Table 15: Complications of labour

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<th>July</th>
<th>August</th>
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<tr>
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<td>-</td>
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<tr>
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<td>-</td>
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<tr>
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<td><strong>20</strong></td>
<td><strong>27</strong></td>
<td><strong>88</strong></td>
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</tbody>
</table>

*Source: Chipata General Hospital (2005)*

During the period of study several complications of deliveries were recorded as indicated in table 15 above.
CHAPTER FIVE: DISCUSSION OF FINDINGS

5.1 Introduction

The significance of having a woman in labour monitored by a partograph is to detect deviation from the normal progress of labour, and identify those requiring intervention in order to reduce maternal and infant morbidity and mortality.

5.2 PARTOGRAPH IMPLEMENTATION

Having a skilled attendant with midwifery skills present at every delivery has been identified as one of the key strategies for reducing maternal and infant mortality (WHO/FIGO/ICM, 1992). As a provincial referral health facility, Chipata General Hospital has an establishment of an obstetrician and 38 midwives (Table 3, page 33). The hospital however had only fourteen (14) midwives and no obstetrician working in maternity ward. This shows that there was a critical shortage of skilled attendants. The shortage of skilled attendants seems to have adversely affected the use of the partograph in monitoring labour and the provision of midwifery services.

The hospital establishment allows employment of higher number of enrolled midwives than registered midwives. This disparity was of importance in this study because it meant that enrolled midwives whose academic and professional training background is relatively lower than that of registered midwives could have been left on their own most of the time without supervision and guidance from their superior, the registered midwife. The enrolled midwife counts on the registered midwife for leadership and administrative decisions in maternity ward at the hospital. The focus group discussion revealed that several midwives at the hospital were deployed in various departments in the hospital, this contributed to the critical shortage in maternity ward. At the time of the study there were a total of 34 midwives but only 14 were allocated to maternity ward out of which 3 were registered midwives. Had the partograph been used consistently and correctly on every woman in labour as
directed by WHO, maternal morbidity and mortality could have been reduced at the hospital.

5.3 Monitoring of Labour

The purpose of the partograph is to detect complications during labour and reduce maternal and infant morbidity and mortality. Once a woman is in labour the midwife is expected to regularly record observations on the progress of labour as well as maternal and fetal well being.

Partographs of women with different characteristics were studied. Age range was from 14 to 49 years and the vast majority (80.5%) of the women were married (Table 4, page 34). Marriage is closely associated with fertility because it is highly linked with probability of conception. The age at which a woman first marries is important because it affects the length of time that she is exposed to the risk of pregnancy during her childbearing years. In Zambia, women start childbearing as early as 12 years of age and give birth to an average of six children during their reproductive period (CSO, 2001-2002).

The study results revealed that there was a highly significant association between age and gravidity. Gravidity was observed to be increasing with age (Table 6, 36). Most (53.3%) of the women in the study sample were primigravidae (Table 6, page 36). It is normal practice in Zambia to refer all primigravidae to hospital for delivery. This is because they are considered to be highly at risk of developing complications during labour and the hospitals are expected to have trained staff and logistics required for managing complications of labour. In this study, 18 of the 79 in the age group 10-19 were delivered by caesarean section (table 5, page 35). Caesarean operation is serious cause of morbidity and has a potential for uterine rupture during subsequent labours. As pointed out by Bergstrom (2000), age is one of the risk factors in a woman’s reproductive life. Complications such as obstetric fistulas are common in this age group. This is because women in this group are too
young and their bodies are not yet fully developed for childbirth. This age group has a risk of developing complications such as VVF due to cephalo-pelvic disproportion (CPD). This study has revealed similar findings as shown in table 15 on page 47. This study revealed that monitoring of labour was not done according to expectations. For instance, Figure 3 shows that there was high (113) monitoring of progress of labour compared to monitoring of fetal and maternal well-being. This could have meant that midwives concentrated on vaginal examination and overlooked the fact that progress of labour, maternal and fetal condition are strongly interlinked. The partographs were reviewed for monitoring of fetal heart rate, moulding, condition of membranes, and characteristics of liquor (fetal well-being). The results of the study in table 12 indicate that majority of babies with severe asphyxia came from mothers whose monitoring of fetal well-being was low. A significant association between low monitoring and poor fetal outcome was found (P-Value = 0.052). Several factors could have contributed to the poor monitoring of the fetal well-being. Some of them include the critical shortage of staff at the hospital. These results are contrary to an evaluative study on the use of the partograph in management of labour by Elleen (1994) that showed that Apgar score of less than 7 at one minute was reduced from 8.7% to 2.35% when the partograph was used. The same study showed a drop in perinatal mortality from 1.81% to 0.94%. This confirms that the partograph can be a useful tool for monitoring women in labour. A study on maternity care in Zambia by Maimbolwa et al (2004) also found that monitoring of labour with the partograph was inconsistent.

