as the dilatation of the cervix to help keep track of whether the woman's labour is progressing normally and if intervention may be needed. Thus, having a visual representation of the conditions of both mother and fetus, it is possible for both midwives and doctors to decide when to intervene if labour is not progressing as expected.

The WHO partograph has been modified to make it simpler and easier to use. The latent phase has been removed and plotting on the partograph begins in the active phase when the cervix is 4 cm. The midwife records personal information of the woman, which includes: name, gravida, parity, hospital number and date, time of admission and time when the membranes ruptured.

Fetal heart rate is recorded at the top of the graph every half hour. Each square represents 30 minutes. The beats per minute indicated on the partograph ranges from 100 – 180 with the lines for 120 and 160 beats per minute being represented with darker lines to remind the midwife or doctor that these are the

normal limits. When beats per minute are less than 120 or more than 160, it should show instantly that there is a problem, which requires immediate attention.

An observation of the fetal heart in Zambia is commonly done by using a Pinard's fetal stethoscope. However, sonicaid and the cardiotocograph are also used when available.

The colour of amniotic fluid is recorded at every vaginal examination. The membranes are determined by vaginal examination as to whether they are intact or ruptured. If ruptured liquor can be seen draining, the characteristic of the liquor and time of rupture is indicated. Amniotic fluid is recorded as clear ('C'), blood stained ('B') or meconium-stained ('M') and ('I') for intact membranes.

Moulding is assessed on vaginal examination by feeling the overlapping of fetal skull bones at the sutures. Moulding can be recorded as follows: bones are separated and the sutures can be felt easily (0); bones are just touching each other (+); bones are overlapping and can be separated (++); bones are overlapping severely and cannot be separated (+++).

Cervical dilation is assessed at every vaginal examination and is the most important observation to monitor progress of labour. The dilatation is recorded as a circle (0). It also indicates the onset of labour.

Descent of the head is assessed by abdominal examination in fifths (5ths) and confirmed on vaginal examination by stations of the fetal head in relation to the ischial spines. The descent is recorded as a triangle (Δ).

The actual time is recorded in relation to all the above, especially cervical dilation and descent, with the time of admission as zero time. Hours refers to the

time elapsed since the onset of active phase of labour (observed or extrapolated).

Contractions are assessed along with cervical dilatation and descent of the fetal head into the maternal pelvis. The contractions indicate progress of labour and they are recorded under the time line. Contractions are observed every half hour by feeling with h and p laced on the abdomen of the mother in labour for 10 minutes or more or by electronic monitor that records the fetal heart and contractions simultaneously (cardiotocograph). This assists to show the relationship between the contractions and fetal heart rate.

Similarly, the amount of oxytocin given per volume of intravenous fluids in drops per minute is recorded every 30 minutes when used. Any additional fluids given and drugs administered are recorded.

Blood pressure is recorded every 4 hours and marked with arrows, while pulse is recorded every 30 minutes and marked with a dot (•). Temperature is recorded every 2 hours. The woman during progress of labour is encouraged to pass urine 2 – 4 hourly, the amount is recorded every time urine is passed and tested for protein and ketones.

In order to help the midwife or doctor to detect any abnormal progress of labour, an alert line is drawn horizontally from the 4cm cervical dilation at the start of cervical graph. A second diagonal line (the action line), is drawn parallel to and 4 hours to right of the alert line (WHO, 1996; Sweet, 1999).

In 1994, the World Health Organization issued a recommendation that the partograph, be used in all labour wards and health facilities as a way to identify labours that might require interventions. Use of the partograph saves women's lives by ensuring that labour is closely monitored and that life-threatening complications such as obstructed labor are identified and treated.

The Government of the Republic of Zambia, like many other countries in the world, has recognised the importance of the partograph in reducing maternal and infant morbidity and mortality. Chipata General Hospital is one of the hospitals in this country that has shown a positive response towards the use of the partograph in monitoring women in labour.

1.1.2 Midwives and the partograph: regulatory framework

Professional midwifery training and practice is one of the most important strategies that the Zambian Government, through the General Nursing Council (GNC) of Zambia has put in place to deal with the burden of maternal morbidity and mortality. In Zambia, registered and enrolled nurses go through a specialised training in midwifery under the Nurses and Midwives Act Cap 538 of 1970 and revised Act number 31 of 1997. During training, student midwives undergo intensive training in the use of the partograph and are expected to use it with confidence by the time they are graduating.

The Nurses and Midwives Act Number 31 of the laws of Zambia and the International Confederation of Midwives (ICM) give midwives the power to practice in their own right and the partograph is the only tool that can be used as preferential evidence should any legal proceedings be instituted against the midwife. Currently there are four registered and five enrolled midwifery training schools in Zambia where the government trains midwives.

Observations that are carried out on the woman in labour by the midwife and the accurate recording of these observations are known as monitoring of labour (Sellers, 1997). This is where mistakes or misjudgements can be made, which can have serious consequences for the woman, the fetus or both.

Midwifery care is based on the scientific process of assessment, planning, implementation and evaluation and it is evidence-based to facilitate the development of knowledge and skills required for improvement of client care.

The minimum competencies expected from nurses and midwives include comprehensive documentation of midwifery care activities using appropriate tools such as the partograph and formats to facilitate continuity and evidence of the care given.

The GNC has developed a regulatory framework to guide the practice of midwifery in Zambia. The regulatory framework (GNC, 2001) describes the minimum acceptable parameters for professional nursing and midwifery practice in Zambia. The framework reaffirms midwifery as an autonomous, self-regulating profession whose interventions are based on scientific principles of practice.

The scope of practice and standards of care in the regulatory framework provide a yardstick not only for evaluating the quality of care provided in different settings but also enhance the contributions of midwifery to the performance, goals and objectives of the national health reforms in Zambia.

1.1.3 Safe motherhood in Zambia

In Zambia, the Safe Motherhood Initiative was adopted in 1996 following an initial assessment by WHO in conjunction with UNICEF. It focuses on antenatal care, integrated postnatal family planning services, clean and safe delivery, emergency obstetric care, intrapartum care and adolescent reproductive health.

The Government of the Republic of Zambia is committed to the objective of improving the quality of life of all Zambians. Reproductive health is one of the priorities in the national health strategic plan. In order to strengthen service provision and improve reproductive health outcomes, the Government through the Ministry of Health and the Central Board of Health has reached an advanced stage in finalizing a national integrated reproductive health policy to guide

national planning in conformity with health reforms (MOH, 2004). The draft policy, however, lacks prominence on the use of the partograph in Zambia.

In 1993, the government introduced user fees for health services. However, in an effort to reduce maternal morbidity and mortality, free antenatal and delivery care services are provided. But, despite the policy of free maternal services, women are still being charged indirectly whenever they delivered in the hospital by being asked to provide their own gloves, cord clamps and some times fluids and drugs. This phenomenon was consistent with the findings in a study of accessibility of women to secondary obstetric care by Zulu (1999) in which she found that women were charged a considerable amount of admission and delivery fees.

