

**REFINEMENT OF THE PARTOGRAM:
AN EDUCATIONAL PERSPECTIVE**

by

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DECLARATION

I declare that "REFINEMENT OF THE PARTOGRAM: AN EDUCATIONAL PERSPECTIVE" is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

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REFINEMENT OF THE PARTOGRAM: AN EDUCATIONAL PERSPECTIVE

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Summary

A deductive, descriptive, quantitative study was undertaken at Nyangabgwe Hospital, Francistown, Botswana, situated in the north east of the country. Its focus was on the use of partogram by midwives.

The population consisted of 395 obstetric records for the period of one month. A sample of 303 obstetrics records was drawn. Data were collected through auditing the bed letters of delivered mothers and interviews with and observation of midwives using the partogram in practice.

The Statistical Package for Social Sciences (SPSS) program was used to analyse the data. The findings indicate that there are problems regarding, and factors that can have a negative influence on the use of the partogram by midwives.

It is suggested that a supportive teaching programme for the midwives should be designed, that will support the system of supervision in the labour ward that already exists, in the use of the partogram throughout the labour process.

KEY TERMS:

Use of partogram, process of labour, midwives, problems experienced, factors that contribute to the problems, refinement of the partogram, educational perspective, safemotherhood, reduction in perinatal morbidity and modality, reduction in maternal morbidity and mortality, referral hospital.

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Dedication

This dissertation is dedicated to all women of Botswana who once sought, who are seeking, and those who will seek midwifery services in the health care facilities.

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List of abbreviations

ANC	Antenatal care
CPD	Cephalo-pelvic disproportion
GP	General practitioner
LSCS	Lower-segment Caesarean section
MCH/FP	Maternal and health and family planning
MLGL	Ministry of Local Government and Lands
MOH	Ministry of Health
NDP	National Development Plan
PHC	Primary health care
SCBU	Special care baby unit
SMI	Botswana Safe Motherhood Initiative
SPSS	Statistical Package for Social Sciences
TBA	Traditional birth attendant
VDRL	Venereal diseases research laboratory
WHO	World Health Organization

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Chapter 1

Orientation to the study

1.1 INTRODUCTION

This is the first time that a study on refinement of the partogram (an education perspective) was done in Botswana. The transition from antenatal care to management of labour is critical for both the mother and the foetus. It poses a challenge to midwifery care. In the labour ward, the partogram is a major instrument used during this transition.

Also, recent advances in safe motherhood and the challenge to reduce maternal and infant morbidity and mortality by at least 50,0% by the year 2000, have put health staff, including midwives, under constant pressure (Botswana Safe Motherhood Initiative 1994:5; Kennedy 1998; O'Loughlin 1997:622).

According to Daly, Azefor and Nasah (1993:14), "safe motherhood effort" constitutes the reduction of maternal and infant morbidity and mortality, and is achieved through a concerted set of interventions.

All countries were called upon by the World Health Organization (WHO) to put strategies in place that will ensure that the health care system has the capacity to provide maternity care services with appropriately trained and supported midwives. These services should be based on established norms

and procedures, for example, standardised tools for practice, such as the partogram (Daly et al 1993:15).

From reports it appears that the partogram has been in use in Botswana since 1984 (Lake [sa]). It is a tool of choice with which to monitor a parturient by which all features are entered in graphic form (Kennedy 1998).

If used more accurately in maternity units the partogram has the potential of reducing perinatal morbidity and mortality caused by prolonged and obstructed labour. The partogram has also been shown to be effective in preventing prolonged labour, reducing operative interventions and improving neonatal outcome (Daly et al 1993:14-17; Drouin, Nasah & Nkonnawa 1979:741-745; Lennox & Kwast 1995:56; Philpott & Castle 1972:592).

A study conducted in Gaborone, Maun and Ramotswa on the Botswana Perinatal Project (1990) revealed a perinatal mortality rate of 24 per 1 000. It was found that many of the sections in the obstetric records including those on the partogram had been filled in either incomplete or an incorrect manner. Since the obstetrical record was designed to facilitate application of the high-risk approach there was therefore a need to update midwives in its use. Against this background, there was also a need for a study on the use of the partogram by midwives, since it is one of the tools used to reduce the high incidence of maternal and neonatal mortality in developing countries. The partogram is an early warning system that allows for the early detection of abnormal labour in order to prevent maternal and perinatal complications. Perinatal morbidity and mortality is an indicator of how good the labour and obstetric emergency services are. These services improved by proper use of the partogram (Annales de la Societ e Belge de 1995:321-325; Pattinson 1996:4).

The researcher decided to do this study on the use of the partogram by midwives because of the reasons given above.

1.2 FORMULATION OF THE PROBLEM

1.2.1 Background to the problem

Although the use of the partogram was expected to improve neonatal outcome, complications do still

occur, as evidenced in reports by the Obstetrics and Gynaecology and Paediatric Departments of the Nyangabgwe Hospital.

Table 1.1: Profile of babies admitted immediately after delivery to the special baby care unit in Nyangabgwe Hospital

YEAR	NUMBER OF BABIES ADMITTED	FIVE MINUTES APGAR SCORE < 7	TOTAL NUMBER OF DEATHS	NUMBER OF DEATHS OF BABIES WITH AN APGAR SCORE OF ≤ 7
1996	728	258	88	65 out of 88 (74%)
1997	645	196	52	33 (65%)

As shown in table 1.1, there were 88 deaths in 1996 and among them 65 (74%) had an Apgar score of less than 7 at birth. This means that the other 26% had an Apgar score greater than seven. In 1997, 35% of the babies who died had an Apgar score greater than seven. The question is: Could we have prevented those deaths?

Table 1.2: Neonatal outcome in the labour ward of Nyangabgwe Hospital

YEAR	NUMBER OF DELIVERIES	FRESH STILL-BORN BABIES	ASPHYXIATED BABIES
1998	4 653	31	121
2000	4 029	17	108

Table 1.2 shows the number of asphyxiated and fresh still-born babies whose deaths, in the researcher's opinion, could have been prevented. In 1998, there were 31 cases of fresh still-born and 121 cases of asphyxiated babies, and in 2000 there were 17 cases of fresh still-born and 108 of asphyxiated babies. Such incidence of neonatal mortality in developing countries needs to be reduced.

1.2.2 Statement of the problem

Essential obstetric care includes the provision of competent, trained midwives who should be able to recognise abnormalities in labour, deal with unpredictable complications as they arise, and arrange transferral to a facility or to personnel that can cope with obstetric emergencies (O'Loughlin 1997:622-625). Although most infant complications can be prevented, the literature reveals that many of them still result from either failure to identify problematic labours requiring referral to a central unit, from inappropriately timed referral, or from poor management of labour in obstetric units (Lennox & Kwast 1995:56).

Obviously prolonged labour, whatever the cause, is a major cause of infant complications. If used correctly by a midwife the partogram may help detect problems at an early stage, so that appropriate action can be taken to correct the situation or to transfer the mother to the appropriate health personnel or health facility. This is a particular need in Botswana, in which infant morbidity and mortality was targeted for reduction by the year 2000.

In view of the above problems, for which there exists great deal of prima-facie evidence, but no substantiated and documented research, in Botswana, it is both important and timely to conduct systematic research into the use of the partogram by midwives (an educational perspective).

1.2.3 Purpose of the study

The aim of this study is to

- identify factors that contribute to the problems experienced by midwives when using the partogram
- provide guidelines on how to improve the use of the partogram by midwives

1.2.4 Objectives of the study

This study sought to identify and describe recordings and reactions when complications arise during the use of the partogram by midwives. The study therefore seeks to:

- audit the completed partograms
- pinpoint problems experienced by midwives when using the partogram
- pinpoint factors that could have a negative effect on the use of the partogram
- observe the use of the partogram in practice

1.2.5 Research questions

- What problems do midwives experience when using the partogram?
- What factors contribute to the problems experienced by midwives when using the partogram?
- How could these problems be reduced?

1.2.6 Assumptions

It is assumed that

- there are difficulties using the partogram
- people can reflect on their experience
- use of the partogram can be observed empirically

1.3 SIGNIFICANCE OF THE STUDY

The proposed study is of significance because of the following reasons:

- (1) It can help improve the quality of labour management. The information obtained from the study can be used to plan an in-service education programme on the use of the partogram which will eventually lead to improved quality care, because it will further the competencies of midwives, and ultimately the quality of life of both the mother and the infant.
- (2) The study could stimulate further research, as it will indicate the deficiencies in the tool being used. It could also lead to the partogram being redesigned, in order to make it more user-friendly in Botswana.

1.4 RESEARCH METHODOLOGY

The following methodology was used to obtain the information required for this study.

1.4.1 Literature review

A review of the relevant literature was undertaken to obtain information on the following:

- the use of the partogram
- a history of the use of the partogram in Botswana
- recordings on the use of the partogram in Botswana
- the abilities needed for using the partogram
- a referral health care system in Botswana within which midwives make use of a partogram for the management of labour

1.4.2 Design of the research

The study was done in the form of a deductive quantitative study on the use of the partogram through an objective systematised process. A well-formulated research question and a defined study were set up.

Numerical data were used to obtain information about the study problem, in order to describe variables (Burns & Grove 1995:26).

Investigations were done into the use of the partogram by midwives in the labour ward in order to identify any problems in the use of the partogram:

- Data were collected from the obstetric charts of delivered mothers over a one month period.
- Bed letters were audited and rated against an audit of the partogram of patients (see Annexure C) which was designed by the researcher. Midwives were observed using the partogram during the three shifts, namely, the morning, afternoon, and night shifts. The tool that was used was "Observation of midwives using the partogram in the labour ward (see Annexure D).

- The same midwives were followed through the interview guide with both open and closed questions – “Interview schedule for midwives using the partogram” (see Annexure E).
- The Head Nurse was interviewed (see Annexure F).

1.4.3 Setting of the study

The study was done in a maternity ward, and specifically a labour ward, in Nyangabgwe Hospital, Francistown, Botswana (see Annexures A and B). Nyangabgwe Hospital is the second largest referral hospital in Botswana, with a bed occupancy of 430. The hospital is situated in Francistown. It is the referral centre for the northern region of the country. There are several clinics with maternity units in the northern region of the country and also primary hospitals and district hospitals, all of which refer cases to Nyangabgwe Hospital (see Annexure A). Francistown has a population of 65 244 (Francistown Centenary Brochure 1997).

1.4.4 Technique used in the research

In this study, a deductive quantitative research design was used to obtain information about the use of the partogram by midwives. Four questionnaires were designed by the researcher by using the Dynamic Standard Setting System of the United Kingdom (Dyssy), as described by Booyens (1994:326). Dyssy is a bottom-up problem-based approach to quality assurance involving the setting, monitoring and evaluation of standards of care by practitioners. According to Booyens (1994:326-327), auditing according to Dyssy involves the formulation of audit criteria which are used to evaluate to what extent the set standards of care have been achieved, derived from structural, process and outcome criteria which were formulated for the specific standard statement. Booyens (1994) also says that in the auditing process, performances are compared with a previously set standard of care to reveal shortcomings, the correction of which should lead to an improved level.

The methods for collecting data in order to answer the research questions include the following:

- asking questions: patients, relatives, nurses (by means of interviews, questionnaires, focus group interviews, etc)
- observing nurses at work (rating according to a checklist)
- checking records

1.4.5 Sampling design

The following populations were targeted:

- (1) all bed letters of delivered patients for a period of one month only
- (2) sixteen midwives in the labour ward were interviewed about the use of the partogram in the labour ward
- (3) the same midwives were observed while using the partogram in the labour ward

1.4.6 Data collection

Phases in which the data were collected:

Phase 1. Reviewing literature on

- the use of the partogram by midwives
- a history of the use of the partogram in Botswana
- a history of the use of the partogram – a global overview
- the referral health care system in Botswana within which midwives make use of a partogram for the management of labour

Phase 2. Audit bed letters (see Annexure C)

Phase 3. Observing 16 midwives using the partogram (see Annexure D)

Phase 4. Interviewing 16 midwives in the labour ward while using the partogram in order to quantify and substantiate the findings (see Annexure E)

1.4.7 Data analysis

The researcher used a statistical package for social sciences (SPSS) for computing the data. The results were reported in accordance with their significance. Once statistical data had been computed, they were interpreted in the light of the original research questions.

1.4.8 Validity and reliability of the study

In order to detect ambiguity in the wording, inappropriate and/or inadequate response categories and any other flaws in the tools steps were taken by the researcher to evaluate and improve the reliability and validity of the data-collection tools.

According to Polit and Hunger “validity” (1995:353), refers to the degree to which an instrument measures what it is supposed to be measuring and “reliability” (1995:651) refers to the degree of consistency with which the instrument measures.

For this study, the statistician evaluated the data-collection tools for content validity. According to Brink (1990:162), “content validity” is the degree to which a test appears to measure a concept through a logical analysis of the items.

Within the context of this study, Mrs JE Tjallinks, Dr NT Mulumba and Mr O Kilpert (the statistician), scrutinised the instruments that were to be used to collect data, looking at them item by item and deciding on the appropriateness of each item and on how adequately the instruments covered the content area. After each of the supervisors had examined the instruments, a decision was made on their content validity. After modifying the instruments, the statistician, Mr O Kilpert, made final copies suitable for use in statistical tests that would produce answers to the research questions.

1.5 ETHICAL CONSIDERATIONS

The participants were informed about the purpose of the study and were assured of the following:

1.5.1 Freedom from exploitation

Permission to conduct the study was obtained from the participants. Information given to the researcher was not used against the participants in any way. Participants were told that once they had entered into this special relationship with the study, it would be noted critically that the relationship would not be exploited in any way (see Annexure G).

1.5.2 Right to full disclosure

According to the principles of respect for human dignity participants had the right to make informed, voluntary decisions about participating in the study (see Annexure H).

1.5.3 Right to confidentiality

The respondents to the questionnaire remain anonymous. The participants were informed that all data collected during the study would be confidential and would be used for research only, unless the researcher had been given explicit permission by them to do otherwise.

1.5.4 Permission for conducting the study

Permission to conduct this study was sought from the Ministry of Health, the management of Nyangabgwe Hospital and the office of the President. Participants were informed that permission for conducting the study had been sought and obtained (see Annexure J, K).

1.5.5 Reliability and validity of the designed instruments

This study put full confidence in the findings of the data-collection instrument. The reliability and validity of the designed instrument had been estimated before the instruments were made available for use. The instruments had been pilot-tested. (For a detailed description, see chapter 3: research methodology.)

1.6 LIMITATIONS OF THE STUDY

The reliability of the results and the operationisation of the findings in this study may be affected by the following circumstances beyond the researcher's control:

1.6.1 The size of the sample

It could be that some of the bed letters of delivered patients for the month chosen for the audit had gone missing.

1.6.2 The timing of the sample

It could be that not all bed letters were available at the time they were needed for the study. (For a detailed description, see chapter 5: summary of findings, conclusion, implications and recommendations.)

1.7 DEFINITIONS USED IN THE STUDY

It was important to define all unusual terms that could be subject to misinterpretation. It is hoped that these definitions will help establish the frame of reference with which to approach the study problem.

◆ Midwife

A midwife is a person who has completed a programme of training and who has passed such examinations in the practice of midwifery as may be determined by the Council (Republic of Botswana Nurses and Midwives Act 1995).

Within the context of this study, "midwife" means a person who is able to give midwifery care during labour. This care includes the taking of preventative measures and the detection of abnormal conditions during the process of labour, the obtainment of medical/an obstetrician's assistance and the execution of emergency measures whilst awaiting such help.

◆ World Health Organization

The WHO is a specialised agency of the United Nations primarily responsible for international health. The organisation came into being in 1948 and currently has 166 member countries. The WHO is responsible for the development of comprehensive health services, the prevention and control of diseases, the improvement of environmental conditions, the development of health manpower, the coordination and development of health services, research on and implementation of health programmes. The WHO's present major goal is based on the Declaration of Alma Ata (1978), with an emphasis on the development of primary health care (PHC) (<http://www.who.int/aboutwho/en/objectiv.htm>).

◆ **Partogram**

A partogram is a chart on which the salient features of labour are entered in graphic form (Bennet & Brown 1999:159; Duigman, Studd & Hughes 1975:593; Lake [sa]:22).

◆ **Normal labour**

Duigman et al (1975:593) define “normal labour” as labour which started spontaneously, was not induced through oxytocin drugs, did not require an operative delivery, and delivered a baby of more than 2,5 kg in weight.

◆ **Asphyxia**

Asphyxia is severe oxygen insufficiency that may lead to irreversible neurological damage or death (Quimette 1986:436).

◆ **Maternal mortality**

“Maternal mortality” refers to death as a result of pregnancy or childbirth in the first six weeks of the puerperium (Nolte 1998:515).

◆ **A live birth**

A “live birth” is the complete expulsion or extraction of a product of pregnancy from the mother which, regardless of the carrying period, breathes after such separation from the mother, or shows any signs of life, such as heartbeat, pulsation of the umbilical cord, or definite movement of the voluntary muscles, irrespective of whether the umbilical cord is cut or not, or whether the placenta is attached (Nolte 1998:516).

◆ **Fetal death**

“Fetal death” is death prior to the complete expulsion or extraction of a product of pregnancy from the mother, regardless of the carrying period. Death is indicated by the fact that the fetus does not breathe after such separation from the mother, or does not show any other signs of life, such as heartbeat, pulsation of the umbilical cord, or definite movement of the voluntary muscles (Nolte 1998:516-517).

◆ **Fetal still-born rate**

Number of fetal deaths in one year x 1 000.

over

Number of births (live and still-born) in the same year (Nolte 1998:517).

◆ **Neonatal mortality rate**

Number of deaths of children under the age of 28 days in one year x 1 000.

over

Number of live births in the same year (Nolte 1998:517).

◆ **Perinatal mortality rate**

Number of fetal deaths + neonatal deaths during the first seven days in one year x 1 000.

over

Number of deaths (live and still-born) in the same year (Nolte 1998:517).

◆ **Peripheral unit**

A peripheral unit is a unit – either a clinic ward, a primary hospital or a district hospital – with a maternity ward that refers patients to the next referral health facility with more sophisticated services and activities.

1.8 OUTLINE OF THE STUDY

- Chapter 1: Introduction to the study, formulation of the problem, purpose and objectives of the study, significance of the study, research methodology, ethical considerations and definitions of terms, data analysis and limitations of the study
- Chapter 2: A review of the relevant literature
- Chapter 3: The research design, namely, design of the study, setting of the study, research technique and instruments, sampling design, data-collection procedures and data-analysis procedures
- Chapter 4: Methods used for data analysis, findings, results and conclusions
- Chapter 5: Summary and recommendations

1.9 SUMMARY

This chapter presented a background to the study, a statement of the problem regarding the use of the partogram by midwives, the purpose and objectives of the study, and also included ethical considerations and a brief outline of the research methodology of the study. The most important terms used in the study were defined. The chapter ended with an overview of the layout of the research. The next chapter presents a review of the literature pertaining to this particular topic that is being studied.

Chapter 2

Literature review

2.1 INTRODUCTION

In chapter 1, an orientation towards this study was provided by discussing the statement of the problem, the research questions, the purpose and objectives of the study, the assumptions, the significance of the study, the research methodology, the technology, the terminology and the outline of the research report.

The review of the relevant literature contained in this chapter is centred around

- the ideas and findings of other researchers who inspired the present study
- what was known about the research problem and what still needed to be researched

Before presenting the research, the researcher needed to review the ideas and findings of other researchers who inspired the present study. This review of the literature described what was known about the research problem and what still needed to be researched (Burns & Grove 1995:141).

Once the researcher had clarified the research topic the resources of the library at the University of South Africa (Unisa) were accessed in order to identify, read and critique the literature sources. Catalogues, indexes, abstracts and bibliographies were used to identify relevant sources. Subheadings

and synonyms were used to guide the search for relevant sources in catalogue listings, abstracts and bibliographies. Citations on various databases were scanned to identify sources relevant to the research problem. The researcher also made use of the interlibrary loan system to obtain many of the books and articles that were unavailable locally. From the sources, the following topics were identified as relevant to the research problem:

- the health care system of Botswana
- the referral care system in Botswana
- a history of the use of the partogram – a global overview
- a history of the use of the partogram in Botswana
- the Botswana Obstetric Record and the recordings made on a partogram
- the abilities needed by midwives for using the partogram
- antenatal care
- the training in midwifery in Botswana
- traditional birth attendants
- safe motherhood in Botswana
- empirical literature
- a perspective on obstetric care
- neonatal morbidity and mortality

2.2 A CONCEPTUALISATION OF THE STUDY WITHIN THE CONTEXT OF BOTSWANA

2.2.1 The health care system of Botswana

Within the health care system structure of Botswana, midwives have been given the responsibility of monitoring clients in labour through the use of the partogram. In Botswana, the Ministry of Health is responsible for the overall health care system (see figure 2.1, page 17).

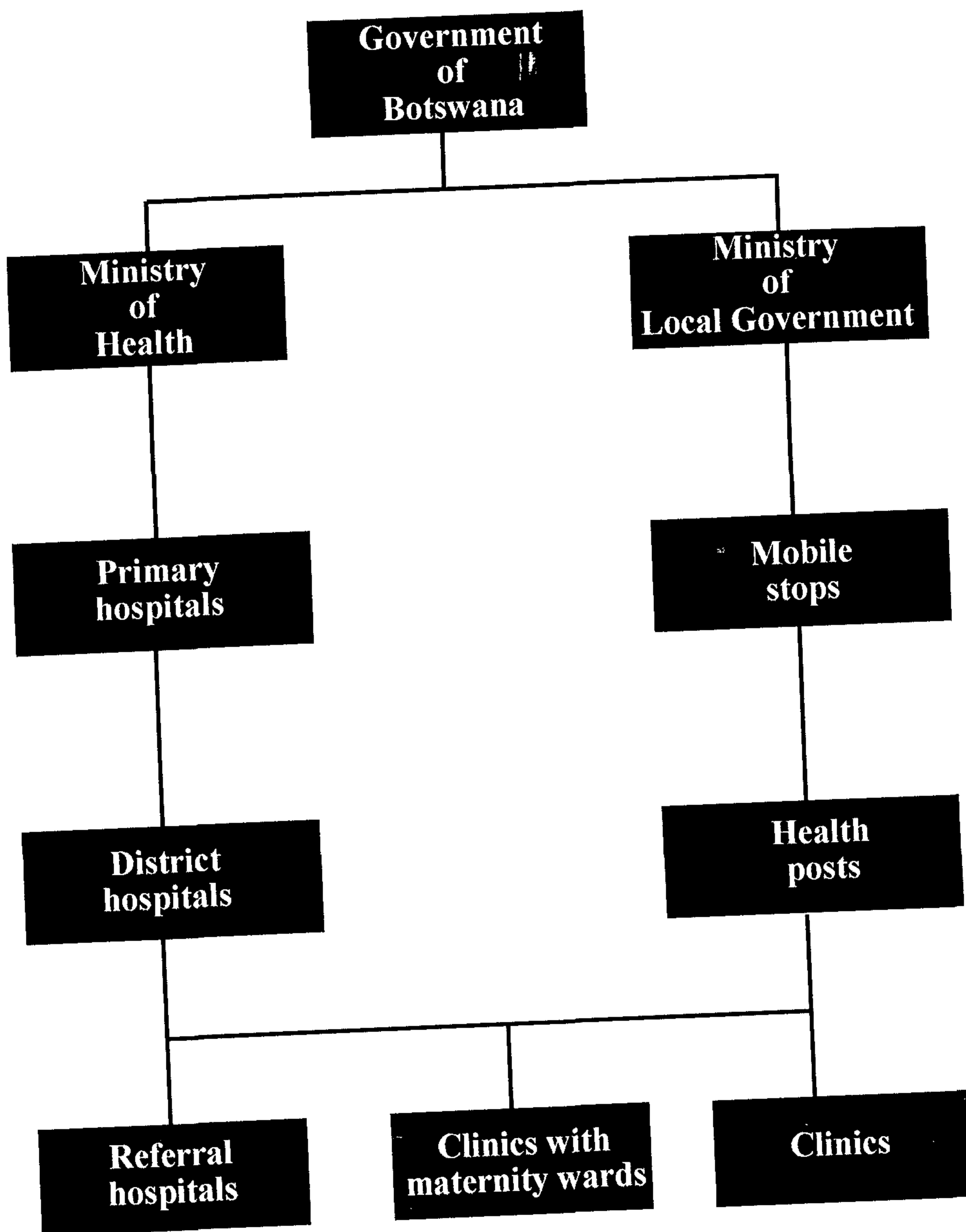


Figure 2.1
The health care system of Botswana
(Source: Ministry of Finance and Development Planning 1991b:381)

It acts as policy-maker, professional guide and supervisor of all health care in Botswana (Ministry of Finance and Development Planning 1991b:382). Letubo (1996:4) says that while the government of Botswana is responsible for the country's overall health care system, both government and nongovernment sectors contribute to the provision of health care services.

In the government section, the Ministry of Health (MOH) and the Ministry of Local Government and Lands (MLGL) have been given the task of controlling the health care system. The MOH takes care of central planning, establishes the policies, set standards and is the technical supervisor, whereas the MLGL administers primary level health facilities and district health teams through district councils (see Annexure L).

The nongovernment sector includes mission hospitals, private hospitals, mine hospitals and also traditional practitioners that provide informal care.

The MOH operates on six different levels, namely: two referral hospitals, six district hospitals, one mental hospital and 13 primary hospitals. The MOH provides the running costs for three mission hospitals. Two mine hospitals provide services to the general public in the same way as district hospitals, although Government does not contribute directly to their funding.

There is one private hospital in Gaborone and one in Serowe. The primary health care system is run mainly by the local government (district/town councils) through the council's health departments (district health teams) and a network of clinics, health posts and mobile stops (Ministry of Finance and Development Planning 1991b:382).

2.2.2 The referral health care system in Botswana

The referral health care system in Botswana is based on a structure consisting of successive levels of services and activities, each with increasing degrees of sophistication (see figure 2.2, page 19).

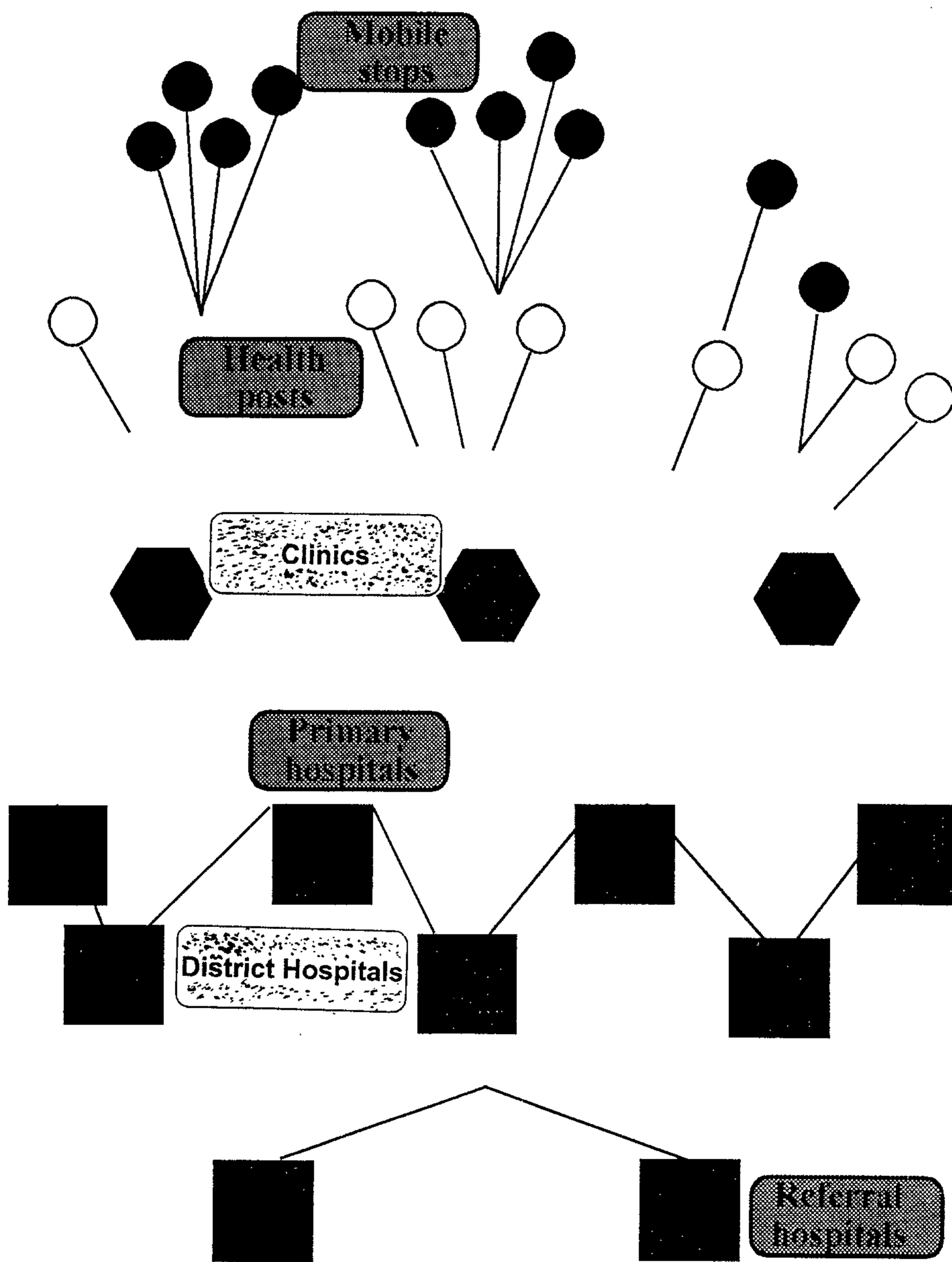


Figure 2.2
The referral health care system in Botswana
(Source: Botswana Health Management System Manual. Manual of Patient Referral 1991:7-15)

The referral health care system provides services at successive levels. According to the Botswana Health Management System Manual (1991:7-15), in every remote area the first point of contact is the mobile stop. Patients who attend mobile stops are seen by mobile clinic staff, consisting of at least a registered nurse/midwife. However, just like patients who come to a clinic, some of them will need to be referred to the next level.