Table 14 on page 46 shows that low monitoring of maternal and fetal well-being was associated with poor outcome of labour. Monitoring of labour in this manner can have serious consequences on the life of the mother, fetus or both. Partographs were reviewed for monitoring of blood pressure, temperature and pulse as well as testing of urine (maternal well-being). Table 14 shows that monitoring of these vital signs in a woman in labour was low and this was associated with poor maternal outcome. 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. It could have prevented puerperal sepsis and the sepsis that was associated with caesarean operation as indicated in Table 15. According to Sellers (1997), raised temperature is indicative of infection or ketosis (starvation). A woman who develops infection should be commenced on a course of antibiotics to control the infection and prevent puerperal sepsis. Most of the complications that occurred during the study period could have been prevented had the partograph been used efficiently. 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.

5.4 OUTCOME OF LABOUR

Overall, 79.3% of the women in the sample had good outcome of labour (Table 7, page 37). The good out comes of labour could have been due to the fact that many women are able to deliver normally even without being monitored with partograph. However every pregnancy is risky because a seemingly normal labour may suddenly develop a serious obstetric emergency such as cord prolapse or premature separation of placenta, before the birth of the baby; hence the need for every woman in labour to be monitored using the partograph. Furthermore, the same table shows that women in the age group 20-29 had poor outcome of labour accounting for 42.0%. These poor outcomes could have been due to many factors. One of them could have been inadequate use of a partograph to monitor labour and inability to take appropriate intervention. Probably the midwives had considered monitoring of
the primigravidae as a priority and expected the multiparous women to deliver normally. The other factor could have been that the women had delayed in coming to the hospital. Participants in the focus group discussion pointed out that referrals from the health centres were usually delayed. Again this could have been due to non-or poor use of partograph by the rural staff.

During the period of this study; Chipata General Hospital conducted a total of 729 deliveries, 623 were normal deliveries and 126 were C/S (Table 1, page 31). The reviewed records also showed that different complications of labour, were experienced by women and these included 24 Fresh stillbirths, 23 retained placenta, 1 ruptured uterus, 4 vesico-vaginal fistulas, 3 puerperal infections, 9 PPH, Eclampsia 5 and 4 infected C/S (Table 15, page 47). In a similar development, a review of obstetric records by Zulu (1998), revealed that maternal morbidity and mortality was high at the hospital. It was established, during this study, that there was inconsistent use of the partograph at the hospital as not all women in labour were monitored with the partograph. This indicates clearly, why CGH has one of the highest rates of maternal mortality in Zambia. These outcomes do not correlate with partograph use at the hospital and are thus contrary to the many studies that have shown that maternal morbidity and mortality had reduced when the partograph was introduced in clinical practice. For instance, a study conducted by Ellen (1994) in which she evaluated the partograph found that use of the partograph helped to reduce asphyxia and unnecessary operative delivery.

Further more, records of partographs that were collected from the maternity ward at Chipata General Hospital (Appendix 10) demonstrate a skill gap in the use and interpretation of the partograph. Not all partographs were complete; some areas were blank or incomplete. This demonstrates that some midwives were not able to interpret the partograph. This clearly indicates that there is a knowledge and skill gap on the use of partograph despite the fact that all the midwives in the maternity ward had training in the use of the partograph. It also indicates that supervisors may not be aware of how the midwives are using the partograph in maternity ward. It
also suggests that nursing officers and ward in-charges are no longer checking what midwives are doing. It could also imply that the supervisors themselves need orientation on partograph use.