In 2004, the MOH developed a 'road map' for accelerating the attainment of the Millennium Development Goals (MDGs) related to maternal and newborn health in Zambia (MOH, 2004) that calls for reduction in maternal and infant morbidity and mortality.

1.1.4 FACTORS AFFECTING THE IMPLEMENTATION OF THE PARTOGRAPH

There are various reasons that could influence the effective implementation and adoption of the partograph in Zambia in general and CGH in particular. Some of them could be the following:

1.1.4.1 Training Related Factors

Educational background of the midwives could be an important contributing factor. According to the Oxford English Dictionary (1999) knowledge is familiarity gained by experience. Midwives are trained to carryout midwifery functions using the right knowledge skills and attitudes. Midwives need

knowledge and understanding of how to use and interpret the partograph and be able to use it to gain experience. Young midwives may not have enough experience in the use of the partograph and may be afraid to use the partograph for fear of making errors this too can have influence on the on the use of partograph. Inexperience causes apprehension for fear of making mistakes and this can lead to poor use and interpretation of the partograph. Experience comes with practice. Although the partograph may appear complicated at first glance, doctors, midwives and student midwives can use it with ease accurately and with confidence. Nursing officers and ward in-charges may no longer be checking what midwives are doing. Inadequate supportive supervision and lack of appreciation of the value of the partograph by supervisors can lead to poor utilization of the tool.

The majority of midwives may not have attended a refresher course since they graduated from training institutions to update them on new knowledge and skills in using the WHO partograph. The modified WHO partograph is in use in some health institutions in Zambia and in many parts of the world and has been found to be easier to use (WHO, 2000). In Zambia there are variations in the type of partographs used in health institutions. Some institutions use the one with the transfer line while others use the modified one without the transfer line. The lack of standardisation of the partograph can cause confusion in the users.

In Zambia, there are two categories of midwives. The enrolled midwife, who usually has lower academic pre-requisites for training as a nurse or midwife, usually works in isolation in primary health care centres and therefore requires more intensive training in use of the partograph.

Some midwives may have a negative attitude towards the partograph and tend to continue unscientific ways of monitoring labour such as writing observations on plain pieces of paper. These negative attitudes tend to influence the newly qualified midwives who join the institutions

1.1.4.2 Service Related Factors

Lack of essential medical, surgical supplies and equipment such as thermometers, sphygmomanometers, stethoscopes, fetal stethoscopes and gloves can make it difficult to monitor the fetal and maternal well being when using the partograph.

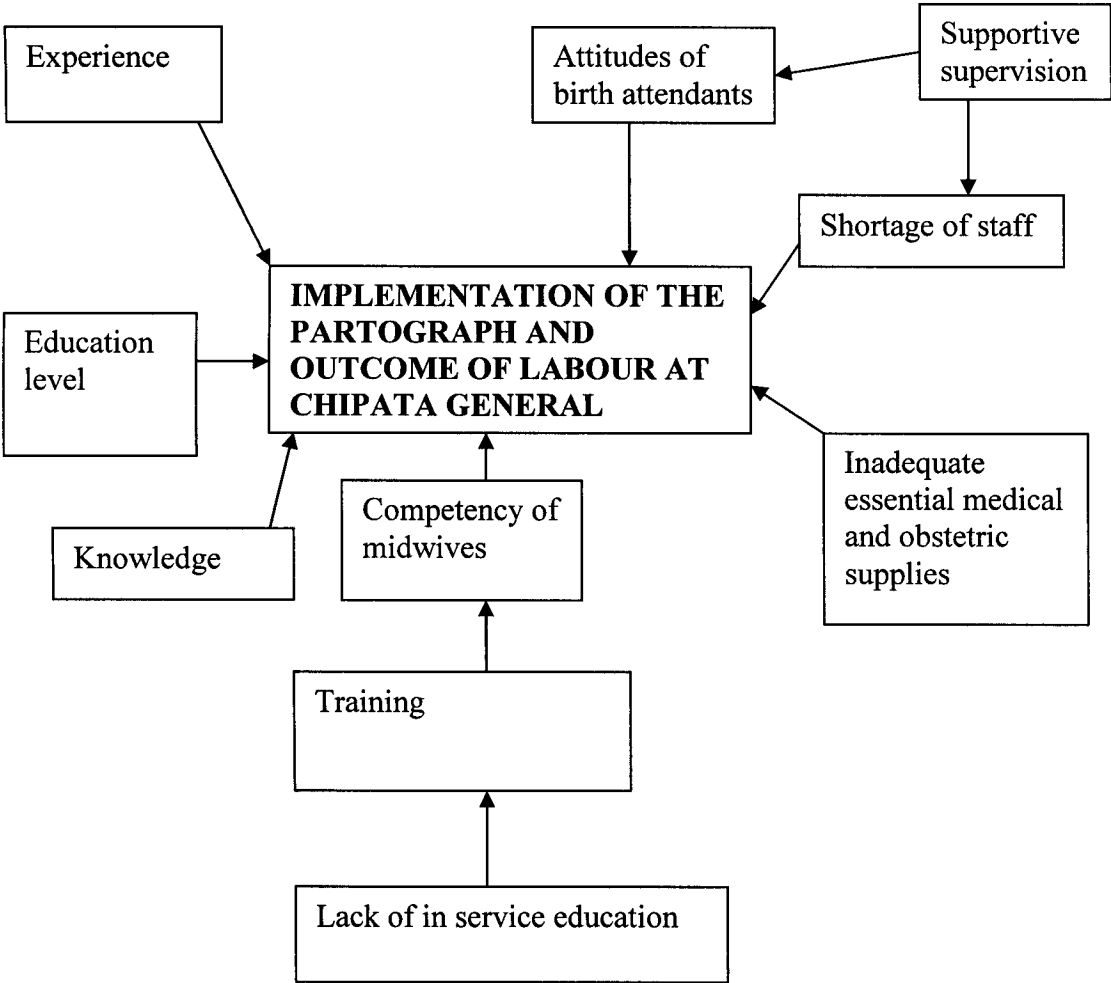
Shortage of midwives is also an important factor. Monitoring of a client in labour requires close observation and recordings by the midwife at very short intervals. When there are so many clients to look after at the same time, a midwife becomes overwhelmed with work and may not utilise the partograph as expected and may become vulnerable to using shortcuts. As a result of the shortage one midwife is expected to work alone in labour ward with a large number of clients in labour.

All the above-mentioned factors are summarised in Figure 1 in a problem analysis diagram below.

Figure 1: PROBLEM ANALYSIS DIAGRAM

Training related factors

Service related factors



1.2 STATEMENT OF THE PROBLEM

The use of the World Health Organisation partograph, which has been widely tested, clearly differentiates normal from abnormal progress of labour and identifies those women likely to require intervention (Kwast, 1994). The Government of the Republic of Zambia, like many other governments in the world, has recognised the importance of the partograph in reducing maternal and infant morbidity and mortality.