The next level is the health post. Patients who attend health posts are often self-referrals, that is, they themselves chose to attend the health post. Here, the family welfare educator and enrolled nurses are quite competent at their level of training in handling health conditions that require simple diagnosis and treatment. If the conditions presented at the health post are more complicated in nature (ie, they cannot be treated within the scope of services provided by an enrolled nurse), they should be referred to a clinic.

The next level is the clinic. All clinics in Botswana are staffed by at least a registered nurse, who is also a trained nurse. These nurses provide the bulk of the health care at clinics, which includes curative, preventive and promotive services. As far as curative services are concerned, the nurse consults, and also screens patients – even pregnant mothers. Cases that the nurse cannot cope with and which need in-patient care, laboratory tests, surgery or x-rays are referred to the primary hospital.

The next level is the primary hospital. Curative services provided at the primary hospital, include general in-patient care, laboratory tests, x-rays and surgery of an uncomplicated nature. The primary hospital also offers maternity services. Patients with serious or complicated health problems or needing in-patient care for complicated health needs should be referred to a district hospital or a higher level.

The next level is the district hospital. District hospitals are secondary care hospitals. They offer similar services as those offered by primary hospitals, but on a larger and a more sophisticated scale in that they can also provide a degree of specialist care for serious and complicated health problems, for example, caesarean sections.

The next level is the referral hospital – cases needing for specialist care that cannot be handled at the district hospital. Botswana has two national referral hospitals – Princess Marina Hospital in Gaborone and Nyangabgwe Hospital in Francistown, at which this study was done. Referral hospitals

provide specialist services. Nyangabgwe Hospital, for example, handles particularly high-risk deliveries referred to it by district and primary hospitals and clinics. Most of the deliveries are handled by midwives, medical doctors and obstetricians.

At most of the service levels, trained midwives make use of the partogram for the onward referral of women in labour (Republic of Botswana Nurses and Midwives Act 1995). The partogram, as part of the safe motherhood initiative, allows an early identification and appropriate management of obstetric complications, which includes prompt referral to appropriate obstetric care obtainable at successive levels of the referral health care system.

2.2.3 History of the partogram – a global overview

The history of the partogram can be traced as far back as 1954 (WHO 1994a:4). According to WHO (1994a:3-4) and Walsh (1994:84), Friedman, in 1954, described a normal cervical dilatation pattern following a study that was done on a large number of women in the United States of America. It was Friedman who first considered cervical dilation as the most accurate method of measuring the progress of labour. He constructed the first cervical dilation – time curve (the classic sigmoid shape Friedman curve), from which he deduced that labour consisted of a latent and an active phase (see figure 2.3, page 22).

The (early) latent phase extended over 8-10 hours, and up to a dilation of about 3 cm. This was followed by an active phase, characterised by acceleration from cervical dilatation of 3-10 cm.

Philpott and Castle (1972:592-602), in extensive studies of primigravidae in Central and Southern Africa, modified Friedman's work by adding an "alert line" before the "action line" so that midwives can be alerted to the immediate action before "action line" is reached. The authors suggested that a straight line be drawn on a dilation rate of 1 cm per hour, which was regarded as the minimum accepted rate for dilation to take place, and could be applied to all labours. They called it the "alert line", and drew a parallel line four hours to the right – the "action line". At that point, treatment was instituted for slow progress. This process provided a sound scientific basis for early intervention and the prevention of prolonged labour.

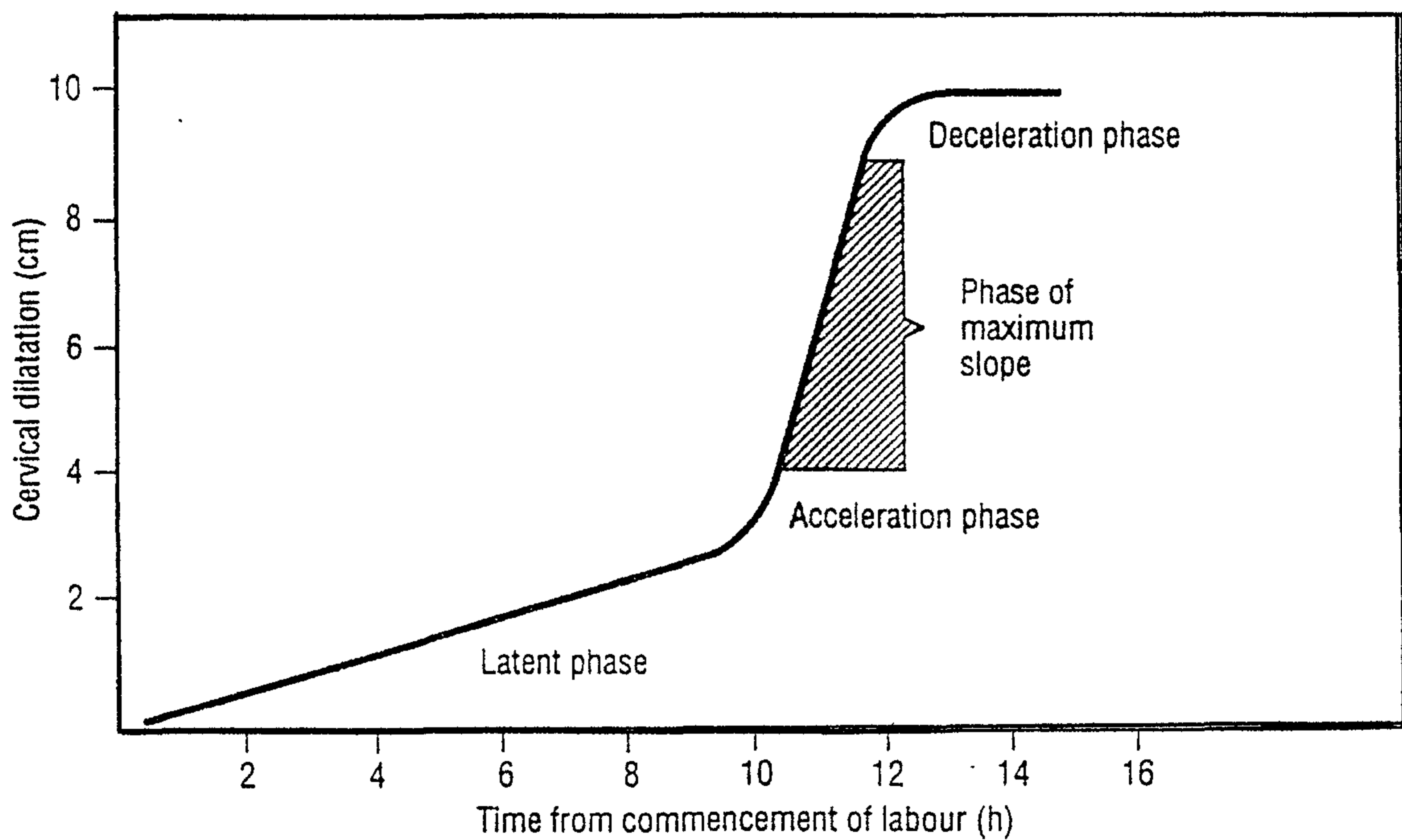


Figure 2.3

Friedman's curve, showing the phase of maximum slope

(Source: WHO 1994a:4)

Permission to reproduce this figure was sought from WHO, Family Health Division, through the MOH, Botswana (see Annexure N)

Recent work was done by WHO (1994a:4) entitled "The partograph: the WHO model". The WHO model partogram was devised by an informal working group which examined most of the available published work on the partogram and its design (see figure 2.4, page 24). It was based on the following features:

- The active phase of labour commences at a cervical dilatation of 3 cm.
- The latent phase of labour should last not longer than eight hours.
- During the active phase of labour, the rate of cervical dilation should not be slower than 1 cm per hour.
- If labour is slow for a period of up to four hours and before intervention, it is unlikely that the mother or the foetus will be compromised.
- Vaginal examinations should be performed only when necessary (once every four hours is recommended).
- Midwives and other personnel that manage labour may find it difficult to construct "alert" and "action" lines – it is better, therefore, to use a partogram with already existing lines. Too many lines may be confusing.

Finally, (WHO 1994a:4) stated that it is essential that the use of the partogram be introduced into the training programme. The partogram is used in the monitoring of labour. It is also a policy in all hospitals and clinics in Botswana that have labour wards to make use of the partogram (see figure 2.4, page 24).

On this chart, essential observations concerning labour are entered. The chart is divided into sections on "maternal conditions", "foetal conditions" and "progress of labour". The partogram facilitates the management of labour because of the use of "alert" and "action lines. Because of these lines abnormalities in the progress of labour can be observed at a glance, and interventions can be made before complications occur. Continuity of care may also be promoted, because all professionals who care for a parturient mother enter their clinical findings on this document, even if she is transferred from one facility to another during labour.

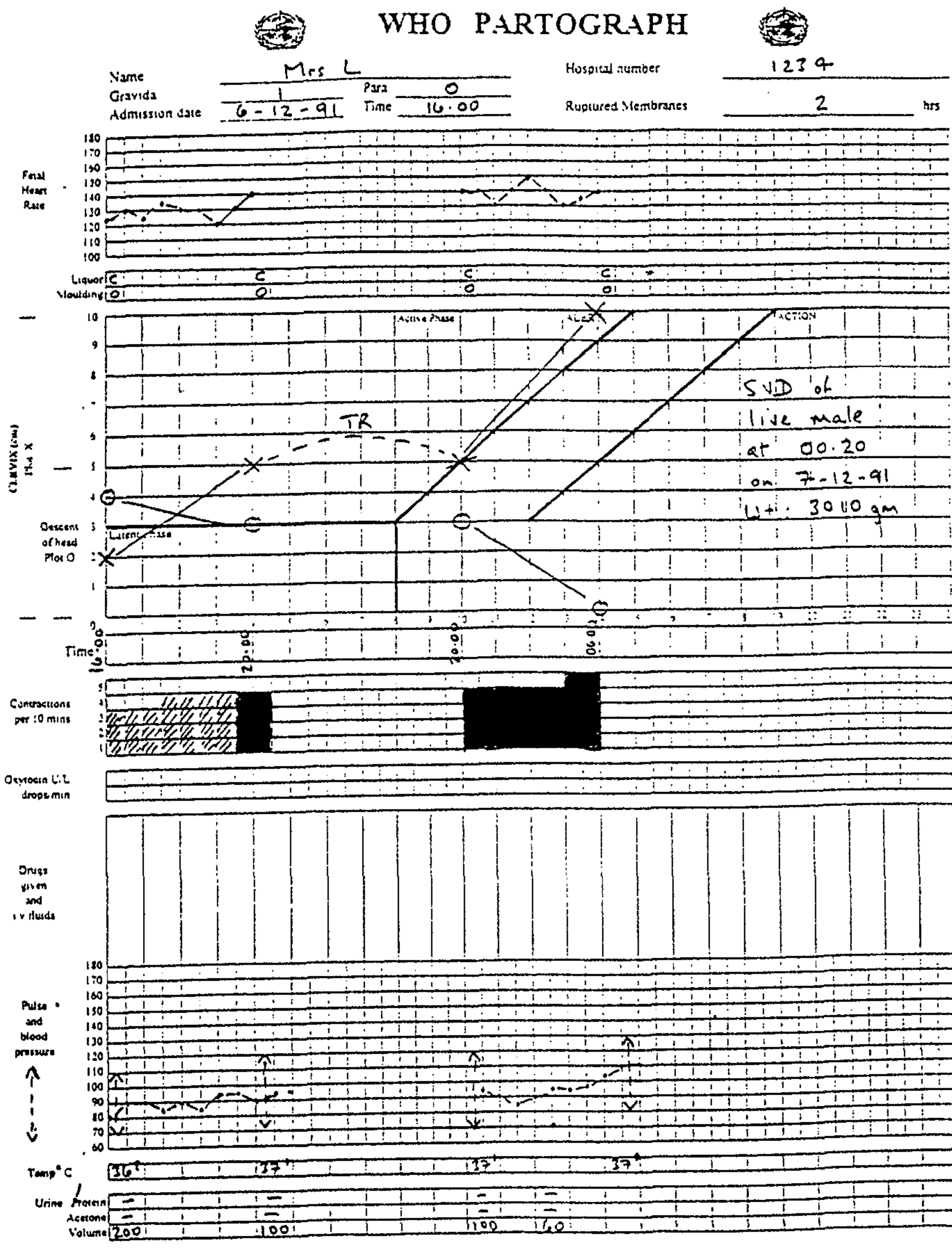


Figure 2.4

The WHO partogram

(Source: Lennox & Kwast 1995:57)

Permission to reproduce this figure was sought from the WHO, Family Health Division, through the MOH, Botswana (see Annexure N).

2.2.4 History of the use of the partogram in Botswana

In Botswana, use is made of the partogram when monitoring women in labour. It is not clear what was used before the introduction of the partogram in the country in the 1970s.

According to Kennedy (1998), the "Botswana Obstetric Record" was set up following a concern by doctors, among them Kennedy himself, in Francistown that although forceps deliveries and Caesarean sections were done, the concerned doctors were not quite sure whether or not they were intervening at the right time. There were no guidelines. Dr Kennedy was later transferred from Francistown to Bamalete Lutheran Hospital in Ramotswa. He still had the same concern.

Professor Philpott visited Botswana from Zimbabwe (the former Rhodesia). He developed an "alert line" and an "action line" on the partogram, with which to manage labour. He thus contributed to the development of the partogram in Botswana. The chart now alerted medical staff to potential problems during the early stage of labour (see figure 2.5, page 26).

Kennedy liked Philpott's partogram. The partogram was adopted. The partogram helped to understand how far the mother should have progressed as far as labour was concerned, and when action should be taken. So, Bamalete Lutheran Hospital in Ramotswa, Botswana, became the first hospital to use the partogram some 30 years ago. Medical staff at the hospital was given formal instruction on how to use the partogram.

The same year, the MOH wished to introduce a strategy called "family retained records" as part of the new primary health care programme. Bamalete Lutheran Hospital was chosen for the pilot trial. The hospital took this opportunity to introduce the partogram (labour graph) into this record for trial purposes.

Eventually, two obstetricians at the Princess Marina and the Jubilee Hospitals respectively, Drs Lake and Vander-Maulen, adopted the efforts of the Bamalete Lutheran Hospital concerning the labour graph, and together they produced the "Botswana Obstetric Record" with the symphysis fundus and the weight graph as the basis of antenatal recording. More and more use was made of the Obstetric Record till 1984, when it was used nationally (Ministry of Health, Botswana 1984).

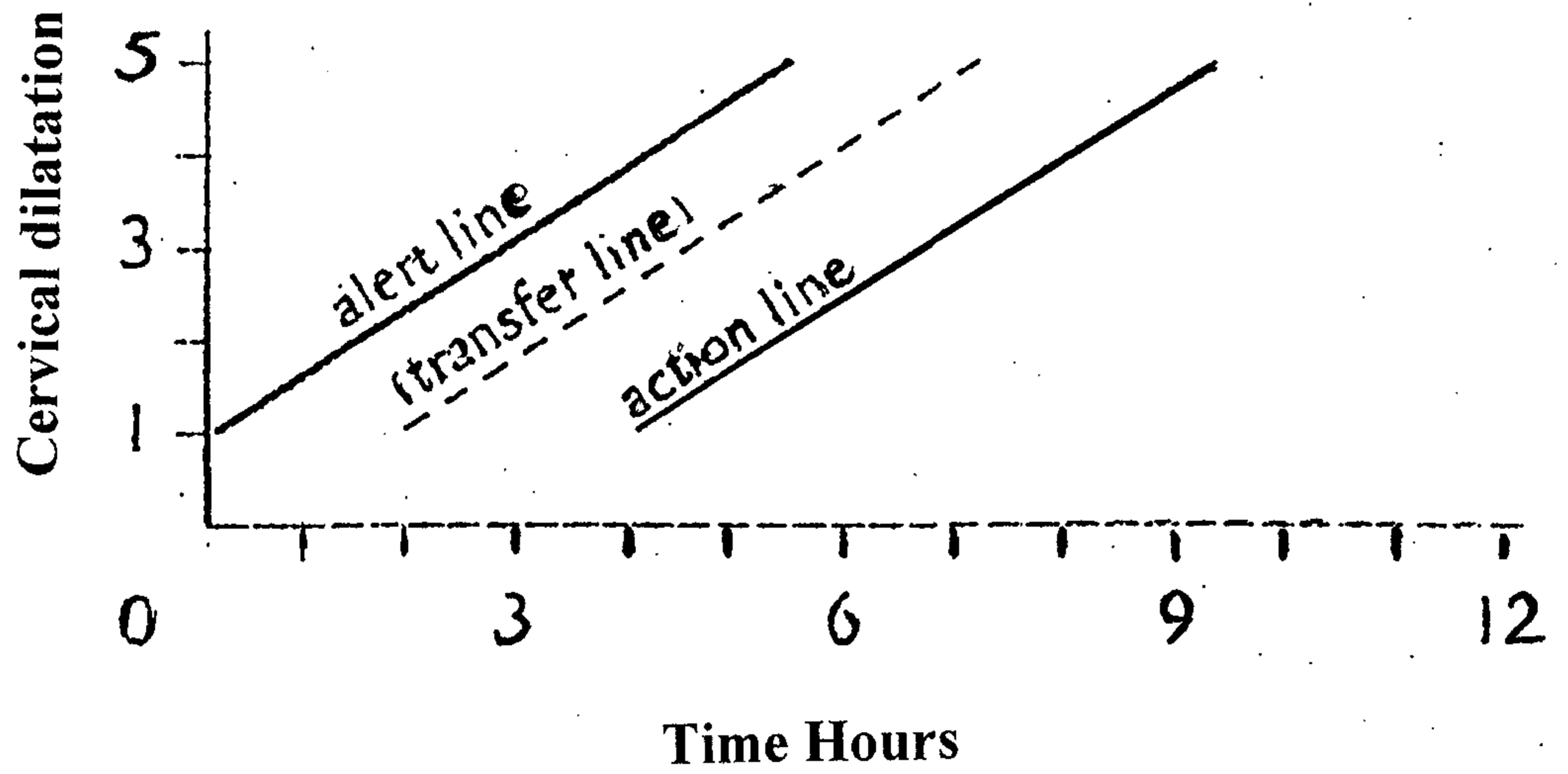


Figure 2.5
Philpott's "alert" and "action" lines
(Source: Walsh 1994:84)

Kennedy also pointed out that part of the philosophy regarding the use of the record was the idea of teamwork. The professionalism of midwives was to be trusted and they were given the responsibility of making decisions regarding the use of the partogram.

At that stage, there was no set plan of instruction or training regarding the use of the record in other parts of the country, so many doctors and midwives still struggled to use it to its full potential. Kennedy and the team, in collaboration with the MOH, tried to visit as many clinics and hospitals as possible to give talks and to run workshops, but they could not cover the whole country.

In summary, the partogram is the only tool of choice with which to monitor a woman in labour – hence the adoption of the Obstetric Record (Ministry of Health, Botswana 1984:1-13), which includes the partogram, with its document code MH 022/Rev 1984. The recordings made on a partogram help to monitor a woman throughout the process of labour (Ministry of Health, Botswana 1984:1-13).

2.2.5 The Botswana Obstetric Record and the recordings made on a partogram

According to the Republic of Botswana Nurses and Midwives Act (1995), the recordings made on a partogram form part of a midwife's duties. In terms of chapter 67:67(5) of the Act, entitled "limitation of practice", a midwife may not attend to a patient if the expertise that is required falls outside the scope of such a midwife's registration, except in an emergency or when a correctly – qualified person is not available. In such event, the midwife must report the facts of the case to the Council in writing immediately. In terms of chapter 61:71(11.(1), a midwife must keep a record in the form of the chart which is currently kept in government hospitals.

The researcher has given a description of the recordings on the partogram as explained in the booklet by Lake [sa] Instructions for Midwives in Botswana. There are many variants of the partogram, but essentially they all record the three main determinants of labour: foetal condition, maternal condition and progress of labour. The graphic recordings of labour enable the midwife to recognise deviations from normal labour. In Botswana, the Obstetric Record (Ministry of Health, Botswana 1984:6) is used to record these three main determinants of labour. The record is divided into sections – among which the labour-and-delivery section (see Annexure M).

2.2.5.1 *Labour-and-delivery section*

In the labour-and-delivery section is the partogram portion, at the top of which are spaces for the admission history and notes about the examination. Special notes can be made, either during the antenatal period or while the client is in labour, for those looking after the parturient, for example, “Rhesus negative”, “take cord blood for grouping”, “pregnancy induced hypertension”, “do not administer ergometrine”, “cervical incompetence”, “remove Schirodkar suture at 37 weeks”, “rheumatic heart disease”, “give antibiotic prophylaxis”, “allergic to penicillin”, et cetera (Lake [sa]:22; Lambrou, Morse & Wallach 1999:106).

◆ **On admission**

The general condition of the client can be described as “good”, “fair”, “anaemic”, “dehydrated”, “emaciated”, “sick” or “in a coma”. The pregnancy record is reviewed immediately, in order to identify risks. The partogram is used only for clients who are in true labour (Lake [sa]:22; Lambrou et al 1999:25).

◆ **Time**

Once the client is in true labour, time (hours) is another factor that needs to be recorded on the partogram. The most important observation is the rate of progress of labour, so it is essential that recordings be plotted on the partogram at the appropriate time interval, so that the shape of the lines made on the partogram can be clear and can be interpreted correctly.

O’Driscoll, Stronge and Minoque (1973:136) emphasise that the aim should be to deliver a woman within eight hours and to perform a Caesarean section at 12 hours, unless delivery is imminent. The hours are counted from one to 24 hours. Each box = 1 hour (see Figure 2.4, page 24).

The time of admission and of the first vaginal examination should be written in the first box if the patient is admitted during the latent phase, or in the box above the cervical dilation plotted on the alert line if the patient is admitted during the active phase of labour (Lake [sa]:26).

◆ The foetal heart rate

According to Bennet and Brown (1999:418), Burroughs (1997:137) and Lake ([sa]:30), the foetal heart rate should be checked regularly – at least half hourly, in order to detect foetal distress. The foetal heart should be listened to before, during and after a contraction (see figure 2.6, page 30).

The average normal foetal heart rate is 140 per minute (120-160) and is characterised by rate fluctuations of up to 20 beats per minute and early deceleration (a drop in the foetal heart rate to the precontraction rate at the end of a contraction). The drop does not go below 100 beats per minute and lasts no longer than 90 seconds.

A normal foetal heart rate is therefore slightly irregular in nature. It slows during contractions, but immediately returns to normal as the contraction ends. A contraction is stressful for the foetus. During the second stage of labour, there is a bradycardia, owing to the stimulation of the vagal nerves that are stimulated as the foetal head is compressed when it descends through the pelvis.

An abnormal foetal heart rate is characterised by fewer than 120 or more than 160 beats per minute; diminished beat-to-beat variability; individual foetal heart rate fluctuations of more than 20 beats per minute, for example, 130-160, 120-150; variable deceleration, for example, a drop during or outside a contraction. The foetal heart rate drops below 100 beats per minute, and each drop lasts longer than 90 seconds.

If the foetal heart rate is between 110 and 120, it is probably normal, but only if there are no decelerations during and after contractions that can be attributed to head compression from the transverse occiput position, particularly during the second stage of labour.

If the foetal heart rate is above 160 or below 120, the foetal heart should be listened to every 15 minutes for at least one minute immediately after a contraction. If the heart rate remains abnormal action should be taken unless the baby is just about to be delivered, a bradycardia (if the foetal heart rate is less than 120 beats per minute and lasts for longer than 15 minutes) can be caused by severe and prolonged hypoxia, which causes lactate level to rise, metabolic acidemia, congenital foetal heart block, maternal hypothermia, uterine hyperactivity, pelvic examination probably due to manual foetal head compression, maternal hypoperfusion (supine hypertension syndrome) and maternal hypoxia (eclampsia) (Burroughs 1997:138).

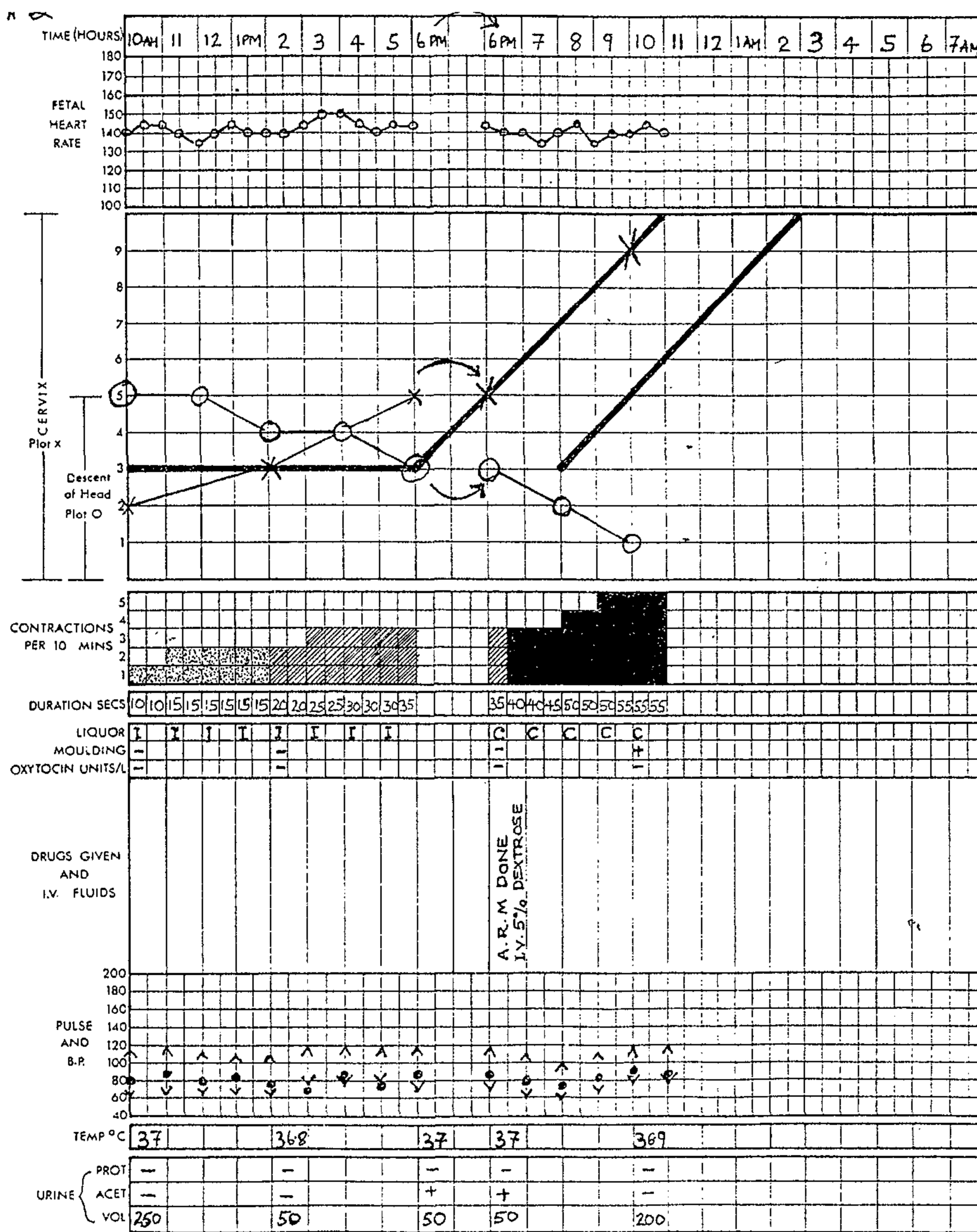


Figure 2.6

A completed partogram in normal labour – the partogram used in Botswana

(Source: Lake [sa])

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

Foetal distress is caused by poor oxygen supply to the foetus. The main causes of foetal distress during labour are as follows: head compression, cord compression, placental insufficiency and a hypertonic or hyperkinetic uterus, which are caused by an abruption placenta and oxytocin infusion respectively. The signs of foetal distress are as follows: significant alterations in the foetal heart rate, irregularity in rhythm, slowness to recover to the normal rate after decelerating because of uterine contractions, fresh meconium in liquor, and excessive foetal movements (Bennet & Brown 1999:418; Burroughs 1997:137; Lake [sa]:30).