The shortage of midwives could have contributed to the poor implementation of the partograph. Table 3 on page shows that there were 29 midwives working at CGH, yet only 14 were allocated to maternity ward. This means that Chipata General Hospital has midwives deployed in other wards. This phenomenon has adversely affected staffing in labour ward and the implementation of the partograph at the hospital. As a result of the shortage one midwife is expected to work alone in labour ward with a large number of women in labour. Monitoring of a woman in labour requires close observation and recordings by the midwife at very short intervals. When there are so many women to look after at the same time, a midwife becomes overwhelmed with work and may not utilise the partograph as expected. Use of partograph in this manner has serious implications for safe motherhood with regard to intrapartum care at the hospital.

5.5 CONCLUSION

The study has demonstrated that use of the partograph at CGH did not result in reduction of poor labour outcomes, mainly because it was inadequately used, due to shortage of staff, inadequate essential medical and obstetric supplies, lack of education and lack of interest in the use of it among staff. There was low monitoring of labour, which resulted in poor outcomes of labour. If the partograph is not adequately used, good outcomes of labour are not to be expected.
other factors that have to be considered alongside the system. A number of factors have to be considered if required results have to be realised through the use of partograph or any other system or even a new technology. This is important in nursing and midwifery care in particular and health care delivery in general.

6.2 Recommendations

Based on the findings of the study the following recommendations have been made to relevant authorities:

6.2.1 Chipata General Hospital

- There is need to conduct in-service training for obstetric teams on the value of use of partograph.
- There is need for management at Chipata General Hospital to actively show commitment to the implementation of the partograph in the labour ward by ensuring adequate supplies and staffing in the maternity ward.

6.2.2 General Nursing Council of Zambia

- There is need to standardize the type of partograph to be used in all midwifery training schools and health institutions in Zambia as provided by WHO.
- The GNC needs to scale up the monitoring and evaluation of nursing and midwifery training and practice in Zambia.
- There is need to review the midwifery training curriculum to provide more time to learn and acquire skill in partograph use.
- Timely updates to midwives and training institutions on any new developments in nursing and midwifery practice.
6.2.3 Ministry of Health

- There should be a clear policy on partograph use in Zambia developed by the Ministry of Health to compel health care providers to use the partograph on all women in labour.
- There is need to train and retain more midwives in this country.
- Operational guidelines or protocols for all levels of health care should also be developed to accompany partograph use to guide health care providers in decision-making.
- Chipata General Hospital is a provincial hospital to which other districts have to refer patients therefore the vacancy for an obstetrician/gynaecologist should be filled
- Review the curriculum for midwifery training in Zambia to extend the duration of training.

6.2.4 Research

- There is need to conduct research to find out how the partograph is being implemented in the districts that refer women in labour to CGH.

6.4 Utilisation and Dissemination of findings

Findings of this study will be communicated to policy makers as well as colleagues. A copy of the findings will be submitted to MOH, Sida (Institutional Collaboration Training Project) and Chipata School of Nursing Library. Summaries of the findings will be distributed to the Provincial Health Office of the Eastern Province, and Chipata General Hospital. Meetings will be held with midwives and doctors at CGH where abstracts of the study will be distributed. A dissemination workshop will be held for obstetric staff in the province. This will depend on the availability of funds.
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26 MOH (2003). "Reproductive Health Policy. (Draft)." Lusaka. MOH.

27 MOH (2004) "Road Map For Accelerating The Attainment Of The Millennium Development Goals Related To Maternal And Newborn Health." Lusaka. MOH.


Appendix 1: The modified WHO Partograph
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### Appendix 3  Chipata general hospital maternity ward data for 2003

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</table>

Sources: Maternity ward data, case records, death certificates (CGH, 2003, 2004)
Appendix 4: Checklist for partograph

Para.................Gravida...........Marital status...........Age............