Despite the measures of antenatal, intrapartum, and postnatal care, that have been put in place to reduce maternal morbidity and mortality, the incidence of maternal mortality in Zambia has continued to rise from 200:100,000 live births in the 1980s to 649:100,000 live births in 1996 and 729:100,000 live births in 2001-2002 (CSO, 1986, 1996, 2001-2002). A study on factors associated with maternal mortality in Zambia by Nsemukila et. Al. (1998) found that Eastern Province, particularly Chipata District had the highest levels of deaths accounting for 76% of the maternal deaths in the province.

Even though the partograph is associated with good outcomes of labour, reported cases of maternal and newborn morbidity and mortality at Chipata General Hospital had remained constantly high (Appendices 2 and 3). The lives of many women and babies could have been saved if the partograph had been used properly.

Whenever a woman dies or becomes ill or is injured either during or shortly after giving birth, the consequences have the potential to affect not only the woman herself, but also her family and her community in a variety of ways. Maternal morbidity and mortality can have health effects such as malnutrition and psychological costs for women, children and other family or household members. In addition children's schooling, supervision, and care may be affected by their mother's morbidity or mortality. Children from such homes

become vulnerable because they depend on the mother for their survival. These may end up on the street as orphans due to neglect and may suffer the many vices found on the street such as crime, prostitution, HIV/AIDS and rape. Thus increased maternal mortality can cause an increase not only in infant mortality but also in street kids and orphans in Zambia.

In view of the serious consequences of maternal and infant morbidity and mortality a research on the usage of the partograph as a monitoring tool at Chipata General Hospital (CGH) was conducted.

1.3 JUSTIFICATION OF THE STUDY

Despite partograph use at Chipata General Hospital, there continues to be high levels of maternal and neonatal deaths many of which could have been avoided through correct and consistent use of the partograph. There is need therefore, to find out how the partograph is being implemented at the hospital.

The findings of the study will be used to recommend to appropriate authorities, measures likely to improve use of the partograph in order to achieve good outcomes of labour.

1.4 OBJECTIVES

1.4.1 General objective

The general objective of this study is to find out how the partograph is being implemented at Chipata General Hospital in order to make policy recommendations with a view to strengthening the safe motherhood programmes and ultimately reduce maternal mortality.

1.4.2 Specific objectives

The following are the specific objectives of the study.

1. To assess the interpretation of the partograph at the hospital.
2. To assess the attitude of midwives towards the use of the partograph.
3. To assess outcomes of labour.
4. Make recommendations to relevant authorities

1.5 HYPOTHESIS

There is a relationship between use of partograph and outcome of labour.

If the partograph is adequately used there will be good outcomes in labour while on the other hand if the partograph is not adequately used good out come of labour are not to be expected.

1.6 OPERATIONAL DEFINITIONS

Asphyxia:	A condition in which a viable newborn infant fails to initiate and or sustain respiration after delivery.
Apgar Score:	A method of assessment of the health condition of the baby at birth.
Emergency obstetric care:	The ability to carry out surgery, provide intravenous infusions and blood transfusion.
Fetal well being:	Refers to the health condition of the baby during labour.
Good fetal outcome:	Baby born without asphyxia
Poor fetal outcome:	Baby born with asphyxia
Good maternal outcome:	A delivery to a healthy mother with no complications.
Maternal morbidity:	Refers to diseases or illnesses that result from effects of pregnancy, labour or puerperium.
Maternal mortality:	Death of a woman as a result of pregnancy, childbirth or within 42 days after abortion or childbirth.
Maternal well being:	Refers to health condition of the woman in labour.
Midwife:	A nurse who has undergone specialised training in midwifery.
Multiparous:	A woman who has given birth more than once.
Nullipara:	A woman who has never given birth.
Partograph:	A graphic record of all observations made on a woman in the first stage of labour.
Primigravida:	Being pregnant for the first time.
Poor maternal outcome:	Refers to unfavourable outcome of labour characterised by a complication.
Poor monitoring:	Inconsistent or no observation done.

1.7 VARIABLES, INDICATORS AND CUT OFF POINTS

1.8.1 DEPENDENT VARIABLE

Outcome of labour

No.	Variable	Indicator	Cut off points
1	Fetal outcome	Mild or no asphyxia	Apgar score at 5 minutes: 7 – 10
		Moderate asphyxia	Apgar score at 5 minutes: 4 – 6
		Severe asphyxia	Apgar score at 5 minutes: 0 – 3
2	Maternal outcome: Outcome of delivery will be checked and a total of 4 points will be awarded. (See Appendix 4)	Good	3 – 4 points
		Poor	0 – 2 points

1.8.2 INDEPENDENT VARIABLES

No.	Variable	Indicator	Cut off points
1.	Monitoring of fetal wellbeing: Three aspects will be checked and a total of 12 points will be awarded.	High	If the total score on the check list is 9–12 points
		Moderate	5–8 points
		Low	0 – 4 points
2	Monitoring of progress of labour: Three aspects will be checked and a total of 12 points will be awarded	High	9– 12 points
		Moderate	5 – 8 points
		Low	0 – 4 points
3	Monitoring of maternal wellbeing: Four aspects will be checked and a total of 16 points will be awarded	High	9 – 16 points
		Moderate	5 – 8 points
		Low	0 – 4 points

CHAPTER TWO: LITERATURE REVIEW

2.1 Utilization of the Partograph

One of the significant advances in the management of labour in recent decades is the use of partograph. This is a graphic record of all observations about progress of labour and the condition of a woman and her fetus during labour.

The purpose of the partograph is to detect complications during labour and reduce maternal and perinatal morbidity and mortality. The consequences of prolonged and obstructed labour for the mother include: maternal dehydration, infection, haemorrhage, ruptured uterus and obstetric fistulae. In the case of an infant the prolonged obstructed labour may cause asphyxia, brain damage, infection and death.

Friedman (1930) in the United States of America did the original work on cervical dilatation. He identified the pattern of progressive cervical dilatation in normal labour and developed guidelines for judging whether the progress of labour was within normal limits. These were later translated into the well-known Friedman curve. In the 1960s and 1970s, research by Professor Philpott (1972) in Southern Rhodesia (Now Zimbabwe) improved the process of monitoring progression of labour by use of the partograph and built a scientific basis for intervention to arrest prolonged labour.

These early partographs formed the foundation for the WHO model of the partograph that was developed as an international standard in 1988, following the launch of the worldwide Safe Motherhood Initiative (SMI). The partograph is thus a vital tool for health care providers, which should be able to help them identify complications in childbirth in a timely manner and at the same time refer women to appropriate facilities for specialized management.

Several studies have been conducted on the effectiveness of the partograph. The World Health Organisation (WHO) conducted a multi-centre study in Indonesia, Malaysia, and Thailand in 1990-1991 to evaluate the impact of the partograph. The study revealed that when the partograph was introduced into clinical practice along with management protocol, outcomes of labour were greatly improved. As a result of this study WHO recommended that the partograph be used in monitoring women in labour to identify those who may need interventions during labour.