According to Lake ([sa]:24), if there is foetal distress, the following steps should be taken:

- (1) Place the patient in the left lateral position.
- (2) Stop the oxytocin drip, if one is being used.
- (3) Do a vaginal examination in order to exclude cord prolapse, and assess the extent of cervical dilation for a normal labour.
- (4) If the membranes are still intact, rupture them, in order to see whether the liquor is meconium stained or not.
- (5) Start the parturient on humidified oxygen 6-8 litres per minute, and a 5,0% – dextrose intravenous infusion drip.
- (6) Check the foetal heart every 15 minutes. For a vacuum extraction to be done, the cervix should be fully dilated in primigravidae, and in multigravidae there should be a cervical dilation of at least 8 cm. In both cases, there should be a presenting part of at least 2/5.

◆ Cervical dilatation

The patient in labour should be examined at least once every four hours in order to assess cervical dilatation and the descent of the presenting part. If on admission, the patient is in the latent phase of labour, the findings are plotted on the extreme left of the graph. When the parturient then reaches the active phase of labour, as diagnosed through a vaginal examination, the findings are still plotted in the latent phase, and the cervical dilatation is transferred to the alert line, and the time that the parturient was found to be in the active phase of labour can also be read off the partogram. If, on admission, the parturient is in the active phase of labour, the findings are plotted on the alert line (see figure 2.7, page 32) (Lake [sa]:24).

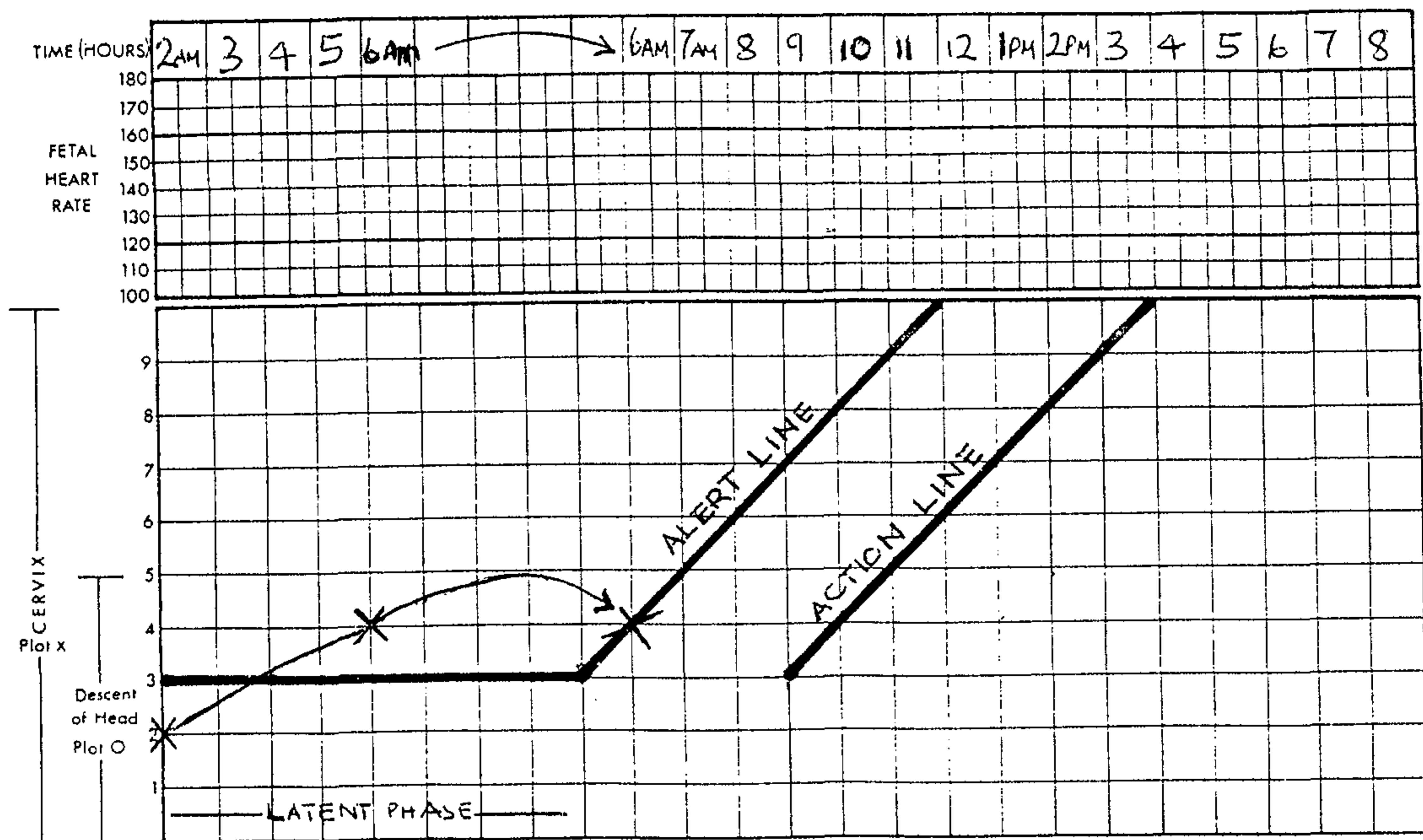


Figure 2.7
A recording showing the alert line on the partogram
 (Source: Lake [sa])

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

The alert line acts as a warning that labour in the active phase is delayed when the cervical dilatation moves over the right of it, or assists with early detection of a delay in labour, or warns the attendant that it is time to transfer the parturient to a higher level facility. The alert line reflects the progress of labour at a rate of 1 cm of cervical dilatation per hour. Movement of the cervical dilatation to the right of the alert line is considered abnormal, and if this occurs, referral to a higher institution with facilities for oxytocin augmentation and Caesarean section is recommended. Therefore, at clinics and hospitals, without theatre facilities cervical dilatation should not reach the action line because patients are supposed to be referred when the cervical dilatation has moved to the right of the alert line. Normally, at this stage, the patient should be referred to a referral hospital for specialist care which takes care of high-risk deliveries from clinics and district and primary hospitals (Bennet & Brown 1999:418; Lake [sa]:25).

There are three choices of action (when the action line is reached) in a higher level institution: oxytocin augmentation if there are no contraindications, termination of labour (usually by Caesarean section) or continuing conservative management with supportive therapy and increased vigilance if labour is advanced and expected to progress in a satisfactory manner a (cervical dilatation rate of more than 1 cm per hour).

With multigravidae, one needs to be careful that one's fingers do not stretch the cervix when assessing the true dilatation, since many multigravidae's cervixes can be stretched to 4-5 cm before effacement occurs. The effacement of the cervix should be expressed in centimetres, and not in percentages.

◆ **Descent of the foetal head**

Descent of the foetal head is measured through abdominal palpation. Five fingers will cover the foetal head, and the descent is measured by how many fifths are still felt above the public symphysis (Bennet & Brown 1999:417; Lake [sa]:29) (see figure 2.8, page 34).

When the level of the foetal head is assessed, the bladder should be emptied. The figures 0-5 on the right hand side of the graph are used for the descent of the foetal head that is palpable above the pubic symphysis, and this is plotted with a 0. The ischial spines are used as reference points when determining vaginally the descent of the foetal head (station).

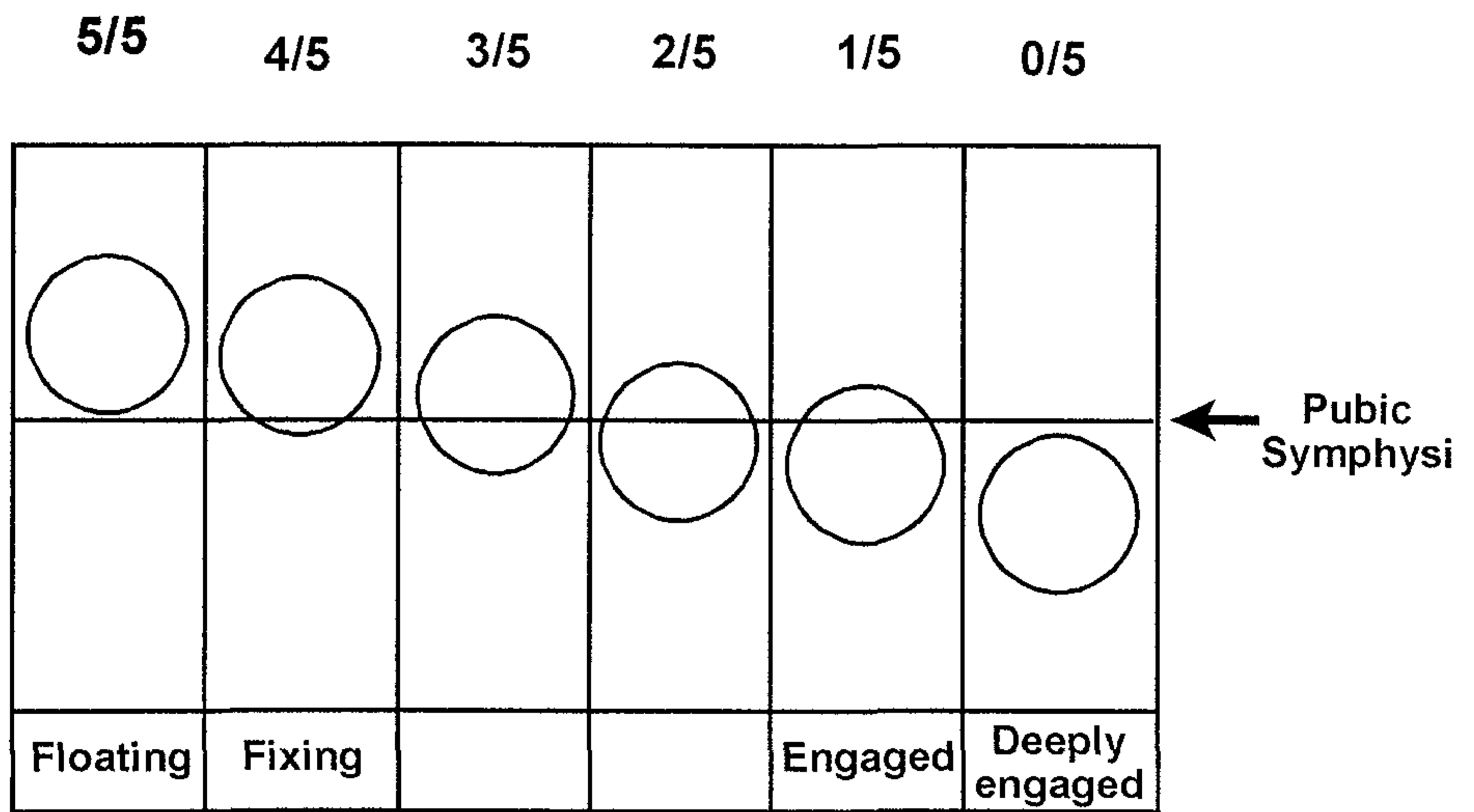


Figure 2.8
A recording of the descent of the foetal head on the partogram
 (Source: Lake [sa])

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

A vaginal examination is done for the following reasons:

- It excludes variability owing to caput and moulding.
- It excludes variability owing to different depths of the pelvis.
- The assessment is quantitative in nature, and is reproducible.
- The most important part that has to enter the pelvis, is the head, and it is the head that is assessed.

The head is engaged when only 2/5ths or less is palpable above the pubic symphysis. It is unwise to try a vaginal instrumental delivery if more than 2/5ths of the head is palpable above the pubic symphysis. If the descent is assessed at the same time as the dilatation it is useful to localise the position of the occiput and plot it in the "O" provided for descent (see figure 2.8, page 34).

The position is described in terms of the presentation of the presenting part in relation to the maternal pelvis. Vertex presentation with the occiput positions either to the right or the left anteriorly is the most common.

It is necessary to distinguish the occipito posterior position from cephalo pelvic disproportion as an etiological factor in prolonged labour. These conditions may coexist, and therefore it is useful to know the position of the occiput in labour.

Plotting is used only for descent of the cephalic presentation; descent of the breech presentation is assessed only during a vaginal examination by using the station, and the findings are then written in the space provided for notes on the labour process. (The station is the relationship of the presenting part of the foetus with reference to the level of ischial spines in the maternal pelvis. The station may range from -5 to +5. A zero station (engagement) occurs when the lowest presenting part is palpable at the level of the ischial spines. In a labour that is progressing normally the two plottings [dilatation and descent] cross each other on or before the alert line.) A slow progress or no progress calls for evaluation of the size, presentation and position of the foetus, the adequacy of the pelvis and the strength of the contractions (see figure 2.9, page 36).

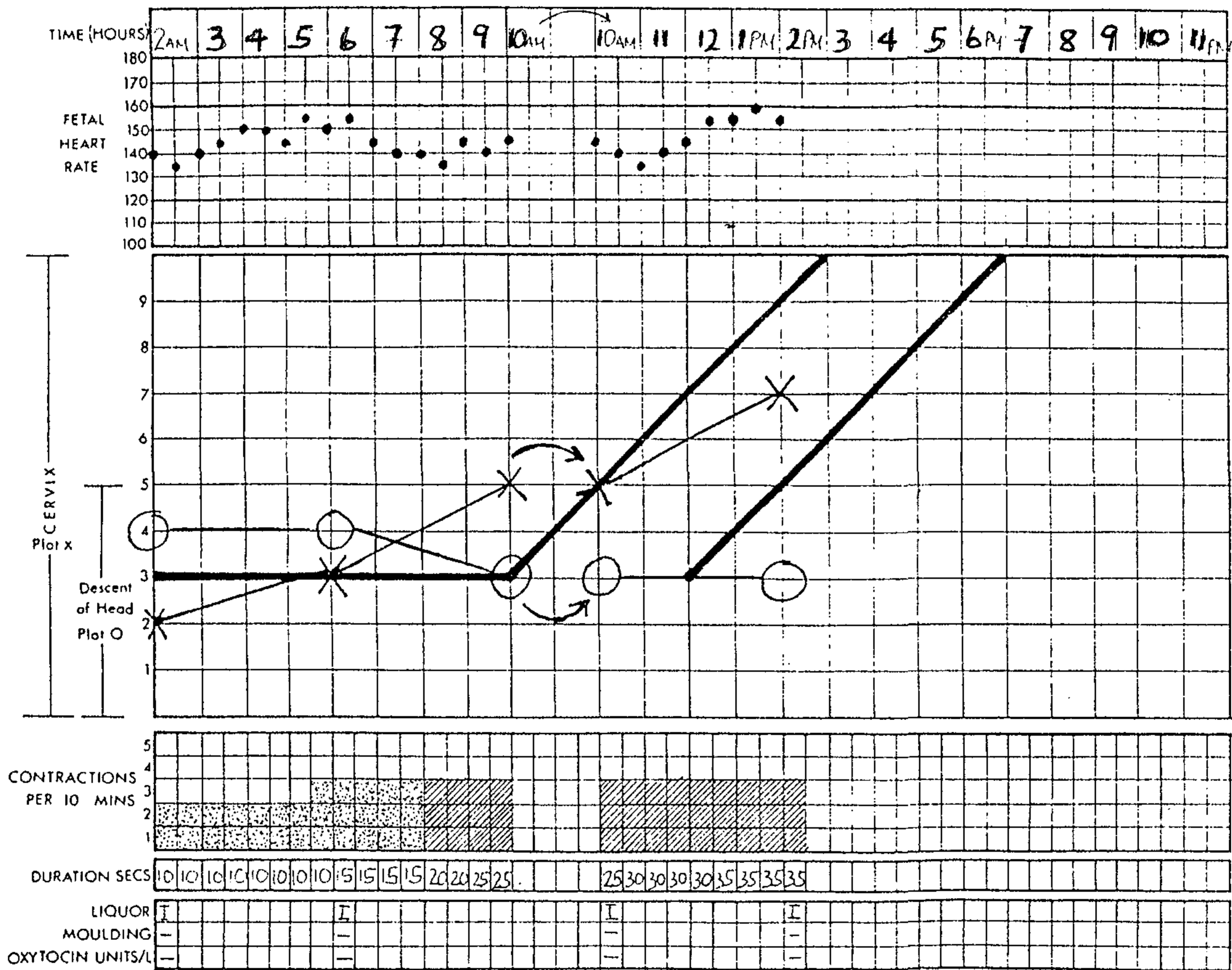


Figure 2.9

A completed partogram in a prolonged first stage of labour (slow progress)

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

◆ **For liquor write the following in the box:**

I: Membranes intact (see figure 2.9, page 36)

A: Absent

FM: Fresh meconium stained liquor

C: Clear liquor

If, on examination, there is fresh meconium in a cephalic presentation or in a nonengaged breech, it may be a sign of foetal distress, even if the foetal heart beat is normal.

In-utero passage of meconium may be caused by hypoxia, or represents normal gastrointestinal tract maturation under neural control, or can follow vagal stimulation, resulting in peristalsis. If there is a tachycardia with clear liquor, the parturient should be turned on her left side, and given oxygen by mask (8 litre per minute) and a bolus of 20 ml Dextrose 50,0%, followed by a drip of Dextrose 5,0% 1 000 ml (Lake [sa]:30).

The parturient should be monitored closely, and if there is light, old meconium and a normal foetal heart rate, the monitoring should be continued as usual. Thick, old meconium with a normal foetal heart rate calls for close monitoring (every 15 minutes) and immediate sucking when the head is born, to remove the thick plug in order to prevent aspiration of meconium, which could lead to respiratory distress. If there is fresh meconium and an abnormal foetal heart rate, the foetal heart should be listened to again after 15 minutes, and if it is still abnormal, action should be taken, unless delivery is imminent, Blood stained liquor could be a sign of birth trauma, and calls for an evaluation of the process of labour. Offensive liquor is an indication of infection.

◆ **Moulding**

Moulding is another factor that should be considered when a woman is in labour.

It is important to write the following in the box:

- If moulding is absent.
- + If skull bones touch each other.
- + + If skull bones overlap, but can be separated.
- + + + If skull bones overlap and cannot be separated the development of moulding of the foetal head is normal, because the foetal head is compressed as it descends through the pelvis.

Increased moulding without descent of the foetal head means cephalopelvic disproportion. Third degree moulding (+++) is a sign of obstructed labour, which is not expected to occur in the labour ward and needs emergency action (Bennet & Brown 1999:405; Lake [sa]:31). Increased moulding without descent of the foetal head may result in the formation of a caput, which is quite a critical situation.

◆ **Caput**

A caput is an area of oedema over the presenting part which extends across the suture lines. Caput formation without moulding is an unreliable sign of pelvis disproportion since it can occur when labour progresses slowly, as the head is placed under pressure as it descends through the dilating cervix. If no caput is felt, plot “-“, if caput is present, plot “+”. There is no such thing as “caput ++” (see figure 2.8, page 34).

◆ **Drugs**

Drugs also need to be monitored constantly during labour.

If oxytocin is given, the strength of the solution should be entered on the graph and on the intravenous bag (infusion pump). Use of salt should be avoided. The oxytocin rate should be measured every half an hour until there are three or four contractions in 10 minutes, each lasting 40-50 seconds, and that rate should be maintained throughout the second and third stages of labour. The giving of oxytocin should be discontinued if there are more than five contractions in a 10 minute period, or if they last longer than one minute, or if the foetal heart rate decelerates significantly. Immediate discontinuation of oxytocin always corrects the disturbances. (Bennet & Brown

1999:495; Burroughs 1997:412; Lake [sa]:31).

The giving of oxytocin should be begun only in institutions with theatre facilities for lower segment Caesarean sections (LSCS), or in institutions that are ready for a quick referral. Once the parturient is on oxytocin, she should be monitored closely and be reviewed by a medical officer after two hours or sooner, if the need arises to assess the progress.

◆ **Pethidine**

Pethidine can be given to the parturient to help her rest in between contractions. Pethidine should not be given if delivery is expected within the next two hours, in order to avoid neonatal depression, which can be treated with Naloxone (Naroan) 0,01 mg per kg.

◆ **Maternal assessment**

- **Blood pressure** – the blood pressure should be indicated with an arrow at systolic and diastolic levels (see figure 2.10, page 40).
- **Pulse** – the pulse rate should be charted with a dot.
- **Temperature** – the temperature should be checked on admission, and at least every four hours.
- **Urine output** – the urine output should be measured carefully during labour, and each specimen should be tested for protein and acetone (see figure 2.6, page 30).

An indwelling catheter during labour should not be left *in situ*, for it may obstruct labour and may cause necrosis of the bladder (Bennet & Brown 1999:416; Lake [sa]:32).

Evidence of maternal distress includes the following: a rising pulse rate to over 100 beats per minute a rising temperature or blood pressure, and the presence of acetone in the urine. The patient looks tired, exhausted and anxious.

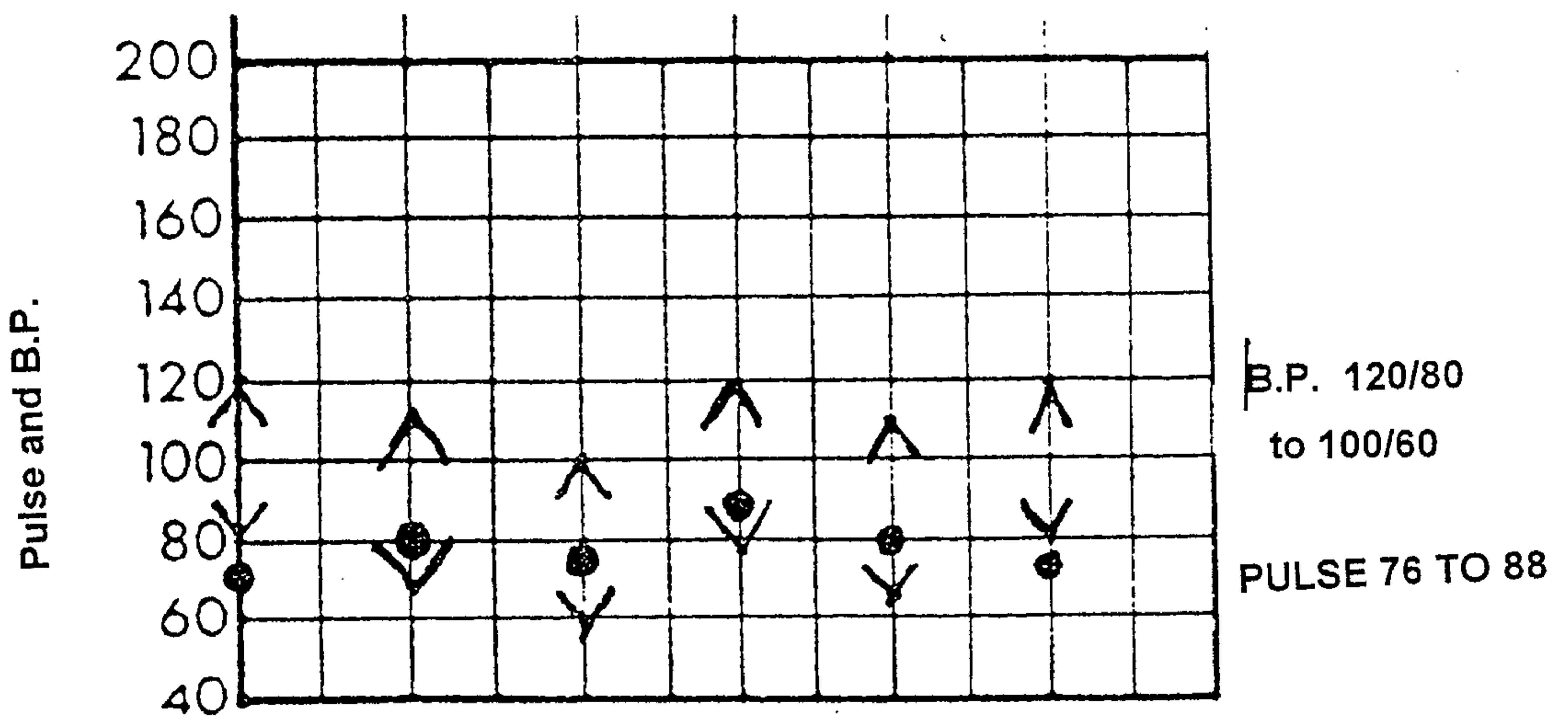


Figure 2.10

Recording pulse rate and blood pressure on the partogram

(Source: Lake [sa])

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

A high maternal pulse could be a sign of impending uterine rupture, exhaustion or dehydration. High temperature could be a sign of chorioamnionitis or dehydration. Dry or oedematous vulva which is found mostly in referred patients who laboured at home, can be a sign of obstructed labour.

◆ **Frequency of the observation**

• **Latent phase**

- The foetal heart rate should be checked every 30 minutes, and if it is a high-risk case, it should be checked every 15 minutes (see figure 2.11, page 42).
- The descent of the presenting part should be checked every two hours.
- A vaginal examination should be done every four hours.
- Maternal assessment should be done every two hours.

• **Active phase**

- The foetal heart rate should be checked every 30 minutes, if it is high, it should be checked every 15 minutes (see figure 2.7, page 32).
- The descent of the presenting part should be checked every hour.
- A vaginal examination should be done every two to four hours.
- Maternal assessment should be done every hour.

• **Second stage**

- The foetal heart rate should be checked at every contraction, every 15 minutes (every five minutes, if it is high-risk case (Lake [sa]:22)).

• **Contractions**

Important features of contractions are frequency and duration, which should be assessed every 30 minutes. The strength of the contraction is determined by placing the palm of the hand on the uterine fundus for 10 minutes and by assessing the length of each individual contraction during those 10 minutes (see figure 2.12, page 43).