Tick (✓) in the appropriate box

I: Monitoring of Fetal Well being: (Please Tick)

<table>
<thead>
<tr>
<th>Variable Monitored</th>
<th>4 Consistent</th>
<th>3 Inconsistent</th>
<th>2 Fairy inconsistent</th>
<th>1 Very inconsistent</th>
<th>0 Not done</th>
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<td>1.Fetal heart rate</td>
<td>½ hourly</td>
<td>1 hourly</td>
<td>2 hourly</td>
<td>Irregular</td>
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<tr>
<td>2.Moulding</td>
<td>4 hourly</td>
<td>5 hourly</td>
<td>6 hourly</td>
<td>Irregular</td>
<td>Not done</td>
</tr>
<tr>
<td>3.Character of liquor</td>
<td>4 hourly</td>
<td>5 hourly</td>
<td>6 hourly</td>
<td>Irregular</td>
<td>Not done</td>
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</table>

Fetal Monitoring:

1) Good 9 – 12
2) Moderate 5 – 8
3) Poor 0 - 4

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II: Monitoring of Progress of labour: (Please Tick in appropriate box)

<table>
<thead>
<tr>
<th>Variable Monitored</th>
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<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
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</thead>
<tbody>
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<td>4. Cervical Dilation</td>
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<td>6 hourly</td>
<td>Irregular</td>
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<td>5. Descent of fetal head</td>
<td>4 hourly</td>
<td>5 hourly</td>
<td>6 hourly</td>
<td>Irregular</td>
<td>Not done</td>
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<td>6. Uterine contractions</td>
<td>¼ hourly</td>
<td>½ hourly</td>
<td>1 hourly</td>
<td>Irregular</td>
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SUB-TOTALS

GRAND TOTAL

7. Monitoring of Progress of Labour

1) High  9 – 12
2) Moderate  5 - 8
3) Low  0 - 4
### III: Monitoring of Maternal Well Being: (Please tick in appropriate space)

<table>
<thead>
<tr>
<th>Variable monitored</th>
<th>4 hourly</th>
<th>3 hourly</th>
<th>2 hourly</th>
<th>1 Irregular</th>
<th>0 Not done</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Blood Pressure</td>
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<td>12. Pulse</td>
<td>½ hourly</td>
<td>1–2 hourly</td>
<td>3–4 hourly</td>
<td>Irregular</td>
<td>Not done</td>
</tr>
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<td>13. Temperature</td>
<td>4 hourly</td>
<td>5 hourly</td>
<td>6 hourly</td>
<td>Irregular</td>
<td>Not done</td>
</tr>
<tr>
<td>14. Emptying of bladder</td>
<td>2–3 hourly</td>
<td>4–5 hourly</td>
<td>6–7 hourly</td>
<td>Irregular</td>
<td>Not done</td>
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</table>

**SUB-TOTALS**

**GRAND TOTAL**

---

**Monitoring Of Maternal Well Being**

1) High 9 – 16
2) Moderate 5 – 8
3) Low 0 – 4
IV: OUTCOME OF LABOUR

A: Infant

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</tr>
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<td>Absent</td>
</tr>
<tr>
<td>Respiratory effort</td>
</tr>
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<td>Muscle tone</td>
</tr>
<tr>
<td>Response to stimuli</td>
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<tr>
<td>Colour</td>
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Apgar score

1. 7 – 10  Mild or no asphyxia
2. 4 - 6  Moderate asphyxia
3. 0 - 3  Severe asphyxia
4. Other (Specify).................................
### B: Maternal

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<td>No complication</td>
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<td>Death</td>
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<td>Type of delivery</td>
<td>SVD</td>
<td>Forceps/vacuum/</td>
<td>C/S</td>
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</tbody>
</table>

1) 3 – 4 Good  
2) 0 – 2 Poor

Other (Specify)..............................
Appendix 5: FOCUS GROUP DISCUSSION GUIDE