Similarly, in a study conducted by Rahbar (2001) at Al-Zahar Educational Hospital on the effectiveness of the partograph, indicated that using partograph on the first stage of labour in pregnant women had decreased the number of caesarean operations in the hospital. In Egypt, Alleen et al. (1992) evaluated the effects of the partograph on the outcome of labour and delivery. The results of the study showed a significant increase in spontaneous vaginal deliveries from 77.9% to 94.7%. Extensive maternal injuries to the cervix and rectum disappeared after the introduction of the partograph. Perinatal mortality also dropped from 1.81% to 0.94%. The study showed that the use of partograph had provided a rational approach to monitoring labour with the elimination of prolonged labour and unnecessary operative interventions. An evaluative study of the importance of the WHO partograph on management and outcome of labour by Kwast et al (1987) showed reduction in augmentation of labour and emergency caesarean section after the introduction of the tool. In another development, a review by Luck (2000) of the SMI intervention in Africa by Luck (2000), found that in Niger, the mean duration of labour was reduced when the partograph was used.

In a study conducted in Harare by Gunna (1993) it was revealed that Zimbabwe through use of the partograph, avoided approximately 80% of caesarean sections in primigravida and perinatal mortality was also reduced by 75%. A midwife teacher from Malawi (WHO, 1991) illustrated the importance of applying

critical thinking to the practice of midwifery while using the partograph. She demonstrated that, in spite of it being a vital tool for monitoring labour it also provides a valuable mechanism for assisting midwives to adopt critical approaches in the systematic review and evaluation of a woman in labour, her baby or both.

In Zambia, studies on the utilization of the partograph have been conducted. A study on a safe delivery in Lusaka Urban Health Centres by Mati et al (1994) revealed that there was a decline in the utilization of the partograph by midwives after training. According to Mati's study, the midwives attributed their failure to different designs of the Partogram in the areas of practice. Another study in Lusaka, by Kambole (1998) also revealed that the partograph was not being utilised as expected. However, the same study showed that those who used the partograph were able to detect some serious complications of labour and hypertensive disorders. Arvidson (2005) in her study on maternity routines in Zambia reported that fetal monitoring was inconsistent and the partograph was not used or it was lacking.

The relationship between prolonged labour and adverse maternal and fetal outcome is the reason why it is important to accurately monitor the progress of labour. Slow progress should be a reason for evaluation. Several measures have been proposed to prevent delay in the progress of labour; sometimes these actions are taken long before the action line or even the alert line of the partograph is reached.

Labour as a culmination of pregnancy is a special time, both emotionally and physically for each woman and it should be a joyous event with the delivery of a live infant to a healthy mother. It is also, however, a time of intense physical activity, stress and pain and may be a time of danger. A prolonged labour of over 18 hours, can lead to maternal exhaustion and death (WHO, 1994). More than a million women in Africa survive obstructed and prolonged labour but

only to suffer obstetric fistulae, a condition causing incontinence which often leads to a woman's rejection by her partner, family and society; leaving her destitute and ashamed (Abou-Zahr, 1994).

The partograph does not replace adequate screening of women on arrival to exclude conditions that require urgent attention or immediate transfer. It is designed for early detection of abnormal progress of labour and the prevention of prolonged labour, which would significantly reduce the risk of postpartum haemorrhage and puerperal sepsis, and eliminate obstructed labour, uterine rupture and its sequelae.

2.2 Monitoring of Fetal Well-being

The fetus within the woman could be said to be the hidden client of the midwife. Whilst the woman is the central focus and her safety being of paramount importance, the entire purpose of midwifery care pivots around the presence of the fetus according to Bennet (1999). Fetal monitoring during labour aims at providing sufficient information to the clinicians to diagnose fetal well-being. According to Roswell (2004), intrapartum fetal monitoring is justified on the basis that fetal morbidity can exert a profound influence on fetal outcome and that intervention can be made on behalf of the fetus on time. In his study on fetal monitoring using a phonogram, Roswell (2004) recommends that a more comprehensive understanding of fetal pathology is necessary. He further observed that recognition of fetal asphyxia is likely to be furthered by monitoring additional fetal activities like the heart rate and that this would improve fetal outcomes in due course of labour.

In the study conducted by Menihan (1999) on the effects of uterine rupture on fetal heart rate patterns, it was observed that the only predictable feature to the impending uterine rupture was the sudden drop of the fetal heart rate. Thus it is crucial to make full clinical review of maternal well being following detection

of the fetal heart rate abnormalities. It is also crucial to remember that fetal heart rate monitoring is only one aspect of the clinical picture of a woman in labour. Decisions about management should always be made in the light of the total clinical picture.

In Zambia monitoring of the fetal heart rate is done intermittently by using a Pinard's fetal stethoscope, an inexpensive appropriate technology that can be made readily available in all health institutions. The rate of the fetal heart should be counted over a complete minute in order to allow for variations and it should be between 120-160 beats per minute. Any noticeable irregularity in the rhythm should also be noted.

2.3 Monitoring of Maternal Well-being

Throughout labour and delivery, the woman's physical and emotional well-being should be regularly assessed. This implies measuring of temperature, pulse and blood pressure, checking fluid intake and urine output, assessing pain and need of support. This task of monitoring should be maintained until the conclusion of the birthing process.

Women vary in their reactions to labour. Some may view contractions experienced as a positive, motivating force while others view them as pain and suffering (Bennet, 1999). As pointed out by Mackey (1989), the midwife can do much to encourage and help the mother whose expectation is to be sustained by another human being to have relief from pain and to have a safe outcome for self and fetus. The midwife's attention on the woman can help to absorb and deflect some of her anxieties.

Monitoring of a woman's pulse rate, temperature and blood pressure during labour is mandatory. Steady pulse is an indication that the woman is in good condition. Bennet (1999) explains that an increase of the pulse rate to more than

100 beats per minute may be indicative of infection, haemorrhage and also a key sign of ruptured uterus.

Temperature is expected to remain within the normal range. Measuring the temperature every two hours, according to the WHO partograph, is important, because any rise in temperature may be a first sign of infection, and thus may lead to early treatment, especially in case of prolonged labour and ruptured membranes; this may prevent sepsis. Sometimes it may be a sign of dehydration. Raised temperature is indicative of infection or ketosis implying starvation (Sellers, 1997). A woman who develops infection should be commenced on a course of antibiotics to control the infection and prevent puerperal sepsis.

Taking the blood pressure at the same intervals is an important check on maternal well-being. A sudden rise in blood pressure can also indicate the need to expedite delivery or transfer of the woman to a higher level of care.

2.4 Assessment of Progress of Labour

An initial abdominal examination is carried out when the midwife first examines the mother on admission. This is a baseline examination and should be repeated at intervals throughout labour in order to assess the length, strength and frequency of contractions and the descent of the presenting part (Bennet, (1999).

A study by Khan (1995), at Aga Khan University Medical Centre, Karachi, determined that graphic labour record on the partograph helps to predict the risk of uterine rupture in labour. In the study, observation of the action line in relation to progress of labour helped to detect prolonged labour and prevents uterine rupture in a woman with previous caesarean section.