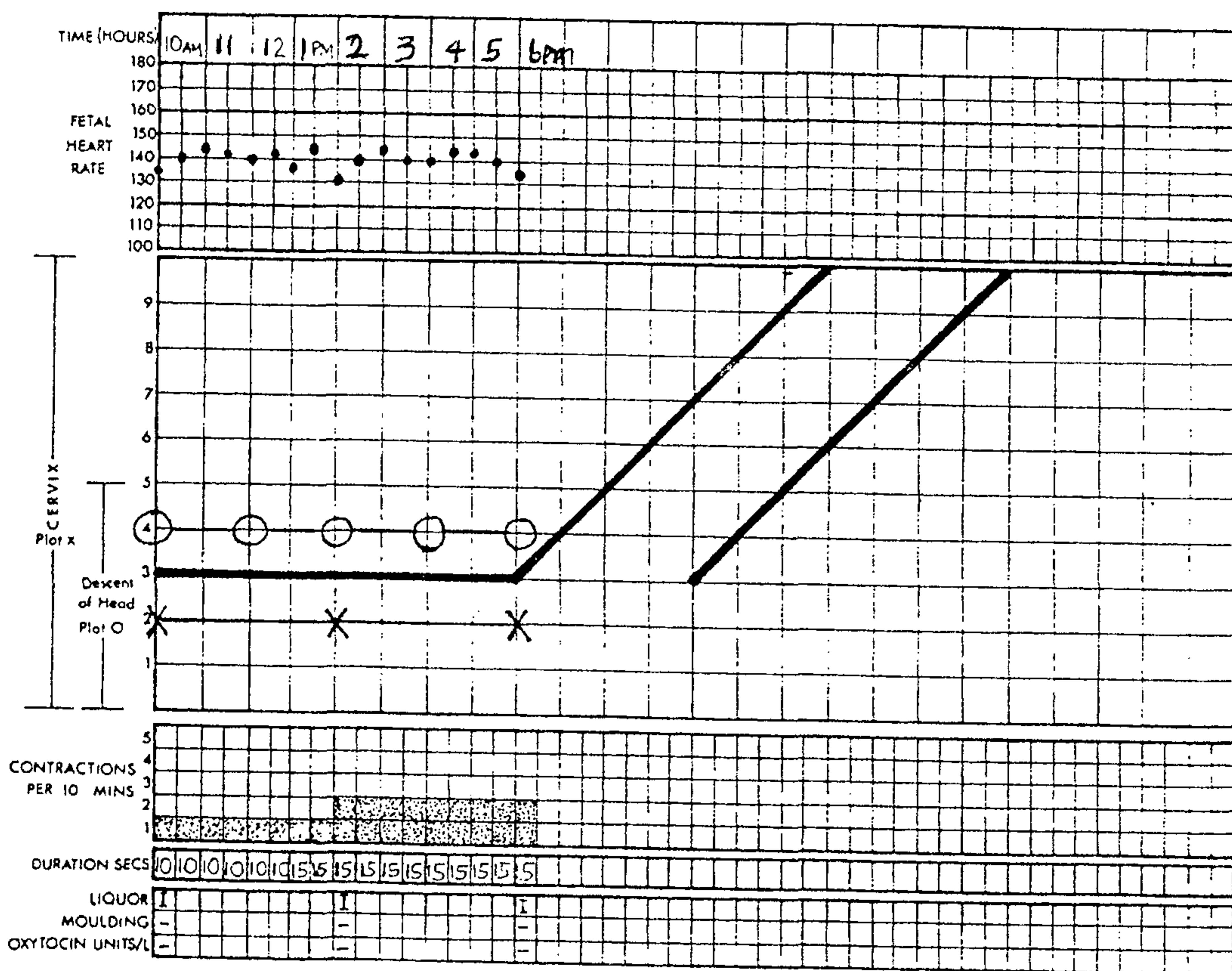


Figure 2.11

Recording the latent phase on the partogram

Source: Lake [sa]

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

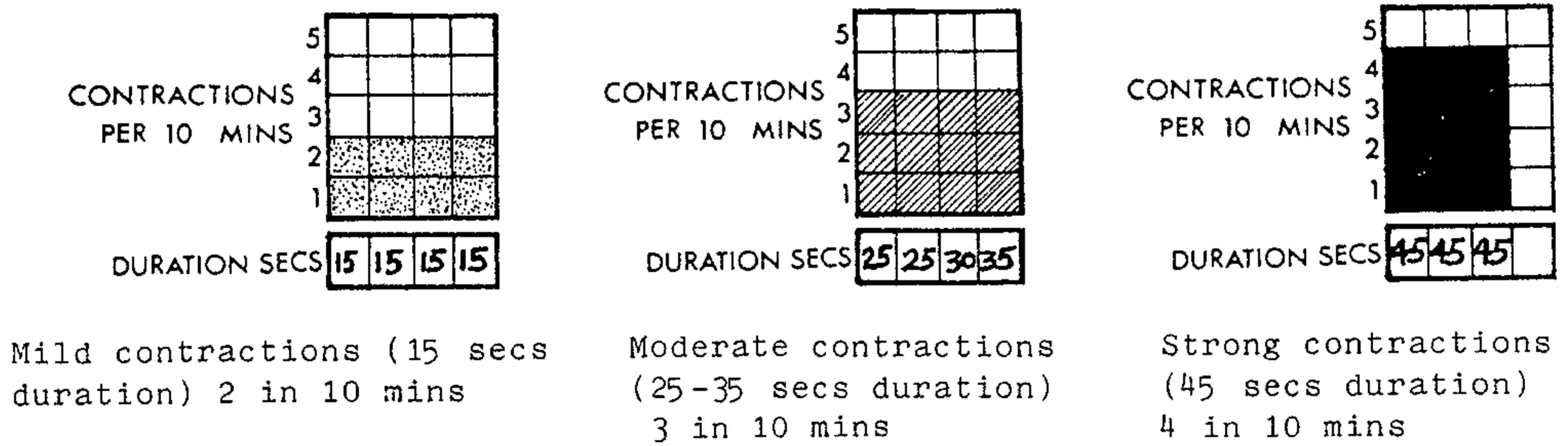


Figure 2.12

Recording types of contraction on the partogram

Source: Lake [sa]

Permission to reproduce this figure was sought from the MOH, Botswana (see Annexure N).

Contractions are plotted by filling in the number of squares that equal the number of contractions, by means of the key provided on the right-hand side of the graph. Mild contractions last less than 20 seconds. Moderate contractions last between 20 and 40 seconds. Strong contractions last more than 40 seconds (Bennet & Brown 1999:497; Burroughs 1997:159-160; Lake [sa]:30).

2.2.5.2 Abilities that midwives who use the partogram should possess

According to Gillies (1982:258), “competence” is the state of possessing those qualities or abilities that are considered requisite for a particular role or task. Within the context of this study, “refinement of the partogram: an educational perspective”, competence is the midwife’s state of possessing qualities or abilities that are considered requisite for the use of the partogram in monitoring patient’s during the first stage of labour (Ministry of Health, Botswana 1984:6).

Tasks of a midwife:

- (1) Take the patient’s obstetric history into account when examining her as part of the admission process.
- (2) Check the following parameters when the patient is admitted:
 - (a) time
 - (b) foetal heart rate
 - (c) cervical dilatation
 - (d) descent of the foetal head
 - (e) contractions and their duration
 - (f) liquor
 - (g) moulding
 - (h) maternal pulse
 - (i) blood pressure
 - (j) temperature
 - (k) urine
- (3) Record the following parameters in the appropriate space on the partogram:
 - (a) time
 - (b) foetal heart rate
 - (c) cervical dilatation

- (d) descent of the foetal head
- (e) contractions and their duration
- (f) liquor
- (g) moulding
- (h) maternal pulse
- (i) blood pressure
- (j) temperature
- (k) urine

Take note of the following:

- (1) Report or refer a patient to the doctor on call, or to the second doctor on call, according to the urgency of the patient's need.
- (2) Check the foetal heart rate at least half-hourly and record it on the partogram.
- (3) Plot the cervical dilatation at least every four hours.
- (4) Plot the descent of the foetal head at least every hour, by abdominal palpation.
- (5) Check the frequency of the contractions by counting, at least every 30 minutes, the number of contractions that occur in a 10 minute period.
- (6) Record the characteristics of the liquor or the membranes at least every hour.
- (7) Record the characteristics of moulding at least every four hours.
- (8) Check the temperature, pulse, respiration rate and blood pressure of the mother at least every four hours.
- (9) Measure and test the urine for protein and sugar.
- (10) Identify abnormalities in the labour process by means of the partogram.
- (11) Take action when the following are present:
 - (a) labour had crossed alert line
 - (b) labour at the action line
 - (c) a rise in blood pressure
 - (d) a rise in temperature
 - (e) a rise in the foetal heart rate
 - (f) a rise in the pulse rate
 - (g) ketones in the urine
 - (h) fall in the foetal heart rate

The above abilities that are considered requisite for the use of the partogram in monitoring patient's in the first stage of labour are just as important when a woman is still in antenatal care.

2.2.6 Antenatal care

According to Mwalali and Lisasi (1998:1), antenatal care, including the use of the partogram, can facilitate the high-risk approach.

2.2.6.1 Antenatal care – globally

According to James, Draycott, Fox and Read (2000:160), antenatal care is mostly about supporting the mother and preparing her for antenatal care and parenthood. In the United Kingdom, (UK) the pattern of antenatal care for normal women varies widely throughout the country. Many women still pay one or more visits to either the community team of midwives and general practitioners (GP), or to specialist obstetricians, if need be. The first visit to the GP or midwife at six to eight weeks is to confirm pregnancy and to set up a provisional plan. This includes assessment of the need for a specialist opinion. A second visit, at eight to 10 weeks, is to identify any important risk factors. Routine-booking blood and urine tests are arranged. A certain proportion of normal women will develop problems in pregnancy, so checks are done at each visit in order to screen the patient for problems.

Sakala (2000:35) says that the aim of prenatal care in the United States is for every wanted pregnancy to result in the delivery of a healthy infant by a healthy mother. Specific aims are to prevent or manage conditions that cause poor pregnancy outcomes. Good prenatal care is characterised by regular health care visits.

2.2.6.2 Antenatal care in Botswana

According to Letubo (1996:13), one of the objectives of antenatal care in Botswana is to detect problems that may adversely affect the mother's health, or that may prevent delivery of a healthy baby. Antenatal care therefore constitutes one of the major components of the integrated maternal child health/family planning (MCH/FP) service approach in Botswana.

Pregnant mothers are encouraged to register for antenatal care at the nearest health facility once they have missed two menstrual periods (the first trimester) – the first visit should be in the first trimester, before the body adopts for pregnancy.

There are also changes in the mother's nutritional habits that should be taken note of at this stage. It is thought that if midwives have baseline data about a woman it will help them identify any deviation from normal (Letubo 1996:13), and will help them initiate the relevant interventions. Information obtained during the visits is recorded on the Botswana Obstetric Record. Usually, the first registration is the longest, because of the detailed information that is obtained. Routine antenatal blood-screening tests are performed at that point.

In order to establish baseline data about a woman, the following may be needed:

- A complete history
- A general assessment of the patient including her weight, blood pressure and a urinalysis check
- A physical, obstetric, gynaecological examination
- Laboratory tests, for example, a full blood count, a syphilis test (VDRL)
- Risk identification
- Counselling, information and education
- Referral, if needed
- Admission to a facility for antenatal care.

The woman should be advised about subsequent visits. In the first 28 weeks, there should be one visit every four weeks, and from 28 to 36 weeks, one visit per week (Ministry of Health 1994:7).

It has been stressed that once all the information has been gathered, a decision can be made about the subsequent care that will be offered to the pregnant woman and her family (Bennet & Brown 1999:139) – also during labour.

Letubo (1996:13) says that if during antenatal care, the midwife identifies any risk factors such as concerns about nutrition, weight loss, weight gain, prompt management is needed. Midwives trained in Botswana have the ability to identify any abnormalities for which they are expected to refer the

patient to the doctor for further assessment. Also, their training and the scope of the practice as governed by the Republic of Botswana the Nurses and Midwifery Act give midwives the authority to identify high-risk factors and to refer for prompt management.

2.2.6 Training in midwifery in Botswana

Training in midwifery has always been practice-related, and its content has expanded over the years. The curriculum has also been influenced by the need to reduce maternal mortality and perinatal mortality in recent years. There was a firm belief that an improvement in the practices of midwives would lead to a decrease in the mortality rate, despite of evidence that maternal mortality rates in hospitals, were higher (Bennet & Brown 1999:700).

Over the years, the duration of training in midwifery in Botswana ranged from nine months to 12 months to the current 18 months, so that quality practitioners could be produced who would be able to meet the demands of patient care.

The previous curriculum in midwifery did not adequately address the current needs of problems of mothers and children. *Various groups, teachers external examiners, students and consumers of the service expressed concern about the quality of knowledge, both in theory and in practice (Curriculum for the Diploma in Midwifery 1994:4:3.2).*

Nurse tutors identified the fact that student midwives did not seem to acquire sufficient midwifery skills to demonstrate proficiency and to work independently after the 12 months programme. Many students also indicated that the programme usually ended when they were just beginning to understand and acquire skills (*Curriculum for the Diploma in Midwifery 1994:4:3.1*).

An 18 months curriculum was therefore designed to help the learner acquire competence and confidence in the practice of professional midwifery, under the guidance and supervision of an experienced practitioner.

In order to qualify for admission to the programme, (*Curriculum for the Diploma in Midwifery 1994:3.2*), the candidate should be in possession of a general/professional nursing qualification, with a minimum of one year clinical experience as a registered nurse.

The training course in midwifery follows a modular approach, in which instruction in theory is immediately followed by practical work, with no repetition of the content. Each clinical area rotation focuses on newly-taught theory content. During training, each learner is allocated on a rotational basis to the following clinical areas of experience:

- community
- antepartum
- maternal child health/family planning (MCH/FP)
- intrapartum
- postpartum
- neonatal

The clinical area rotations run concurrently with the instruction in theory. Upon completion of the programme, an evaluation is done by all personnel involved in the teaching-learning process.

The programme was evaluated in order to determine whether the graduates were adequately prepared to effectively meet the current needs of mothers, children, families and communities and to modify the programme in the light of this evaluation in order to make it more effective (Curriculum for the Diploma in Midwifery 1994:31-32). Evaluation of the programme also included determining the use of the partogram by midwives. Midwives are not the only people involved in managing the progress of labour: In remote areas, deliveries are still done by traditional birth attendants.

2.2.8 Traditional birth attendants

2.2.8.1 Traditional birth attendants – globally

The role of traditional birth attendants (TBAs) has increasingly gained the realm of antenatal, intrapartum and postnatal care and yet its contribution to the health service has not been recognised fully by the official health system. Kenya, especially, with the support of the United Nations Children's Fund (UNICEF), the WHO and nongovernment organisations, has recorded an impressive expansion of MCH/FP facilities since independence. A large proportion of pregnant women, in Kenya especially in rural areas, cannot attend an antenatal clinic before the birth of a new baby. Some 80,0% of the women in that country give birth at home, with the help of TBAs, rather than at

maternity centres.

However, home deliveries are dangerous. The most frequently cited problem associated with home deliveries was the unavailability of official health care, which contributed to the high morbidity and mortality rate of infants, children and mothers. This study found the above to be a challenge to primary health care, and in particular to the role of TBAs.

Official recognition of MCH/FP problems led to Kenyan government to adopt the PHC programme, in which traditional health workers were to play a prominent role as far as traditional medicine was concerned (Sindiga 1995:459).

2.2.8.2 Traditional birth attendants in Botswana

The Botswana health care system makes no provision for TBAs, but according to reports, in remote areas deliveries by TBAs still take place. TBAs in Botswana receive no formal training and they are not covered by legislation.

Leedman in Makokha et al (1994:VIII) defined a TBA as a person (usually a woman) who assists the mother at childbirth and who initially acquired her baby delivery skills through practice or through working with other TBAs.

Makokha, Khuluman, Modisaotsile and Baakile (1994:39) made a study of the activities of TBAs in Botswana, and their main conclusion was that TBAs in Botswana are females who learnt the art of traditional midwifery from a practising family member or a close relative. TBAs are generally older women over 30 years of age.

TBAs in Botswana get their experience both from assisting women during pregnancy, delivery and postpartum, and, since they are women with families, also from their personal experience of going through pregnancy and delivery themselves.

As far as management of labour is concerned, the TBA is seriously handicapped by a lack of knowledge about current concepts of management, as far as both approach and specific skills are concerned.

The TBA is either ignorant about or unable to adequately assess, the progress of labour and cannot anticipate problems. It is crucial for the TBA to be able to identify and predict problems with a view to early referral. The TBA has no formal evaluation instrument with which to monitor the woman's progress of labour.

From Makokha et al (1994) 's study it is clear that TBAs adopt a "wait-and-see" attitude during labour, and no appreciable examination and evaluation of the patient is performed to assess the progress of labour and anticipate its outcome. It is evident that TBAs need basic guidance on established norms and procedures and standardised tools for practice, such as partograms. TBAs lack clear knowledge of the aseptic technique of delivery and the safe motherhood initiative. Health care systems have not yet introduced TBAs to the use of the partogram.

2.2.9 The safe motherhood initiative in Botswana

The safe motherhood initiative (SMI) is a global strategy that is currently adopted by many countries in order to reduce maternal morbidity and mortality. In 1987, the SMI was launched in Nairobi, Kenya, with the objective of reducing maternal mortality by 50,0% within 10 years.

According to Maganu (1994:1), most maternal morbidities in developing countries can be prevented. He said this after the international conference in 1987. The conference had recognised an unacceptably high maternal mortality ratio (about 450 per 100 000 live births) in the developing world. WHO then demanded that health workers involved with the care of mothers and children take positive action to reduce maternal morbidity and mortality by half by the year 2000. This action was to ensure that all pregnant women are screened by supervised and appropriately trained health workers with relevant technology to identify those at risk and to provide prenatal care and care during labour as expeditiously as possible.

As part of the global SMI various health intervention programmes were established to improve health care for pregnant women. The Government of Botswana launched its SMI in 1990, and initiated various projects. To measure the impact that these intervention programmes have on the intended goal, requires partnership in care between child-bearing women and midwives, with the assistance of other supportive systems. (*Curriculum for the Diploma in Midwifery* 1994:3). Healthy mothers result in fewer infant and child deaths, improved infant and child health and improved nutritional

status (Daly et al 1993:14).

Use of the partogram by midwives forms part of the safe motherhood strategy, because of its association with a reduced risk of perinatal death and a reduced incidence of protracted labour (Drouin et al 1979).

In Botswana, every year some 200 women die, while between 2 000 and 3 000 are significantly handicapped, because of pregnancy-related causes (Maganu 1994:1). In Nyangabgwe Hospital alone, there were as many as 11 maternal deaths between 1997 and 2000.

One of the instruments introduced to reduce the high incidence of maternal and neonatal mortality in developing countries, is the partogram, a visual means used in evaluating a normal delivery. It acts as an early warning system that allows for the early detection of abnormal evolution in labour, as far as both the mother and the foetus are concerned.

Although most maternal morbidities in developing countries could be prevented, there should be a sound health care service in place in order to assist midwives in the onward referral of patients. Health care services rely heavily on a referral system that is based on the principle that a patient can be moved from a lower level facility (that is a health post or a clinic) to the next level of the system capable of rendering the necessary care (Botswana Health Management System Manual 1991:7-15).

Because of the enormous distances between the levels of facility, and often, a lack of transport and poor roads the referral system, in practice, cannot provide the emergency obstetric care that is needed. The midwife therefore plays a pivotal role in the reproductive services, particularly in maternity care (Botswana Safe Motherhood Initiative 1994:1).

It is therefore the purpose of this study to look into the use of the partogram by midwives. The partogram serves as an early warning system and helps with early decision-making about transfer, augmentation and the termination of labour.

It also improves the quality and regularity of all observations regarding the foetus and the mother in labour, and helps to detect problems at an early stage during labour. Increased ability in monitoring

the condition of the foetus *in utero* and progress in labour will have a major impact on foetal health. According to Bennet and Brown (1999:39), management of the process of labour and prevention of prolonged labour have been made possible by the introduction of the partogram.

According to Philpott and Castle (1972:592), it is important to make use of midwives in the labour process and to provide them with training through the establishment of accurate rules that would make them gain knowledge on how best to assess patients in labour. Below follows a discussion on studies done by other researchers regarding the use of the partogram by midwives.

2.3 EMPIRICAL LITERATURE

The literature was reviewed in order to find out how much progress had been made in studies on the use of the partogram by midwives, both in Botswana and internationally. While little information was found on the use of the partogram in Botswana, the majority of international publications that reviewed the concept of prenatal mortality did not give any information regarding the practical implementation of the partogram.

2.3.1 Perspective on obstetric care

Bennet and Brown (1999:663-664) state that the perinatal death rate is often taken as a primary indication of success or failure in obstetric care. Perinatal deaths are deaths which are closest to the event of delivery, and some of them are caused by factors such as hypoxia in labour and intracranial trauma during birth.

The same authors also indicate that improved care in labour reduces the length of labour and offers safe intervention. The authors further emphasised that this should not lead to a belief that more technological aids in themselves lead to better care. There is an increasing realisation that skilled midwifery care contributes to safety in labour.

According to Annales de la Societ  Belge de (1995:321-325), maternal mortality remains one of the major problems in public health today, especially in developing countries such as Niger, in which maternal mortality is estimated to be between 500 and 1 000 deaths for 100 000 live births.

The Ministry of Public Health of Niger introduced the partogram in all maternity wards in 1990. A study was conducted in one of the maternity wards in the capital in order to ascertain the effectiveness of this new instrument for both the mother during labour, and the newborn child. One thousand two hundred and ninety-nine women in labour, prima and multiparous patients, participated in the study.

Two groups were formed: one group consisted of women who had delivered prior to the introduction of the partogram, and the second group consisted of women who delivered after its introduction. The study showed that the partogram reduces the length of time that a woman is in labour by preventing prolonged labour and elimination of obstructed labour through recognising cephalo-pelvic disproportion before birth process becomes obstructed.

Lavender, Alfievic and Walkinshaw's (1998:976-980) study on "the partogram action line: a randomised trial", indicated that the use of a partogram with a four-hour action line produced the lowest incidence of caesarean section. If the partogram is used accurately, interventions of whatever nature will be timely, and this will improve the neonatal morbidity and mortality outcome.

2.3.2 Neonatal morbidity and mortality

Steward, Andrew and Cartilage (1998:657-660) did a study in the Department of Child Health at the University of Wales's College of Medicine in Cardiff. Its purpose was to investigate the relationship between the timing of the birth and the occurrence of death related to an intrapartum event.

An analysis of 107 207 births among Welsh residents in 1993-1995 revealed 608 stillbirths and 407 neonatal deaths. The results of the study showed a relative risk of death according to the hour, day and month when an intrapartum event take place. It was found, for instance, that the mortality rate of babies born between 21:00 and 08:59 was higher than that of babies born between 09:00 and 20:59.

From findings of the study it was concluded that the higher number of deaths at night and in months when most people take their annual leave might be indicative of an over reliance on inexperienced staff during those periods. Errors of judgement might be related to physical and mental fatigue, which meant that a more disciplined, systematic approach might be required at night. More supervision by

senior staff at night and during summer months might also be required.

Although the study cites a lot of areas, such as more supervision, that could be looked into as a way of improving the quality of labour care, the study does not indicate specifically whether there is a system of guidelines in place to help midwives evaluate the progress of labour in a consistent manner (as through an early warning system such as the partogram).

Nilses and Olsen (1986:119-121), tried to identify factors associated with stillbirth and factors occurring in the first week of life in Marondera District. Sixty-six such deaths out of a total of 1 900 births, gave a perinatal rate of 35,0% per 1 000 total births. Data pertaining to each mother and her baby were entered on a special form used for the study. Although other factors could be considered, the main cause of perinatal death in this study was intrapartum asphyxia, which could have been detected earlier by making use of the partogram.

Linge-Kavoo and Rogo (1992:181-186) also did a study on factors influencing early perinatal mortality in a rural district hospital in Kenya during a four month period. Two thousand one hundred and seventy-one deliveries were recorded with an early perinatal mortality rate of 53 per 1 000.

Factors significantly influencing early perinatal mortality included maternal age, education, and marital and socioeconomic status. Antenatal care, gestation at delivery, birth weight, pregnancy and labour complications were other significant factors. The results of the study highlighted the role of TBAs.

The effect of prolonged labour and a prolonged second stage of labour on the early perinatal mortality rate was of particular importance and pointed at the need for supervision of labour and proper use of the partogram.

Efforts to reduce perinatal mortality should be directed at both the community and health service providers. Continuing education to rural health workers should be upgraded and should also be accompanied by sustained efforts at improving facilities and supplies.

In a study done by Makokha et al (1994:36) on the knowledge, attitude and practice of TBAs in Botswana it was found that the second most important role of TBAs in maternity care was management of labour and delivery of the baby.

The ability of TBAs to identify and predict problems with a view to early referral is crucial, especially in the light of the long distances between the TBAs point of service delivery and the health facility.

Information obtained from this study indicated that most of the TBAs adopt a wait and see attitude during labour and that no appreciable examination and evaluation of the patient is performed to assess the progress of labour and the anticipated outcome. There is no assessment of foetal well-being and no vaginal examination. That which is so vital, therefore, is hardly done. It is evident that TBAs need basic guidance on simple principles of safe management of labour, which will support the use of the partogram by midwives in Botswana.

Both Aiken (1992:263) and Mukasa (1993:438) report birth asphyxia as a major cause of perinatal death which could have been avoided had the partogram been used appropriately.

Another study was done by Abotalib, Adelusi, Meshani, Nuaim, Chowdhury and Kangave (1998:102) to determine maternal complications and foetal outcome with regard to unbooked mothers at the obstetric unit at King Khalid University Hospital in Riyadh, Saudi Arabia. The findings of the study indicate that there were more complications during labour among unbooked mothers. These complications can be reduced only through use of the partogram.

Airede and Weerasinghe (1995:252) also say that birth asphyxia remains a serious cause of morbidity among the newborn. They also stress that available facilities such as the partogram should be used, as it could cut down a rising incidence.

The study further stresses that should the partogram be introduced universally, it would mean a major advance in the detection and management of delays in labour, major contributory factor as far as perinatal asphyxia is concerned.

According to the study by Kinoti (1993:422), lack of referral to the peripheral unit leads to an increased risk of asphyxia. Other problems cited are the lack of tools and procedures that are needed for foetal monitoring and to establish the foetal status, the duration of labour, postpartum haemorrhage and infection. Use of the partogram should prevent some of those problems, because it will help identify at an early stage cases in which the process of labour is slow. It is also a very clear way of recording all labour observations on one chart, making it easy to detect any

abnormalities.

O'Driscoll et al (1993:135-138) conducted a study of labour in 1 000 consecutive primagravidae in 1972. The duration of labour was recorded from the time of admission to the delivery unit. If it was decided that a patient was not in labour she was transferred to an antenatal ward, but the duration of labour was recorded from time of her first admission if she was returned to the delivery unit within 24 hours. A policy of active management was pursued to ensure that every patient was delivered within 12 hours. Cervical dilatation was plotted on a simple graph (the partogram). Intervention was mandatory, unless the cervical dilatation exceeded one centimetre per hour.

Labour was stimulated by the artificial rupture of membranes, followed by an oxytocin infusion after an one-hour interval.

The results of the study showed that in 45 cases there were no early delivery. Seven patients were kept in the delivery unit for 12 hours – the type of case that is usually classified as “prolonged labour”.

The aim should be to deliver a woman within eight hours, and to perform a Caesarean section at 12 hours, unless delivery is imminent. The first requirement in any discussion on labour is to define an objective starting point. The study adopted Hendrick, Brenner and Kraus's (1970:1062-1065) suggestion that labour should be measured from the time of admission, the great advantage being that labour can then be defined accurately, and the use of the partogram is considered by many, most notably by WHO as a necessary tool in the accurate management of labour.

This view was supported by the results of a large multi-centre trial conducted by WHO in south-east Asia, in which use of the partogram was associated with a favourable maternal and foetal outcome.

According to Lennox and Kwast (1995:56-63), the partogram can be integrated more widely into a functioning health system. It has the potential of reducing the horrific number of cases of mortality and morbidity caused by prolonged and obstructed labour.

As part of its contribution to the SMI, WHO (1994b:1399-1404) developed and tested the partogram in a large multi-centre trial in four matched pairs of hospitals in Indonesia, Thailand and Malaysia. Each participating hospital was already practising active management of labour, but was not using

a partogram for the management of labour. A total of 5 484 women were included in the trial. The results contained two major aspects: The first concerned improved outcome of labour, owing to introduction of the partogram. The second concerned an examination of the appropriateness of the design of the WHO partogram.

Virtually all measures of labour outcome showed an improvement after introduction of the partogram. The rate of emergency Caesarean sections dropped from 9,9% to 8,7% with a corresponding increase in spontaneous cephalic deliveries. The mean duration of observed labour dropped, although half the mothers received oxytocin augmentation.

There was an overall improvement in the condition of neonates. An encouraging aspect of the WHO trial was the enthusiasm with which the partogram was received by the hospitals that participated in the trial.

The fact that there was a problem with the introduction of the partogram at the onset of labour (O'Driscoll et al 1973:135-138) emphasised the critical importance of diagnosing labour. A partogram should not be started until labour has been diagnosed. The WHO trial used clear definitions for cervical dilatation and the contraction pattern. When these rules are applied, the problem regarding the prolonged "latent phase" diminishes considerably.

Finally, the study emphasised partogram literacy and the ability and facilities to assess cervical dilatation. This limits its use in the community setting, in which no trained midwives are available.

A practical guide, entitled User Manual, WHO/FHE/MSM/93.9:1 describes the partogram as an instrument for helping with the management of labour. The manual further explains that a partogram is used to record all observations made on a woman in labour. Its central feature is a graph on which dilatation of the cervix as assessed through vaginal examination is plotted. By noting the rate at which the cervix dilates it is possible to identify women whose labours are abnormally slow and who require special attention. These women are at risk of having prolonged and obstructed labour owing to cephalo-pelvic disproportion (CPD), which may lead to serious problems, such as a ruptured uterus and death of the foetus.