The objectives of the focus group

1. To assess the knowledge, attitudes and practices of midwives in relation to implementation of the partograph.
2. To establish whether midwives had training on the use of the partograph.
3. To determine the factors affecting implementation of the partograph at the hospital.
4. To obtain suggestions from midwives on the improvements on the use of partograph in order to achieve good outcomes of labour

Location -----------------------------------------------
Date -----------------------------------------------
Time -----------------------------------------------
Number of participants---------------------------------
Time started-------------------------------------------
Time finished------------------------------------------

INSTRUCTIONS

Introductions
1. Explain purpose of the discussion
2. Get verbal consent
3. Obtain attendance list
4. Assure the group of confidentiality
5. Thank the group for their participation
QUESTIONS

1. What do you know about partograph?
2. What in-service training on use of partograph have you had?
3. What is your opinion on use of partograph in monitoring women in labour?
4. What are the advantages of using partograph?
5. What are the disadvantages of using partograph?
6. What problems do you face in using partograph?
7. What supervision do you have on the use of the partograph?
8. What suggestions do you have on how best the partograph can be utilized in determining good outcomes of labour?

THANK YOU ALL FOR YOUR PARTICIPATION
Appendix 6: Ethical Clearance

THE UNIVERSITY OF ZAMBIA

RESEARCH ETHICS COMMITTEE

Telephone: 300-1-554047
Fax: +300-1-554047
Email: resethcomm@unza.zm

Assurance No. FW/00082268 of 2008.2377

20 May, 2005
Ref.: BIE-04-41

Ms Bigga Miyanda Square, BSc. Dur., Dip. PHC, DNS, RM, RN
Department of Post Basic Nursing
P.O. Box 30110
LUSAKA

Dear Ms Square,

I am submitting the following research proposal to the Research Ethics Committee meeting held on 9 March, 2005 where changes were recommended. We would like to acknowledge receipt of the corrected version with clarifications. The proposal has been approved. Congratulations!

Title of proposal: "Implementation of the Partograph in Relation to outcomes of Labour at Chiluma General Hospital"

CONDITIONS:

- This approval is based strictly on your submitted proposal. Should there be need for you to modify or change the study design or methodology, you will need to seek clearance from the Research Ethics Committee.
- If you have need for further clarification please contact this office. Please note that it is mandatory that you submit a detailed progress report of your study to this Committee every six months and a final copy of your report at the end of the study.
- Any serious adverse events must be reported at once to this Committee.
- Please note that when your report copies you may need to request for approval. The request should be accompanied by a Progress Report (Progress Report Forms can be obtained from the Secretary).

Yours sincerely,

[Signature]

Prof. J. T. Kambadzi, MSc. CNM, PhD
CHAIRMAN
RESEARCH ETHICS COMMITTEE

Date of approval: 20 May, 2005
Date of expiry: 10 May, 2006

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Appendix 7: Request to undertake the study

University of Zambia
School of Medicine
Department Post Nursing
P.O. Box 50110
Lusaka.

13th May, 2005

The Executive Director
Chipata General Hospital
P.O.Box 510019
Chipata.

Ufs

The Head
Department of Post Basic Nursing
P.O.Box 50110
Lusaka.

Dear Sir,

PERMISSION TO CONDUCT A RESEARCH PROJECT

I am a student at the School of Medicine, Department of Post Basic Nursing pursuing a Master of Science Degree in Nursing.

In partial fulfilment for the degree stated above, I am required to conduct a research project. I am hereby requesting for permission to carry out the study in your hospital. The title of the research is 'Implementation of the Partograph In Relation To Outcome of Labour at Chipata General Hospital'. I intend to collect data from midwives case records and mothers.

Thanking you in anticipation.

Yours faithfully,

Regis Miyoba Square
Appendix 8: Authority to undertake the study

CHIPATA GENERAL HOSPITAL BOARD

MH/CGH/RN/4708

20th May 2005

Mrs Regis Miyoba Square
University of Zambia
School of Medicine
Department of Post Nursing
P O Box 510110
LUSAKA

Dear Madam,

PERMISSION TO CONDUCT RESEARCH PROJECT

Reference is made to the above captioned subject.