Vaginal examination is one of the essential diagnostic actions in the assessment of the start and the progress of labour. Only a midwife or a doctor should

conduct it. The number of vaginal examinations should be limited and restricted as much as it is necessary; during the first stage of labour usually once every 4 hours is enough, as prescribed in the manual for the use of the partograph (WHO, 1993). If labour passes off smoothly, experienced birth attendants can sometimes limit the number of examinations to one. Ideally, that would be the one examination necessary to establish active labour, that is, to confirm the fact that there is dilatation of the cervix (the most objective criterion of active labour). Another practice in the management of labour is to only perform a vaginal examination when there is an indication for the need, for example when the intensity and frequency of the contractions decrease or with the signs of heavy show or the urge to push, or before the administration of analgesia.

2.5 Outcome of Labour

More than a decade following the global launching of the SMI, maternal and perinatal mortality and morbidity rates in Sub-Saharan Africa have regrettably continued to escalate instead of declining. The average maternal mortality ratio in the African region has risen from 870:100,000 live births in 1990 to 1,000:100,000 in 2001 (WHO, 2004). Approximately 13% of all maternal deaths are said to occur among the adolescents. The majority of disabilities, especially vesico-vaginal fistulae are also most prevalent in the adolescent age group. This was revealed in a study of quality of maternity care for adolescent mothers in Swaziland by Mngadi et al (2002). The study found that 50% of the adolescents developed complications and 27% had lower-segment caesarean section. Furthermore a prospective study of obstetric problems in adolescent Zambian mothers revealed that the commonest complication was prolonged labour (Chalwe, 1994). The study did not, however, mention as to whether the partograph was used or not for the researcher to conclude that labour was prolonged. From the above studies it would appear that use of the partograph to monitor labour in the adolescent women is very crucial.

It is evident from the literature review that the partograph gives health care providers objective data on which to base their clinical decisions and enhances communication among members of the obstetric team. Most pregnancy related complications can be effectively prevented or managed using simple and inexpensive technologies such as the partograph. Skilled management of labour by using a partograph, which is a simple chart for recording information on progress of labour and the condition of a woman plus the well-being of the baby during labour, is the main key to prevention and treatment of prolonged labour and its complications (JHPIEGO, 2004). In Zambia this tool is not an option but a necessity considering the high levels of maternal morbidity and mortality.

CHAPTER THREE: METHODOLOGY OF THE STUDY

3.1 Introduction

The aim of this study is to find out how the partograph was being implemented at Chipata General Hospital (CGH). The study was conducted from May to August 2005.

3.2 Research Design

A prospective and descriptive study with both qualitative and quantitative research components was conducted to examine the implementation of the partograph and outcomes of labour at CGH.

This design was preferred because the natural setting was not intended to be manipulated nor was any experiments to be carried out. The design was important because data were collected and presented systematically in order to give a clear picture of how the partograph was being implemented at CGH.

3.3 Research Setting

The study was conducted in the maternity ward of CGH. The hospital serves as the provincial referral hospital, which is situated within Chipata District at the provincial headquarters of Eastern Province of Zambia.

Chipata General Hospital receives obstetric case referrals from five districts, and yet does not have an obstetrician. In 2004 the hospital was reported to have served a total population of 1, 444,581 (CGH, 2004), which fell, within its catchments area. In addition it had a bed capacity of 450 beds. The labour ward had six (6) delivery beds while the main ward had 33 beds and three (3) incubators in the nursery. Maternity services are offered 24 hours a day.

The hospital is a practical centre for registered nurses. It also provides practical training for trainee clinical officers and pharmacy technologists from Chainama College of Health Sciences and Evelyn Hone Colleges respectively. The hospital is linked to the capital city of Zambia, Lusaka, by the Great East road and by air from Chipata and Mfuwe Airports.

3.4 Study Population

The study population comprised of all partographs for women who were delivered at the hospital and all midwives working in the maternity ward at CGH during the study period. There were 729 deliveries during this period and there were a total of 14 midwives.

3.5 Sample Selection and Sample Size

Convenience sampling of case records of all women whose labour was monitored with a partograph was done. Out of 729 total deliveries during the study period, only 246 were included in the study.

A sample comprising ten (10) midwives working in labour and postnatal ward was selected for Focus Group Discussion (FGD). The hospital has 29 midwives but only 14 midwives work in the maternity ward. A list of all midwives working in maternity ward was used as a sampling frame. The midwives were then listed 1 to 14 and ten of them were randomly selected using a table of random numbers.

3.6 Validity

Validity refers to the degree to which the instrument measures what it is supposed to measure (Polit, 1995, 2001). Validity in a research tool refers to its ability to obtain the needed data. In order to determine content validity, experts in the content area were called upon to analyse the tools to see if they adequately represented the content universe in the correct proportions and to give advice and input. To obtain valid data, questions were focused on factors that affect the implementation of partograph. The variables on the instruments had to include monitoring of maternal and fetal well-being as well as of progress of labour using the partograph. The researcher selects items to be included in the instruments with the aim of building content validity by carefully planning and execution of the specified research plan.

3.7 Reliability

Reliability is the degree of consistency or dependability with which an instrument measures the attribute it is designed to measure (Polit, 1995). A pilot study was conducted with a view to improve the checklist by modifying areas where it was difficult to obtain data. The checklist was used on 10% (46) of the study sample at an urban clinic in Chipata. It enabled the researcher to make necessary adjustments to the checklist that was used on the actual study and estimate the duration.

3.8 Data Collection

Data collection methods used in this study included record review with the aid of checklist and a focus group discussion. A review of labour ward records was done to obtain data about deliveries during the study period.

3.8.1 Record Review

Every morning, all records, including the partograph, pertaining to all deliveries were collected to be reviewed using a checklist.

A checklist (Appendix 4) was developed and used to collect data about monitoring of fetal and maternal well-being, as well as progress of labour from the partographs of the women who delivered during the study period. The checklist contained four sections. The first section contained items relating to monitoring of fetal well-being. The second section contained items relating to monitoring progress of labour. The third section contained items relating to the monitoring of maternal well being. The fourth section contained items relating to the outcome of labour. The outcome of labour was subdivided into maternal and fetal outcomes. Demographic data of the women were obtained from the case records.

3.8.2 Focus Group Discussion

In this study one focus group discussion was held with ten (10) midwives working in the maternity ward at the hospital with a view to finding out how they used and interpreted the partograph and to determine their opinion towards the use of partograph. A focus group discussion guide was used.

Participants were randomly selected and notified of the discussion in advance, stating the venue, time and date. The researcher moderated the discussion with the help of an assistant who was recruited and trained about what to record and how to conduct the FGD. The recorder took down notes of the proceedings of the discussion. A tape recorder was not used. Limitations of FGD were taken care of by selecting a suitable venue to avoid disruptions and ensuring full participation of each member of the group and that views of individual participants were not suppressed by any member in the group. Before the

interview the researcher introduced herself and the recorder. The purpose of the discussion was explained to the participants and consent was obtained from them. Each participant was given chance to participate in the discussion. After the discussion the researcher summarised and thanked every one for participating.