2.4 CONCLUSION

The following chapter will address the quantitative research methodology underlying this study. The following are described:

- Design of the study
- Setting of the study
- Target population
- Research techniques and instruments
- Sampling designs and data collection procedure

Chapter 3

Research methodology

3.1 INTRODUCTION

In this chapter, the quantitative research paradigm that underlies this study is discussed. The discussion is structured around the design, technique and instruments of the research, the sampling design, the pilot study and validity and reliability during data-collection and analysis. "Research methodology" refers to the strategy of the study, from identification of the problem to final data-collection (Burns & Grove 1995:261). The purpose of this chapter is to describe and justify a research design aimed at gaining insight into the use of the partogram by midwives in Botswana.

To get to the appropriate design for the research required a process of decision-making regarding data-collection, data analysis, sampling and methods for ensuring reliability and validity.

This was done by means of the objectives set for the study. In this chapter, the researcher discusses the three phases in which this study was done.

◆ Phase 1

In this phase, decisions were made regarding data gathering methods, and the research questions and objectives.

The researcher decided on what would be looked at, and on the objectives and questions, that would guide in identifying problems in the use of the partogram and in establishing factors that could have a negative effect on the use of the partogram by midwives.

The study was done within the context of use of the partogram by midwives in Nyangabgwe Hospital, drawing on both referred and nonreferred cases.

◆ **Phase 2**

Phase 2 concentrated on sampling and the target population, pretesting of instruments, validity and reliability, and ethical issues. In this section, the researcher explains in detail how sampling was done, and reasons for auditing charts, of that particular year, how pretesting of the instruments was done, and how validity and reliability of the instruments was ensured. Phase 2 laid the foundation for phase 3, which is described below.

◆ **Phase 3**

In this section, the researcher described how data-collection was done. The researcher did not provide detailed information about the analysis, but merely stated that the intention was to consult the statistician about analysing the data once they had been collected.

Detailed information about the process of data-collection was given. It served to explain how the researcher managed to get the information from 303 obstetric charts obtained from Nyangabgwe Hospital. Chapter 4 gives a description of how these data were analysed.

3.2 DESIGN OF THE RESEARCH

For the purpose of this study, the research design may be described as “deductive description”. Deductive design is a process of seeking truth in a systematic manner proceeding from a general assumption to a specific application (Best & Kahn 1986:82). The study proceeded from the following assumptions:

- there are certain difficulties involved in using the partogram
- people can reflect on their experience in using the partogram
- the use of the partogram can be observed in an empirical manner

Information regarding the use of the partogram by midwives was brought together in order to come to a specific conclusion.

According to Best and Kahn (1986:79), descriptive design is a type of investigation that measures the characteristics of a sample or population against prespecified variables, and Brink and Wood (1994:101) explain descriptive design as a process in which data are described by means of words, tables, charts or pictures.

Quantitative design was used to obtain accurate information about the study problem, and to attain the study objectives.

3.3 QUANTITATIVE RESEARCH

Quantitative research involves the systematic collection of numerical data on observable behaviours from samples through subjecting those data to statistical analysis (Polit & Hungler 1995:15). Burns and Grove (1995:27) also state that this method of research is used to describe variables, examine relationships among variables, and determine cause and effect between variables.

The design was relevant to the study, because the study involved numerical methods for describing observations regarding features of use of the partogram by midwives, and also the statistical analysis of data.

The research design was relevant to the study because it could delimit descriptions and conclusions regarding data on the use of the partogram by midwives. The research did not arrange for events to happen – instead, the events that were observed happened.

3.4 PHASE 1

The method and techniques used in the research were based on the literature reviewed in chapter 2.

The literature was used as a guide for compiling the data gathering tools. The purpose of phase 1 was to identify problems regarding the use of the partogram and to establish factors that could have a negative effect on the use of the partogram by midwives.

Phase 1 dealt with the objectives and the questions that guided the study and also the planning of the data-collection process. High quality information will help midwives to make better use of the partogram, which eventually will result in better care.

Phase 1 was organised in such a way as to answer the research questions. During this process use was made of the methods and techniques of research. For the convenience of the reader, the researcher will restate the research questions and the objectives below.

3.4.1 Research questions

- What problems do midwives experience when using the partogram?
- What factors contribute to the problems experienced by midwives then using the partogram?
- How can these problems be reduced?

3.4.2 Objectives of the research

The objectives of the study are to

- audit the completed partograms
- pinpoint problems experienced by midwives when using the partogram
- pinpoint factors that could have a negative effect on the use of the partogram
- observe how the partogram is used in practice
- recommend that a training programme be developed for use of the partogram by midwives

3.4.3 Data collection

Data-collection is defined as the precise systematic gathering of information relevant to the study (Burns & Grove 1995:48). The researcher believed retrospective chart review to be the best method for answering the research question.

According to Booyens (1994:327), retrospective chart review is the auditing or reviewing of nursing care documents or patient records which has evolved from checking for such items as the dates and the times as evidence of care rendered according to predetermined criteria. This part focussed on the auditing of all the charts of patients who were delivered in a certain month through use of the "Audit of patients' partogram" (see Annexure C).

Booyens (1994:327) also says that as far as nursing is concerned, the auditing process is a process whereby performance is compared with previously set standards of care in order to reveal shortcomings. Those shortcomings should then be corrected and changes should be initiated which will result in better care.

The auditing process involved the formulation of audit criteria that were used to evaluate the extent to which the set standard as formulated for the specific standard statement was met. The criteria were turned into questions. It was hoped that the information that was obtained would help with setting strategies for improving the use of the partogram by midwives.

The evaluation was derived from structural, process and outcome criteria which were formulated for the specified statement. These criteria were restated as questions.

The methods for collecting data necessary to answer the research questions were done in the following phases:

3.4.3.1 A retrospective obstetric record audit

According to Sullivan and Decker (1992:453-454), a retrospective audit is conducted after a patient's discharge and involves examining records of a large number of cases. The patient's entire course of care is evaluated, and comparisons are made across cases. Recommendation for change can be made from the perspective of many patients with similar care problems and in the light of the spectrum of care.

3.4.3.2 A nonparticipant observation audit

This is a method of data-collection that involves direct observation by the researcher in the natural

setting of the participants. The researcher observes the events, processes and activities involved in the use of the partogram by midwives. The audit criteria used were similar to those used in the “audit of patients’ partogram records” (see Annexure C). They were intended to verify the use of the partogram, and to pinpoint problems regarding the use of the partogram. They were also intended to identify factors that could have a negative effect on the use of the partogram.

Interviews were held with the aid of a structured questionnaire. The questionnaire contained both closed and open-ended questions. The researcher had a follow-up interview with the midwives observed in the labour ward and rated them against the “interview schedule for midwives using the partogram” (see Annexure E). The researcher posed questions to midwives who used the partogram in the labour ward.

Finally, the head nurse in the labour ward was also interviewed against the “interview schedule for the head nurse” tool (see Annexure F).

The questions used for both interviews were included in what is called an “interview guide”. A structured interview was preferred for, and was used in the study.

3.4.3.3 Interviews

Interviews were conducted in the form of an oral questionnaire (Baumgartner & Strong 1994:89). This helped to pinpoint what to include in a follow-up interview, if necessary (Burns & Grove 1995:79).

For the purpose of this study, the researcher used structured interviews. Next to the questions the expected answers were put, which were much the same as the structured questions.

The questions were set in a specific order, and were included in what is called an “interview guide”.

A distinct advantage of this technique is that there is less bias – the contents of the guide are asked without any alteration.

All the principles of a good interviewing technique were adhered to, for example:

- Before commencement of the interview, the aim of the interview was explained fully, and the participants were given the opportunity to ask questions.
- The interviewee was given the option of responding to the interview guide in a quiet room separate from the one occupied by the researcher. The interviewee could consult the researcher if any of the questions were unclear. The researcher herself also periodically clarified the interview questions to the interviewee as deemed necessary. Upon completion of the interview session the interviewee was reminded that a follow-up interview would be done if any of the aspects proved to be unclear.
- During the interview, the researcher made every effort to be flexible, and adopted either a passive or an active role, as the situation demanded.

3.5 PHASE 2

Phase 2 was organised in such a way that the sampling techniques and population, the pretesting of the instrument, validity and reliability and ethical considerations would be given full weight and consideration. Each of the following topics were covered:

3.5.1 Sampling and the target population

A research sample may be defined as a subset of the population (Baumgartner & Strong 1994:183). This part was intended to observe concurrent use of the partogram by midwives in the labour ward. The audit criteria used were similar to those used in the retrospective audit of the partogram (see Annexure C).

This part was also intended to verify use of the partogram and to pinpoint problems experienced by midwives when using the partogram, and also to identify factors that could have a negative effect on the use of the partogram.

The researcher entered the labour ward as an outsider and nonparticipant observer of the use of the partogram by midwives. The behaviour of the midwives was noted against "observations of midwives using the partogram in the labour ward" tool (see Annexure D).

3.5.2 Setting of the study

Seaman (in Letubo 1996:40) defines the setting as the place in which data are collected. Nyangabgwe Hospital, where the study was done, is situated in Francistown (see Annexures A and B). Francistown is Botswana's second largest city. According to the Francistown Centenary Brochure (1997) Francistown has a population of 65 244, of whom 33 579 are women (1991 census figures). The city has 10 primary health care clinics that offer maternal and child/family planning (MCH/FP) services.

Nyangabgwe Hospital serves the entire northern part of Botswana. Currently, the hospital has a bed capacity of 430. The hospital has a large maternity ward with a bed capacity of 64, with a complement of 16 midwives in the labour ward all with varying experience, qualifications and designations, and also medical staff ranging from medical officer to principal medical officer, specialist obstetricians and consultant.

There are several other clinics, primary hospitals and district hospitals in the northern region of the country, all of which refer cases to Nyangabgwe Hospital. Nyangabgwe Hospital, being the referral centre, handles deliveries of a particularly high-risk nature. Most deliveries are handled by midwives, medical officers and obstetricians.

The deliveries in the labour ward consist of patients that usually attend a clinic, unbooked cases and referrals. The partogram is used for monitoring the process of labour.

3.5.3 Pilot study

When planning the collection of data, the researcher had anticipated problems. The pilot study is a method for refining the questions used in the interview, for identifying problems and giving the researcher experience in auditing, observation and interviewing. According to Polit and Hungler (1995:650), pretesting (pilot-testing) a research instrument means conducting a trial run to determine whether the wording of the instrument is clear and free from major biases and whether it elicits the kind of information that the researcher envisioned.

The pilot study for this research helped the researcher develop auditing, observation and interviewing skills. The maternity wards of the Selibe Phikwe government Hospital and the Sekgoma Memorial

Hospital (see Annexures A and B) were used as sites for the pilot study. The charts of 25 deliveries were audited and rated against the “Audit of Patients, partogram records” tool (see Annexure C).

Eight midwives were observed using the “observations of midwives using the partogram in the labour ward” tool (see Annexure D). The same eight midwives were also interviewed according to the “Interview schedule for midwives using the partogram” (see Annexure E). Two head nurses were interviewed according to the “Interview schedule for the head nurses” tool (see Annexure F). Problems experienced during the auditing, observation and interviewing of midwives were identified, and the following improvements were made on the instruments.

◆ Tool 1

Item 4.2.1.91. It was found that, when entering the duration of the first stage of labour, it was important to note the duration in hours and minutes, and that the same was true for the latent phase, the second stage of labour, the third stage of labour and the total duration of labour. Spaces were therefore left in the tool for these recordings.

Item 4.2.3.12 was put in, which recorded the remaining of the foetal head at the same level for a period of four hours.

◆ Tool 2

Structure 2: Item 4.3.2. Instead of using the words “complete”, “incomplete”, and “absent”, the words “not applicable”, “yes” and “no” were used with regard to the midwife’s use of the partogram.

Outcome 2: Items 4.3.4 and 4.3.4.12 were formulated to cater for the foetal head remaining at the same level for a period of four hours.

◆ Tool 3

Items 1.1.2 (per week) and 1.1.3 (per month) were deleted, because they were redundant. Instead “1.1.1 number of midwives on duty per shift” could be used to calculate the number of midwives per week, and even per month.

3.5.4 Validity and reliability

Steps were taken by the researcher to help evaluate and improve the reliability and validity of the data- collection tools. “Validity”, according to Polit and Hungler (1995:353), refers to the degree to which an instrument measures what it is supposed to be measuring, and “Reliability of the instrument” (Polit & Hungler 1995:651) refers to the degree of consistency with which the instrument measures.

For this study, the data-collection tools were evaluated by the researcher’s supervisors, Mrs JE Tjallinks and Dr Mulumba, and the statistician, Mr Kilpert, for the purpose of detecting any ambiguity in the wording, inappropriate and/or inadequate response categories, and any other flaws, in the tools.

3.5.5 Ethical considerations

Ethical issues pertinent to this study were consent, anonymity, obtaining permission for conduction the study, confidentiality, freedom from exploitation, respect for human dignity, and rewards.

◆ Consent

All participants in a research study have the right to be fully informed regarding all aspects of the study. In order to stay within this ethical parameter the researcher obtained informed, written, voluntary consent from the midwives working in the labour ward in the form of a formal agreement (see Annexure H).

Informed consent involved explaining the aim of the study to the midwife, how she could participate in it and also the contents of the agreement and the implication of signing the agreement.

Each participant received a formal agreement letter, with full explanations. The agreement was finalised at the interview. The participants retained a copy of the agreement, and the researcher completed the original copy (Lobiondo Wood & Haber 1994:322-330).

◆ **Anonymity**

Anonymity is an important ethical issue, as the participants are more inclined to divulge information of a private nature if they have the assurance that their names will not be mentioned.

This aspect was crucial as the informants happened to be the researcher's colleagues. The informants therefore had to feel secure that data obtained from their respective interviews would not be traced back to them. Only codes were used, such as "midwife A", "midwife B", "midwife C" etcetera, and their names were known only to the researcher.

These precautions, however, do not imply that all problems were eliminated, since anonymity can also create problems: for example, although there were no names on the questionnaire, analysing data according to years of experience may help colleagues identify the midwives concerned according to the views they had expressed in the study.

◆ **Publication of the results**

Publication of the results can cause major problems as far as anonymity and confidentiality are concerned, because clear reference is made to the institution at which the study was done.

◆ **Obtaining permission for conducting the study**

A letter requesting permission for conducting a study at Nyangabgwe Hospital sent to the Office of the President, the MOH and Nyangabgwe Hospital. Both the proposal and the consent document were enclosed in the letter. Permission was granted by all three the authorities (see Annexure K).

◆ **Confidentiality and freedom from exploitation**

Baumgartner and Strong (1994:21) state that concerted efforts should be made to protect the rights and the welfare of the research subjects. In this study, closer attention and more thought were given to the participant involved. A letter of agreement to participate in the study was drafted and given to them. Consent to participate in the study was also solicited. Assurance was given of freedom from exploitation and the right to confidentiality, safeguarded by duplicating the agreement.

◆ **Respect for human dignity**

This principle included the right to self-determination, which means that the prospective participant should have the right to decide whether or not to participate.

In this study, it also meant that the participants had the right to terminate their participation, or to refuse to give information, or to ask clarification about the purpose, or any aspect, of the study.

Participants were informed about the clinical observations that the researcher wished to make. A copy of the letter of agreement is attached (see Annexure H).

◆ **Rewards**

The purpose of the study was reiterated, so that participants could appreciate the importance of their contribution. The participants were assured that they would be given feedback on the findings of the study. The fact that the results could lead to improved use of the partogram served as an indirect reward.

3.6 PHASE 3

In Phase 3, detailed information about the process of data-collection was given.

3.6.1 Process of data-collection

Data were collected over a period of four weeks. A total of 303 charts were audited, and rated against the "Audit of patients' partogram records" tool (see Annexure C). Three hundred and ninety-five charts pertaining to one specific month were subjected to the audit.

◆ Constraints

Ninety-two of the 395 charts targeted could not be found:

- (1) Forty charts with medical record numbers could not be found either in their filing position or in the Medical Records Department.
- (2) Thirty-six charts could not be found through use of the index system at the Medical Records Department.
- (3) Sixteen charts with medical record numbers but without indication of the particular year, could not be found either.

All 16 midwives working in the labour ward were observed using the partogram over a period of one week. The three shifts, namely the morning, afternoon and night shifts, were all catered for, because the midwives were accessed during different shifts when available while on duty in the labour ward.

The tool that was used was "Observations of midwives using the partogram in the labour ward" (see Annexure D). The same 16 midwives were interviewed through the "Interview schedule for midwives using the partogram" tool (see Annexure E). The head nurse was also interviewed (see Annexure F).

3.6.2 Data analysis

According to Polit and Hungler (1995:639), "data analysis" refers to the systematic organisation and synthesis of research data. The researcher used the data that were collected to compare a wide variety of analytic capabilities. Two levels of measurement were used:

- A nominal scale was used to describe the differences in the professional particulars of midwives who use the partogram. This was done by dividing up the midwives in to categories, such as according to length of service in the labour ward (ranging from 0-11 + years). The normal scale was also used to describe subsets such as duration of training in midwifery.

- An interval scale was used to indicate to what degree a given characteristic featured in the use of the partogram. The interval scale was also preferred for the study analysis, because it indicated the relative degree to which certain characteristics featured in the use of the partogram by midwives.

The data were processed on a computer, and a statistical software package known as the “Statistical Package for Social Sciences (SPSS)” was used. A detailed presentation of the data is given in the next chapter, by means of tables and bar graphs.

3.7 CONCLUSION

This chapter focussed on the methodology of the research. The type of research that was chosen was quantitative research. audit of charts, observation and interview was chosen. All data were collected by the researcher herself.

The next chapter deals with the analysis, interpretation and discussion of data obtained through the “Audit of patients partogram records” (see Annexure C), Observation of midwives using the partogram in the labour ward (see Annexure D), “Interview schedule for midwives using the partogram” (see Annexure E), and the “Interview schedule for the head nurse” (see Annexure F).

Chapter 4

Analysis and presentation of data

4.1 INTRODUCTION

This chapter deals with the analysis, interpretation and discussion of data obtained through the “Audit of patients’ partogram records” (see Annexure C), the “Observation of midwives using the partogram in the labour ward” (see Annexure D), the “Interview schedule for midwives using the partogram” (see Annexure E), and the “Interview schedule with the head nurse” (see Annexure F).

The purpose of this chapter is to

- present the information that was obtained during data-collection
- assess the objectives of the study outlined in chapter 1 in line with the data obtained by the researcher

The information was obtained from the four tools. The main tool, the “Audit of patients’ partogram records” (see Annexure C), which was used for auditing patients’ partogram records, provided the researcher with information for determining the problems experienced by midwives while using partogram. It was also intended to establish factors that could have a negative influence on the use of the partogram. The audit criteria were derived from the structure, process and outcome, which will improve the use of the partogram by midwives (Booyens 1994:327).

The researcher obtained information from 303 obstetric records. Out of the 303 obstetric records, 266 were non-referred cases, and 37 were referred cases.

The other tool that was used was "Observation of midwives using the partogram in the labour ward" (Annexure D), for observing the use of the partogram by midwives in the labour ward. The audit criteria used were similar to those for the "Audit of patients' partogram records" (see Annexure C). The tool was intended to verify the use of the partogram and to determine problems experienced by midwives when using the partogram. It was also intended to establish the factors that could have a negative influence on the use of the partogram.

The researcher did a follow-up interview with the midwives observed in the labour ward, and rated them against the "Interview schedule for midwives" (see Annexure E).

The researcher posed questions to midwives who use the partogram in the labour ward. The head nurse in the labour ward was also interviewed against the "Interview schedule with the head nurse" (see Annexure F).

The literature that had been reviewed was also used as a guide to draw up the tools. The data will be summarised through using both graphs or diagrams and tables. The tables will indicate the number of observations made. The graphs will summarise the percentages of the responses on each item for all sections of the tables, except for the section on the interview with the head nurse.

Below are graphic presentations of responses, tabulated presentations of the observations that were made about the referred and nonreferred cases and the entire population, and also commentary on the three categories, namely structure, process and outcome.

4.2 AUDIT OF PATIENTS' PARTOGRAM RECORDS

4.2.1 Section A: Obstetric particulars

Table 4.1: Obstetric particulars recorded on the partogram by midwives

Item	Referred cases (N=37) Responses		Nonreferred cases (N=266) Responses	
	Yes %	No %	Yes %	No %
4.2.1.1 Date of admission	97,3	2,7	98,5	1,5
4.2.1.2 Time of admission	94,6	5,4	98,5	1,5
4.2.1.7.1 Reason for referring the patients	97,3	2,7	n/a	n/a
4.2.1.8.1 Gestational age	91,9	8,1	90,6	9,4
4.2.1.5.1 Parturient's booking status	94,6	5,4	97,4	2,6
4.2.1.9.1 First stage of labour	13,5	86,5	26,7	73,3
4.2.1.9.4 Second stage of labour	13,5	86,5	26,7	73,3
4.2.1.9.5 Third stage of labour	13,5	86,5	25,9	74,1
4.2.1.9.6 Duration of labour	91,9	8,1	88,4	11,6
4.2.1.10.2 Outcome of labour	100,0	0,0	99,6	0,4
4.2.1.10.4 Apgar score	100,0	0,0	100,0	0,0
4.2.1.11.1 Baby's weight	100,0	0,0	99,6	0,4
4.2.1.11.2 Type of delivery	100,0	0,0	100,0	0,0
4.2.1.5.2 Referred status of parturient	87,8	12,2	n/a	n/a

Item 4.2.1.1: Date of admission

Item 4.2.1.1 shows that in 36 (97,3%) of the 37 referred cases the date of admission had been recorded on the partogram, while in 1 case (2,7%) it had not been recorded. As far as the nonreferred cases were concerned, in 262 of them (98,5%) the date of admission had been recorded on the partogram, while in 4 of them (1,5%) it had not been recorded. This is a positive result. For midwives, the date of admission is a crucial baseline data.

Letubo (1996:13), says that baseline data on a patient will help midwives identify any deviations and will help them initiate the relevant interventions.

Item 4.2.1.2: Time of admission

Time is another factor that needs to be recorded on the partogram. The most important observation in labour is the rate of progress, so it is essential that recordings be plotted on the partogram at the appropriate time interval.

Item 4.2.1.2 shows that in 35 (94,6%) of the 37 referred cases the time of admission had been recorded on the partogram, while in 2 cases (5,4%) it had not been recorded. As far as the nonreferred cases were concerned, in 262 (98,5%) the time of admission had been recorded on the partogram, while in 4 cases (1,5%) it had not been recorded. This is a positive result.

O'Driscoll, Stronge and Minogue (1973:136) emphasise that labour should be aimed at delivering every woman within eight hours and at performing a Caesarean section at 12 hours, unless delivery is imminent.

Item 4.2.1.5.1: Percentage of booked cases among referred and nonreferred cases

Thirty-five (94,6%) of the 37 referred cases had been entered on the partogram as "booked" cases, while 1 (2,7%) had been entered as an "unbooked" case, and in 1 case (2,7%) this information had not been entered.

Out of 266 nonreferred cases, 259 (97,4%) had been entered on the partogram as "booked" cases, while 7 (2,6%) had been entered as "unbooked" cases.

According to Mwalali and Lisasi (1988:1), antenatal care can facilitate the high-risk approach, and can subsequently lead to reduced prenatal mortality and maternal mortality and morbidity. Letubo (1996:13) also says that one of the objectives of antenatal care in Botswana is to detect problems that may adversely affect the mother's health or that may prevent delivery of a healthy baby.

The response of the midwives to this entry very positive. It is easier to implement the high-risk approach in booked cases, so that problems can be detected. Unbooked cases, on the other hand, should also be identified because they need to be closely monitored during labour (Abotalib, et al:1998:102).

Item 4.2.1.5.2: Percentage of referred and nonreferred cases

Out of 303 patients' records that were audited, 37 (12,2%) were referred cases, and 266 (87,8) were nonreferred cases.

Nyangabgwe Hospital's main role is to handle high-risk deliveries, and mostly cases that have been referred to it by other facilities.

Item 4.2.1.6: Stage at which the cases were referred

Item 4.2.1.6 illustrates the stage at which the cases were referred. Seventeen cases (46,0%) had been referred in the active phase, 13 cases (35,1%) had been referred in the latent phase, and in 7 cases (18,9%) it was not known at what stage the patients had been referred, probably they had not been in labour yet.

It is important that midwives enter the stage at which cases were referred, because patients need to be referred to a facility that can cope with obstetric emergencies at an early stage (O'Loughlin 1994:4-5). Literature shows that most complications in infants can be prevented if the mother was referred at an early stage (Lennox et al 1995:56).

Item 4.2.1.7.1: Reasons for referral

In 36 (97,3%) of the 37 patients referred to Nyangabgwe Hospital the reasons for referral had been recorded, and in 1 case (2,7%) it had not been recorded. This item was handled in an adequate manner. It would help in initiating the relevant obstetric interventions.

Item 4.2.1.8.1: Gestational age

In 34 (91,9%) of the 37 referred cases the gestational age had been recorded on the partogram, and in 3 cases (8,1%) it had not been recorded. In 241 cases (90,6%) of the 266 nonreferred cases the gestational age had been entered on the partogram, while in 25 cases (9,4%) it had not been entered.

The above result was quite satisfactory. It is thought that if midwives have baseline data on a patient, they will be able to identify any deviation from normal, and will be able to initiate the relevant interventions (Letubo 1996:13). Linge-Kavoo and Rogo (1992:181-186), in their study on factors that influence perinatal mortality, confirm that gestation at delivery is another significant factor. So, this information is entered at delivery, it will help the midwife to know more about the foetus.

Item 4.2.1.9.5: Duration of the third stage of labour

In only 74 (13,5%), the total number of 303 deliveries in Nyangabgwe Hospital the duration of the third stage of labour had been entered in the space provided on the partogram, while in 229 (86,5%) no entries had been made. This is a very negative result.

Item 4.2.1.9.6: Recording on the first stage of labour

In 5 (13,5%) of the 37 cases referred to Nyangabgwe Hospital the duration of the first stage of labour had been recorded on the partogram, while in 32 (86,5%) it had not been recorded. In 73 (26,7%) of 266 nonreferred cases, the first stage of labour had been entered on the partogram, while in 193 (73,3%) it had not been recorded, although space had been provided for it on the partogram.

This item confirms that midwives experience problems in using the partogram. If this item is completed it help health workers identify prolonged labour. Prolonged labour is associated with an increase in maternal and foetal mobility and an increased extent of intervention. The prolonged labour increases the risk of foetal distress and maternal dehydration, exhaustion and postpartum haemorrhage (James et al 1999:252).

Item 4.2.1.9.4: Recordings of the second stage of labour

Item 4.2.1.9.4 shows in only 5 (13,5%) of the 37 cases referred to Nyangabgwe Hospital the duration of the second stage of labour had been entered in the space provided on the partogram, while in 32 (86,5%) it had not been entered. In 70 (26,7%) of the nonreferred cases the duration of the second stage of labour had been entered, while in 196 (73,3%) it had not been entered. This item is a cause of serious concern.

A study conducted in Botswana, in the Princess Marina Hospital, the Maun Hospital and in Ramotswa, on the Botswana Perinatal Project (1990), showed that many of the sections in the obstetric record had not been completed properly. The study cited a need for updating health providers on the use of the obstetric record.

Item 4.2.1.9.6: Total duration of the labour process

In 34 (92%) of the 37 cases referred to Nyangabgwe Hospital, the duration of the labour process had been recorded on the partogram, while in 3 cases (8,0%) it had not been recorded. In 245 (88,4%) of the 266 nonreferred cases, duration of the labour process had been recorded on the partogram, while in 31 cases (11,6%) it had not been recorded.

This result is positive and if maintained will help facilitate application of the high-risk approach.

Item 4.2.1.10.2.1: Recording of the condition of the baby

Item 4.2.1.10.2.1 shows in 266 nonreferred cases, 261 (98,1%) babies had been born alive, 3 (1,1%) had been born macerated, while 1 (0,4%) had been fresh still-born. In the 37 referred cases, all babies (100%) had been born alive.