I am pleased to inform you that Management of this Institution has no objection to your request as stated above. Our Staff in all respective areas have been requested to cooperate with you as you carry out your research. Hope the same will help us improve our weak areas and that confidentiality on patients' information will be observed.

Yours faithfully

Dr M Kg'mambwi
ACTING EXECUTIVE DIRECTOR
Appendix 9: Letter of authority to proceed conducting the research by Assistant Dean, Postgraduate

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

9th August, 2006

Ms. Ruby Nycoha Square
Department of Post Basic Nursing
School of Medicine

Dear Ms. Square,

Re: MASTER OF SCIENCE IN NURSING RESEARCH PROPOSAL,

Your research proposal for the Master of Science in Nursing entitled: "Implementation of the Partograph in Relation to Outcome of Labour at Chikankata General Hospital" was presented at the Graduate Studies Committee of the School held on 9th June, 2005.

I am pleased to inform you that your proposal was approved by the Committee. You can proceed to Part II of the programme and your Supervisor is Ms. P. Mwamba and your Co-supervisor is Dr. C. Kamola.

I wish you every success in your studies.

Yours sincerely,

[Signature]

[Title and Name]
ASSISTANT DEAN, POSTGRADUATE

cc: Director, Graduate Studies
Dean, School of Medicine
Head, Department of Post Basic Nursing
Ms. P. Mwamba
Dr. C. Kamola

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Appendix 10: Sample of Partograph showing monitoring of labour at Chipata General Hospital.

PARTOGRAPH - ACTIVE PHASE Labour

[Graph with various data points and lines indicating different measurements such as heart rate, liquor wounding, cervical change, descent plot, contractions, oxytocin, drugs, blood pressure, pulse, temp, resp, urine, and additional data points marked with dates and times.]
Appendix 11: INFORMED CONSENT

Introduction

You are being requested to take part in the research study mentioned above because it is important that every woman in labour should be monitored properly. Before you decide whether or not to take part in this study, I would like to explain to you the purpose of this study, any risks to you and what is expected of you. If you agree to take part, you will be asked to sign this consent or make thumb print in front on someone. You will then be given a copy to keep. Your participation in this study is entirely voluntary; you are under no obligation to participate. You should be aware that the Research Ethics Committee of the University of Zambia has approved this study, which is there to protect you.

Purpose of the study

The study will assist to get more information on the implementation of the partograph at Chipata General Hospital, a tool that is used by midwives to monitor women in labour.

Procedure

After you sign the consent form and have had a chance to ask questions, I will also ask you to give advice to health authorities on the care of pregnant women during labour.
Risks and Discomforts

No risk or discomfort is involved apart from the use of your time in answering the questions that you will be asked by the interviewer. The discussion will take approximately one hour.

Benefits

By taking part in the study, you will be able to provide us with the information that will help relevant authorities and policy makers to come up with strategies to try and improve the implementation of the partograph so that outcomes of labour may be improved.

Confidentiality

Your research records will be confidential to the extent permitted by law. You will be identified by code and personal information will not be released without your written permission, except when required by law. The Ministry of Health, Central Board of Health, Chipata General Hospital Board and the University of Zambia Research Ethics Committee or School of Medicine may review your records, but again this will be done confidentially.

Please note

Your participation in this study is entirely voluntary. You may decide not to take part or to withdraw from the study at any time.

Persons to contact for problems or questions:
Regis M. Square, UNZA, Department of Post Basic Nursing, P.O.Box 0110, Lusaka Cell: 097 836 786
Chairperson, Research Ethics Committee, UNZA, School of Medicine, P.O.Box 50110, Lusaka
CONSENT TO JOIN THE STUDY

Name: I………………………………………………………………..having been fully informed of what this study is all about, the benefits, discomforts, risks and confidentiality, agree to participate willingly.

Sign/Thumb Print: __________________________ Date ____ / ____ / ____

Name of witness: __________________________

Sign __________________________