3.9 Eligibility Criteria

- Only midwives working in maternity ward during the study period were considered.
- Only women who had partographs opened during delivery at CGH were considered.

3.10 Ethical Considerations

The researcher obtained written consent from the Research Ethics Committee of the University of Zambia (Appendix 6) and Director of Chipata General Hospital (Appendix 8) for ethical approval before commencing the study. Participation was strictly voluntary so that the rights of participants were not violated. Participants were informed that any information they gave would be generalised. The overall purpose of the study was explained. The use to which the research information would be put was also described to the participants. They were informed of any possible emotional aspects that they may experience. They were informed how they were selected for recruitment into the study and the number of people in the study. The participants were assured that their privacy would at all times be protected. Written consent was obtained from each participant and they were informed that even after consenting to cooperate they had the right to withdraw from the study and to refuse to provide any specific information. The researcher informed the participants to contact the principal investigator or the Ethics Committee in the event of further questions, comments, or complaints. None of the participants refused to participate. In

order to maintain anonymity names of the participants were not used in the transcript.

3.11 Pilot Study

A pilot study was conducted at Kapata urban clinic in Chipata before the main study to test the validity and reliability of the methodology and to refine the data collection instruments. The sample of the pilot study was 10% (24) of the entire sample.

As a result the checklist was modified to include demographic data of the women whose partographs were reviewed.

3.12 Limitations of the Study

The following were limitations of the study:

1. Obtaining records of partographs was time consuming because some women in labour were not monitored using partograph.
2. Generalisation of the findings will be difficult because midwives who were not working in maternity ward were not interviewed.
3. Because this was not a case control study it was difficult to determine whether complications occurred due to pre existing conditions.

CHAPTER FOUR: RESULTS

4.1 Introduction

The purpose of this study was to find out how the partograph is being implemented at Chipata General Hospital. A prospective and descriptive study with both qualitative and quantitative research components was conducted from May to August 2005. The data presented in this study was obtained from 246 partographs that were reviewed and from focus group discussion with ten midwives that were working in maternity ward. An establishment record of staff working at CGH was also obtained from the hospital.

4.2 Data analysis

Quantitative data was checked for accuracy, consistency and completeness before entering it into a spreadsheet. The Data were then analysed using Epi-Info, Version 3.2.2 (2004) statistical software and Excel. A p-value of 0.05 or less was considered significant.

Transcripts of the FGD were checked to ensure that data were complete and of good quality. Thematic content analysis was done to identify data that were similar. The data was further categorised and grouped together under higher order headings.

4.3 Statistical tests

In order to determine the relationship between variables a statistical analysis was done. This involved the calculation of chi-square, using Epi info version 3.2.2 (2004) statistical software, to determine the association, whether the observed frequencies of the individuals with the given characteristics were

significantly different to those expected on some specified hypotheses. A p-value of 0.05 or less was considered significant.

4.4 Data presentation

The data is presented in tables, frequency tables, cross tabulations and bar charts. Photocopy of used partograph of interest have also been presented in (Appendix 10).

Table 1: Selected maternity data during the study period showing outcome of labour

Month	Type of delivery		Total
	SVD	C/S	
May	138	23	161
June	179	32	211
July	195	37	232
August	211	34	245
Total	623	126	729

Source: Chipata General Hospital (2005)

During the period under study, 729 deliveries took place and 623 deliveries were normal, while 126 were caesarean section

Table 2: Factors affecting implementation of the partograph at CGH according to the FGD

Enabling factors	Barriers
1. Adequate knowledge of the partograph and its use: <ul style="list-style-type: none"> • A monitoring tool for women in labour. • Shows deviation from normal at a glance and helps in decision making. • Used by midwives and doctors. 	1. Shortage of supplies: - <ul style="list-style-type: none"> • Partograph • Gloves • Urine testing reagents • Thermometers 2. Variations of model of the partograph
2. Practical training: <ul style="list-style-type: none"> • Enrolled midwives mandated to complete fewer partographs during their training than is the case for registered midwives. 	3. Shortage of equipment: <ul style="list-style-type: none"> • Sphygmomanometers (Blood pressure machines) • Fetal stethoscope • Oxygen apparatus 4. Shortage of midwives. 5. Inadequate supportive supervision
3 Midwives: <ul style="list-style-type: none"> • Registered midwives • Enrolled midwives 	6 Referrals: <ul style="list-style-type: none"> • Referred cases had no partograph and referral letters had scanty information about monitoring of labour. • Most women referred had full bladder.

The FGD revealed that there were more barriers than enabling factors in the implementation and use of the partograph at CGH as shown in table 2 above.

Table 3: Establishment for doctors and midwives at Chipata General Hospital

Category of staff	Establishment	Actual	Variance
Obstetrician/Gynaecologist	1	0	1
Doctors (SRMO)	8	1	7
Doctors (GMO)	4	7	- 3
Medical licentiate	0	1	-1
Registered midwives	12	5	7
Enrolled midwives	30	24	6

Source: CGH (2004), Establishment register (1991)

The table shows that there were 29 midwives working at CGH and there was no obstetrician.

Table 4: Characteristics of women whose partographs were reviewed (n=246)

Characteristic	Frequency	% Frequency
Age		
10 – 19	79	32.1
20 –29	117	47.6
30 –39	47	19.1
40+	3	1.2
Parity		
Primigravida	131	53.3
Multigravida	115	46.7
Marital status		
Married	198	80.5
Divorced	3	1.2
Separated	8	3.3
Widow	6	2.4
Single	31	12.6

Partographs of women with different demographic characteristics were studied.

Age: The age range was from 14 to 46; Mean = 23.9; Median = 22; Mode 19.

Parity: The majority (53.3%) were primigravidae. The range of parity was from 0 to 9.

Marital status: The vast majority (80.5%) were married, while 12.6% were single. The remaining were separated or divorced.

Table 5: Age and type of delivery for study subjects (n=246)

Age	Type of delivery				Total	p-Value
	SVD	Instrumental	Vacuum	C/S		
10-19*	58 (30.2%)	0 (0.0%)	3 (50.0%)	18 (39.1)	79 (32.1)	0.6910
20-29*	97 (50.5%)	1 (50.0%)	2 (33.3%)	17 (37.0%)	117 (47.6%)	
30-39	34 (17.7%)	1 (50.0%)	1 (16.7%)	11 (23.9%)	47 (19.1%)	
40+	3 (1.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.2%)	
Total	192 (100%)	2 (100%)	6 (100%)	46 (100%)	246 (100%)	

Partographs were reviewed for age and type of delivery. Age group 10-19 had the highest number of C/S (39.1%). The result shows that age group 20-29 had the highest number of normal deliveries. The result shows that there was no difference between type of delivery and age. (P-value = 0.6910)

*Age groups 10-19 and 20+ were compared and no significant difference was found (p-Value=0.18).