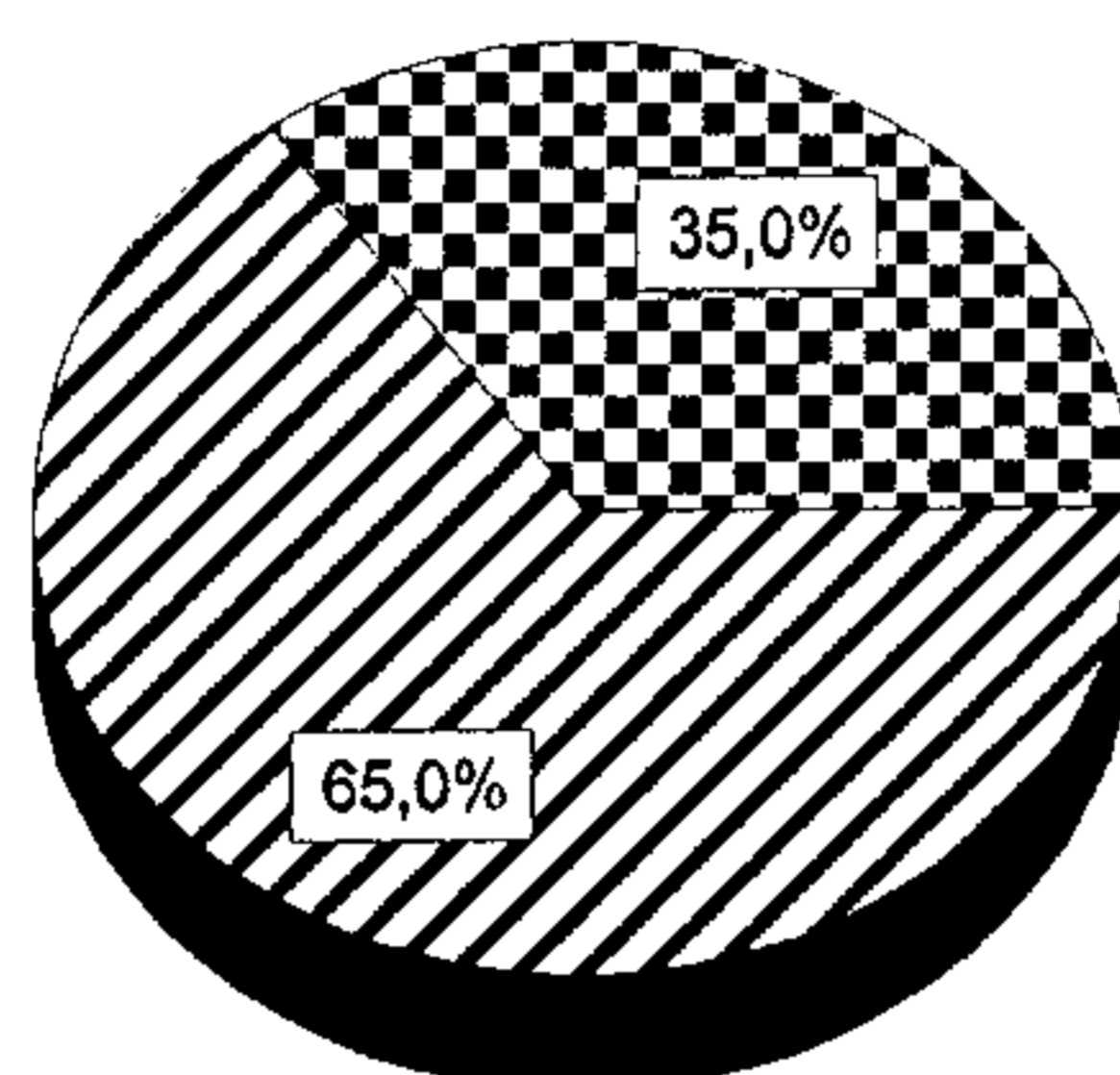
Item 4.2.10.2: Outcome of the delivery

In the 37 referred cases who finally delivered in Nyangabgwe Hospital the outcome of the delivery had been recorded for all (100%) of them, while in 265 (99,6%) of the 266 of nonreferred cases the outcome of the delivery had been recorded on the partogram, and in 1 case (0,4%) it had not been

recorded. The result of this item is acceptable and if maintained will help facilitate application of the high-risk approach. Because of the diligence of the midwives concerned the above data now give us a comprehensive idea of the outcome of those deliveries, especially because infant morbidity and mortality were targeted for reduction by the year 2000 (Botswana Safe Motherhood Initiative 1994:5; Kennedy 1998; O'Loughlin 1997:1). According to Lennox and Kwast (1995:65), Daly et al (1993:16), Philpott and Castle (1992:592) and Drouin et al (1979:741-745) the partogram has also been shown to improve neonatal outcome.

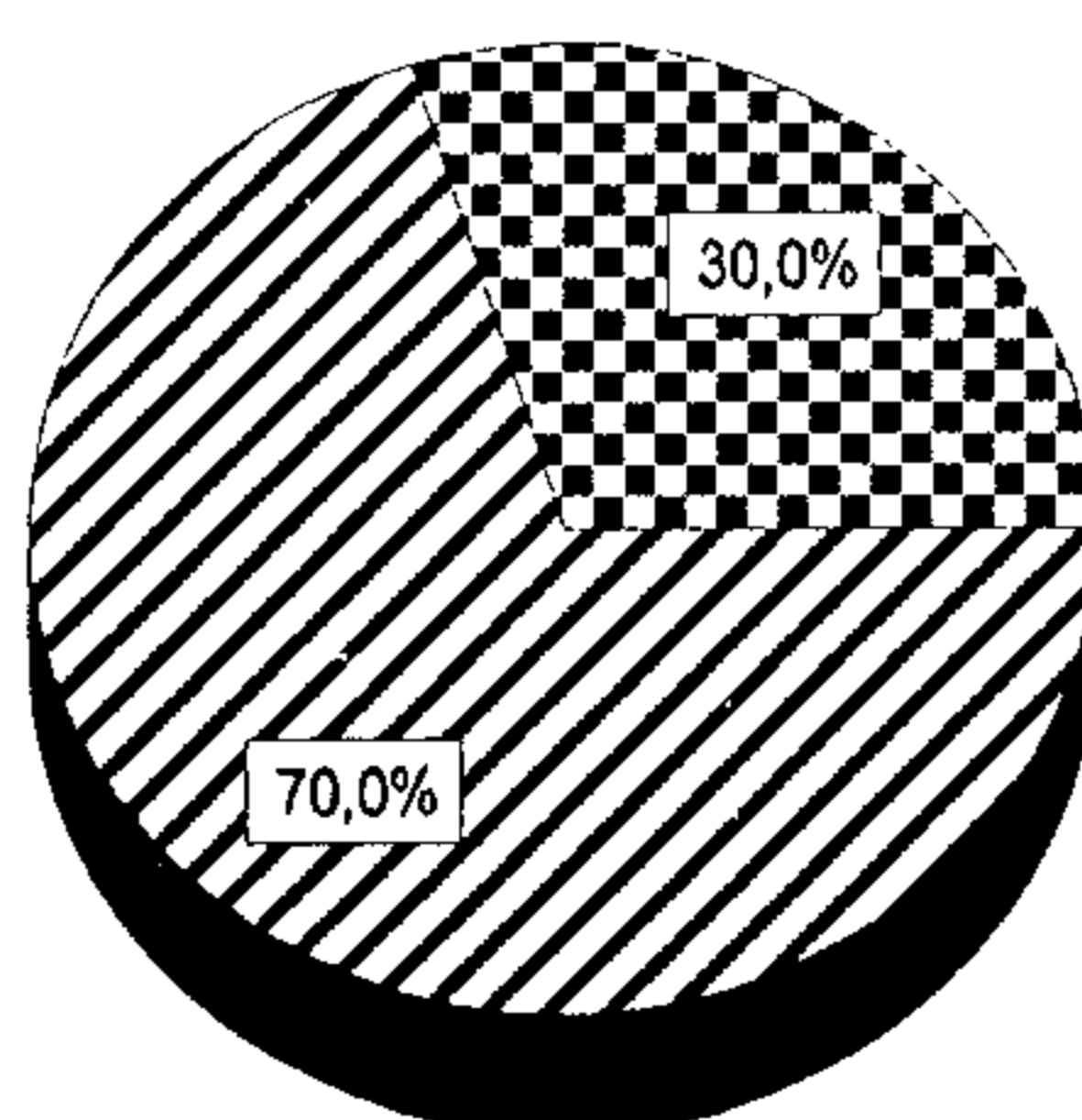
Item 4.2.1.10.2.2: Recordings of the mother's condition

Nonreferred cases (N = 266)



 "No" responses (93 cases)
 "Yes" responses (173 cases)

Referred cases (N = 37)



 "No" responses  "Yes" responses

Figure 4.1

Recording of the mother's condition

The figure about the recordings of the mother's condition shows that in 26 (70,0%) of the 37 cases referred to Nyangabgwe Hospital the mother's condition had been recorded on the partogram, while in 11 (30,0%) it had not been recorded. In 173 (65,0%) of the nonreferred cases, the mother's condition had been recorded on the partogram, while in 93 (35,0%) it had not been recorded.

The findings indicate that midwives do not enter the mother's condition after delivery in the space provided as well as required. This item is quite critical in nature, because maternal mortality is still a major problem in developing countries.

In 1987, the Safe Motherhood Initiative was launched in Nairobi, with the objective of reducing maternal mortality by 50,0% within 10 years. It is therefore very necessary for midwives to enter the mother's condition on the partogram.

Item 4.2.1.10.4: Recording the Apgar score

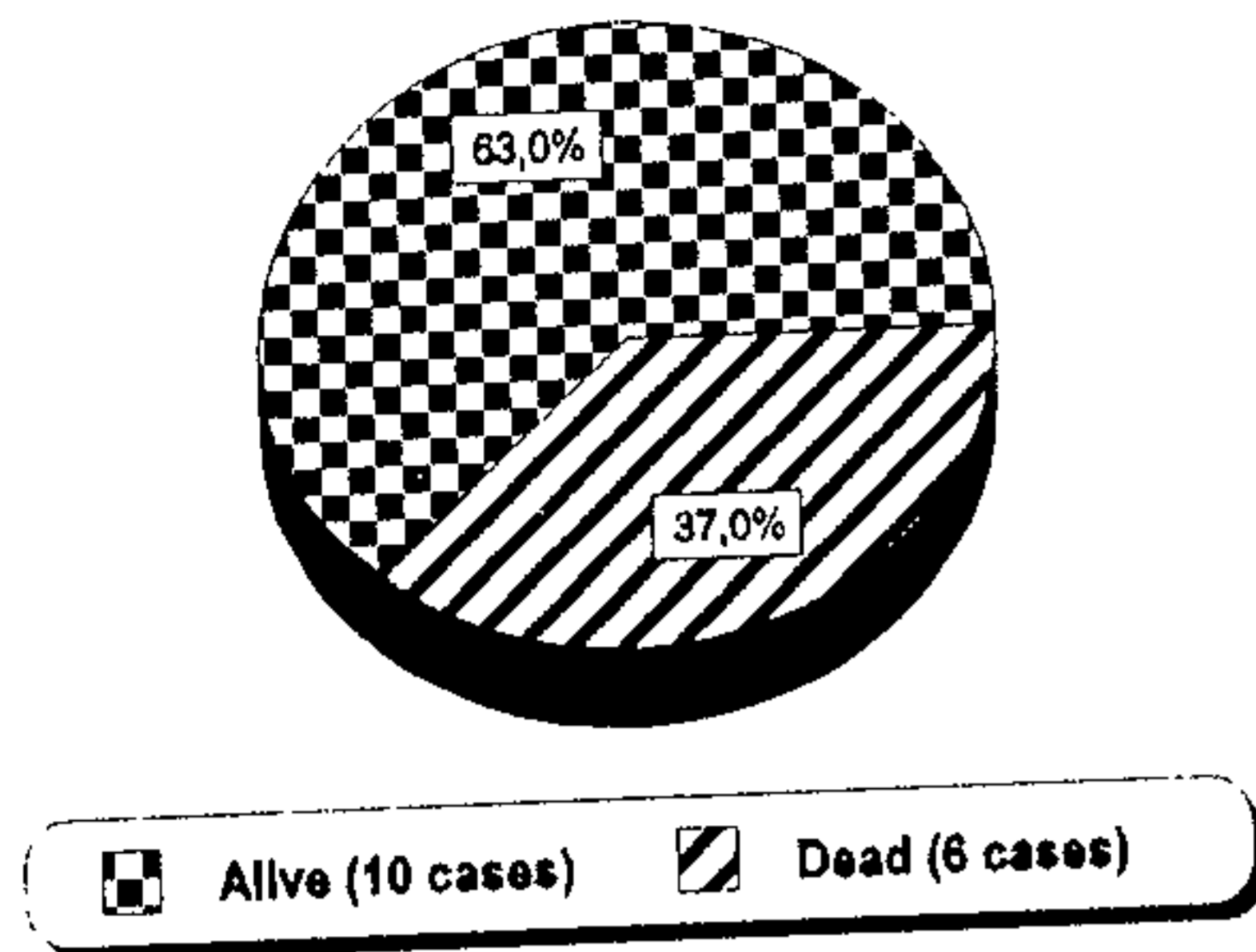
The findings indicate a 100,0% entry of the minute 5 minute and 10 minute Apgar scores.

Item 4.2.1.11.2: Recording of the type of delivery

The findings indicate a 100,0% recording of the type of delivery.

Item 4.2.1.12.4: Recording of the outcome of babies' admission to the SCBU

Nonreferred cases (N = 16 cases)



Referred cases (N = 9 cases)

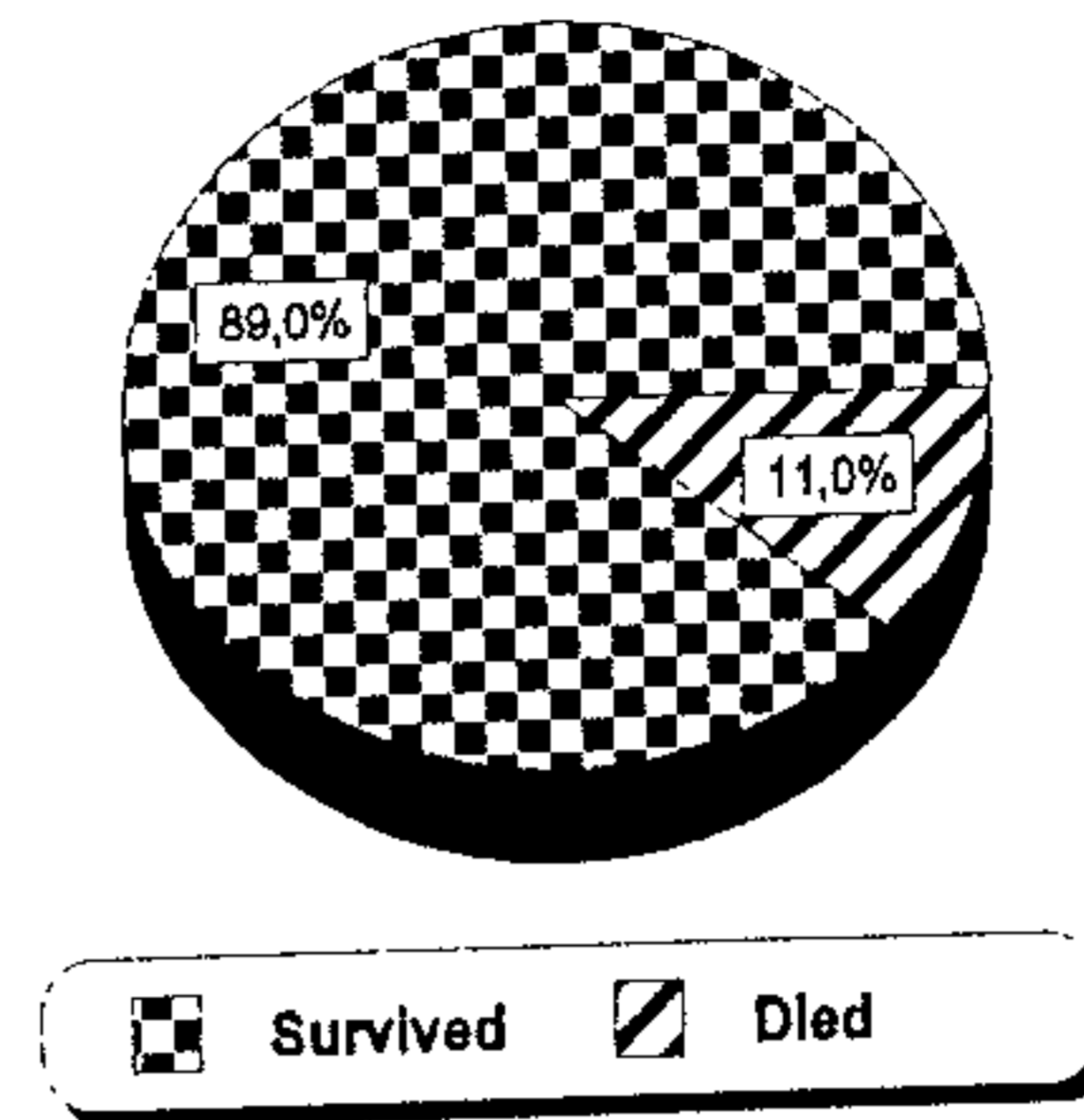


Figure 4.2

Recording of the outcome of babies' admission to the SCBU

In the 37 referred cases 9 of the babies born were sent to the special care baby unit (SCBU). Only 11,0% of these babies died, while 89,0% survived.

In the 266 nonreferred cases, only sixteen of the babies born were sent to the SCBU. Thirty-seven percent of those babies died, and 63,0% survived.

The findings serve as sufficient information on which to make a comparison between babies in referred cases and nonreferred cases that end up being admitted to the SCBU. Such data are important, because foetal complications are still reported in Botswana, as borne out by the prenatal morbidity and mortality statistics published by the Obstetrics and Gynaecology and the Paediatric Department of the Nyangabgwe Hospital. Perinatal morbidity and mortality has been seen as the primary indicator of the need to improve management of labour and of obstetric emergencies (Pattinson 1996:1). Recordings made on the partogram can improve neonatal outcome (see table 1.2.2).

Item 4.2.1.3: Recording of parity

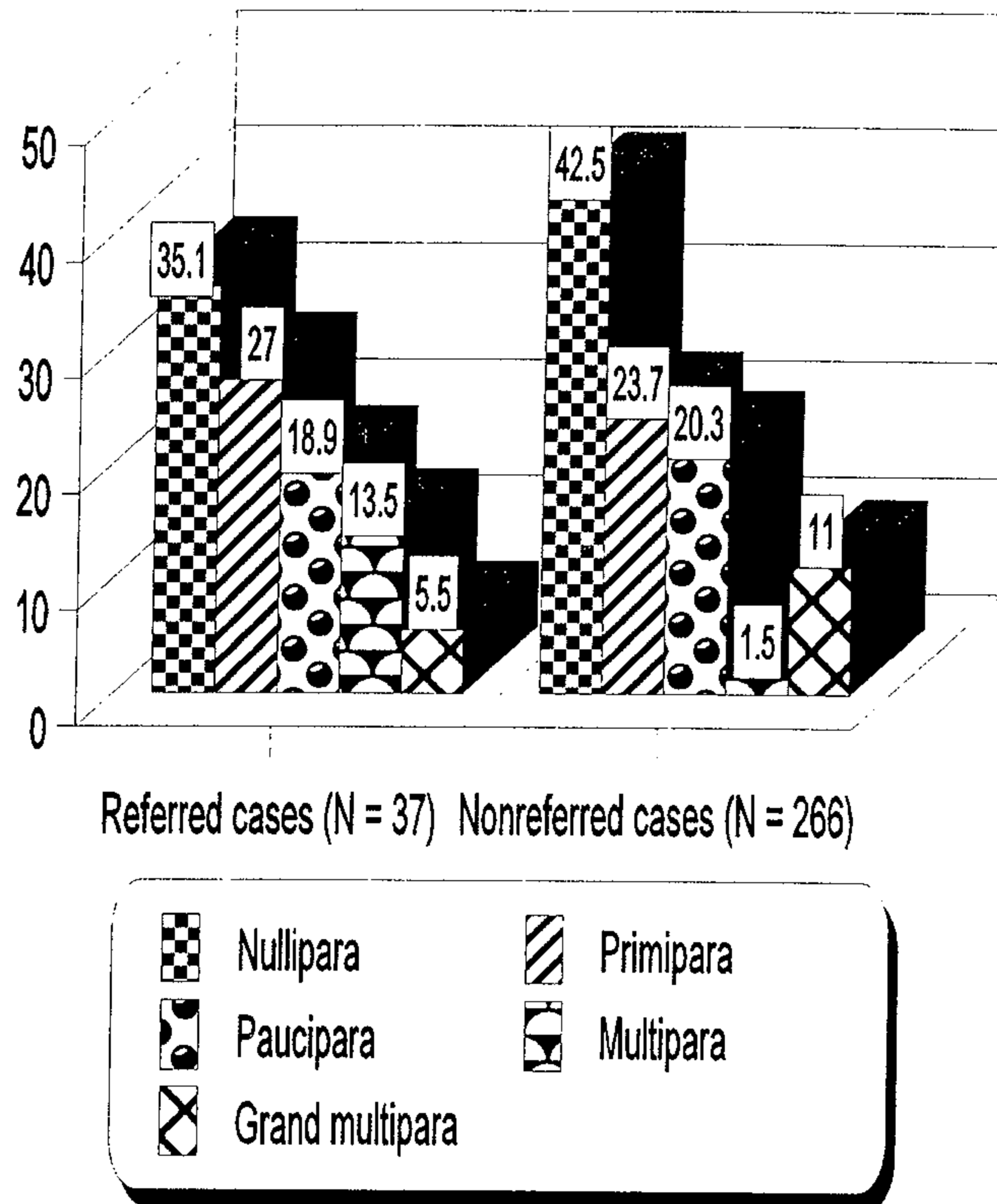


Figure 4.3

Recording of parity

Of the 37 referred cases, 13 (35,1%) were nullipara, 10 (27,0%) were primipara, 7 (18,9%) were paucipara, 5 (13,5%) were multipara, and 2 (5,5%) were grand multipara. All of these referred cases had been identified. This is positive for the referring facilities. Of the 266 nonreferred cases, 2 (2,8%) had not been identified, 113 (42,5%) had been entered as nullipara, 63 (23,7%) had been entered as primipara, 54 (20,3%) had been entered as paucipara, 30 (11,0%) had been entered as multipara, while 4 (1,5%) had been entered as grand multipara.

Item 4.2.1.4: Recording of the parturients' age

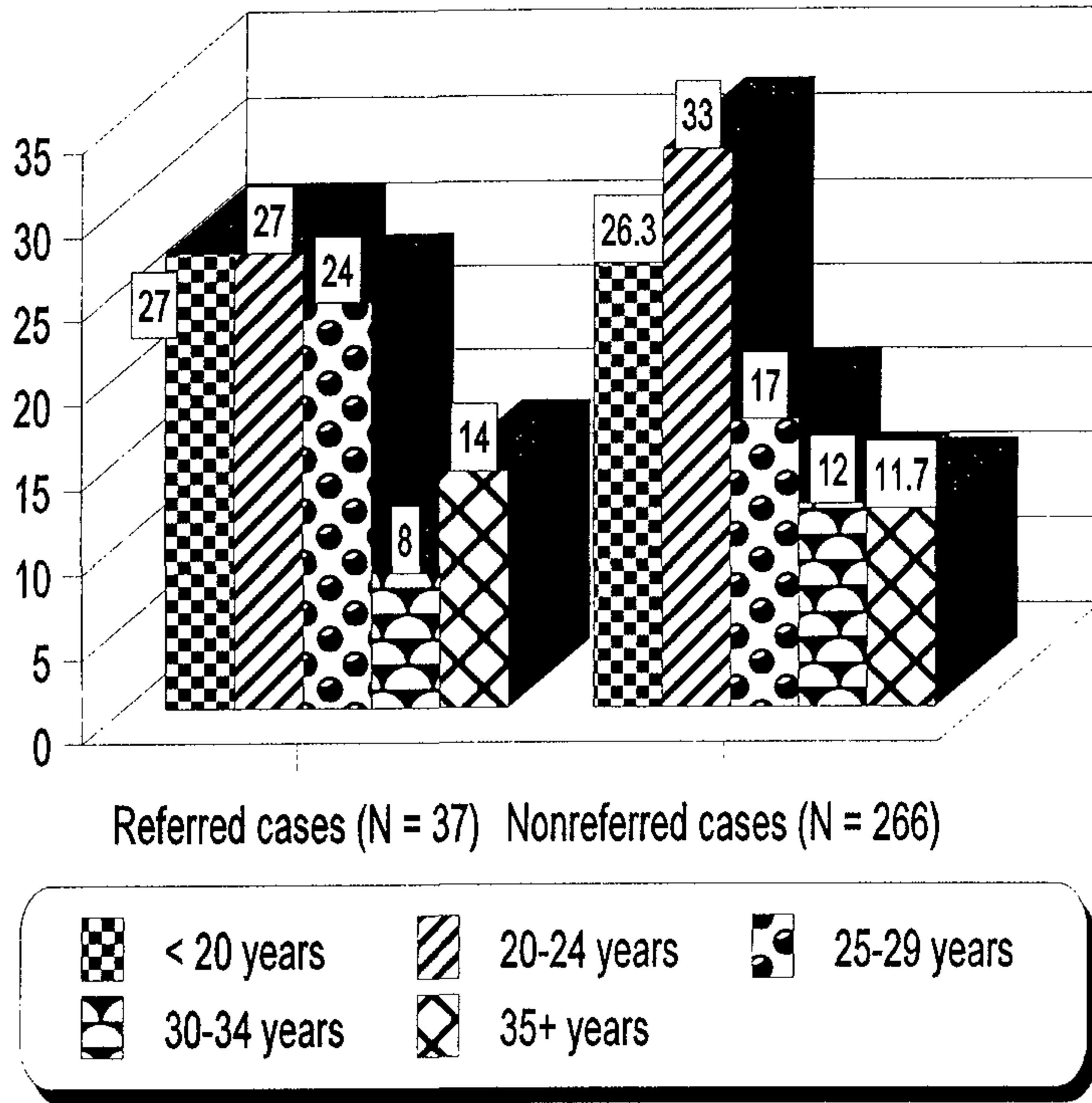


Figure 4.4
Recording of the parturients' age

On the 37 referred cases, 10 (27,0%) were younger than 20 years of age, 10 (27,0%) were between 20 and 24 years of age, 9 (24,0%) were between 25 and 29 years of age, 3 (8,0%) were between 30 and 34 years of age, and 5 (14,0%) were 35 years and older.

Of the 266 nonreferred cases, 70 (26,3%) were younger than 20 years of age, 87 (33,0%) were between 20 and 24 years of age, 44 (17,0%) were between 25 and 29 years of age, 33 (12,0%) were between 30 and 34 years of age and 31 (11,7%) were 35 years and older. Recording the age on the partogram is of critical importance, because different ages are treated differently as far as interventions are concerned.

Item 4.2.1.5.3: Recording of the referring facility

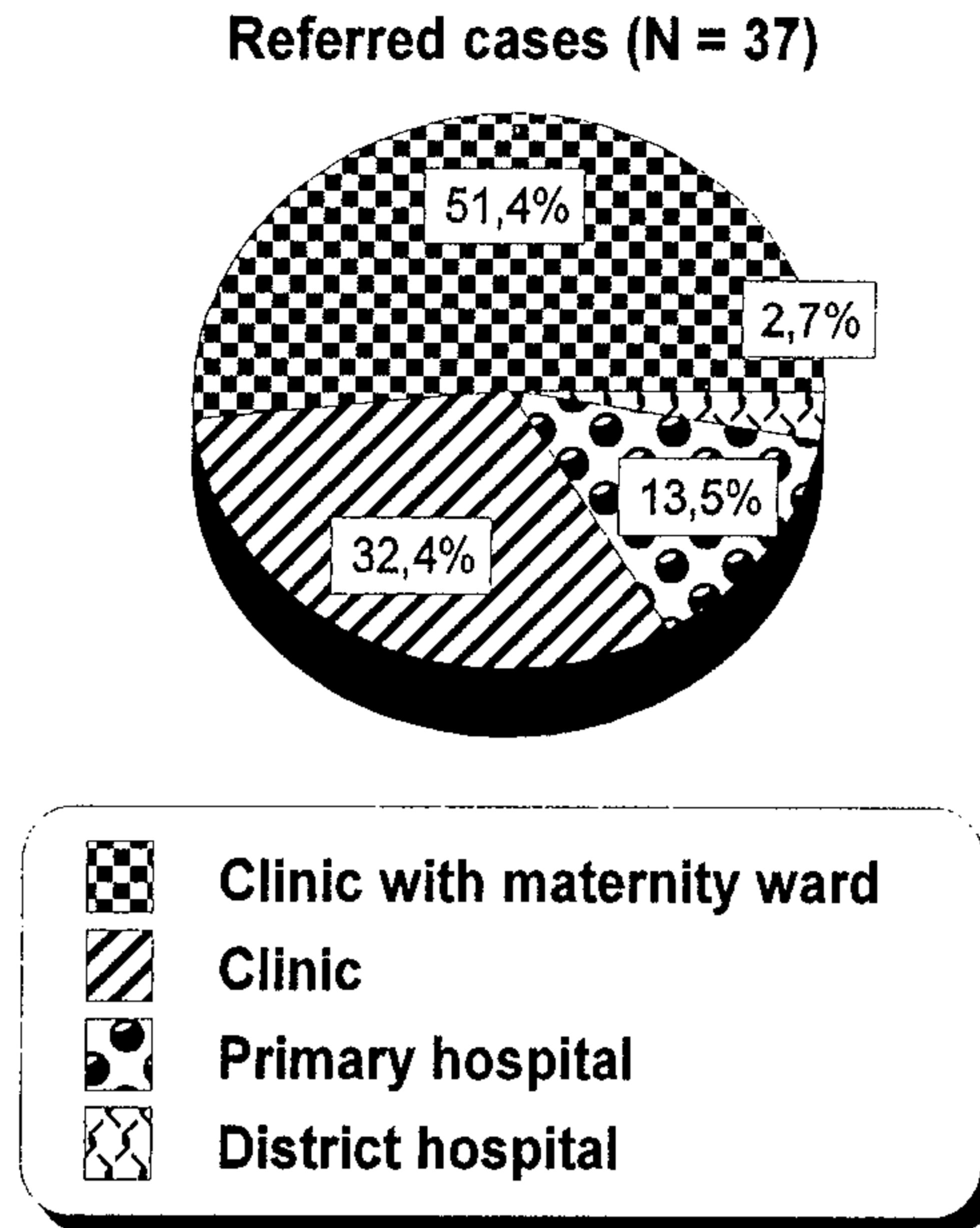


Figure 4.5
Recording of the referring facility

The above pie chart shows the percentage of cases that had been referred to the facility. Of the 37 referred patients, 19 (51,4%) had been referred by a clinic with a maternity ward, 12 (32,4%) had been referred by an ordinary clinic, 5 (13,5%) had been referred by a primary hospital, and 1 (2,7%) had been referred by a district hospital. This item had been completed to an adequate extent. It gives Nyangabgwe Hospital information on from what level cases had been referred. The referral system provides services at successive levels so that if a (see Annexure K), certain level cannot cope with obstetric emergencies, the patient is referred to the next level of service.

Item 4.2.1.8.2: Recording of the gestational age

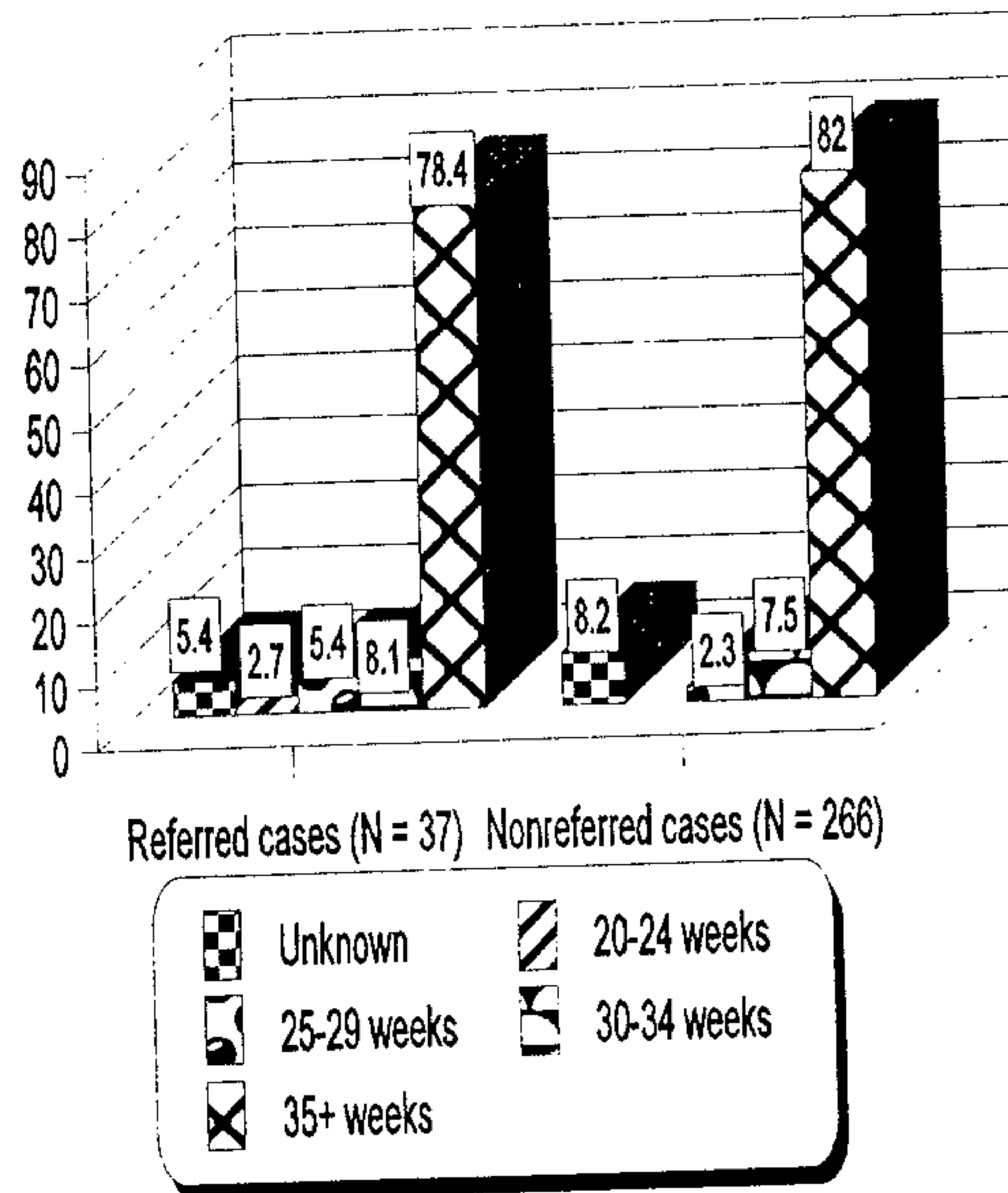


Figure 4.6

Recording of the gestational age

Of the 37 referred cases, in 1 case (2,7%) the gestational age recorded was 20 to 24 weeks, in 2 cases (5,4%) it was 25 to 29 weeks, in 3 cases (8,1%) it was 30 to 34 weeks, and in 29 cases (78,4%) it was 35 weeks and above, while in 2 cases (5,4%) it had not been recorded.

Out of 266 nonreferred cases, in 22 cases (8,2%) the gestational age recorded was not recorded, in 6 cases (2,3%) it was 25-29 weeks, in 20 cases (7,5%) it was 30-34 weeks and in 218 (82,0%) it was 35 weeks and above. According to the relevant literature, the salient features of labour should be noted (Bennet & Brown (1999:159); Duigman et al (1975:595). According to Letubo (1996:13), if midwives have baseline data about a patient it will enable them to identify any deviation from normal, and to initiate the relevant intervention. In a study by Linge-Karoo and Rogo (1992:181-186) it was found that the gestational age at delivery is one of the factors that has a significant influence on early perinatal mortality. If it is not entered on the partogram, pertinent data are missing, and it will hamper the necessary initiation of relevant interventions.

4.2.2 Section B: A retrospective audit of partogram recordings by midwives (outcome)

Table 4.2: A retrospective audit of partogram recordings by midwives

Item	Referred cases (N=37)			Nonreferred cases (N=266)		
	Complete %	Incomplete %	Not indicated %	Complete %	Incomplete %	Not indicated %
4.2.2.1 Foetal heart rate, half-hourly	46,0	29,7	24,3	59,8	19,2	21,0
4.2.2.2 Cervical dilatation, hourly	43,0	30,0	27,0	42,9	41,7	15,4
4.2.2.3 Descent foetal head, hourly	37,8	37,9	24,3	23,7	54,1	22,2
4.2.2.4 Frequency of contractions during a 10 min period, every 30 min	43,3	32,4	24,3	59,8	19,9	20,3
4.2.2.5 Liquor and membrane, hourly	46,0	29,7	24,3	60,2	17,8	22,0
4.2.2.6 Moulding, four-hourly	16,2	46,0	37,8	24,4	33,9	41,7
4.2.2.7 Vital signs, hourly	13,5	48,7	37,8	7,1	53,0	39,9
4.2.2.8 Testing and measuring of urine	32,4	48,7	18,9	41,7	37,2	21,1

Item 4.2.2.1: Half-hourly recordings of the foetal heart rate

Of the 37 **referred cases**, in 17 (46,0%), the recordings were complete, in 11 (29,7%) they were incomplete, and in 9 (24,3%), there were no recordings concerning this particular item.

Of the 266 **nonreferred cases**, in 159 (59,8%) the recording were complete in 51 (19,2%) they were incomplete, and in 56 (21,0%) there were no recordings concerning this particular item.

The above findings show that midwives do not do the half-hourly recording of the foetal heart rate on the partogram as well as required. These recordings are quite critical. By performing them, the midwife is able to safeguard the foetus against distress, and also to detect distress if it does occur.

Item 4.2.2.2: Recordings of cervical dilation

Of the **referred cases**, in 16 (43,0%) the recordings were complete, in 11 (30,0%) the recordings were incomplete and in 10 (27,0%) there were no recordings concerning this particular item.

Of the 266 **nonreferred cases**, in 114 (42,9%) the recordings were complete, in 111 (41,7%) the recordings were incomplete and in 41 (15,4%) there were no recordings concerning this particular item.

The above findings show that midwives do not record cervical dilation on the partogram as well as required.

The Botswana Obstetric Record and recordings on the partogram show how important graphic recordings are: they enable the midwife to recognise deviations from normal conditions. These recordings are particularly important for assessing cervical dilation and the descent of the presenting part, because they help to detect, in an early stage, a delay in labour, or warn the attendant that it is time to transfer the parturient to a higher level facility.

Item 4.2.2.3: Hourly recordings of the descent of the foetal head

Of the 37 **referred cases** 14 (37,8%), the recordings were complete in 14 (37,9%), the recordings were incomplete and in 9 (24,3%) there were no recordings concerning this particular item.

Of the 266 **nonreferred cases**, in 144 (54,1%), the recordings were complete, in 63 (23,7), the recordings were incomplete, and in 59 (22,2%) there were no recordings concerning this particular item.

The above findings indicate that midwives do not do the hourly recording of the descent of the foetal head on the partogram as well as required. These recordings are quite important. By performing them, the midwife is able to safeguard the patient against aetiological factors in prolonged labour with regard to the position of the foetal head, and also to detect these factors if they do occur.

Item 4.2.2.4: Recordings of the frequency of contractions during a 10 minute period

Out of the 37 **referred cases**, in 16 (43,3%) the recordings were complete, in 12 (32,4%), the recordings were incomplete, in 9 cases (24,3%) there were no recordings concerning this particular item.

Of 266 **nonreferred cases**, in 159 (59,8%), the recordings were complete, in 53 (19,9%), the recordings were incomplete, in 54 (20,3%), there were no recordings concerning this particular item.

The above findings show that midwives do not make sufficient use of the partogram when recording the frequency of contractions during a 10-minute period. Important features of contractions are their frequency and duration, which should be assessed every 30 minutes.

Item 4.2.2.5: Recordings of liquor and membranes

Of the 37 **referred cases**, in 17 (46,0%), the recordings of the characteristics of the amniotic liquor and foetal membranes were complete, in 11 (29,7%), the recordings were incomplete, and in 9 (24,3%) there were no recordings concerning this particular item.

Of the 266 **nonreferred cases**, in 160 (60,2%) recordings were complete, in 47 (17,8%), the recordings were incomplete, and in 59 (22,0%) there were no recordings concerning this particular item.

The above findings show that although midwives do record the characteristics of liquor and membranes they do not make sufficient use of the partogram when doing so.

These characteristics can serve as alerts to the midwife that all is not well. In utero passage of meconium may be due to hypoxia, clear liquor turning blood stained could be a sign of birth trauma, and offensive liquor is an indication of infection.

Item 4.2.2.6: The four-hourly recordings of moulding

Of the 37 **referred cases**, in 6 (16,2%), the recording were complete, in 17 (46,0%), the recordings were incomplete, and in 14 (37,8%), there were no recordings concerning this particular item.

Of the 266 **nonreferred cases**, in 65 (24,4%), the recordings were complete, in 90 (33,9%), the recordings were incomplete, and in 111 (41,7%) there were no recordings concerning this particular items.

The above findings show that although midwives do record moulding on a four-hourly basis, they do not do so as well as required. Such recordings help identify any deviations so that the relevant interventions can be initiated (Letubo 1996:13).

Increased moulding without descent of the foetal head is indicative of cephalo-pelvic disproportion (CPD), and a safe vaginal delivery is unlikely. So, it is very important that moulding be recorded.

In 4.2.2.7: Four-hourly recordings of vital signs

Of the 37 **referred cases**, in 5 (13,5%), the recordings were complete, in 18 (48,7%), the recordings were incomplete, and in 14 (37,8%) there were no recordings concerning this particular items.

Of the 266 **nonreferred cases**, in 19 (7,1%), the recordings were complete, in 143 (53,0%) the recordings were incomplete, and in 106 (39,9%) there were no recordings concerning this particular item.

Items 4.2.2.7, 4.2.2.7.2 and 4.2.2.7.4 show that midwives perform poorly as far as the four-hourly recording of vital signs temperature, maternal pulse and blood pressure on the partogram are concerned.

Checking of the vital signs safeguards against maternal distress (rising pulse rate, rising temperature, or rising blood pressure). A high maternal pulse rate could be a sign of impending uterine rupture, exhaustion or dehydration.

Item 4.2.2.8: Urine testing and measuring of urine

Of the 37 referred cases, in 12 (32,4%), the urine had been tested and measured by midwives, in 18 (48,7%), the recordings were incomplete, and in 7 cases (18,9%) there were no such recordings.

Of the 266 unREFERRED cases, in 111 (41,7%) there were complete recordings, in 99 (37,2%) there were incomplete recordings, and in 56 (21,1%) there were no such recordings.

The above findings showed the following: In both referred and nonreferred cases, the midwives had not recorded the measurement and testing of the urine as well as required. Urine should be measured carefully during labour, and should be tested for protein, acetone, sugar and volume (see figure 2.4).

4.2.3 Section C: A retrospective audit of the partogram: midwives' reactions when complications arise (outcome 2)

Table 4.3: Midwives reactions when complications arise

Item	N	Complete %	Incomplete %
4.2.3.1 Labour process crossed alert line	17	70,6	29,4
4.2.3.2 Labour process crossed action line	17	70,6	29,4
4.2.3.3 Rise in blood pressure	4	75,0	25,0
4.2.3.4 Rise in temperature	6	75,0	25,0
4.2.3.5 Rise in foetal heart rate	0,0	0,0	0,0
4.2.3.6 Drop in foetal heart rate	5	100,0	0,0
4.2.3.7 Rise in maternal pulse rate	5	20,0	80,0
4.2.3.8 Drop in maternal pulse rate	3	29,4	70,6
4.2.3.9 Ketones in urine	4	50,0	50,0
4.2.3.10 Fresh meconium-stained liquor	3	66,7	33,3
4.2.3.11 Old meconium-stained liquor	0,0	0,0	0,0
4.2.3.12 Foetal head remaining at the same level for four-hours	23	78,0	22,0

As far as items 4.2.3.1 and 4.2.3.2 were concerned, only 17 of the 303 referred and nonreferred cases should have been upon by midwives when the labour process crossed the alert line.

The above findings show that 12 cases (70,6%) were reacted upon by midwives, while 5 cases (29,4%) were not.

Although the midwives reacted fairly well when the labour process crossed the alert and the action lines, there is still room for improvement, since 5 cases (29,4%) were not reacted upon.

The literature in chapter 2 under "The Botswana Obstetric Record and the recordings made on a partogram" shows that the alert line acts as a warning that the labour process in the active phase is delayed when the cervical dilation crosses the line to the right. Therefore, cervical dilation should not reach the action line if there are no theatre facilities available.

Philpott and Castle (1972:592-602) also stated that "the action line" was the point at which treatment should be instituted for slow progress of labour. This principle serves as a sound scientific basis for early intervention in order to help prevent prolonged labour (see figure 2.3).

Item 4.2.3.3: Percentage of entries by midwives regarding reaction when blood pressure rises

Of the 303 referred and nonreferred cases, only four were supposed to be reacted upon by midwives when the blood pressure rose.

The above finding show that four cases (100,0%) were supposed to be reacted upon by midwives when the blood pressure rose, 3 cases (75,0%) were reacted upon, while 1 case (25,0%) was not.

The literature review in chapter 2 under "the Botswana Obstetric Record and the recordings made on a partogram" shows that a rising blood pressure denotes maternal distress and pre-eclampsia. If midwives react upon a rising blood pressure, it means that they are applying the high-risk approach.

Item 4.2.3.4: Rise in temperature

Item 4.2.3.4 shows that out of 6 cases that needed to be reacted upon because of a rise in temperature, 75,0% were reacted upon, while only 25,0% were not.

Item 4.2.3.5: Rise in foetal heart rate shows that no cases to be reacted upon by midwives because of old meconium appearing in the liquor.

Item 4.2.3.6: Drop in foetal heart rate

Item 4.2.3.6 shows that out of 5 cases that needed to be reacted upon because of a drop in the foetal heart rate, all 5 cases (100,0%) were reacted upon.

Item 4.2.3.7: Rise in maternal pulse rate

Item 4.2.3.7 shows that out of 5 cases that needed to be reacted upon because of a rise in the maternal pulse rate, only 1 case (20,0%) was reacted upon fully, and four cases (80,0%) were not.

Item 4.2.3.8: Drop in maternal pulse rate

Item 4.2.3.8 shows that out of 3 cases that needed to be reacted upon because of a drop in the maternal pulse rate 1 case (29,4%) was reacted upon, while 2 cases (70,6%) were not.

Item 4.2.3.9: Ketones in urine

Item 4.2.3.9 shows that out of 4 cases that needed to be reacted upon when ketones appeared in the urine, 2 cases (50,0%) were reacted upon, while 2 cases (50,0%) were not.

Item 4.2.3.10: Fresh meconium-stained liquor

Item 4.2.3.10 shows that out of 3 cases that needed to be reacted upon by midwives when fresh meconium appeared in the liquor, 2 cases (66,0%) were reacted upon, while 1 case (33,0%) was not.

Item 4.2.3.11: Old meconium-stained liquor

Item 4.2.3.11 shows that no cases needed to be reacted upon by midwives because of old meconium appearing in the liquor.

Item 4.2.3.12: Foetal head remaining at the same level for four-hours

Item 4.2.3.12 shows that 23 cases needed to be reacted upon by midwives when the foetal head remained at the same level for four hours. Out of these 18 cases (78,0%) were reacted upon fully by midwives, while 5 cases (22,0%) were not reacted upon fully.

Although the reaction in items 4.2.3.4, 4.2.3.6, 4.2.3.8 and 4.2.3.9 were favourable, there is still room for improvement in that area. The literature review in chapter one (Lennox & Kwast 1995:56) reveals that if problematic labours are identified it will facilitate timely referral to a central unit this denotes even the least case.

Of the 303 referred and nonreferred cases, few cases needed to be reacted upon by the midwives as far as the above items were concerned.

4.2.4 Section D: Evidence of use of the partogram throughout the labour process (process 1)

Table 4.4: Evidence of the use of the partogram during labour

Item	Referred cases (N=37)			Nonreferred cases (N=266)		
	Complete %	Incomplete %	Not indicated %	Complete %	Incomplete %	Not indicated %
4.2.4.1 Use of the partogram during the latent phase of labour	2,8	5,4	91,8	8,6	3,8	87,5
4.2.4.2 Use of the partogram during the active phase of labour	27,0	48,7	24,3	39,1	38,7	22,2

Item 4.2.4.1: Latent phase of labour

Of the 37 referred cases, 34 (91,8%) showed no indication that the partogram in latent phase had been used during the complete recordings. One case (2,8%) complete use had been made of the partogram during the latent phase of labour, while two cases (5,4%) had incomplete recordings.

Of the 266 nonreferred cases in 23 (8,7%) complete use had been made of the partogram during the latent phase of labour, in 10 (3,8%) incomplete use had been made of it, while in 233 of them (87,5%), there was no indication that the partogram had been used during the latent phase.

Item 4.3.4.2: Active phase of labour

Of the 37 referred cases, in 10 (27,0%) complete use had been made of the partogram, while in 18 (48,7%) incomplete use had been made throughout the labour process, and in 9 of them (24,3%) there was no indication that the partogram had been used.

Of the 266 nonreferred cases in 104 (39,1%) complete use had been made of the partogram, while in 59 (38,7%) incomplete use had been made throughout the labour process and in 103 of them (22,2%) there was no indication that use had been made of the partogram.

The above findings point at the following facts:

Although midwives make use of the partogram throughout the labour process during both the latent and the active phases of labour, they do not use it as well as required, even though the partogram allows for early identification and appropriate management of obstetric complications, including prompt referral to appropriate obstetric care.

**4.2.5 Section E: Evidence of use of the partogram throughout the labour process
(structure 1)**

Table 4.5: Use of the partogram by midwives

Item	N	Yes Response %	No Response %
4.2.5.1 Presence of an obstetric file	303	100,0	0,0
4.2.5.2 Endorsement of signatures	303	92,5	7,5
4.2.5.3 Endorsement of dates	303	98,3	1,7
4.2.5.4 Deletion of information after entry	303	19,0	81,0
4.2.5.5 Legibility of original entry	303	97,3	2,7
4.2.5.6 Re-entries	303	23,4	76,6

Item 4.2.5.2: Signatures on the partogram

Item 4.2.5.3: Endorsement of dates for every action taken

Item 4.3.5.5: Legibility of the original entry

As far as all 303 referred and nonreferred cases were concerned, the “yes” response in item 4.2.5.1 shows that there were obstetric files for all the cases (100%); item 4.2.5.2 shows that in 282 cases (92,5%), the signatures on the partogram had been enclosed, while in 21 cases (7,5%) they had not been endorsed.

As far as item 4.2.5.3 was concerned, in 272 cases (98,3%) the dates for every action had been endorsed, while in 3 cases (1,7%) they had not been endorsed. As far as item 4.2.5.5 was concerned, in 302 of the cases (97,3%) the original entry made by the midwife was still legible, and in 1 case (2,7%) it was not.

The findings show that in all the above items, the result was positive. This means that the midwives had not experienced any difficulties with these items. Recording parameters once they have been checked is critical, in that reference can then be made and appropriate action can be taken, and this will improve the management of labour and of obstetric emergencies.

Item 4.2.5.6: Re-entries by midwives on the partogram

As far as all referred and nonreferred cases were concerned, 232 (76,6%) did not show any re-entries, while 71 (23,4%) did.

Item 4.2.5.5: Deletion of information after entry

As far as all referred and nonreferred cases were concerned, 244 (81,0%) did not show deletions after entry, while 59 (19,0%) did.

The above findings show that deletions of information after entry and re-entries by midwives on the partogram were insignificant. Still, there was room for improvement as far as this particular aspect was concerned.

4.3 AN OBSERVATION OF MIDWIVES USING THE PARTOGRAM IN THE LABOUR WARD

4.3.1 Section F: Number of midwives per shift

Table 4.6: Number of midwives per shift in relation to the number of parturients in the labour and delivery wards

MIDWIFE	TYPE OF SHIFT	NO OF MIDWIVES ON DUTY	NO OF PATIENTS IN THE LABOUR WARD	NUMBER OF DELIVERIES ALLOCATED TO MIDWIVES
A	Morning	4	1	1
B	Night	3	1	0
C	Morning	4	1	0
D	Night	3	1	0
E	Afternoon	3	0	1
F	Afternoon	3	1	0
G	Morning	5	2	0
H	Morning	3	1	0
I	Morning	5	1	0

MIDWIFE	TYPE OF SHIFT	NO OF MIDWIVES ON DUTY	NO OF PATIENTS IN THE LABOUR WARD	NUMBER OF DELIVERIES ALLOCATED TO MIDWIVES
J	Morning	5	1	1
K	Afternoon	4	1	0
L	Afternoon	4	1	0
M	Afternoon	3	1	0
N	Morning	5	2	0
O	Afternoon	4	1	0
P	Afternoon	3	1	0

Out of 16 midwives who were observed in the labour ward, 7 had been on morning-shift duty, 7 on afternoon-shift duty and 2 on night-duty shift. The average number of parturients per midwife was 1,6 in the labour ward, and 0,19 in the delivery room.

The above findings show that staffing is not a problem as far as use of the partogram is concerned.

4.3.2 Section G: Use of the partogram by midwives

Table 4.7: Use of the partogram by midwives

Item	N	Yes Response %	No Response %
4.3.2.1 Presence of an obstetric chart	16	100,0	0,0
4.3.2.2 Endorsement of signatures on the partogram	16	43,8	56,2
4.3.2.3 Endorsement of dates for every entry	16	43,8	56,2
4.3.2.4 Evidence of deletion of information by midwives	16	25,0	75,0
4.3.2.5 Legibility of the original entry	16	100,0	0,0
4.3.2.6 Evidence of the re-entries on the partogram	16	25,0	75,0

Item 4.3.2.1: Presence of an obstetric chart: 100,0%

The above findings show that midwives do make sure that each patient's file has an obstetric chart. Bennet and Brown (1999:139) said that all information gathered by midwives will help to make a decision about care for the patients. In this connection, reference will be made to the obstetric record.

Item 4.3.2.2: Endorsement of signatures

Of the 16 midwives observed while using the partogram, only 7 (43,8%) had endorsed all signatures on each obstetric chart, while 9 (56,2%) had not.

The above findings show that midwives do not fulfil this particular requirement as well as expected.

Item 4.3.2.3: Endorsement of dates for every action taken

Of the 16 midwives observed while using the partogram, only 7 (43,8%) had endorsed all dates for every action taken, while the other 9 (56,2%) had not.

The above findings show that there is definite room for improvement as far as this particular item is concerned.

Items 4.3.2.4, 4.3.2.5 and 4.3.2.6

The following was found regarding the 16 midwives who had been observed and interviewed while using the partogram in the labour ward.

Item 4.3.2.4

It shows that only 4 (25,0%) of the midwives had deleted information after entry on the partogram, while 12 (75,0%) had not.

Item 4.3.2.5

It shows a 100,0% legibility of the original entry.

Item 4.3.2.6

It shows that only 4 (25,0%) had made re-entries on the partogram, while the other 12 (75,0%) had not..

Although the above results regarding items 4.3.2.4, 4.3.2.5 and 4.3.2.6 are positive, there is still some room for improvement in items 4.3.2.4 and 4.3.2.6 information of a medico-legal nature should be easy to read.

4.3.3 Section H: Observation of midwives using the partogram

Table 4.8: Observation of midwives using the partogram

Item	N	Complete %	Incomplete %
4.3.3.1 Foetal heart rate, half-hourly	16	100,0	0,0
4.3.3.2 Cervical dilation, hourly	16	87,5	12,5
4.3.3.3 Descent of foetal	16	68,8	31,2
4.3.3.4 Frequency of contractions	16	81,3	18,7
4.3.3.5 Recording of liquor and membrane, hourly	16	100,0	0,0
4.3.3.6 Moulding, hourly	16	75,0	25,0
4.3.3.7 Temperature	16	62,5	37,5
4.3.3.7 Maternal pulse	16	62,5	37,5
4.3.3.7 Respiration	16	100,0	0,0
4.3.3.7 Blood pressure	16	87,5	12,5
4.3.3.8 Testing and measurement of urine	16	87,5	12,5

As far as item 4.3.3.1 was concerned, 100,0% of the 16 midwives who had been observed and interviewed while using the partogram in the labour ward had completed the entries on the half-hourly foetal heart rate recordings on the partogram.

Item 4.3.3.2 shows that 14 midwives (87,5%) had completed the entries on the four-hourly cervical-dilation recordings, while 2 midwives (12,5%) had not.

Item 4.3.3.3 shows that 11 midwives (68,8%) had made hourly recordings of the descent of the foetal head, while the other 5 (31,2%) had not.

Item 4.3.3.4 shows that 13 midwives (81,3%) had completed recording the entries on the frequency of contractions during a 10-minute period, while the other 3 (18,7%) had not.

Item 4.3.3.5 shows that 16 midwives (100,0%) had made complete hourly recordings of the liquor and membranes.

Item 4.3.3.6 shows that 12 midwives (75,0%) had made complete four-hourly recordings of the moulding process, while 4 midwives (25,0%) had not.

Item 4.3.3.7 shows that 14 midwives (87,5%) had made complete recordings of blood pressure, while the other 2 midwives (12,5%) had not.