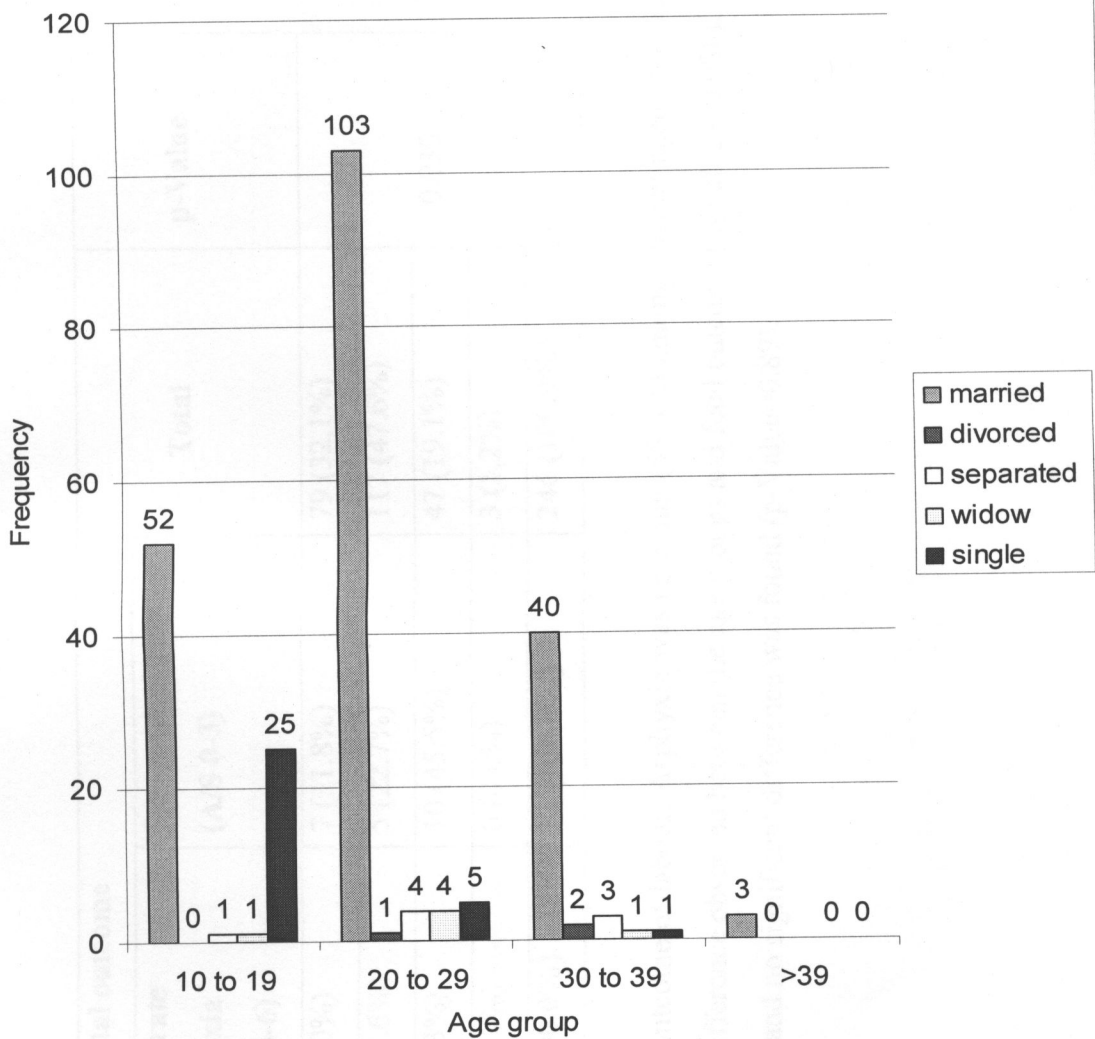
Table 7: Age and maternal outcome

Age	Maternal outcome		Total	P-Value
	Good	Poor		
10– 19*	62 (31.6%)	17 (34.0%)	79 (32.1%)	0.5660
20– 29*	96 (49.0%)	21 (42.0%)	117 (47.6%)	
30 – 39	35 (17.9%)	12 (24.0%)	47 (19.1%)	
40+	3 (1.5%)	0 (0.0%)	3 (1.5%)	
Total	196 (100.0%)	50 (100.0%)	246 (100.0%)	

Poor outcomes were common among age group of 20 – 29 (42.0%) followed by age group 10 – 19 (34.0%). There was no significant difference found between age groups and maternal outcome (p-Value= 0.5660).

*Age groups 10-19 and 20+ were compared and no significant difference was found (P-Value=0.75).

Fig. 2: Age and marital status of women (n = 246)



The ages of women were reviewed in relation to marital status. The result shows that the majority (103) of women who were married were of the age group of 20-29 followed by the adolescent age group (10 -19).

Table 8: Age and fetal outcome

Age group	Fetal outcome			Total	p-Value
	No asphyxia (A/S 7-10)	Moderate asphyxia (A/S 4-6)	Severe asphyxia (A/S 0-3)		
10- 19	63 (32.3%)	9 (31.0%)	7 (31.8%)	79 (32.1%)	0.030
20- 29	95 (48.7%)	17 (58.6%)	5 (22.7%)	117 (47.6%)	
30- 39	34 (17.4%)	3 (10.3%)	10 (45.5%)	47 (19.1%)	
40+	3 (1.6%)	0.0 (0.0%)	0 (0.0%)	3 (1.2%)	
Total	195 (100.0%)	29 (100.0%)	22 (100.0%)	246 (100.0%)	

Partographs were studied for age and fetal outcome of labour. Asphyxia was common (58.6%) among women aged 20 – 29 and age group 10 – 19. There was a significant difference observed between the age groups and fetal outcome (p-value = 0.030).

*Age groups 10-19 and 20+ were compared and no significant difference was found (p-Value=0.89).

Table 9: Parity and maternal outcome

Parity	Maternal outcome		Total	p-Value
	Good	Poor		
Primipara	102 (52.0%)	29 (58.0%)	131 (53.3%)	0.354
Multipara	94 (48.0%)	21 (42.0%)	115 (46.7%)	
Total	196 (100.0%)	50 (100.0%)	246 (100.0%)	

The partographs were reviewed for parity and maternal outcome of labour.
There was no significant difference observed between parity and maternal outcome (p-value= 0.354).

Table 10: Parity and fetal outcome

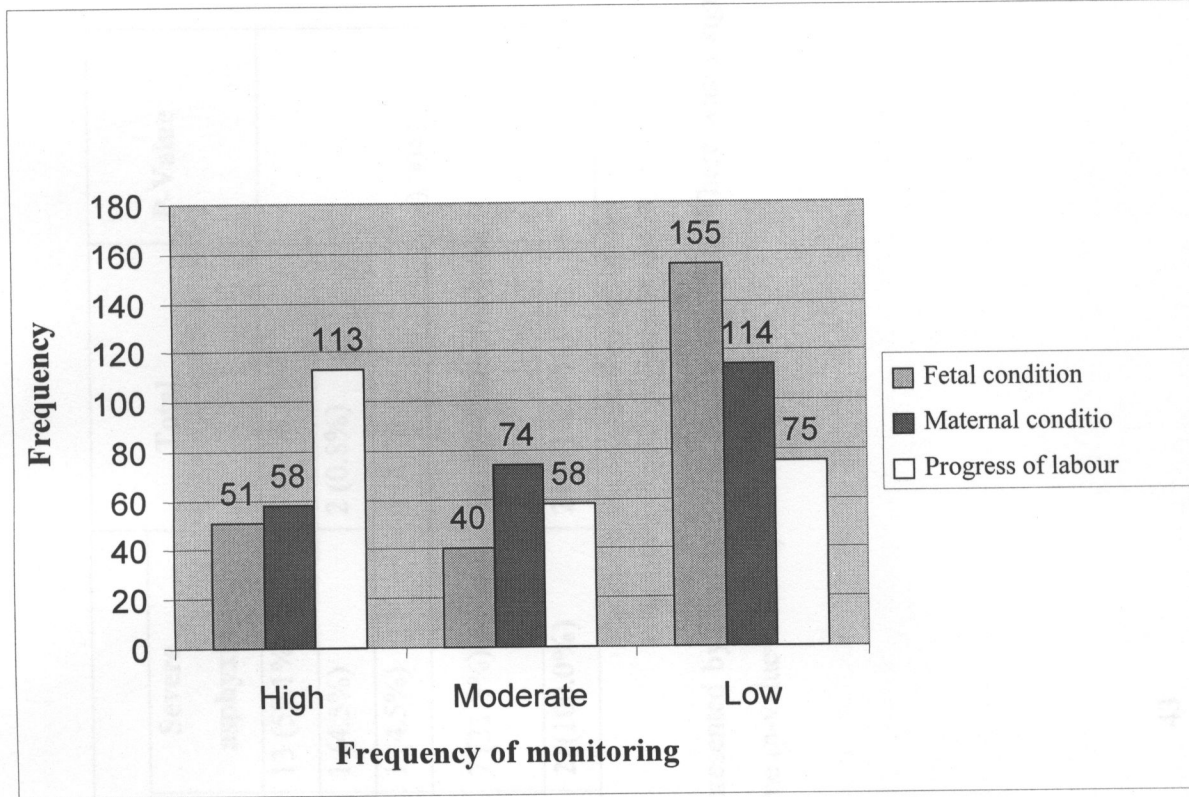
*Parity	Fetal outcome			TOTAL	p-Value
	No Asphyxia (A/s 7-10)	Moderate asphyxia (A/s 4-6)	*Severe asphyxia or Still birth (A/s 0-3)		
Primipara	106 (54.4%)	15 (51.7%)	10 (45.5%)	131 (53.3%)	0.7187
Multipara	89 (45.6%)	14 (48.3%)	12 (54.5%)	115 (46.7%)	
Total	195 (100.0%)	29 (100.0%)	22 (100.0%)	246 (100.0%)	

Partographs were studied for parity and fetal outcome.

There was no significant difference observed between parity and fetal outcome (Chi-square p-Value= 0.7187).

Parity and severe fetal outcome was analysed. The result shows no significance difference of outcome of labour between primiparous and multiparous women

Fig 3: Monitoring of progress of labour, maternal and fetal condition (n= 246)



Frequency of monitoring of progress of labour, fetal condition and maternal condition were compared. The figure shows that there was high (113) monitoring of progress of labour compared to monitoring of fetal and maternal well-being.

Table 11: Type of delivery and fetal outcome

Type of delivery	Fetal outcome			Total	P-Value
	No asphyxia	Moderate asphyxia	Severe asphyxia		
SVD	162 (83.1%)	17 (58.6%)	13 (59.1%)	192 (78.0%)	0.0041
Instrumental	1 (0.5%)	0 (0.0%)	1 (4.5%)	2 (0.8%)	
Vacuum	4 (2.1%)	1 (3.4%)	1 (4.5%)	6 (2.4%)	
Caesarean Section	28 (14.4%)	11 (37.9%)	7 (31.8%)	46 (18.7%)	
Total	195 (100.0%)	29(100.0%)	22(100.0%)	246 (100.0%)	

Type of delivery and fetal outcome were studied.

Asphyxia was common in babies born by C/S (39.1%) as presented by moderate and severe asphyxia. There was a significant difference observed between type of delivery and fetal outcome (p-value=0.0041).

Table 12: Monitoring of fetal condition and outcome

Monitoring	Fetal outcome			TOTAL	p-Value
	No asphyxia A/S 7-10	Mild asphyxia A/S 6-4	Severe asphyxia A/S 0-3		
Fetal well-being					
High*	43 (22.1%)	7 (24.1%)	1 (4.5%)	51 (0.7%)	0.0589
Medium	30 (15.4%)	8 (27.6%)	2 (9.1%)	40 (16.3%)	
Low*	122 (62.6%)	14 (48.3%)	19 (86.4%)	155 (63.0%)	
Total	195 (100.0%)	29 (100.0%)	22 (100.0%)	246 (100.0%)	

Partographs were studied for monitoring of fetal heart rate, moulding, condition of membranes, character of liquor and fetal outcome. The result shows that low monitoring was associated with low Apgar score (p-value=0.0589)
The majority of babies with severe asphyxia came from mothers whose monitoring was low. There was a significant difference found (p-Value=0.052).

*High monitoring and low monitoring were compared. The result showed a significant difference (0.037).

Table 13: Monitoring progress of labour and maternal outcome

Monitoring Progress of labour	Maternal Outcome		TOTAL	p-Value
	Good	Poor		
High*	90 (45.9%)	23 (46.0%)	113 (45.9%)	0.9952
Medium	46 (23.5%)	12 (24.0%)	58 (23.6%)	
Low *	60 (30.6%)	15 (30.0%)	75 (30.5%)	
Total	196 (100.0%)	50(100.0%)	246 (100.0%)	

Partographs were checked for monitoring of progress of labour and maternal outcome. Table shows that 20.3% of women had poor outcome of labour. The result shows that there was no association between monitoring of progress of labour and maternal outcome (Chi-square; df 2; p = 0.9952)

* No significant difference was found between high monitoring of progress of labour and low monitoring (p-Value=0.93).

Table 14: Monitoring maternal wellbeing and maternal outcome

Monitoring maternal well being	Maternal outcome		TOTAL	p-Value
	Good	Poor		
High*	50 (25.5%)	8 (16.0%)	58 (23.6%)	0.3131
Moderate*	59 (30.1%)	15 (30.0%)	74 (30.1%)	
Low	87 (44.4%)	27 (54.0%)	114 (46.3%)	
Total	196 (100.0%)	50 (100.0%)	246 (100.0%)	

Partographs of women were studied for monitoring of B/P, and TPR and urine testing and maternal outcome. Low monitoring of maternal well-being was associated with poor maternal outcome of labour. There was no significant difference found (p-value = 0.3131).

* No significant difference was observed between high, moderate monitoring of maternal well-being (p-Value=0.26).