The above are positive results.

Items 4.3.3.7.1 - 4.3.3.7.4 show the following as far as the 16 midwives who had been observed and interviewed while using the partogram in the labour ward were concerned.

Item 4.3.3.7.1 showed that 10 midwives (62,5%) had made recordings of the temperature, while 6 (37,5%) had not.

Item 4.3.3.7.2 showed that 10 midwives (62,5%) had made complete recordings of the maternal pulse, while 6 (37,5%) had not.

Item 4.3.3.7.3 showed that 15 midwives (93,7%) had not made any recording on respiration and that 1 midwife (6,3%) had made complete recordings.

The above were positive results, but a study conducted in Botswana, at the Princess Marina Hospital in Gaborone, and also in Maun and in Ramotswa, regarding the Botswana Perinatal Project (1990), showed that some sections of the partogram had not been filled in completely.

Item 4.3.3.8: Testing and measurement of urine

As is shown in the chart, 14 midwives (87,5%) had made complete measurements and tests, while the other 4 (12,5%) had not.

Although the result is positive there is some room for improvement, because two midwives had not recorded any measurements and tests. The literature in chapter 2 under “The Botswana Obstetric Record and recordings” reveals that one of the indicators of maternal distress is a presence of acetone in the urine. It is therefore essential that urine be tested and recorded to safeguard against maternal complications that could arise.

4.3.4 Section I: Recording of complications by midwives in the labour ward

Table 4.9: Recording of complications by midwives in the labour ward N+16 midwives

Item	N=16	Complete	Incomplete	Not indicated
4.3.4.1 Labour process crossed	16	6,3	0,0	93,7
4.3.4.2 Labour process crossed action line	16	12,5	0,0	87,5
4.3.4.3 Rise in blood pressure	16	0,0	0,0	100,0
4.3.4.4 Rise in temperature	16	0,0	0,0	100,0
4.3.4.5 Rise in foetal heart rate	16	0,0	0,0	100,0
4.3.4.6 Drop in foetal heart rate	16	0,0	0,0	100,0
4.3.4.7 Rise in maternal pulse rate	16	0,0	0,0	100,0
4.3.4.8 Drop in maternal pulse rate	16	0,0	0,0	100,0
4.3.4.9 Ketones in urine	16	0,0	0,0	100,0
4.3.4.10 Fresh meconium-stained liquor	16	0,0	0,0	100,0
4.3.4.11 Old meconium-stained liquor	16	0,0	0,0	100,0
4.3.4.12 Foetal head remaining at the same level for four-hours	16	0,0	0,0	50,0

Item 4.3.4.2 - 4.3.4.12: Recordings of when the labour process crossed the action line; a rise in temperature; a rise in the foetal heart; a rate drop in the foetal heart rate; a rise in the maternal pulse; a drop in the maternal pulse; ketones in the urine; fresh meconium-stained liquor; old meconium-stained liquor

Items 4.3.4.1 and 4.3.4.2

It show complications recorded by midwives in the labour ward. However, in most cases, the midwives observed and interviewed had not indicated when the labour process had crossed the alert and the action lines.

4.4 AN INTERVIEW WITH MIDWIVES WHO USE THE PARTOGRAM

Item 4.4.1.1: Number of years worked in the labour ward

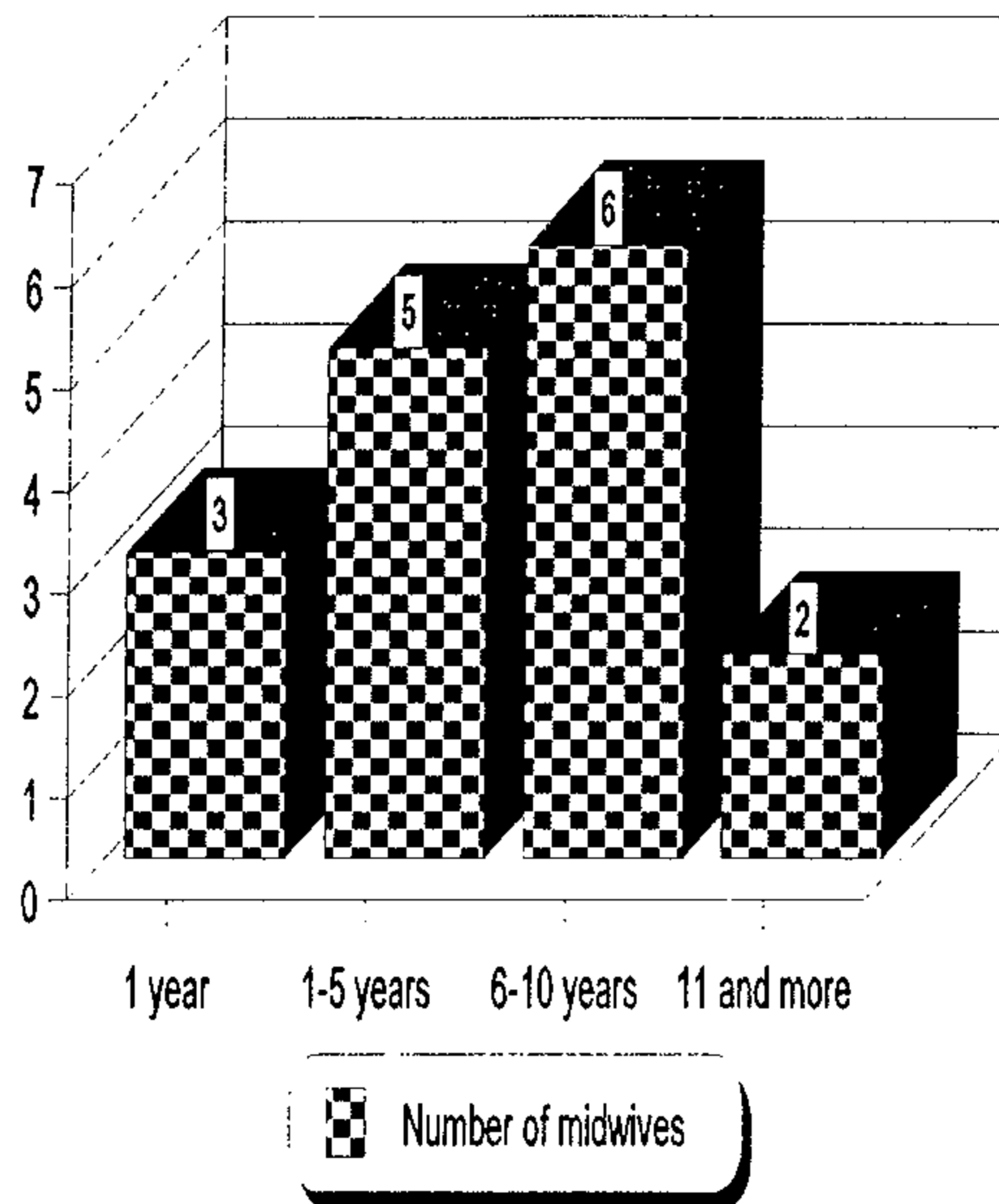


Figure 4.7

Number of years worked in the labour ward (N=16)

Out of the 16 midwives who worked in the labour ward, only 3 (18,8%) had less than 1 year's experience, 5 (31,3%) had 1 to 5 years' experience, 6 (37,5%) had 6 to 10 years' experience, while the other 2 midwives (12,5%) had 11 years' and more experience.

The above findings indicate that the midwives in the labour ward, in which it is unlikely that inexperienced midwives will be left alone, had varied experience. Since the staff of Nyangabgwe

Hospital is distributed according to years of experience, there is little danger of overreliance on junior staff.

Item 4.4.1.2.1: Whether the midwives worked in the labour ward by choice (N=16)

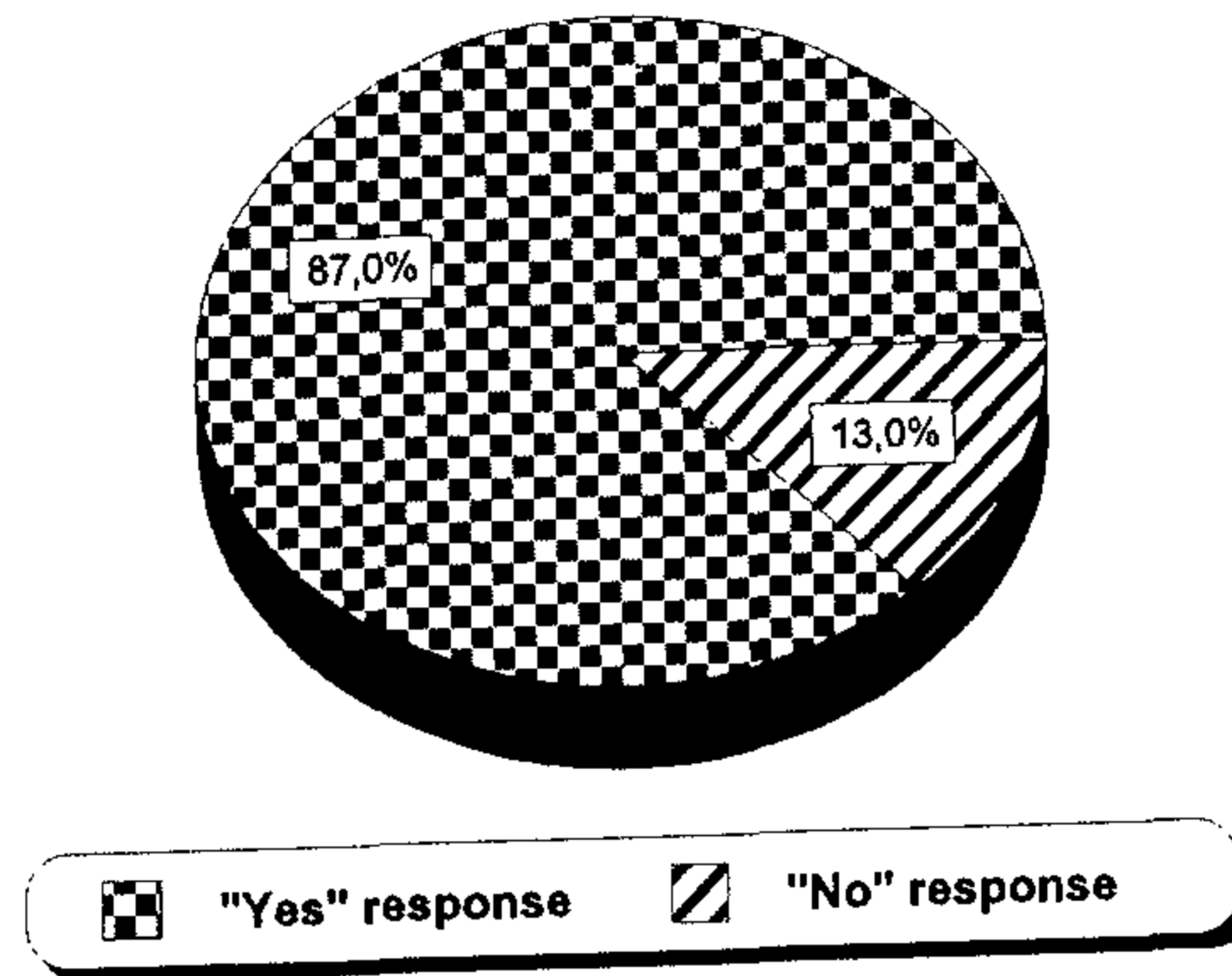


Figure 4.8

Whether the midwives worked in the labour ward by choice (N=16)

When the 16 midwives who had been observed using the partogram in the labour ward were asked whether they worked in the labour ward by choice, 14 (87,5%) indicated that they worked there by choice, while 12,5% indicated that they did not work there by choice. This was a positive result.

Essential obstetric care includes the ability to recognise abnormalities in the labour process. A positive attitude will therefore be helpful (O'Loughlin 1997:622-625).

Item 4.4.1.3: Duration of training in midwifery

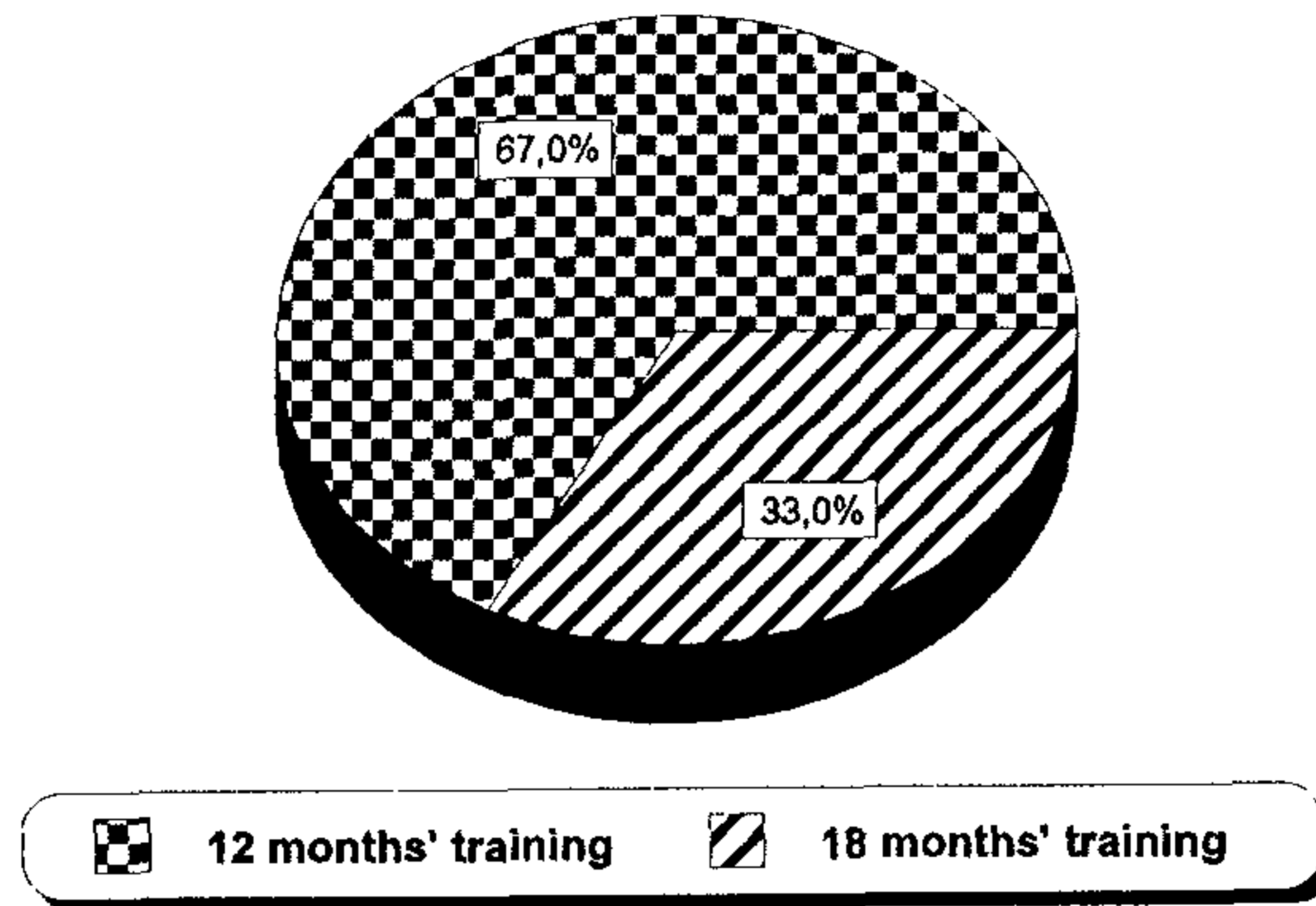


Figure 4.9

Duration of training in midwifery (N=16)

Of the 16 midwives who had been observed using the partogram in the labour ward 10 (62,5%) had received 12 months' training in midwifery while the other 6 (37,5%) had received 18 months' training.

Item 4.4.2.1: Frequency of in-service training on the use of the partogram

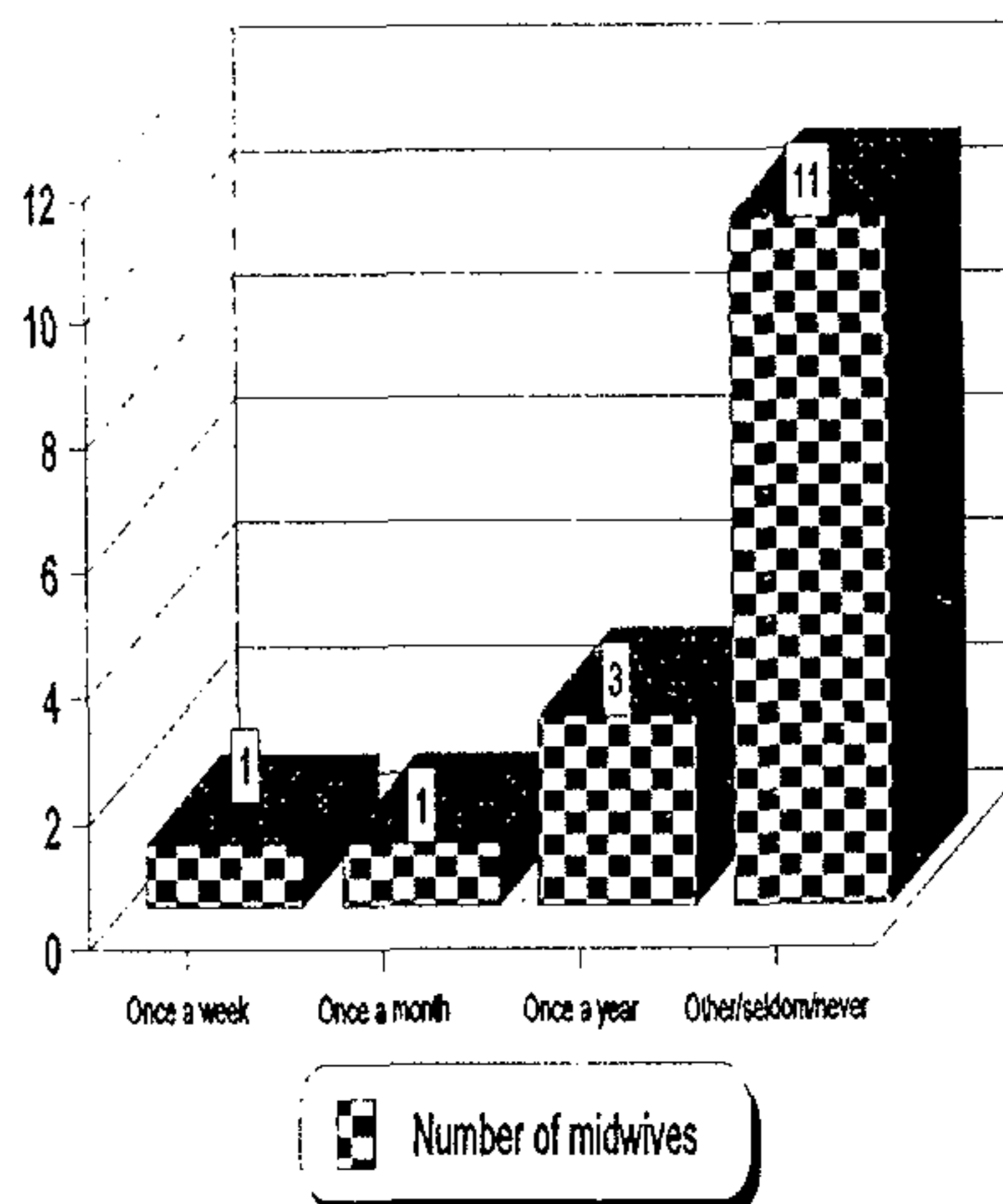


Figure 4.10

Frequency of in-service training on the use of the partogram (N=16)

When the 16 midwives who had been observed were interviewed about the frequency of in-service training on the use of the partogram, 11 said (68,8%) “seldom” or “never”, 3 (18,8%) “once a year”, 1 (6,3%) “once a month”, and 1 (6,3%) “once a week”.

The literature reviewed in chapter 2 on the “Training of midwives in Botswana” showed that 18 months’ training under the guidance and supervision of experienced midwives who had 12 months’ training helped the midwives acquire competence and confidence. Confident midwives have the ability to recognise abnormalities in labour, and to deal with complications as they arise (O’Loughlin 1997:622-625).

Item 4.4.2.2: Last attendance of in-service training on the use of the partogram

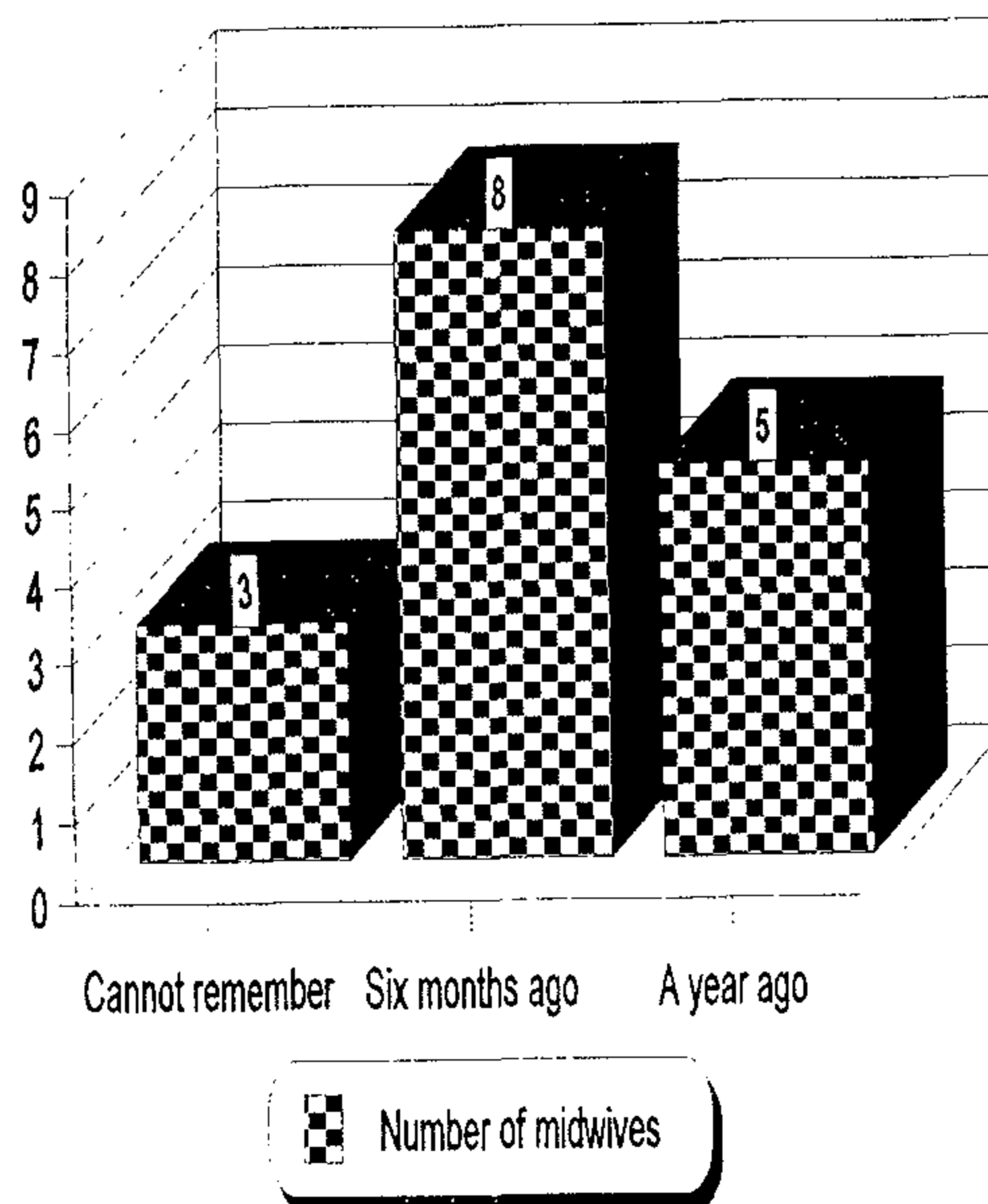


Figure 4.11

Last attendance of in-service training on the use of the partogram (N=16)

Of the 16 midwives who were asked about their last attendance of in-service training 5 (31,3%) said “a year ago”, 8 said (50%%) “six months ago”, and 3 (18,8%) could not remember.

The findings reveal that in-service training is not offered on a regularly basis which is why some sections of the partogram are often not completed.

Item 4.4.2.3.1: Existence of partogram protocol/policy

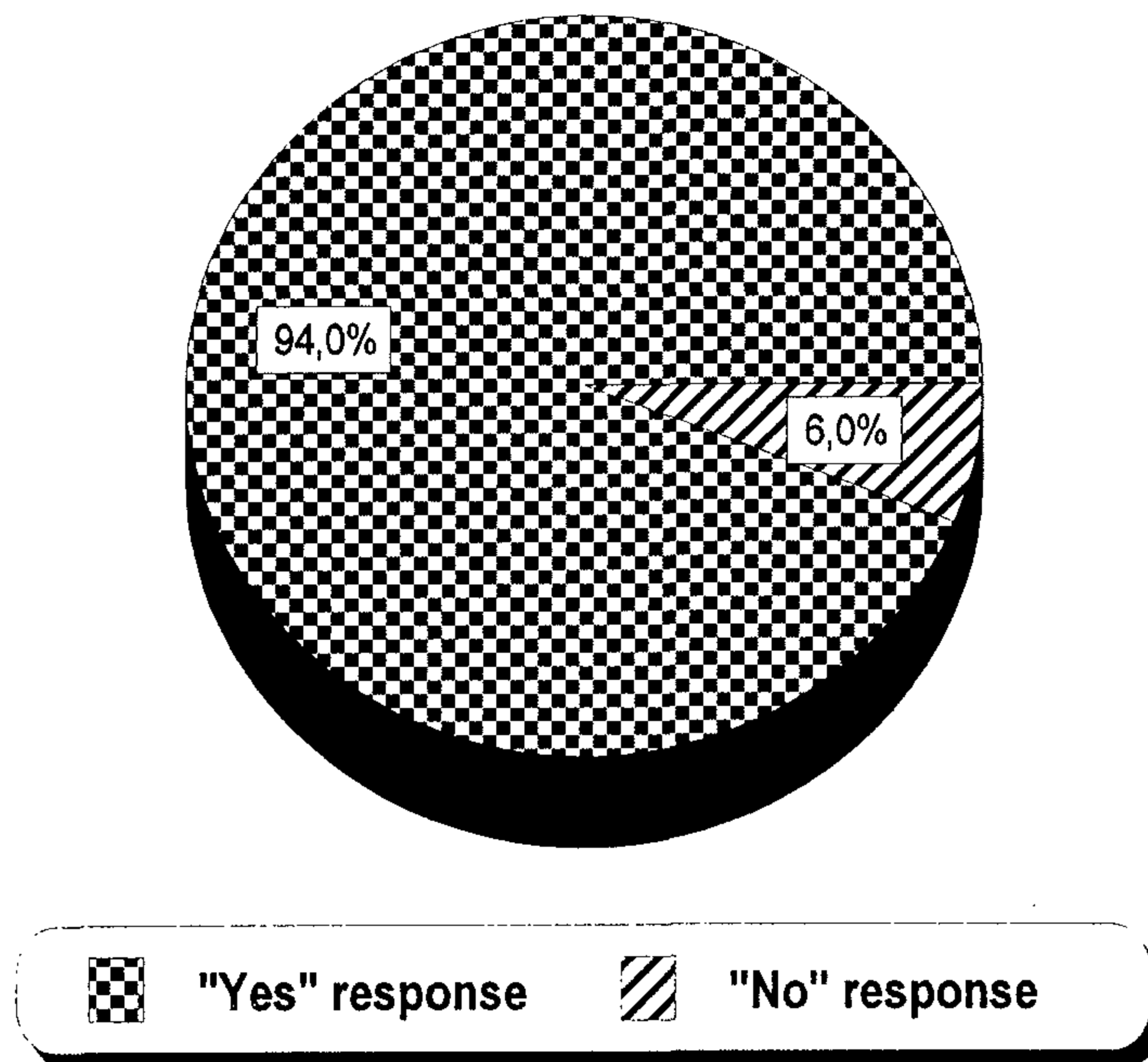


Figure 4.12

Existence of partogram protocol/policy (N=16)

The 16 midwives were asked whether there was a protocol/policy on the use of the partogram. Fifteen (94,0) said that there was a protocol/policy, while 1 (6,0%) said that there was not. The head nurse confirmed that there was a protocol/policy on the use of the partogram.

Item 4.4.2.3.2: When last the protocol had been studied

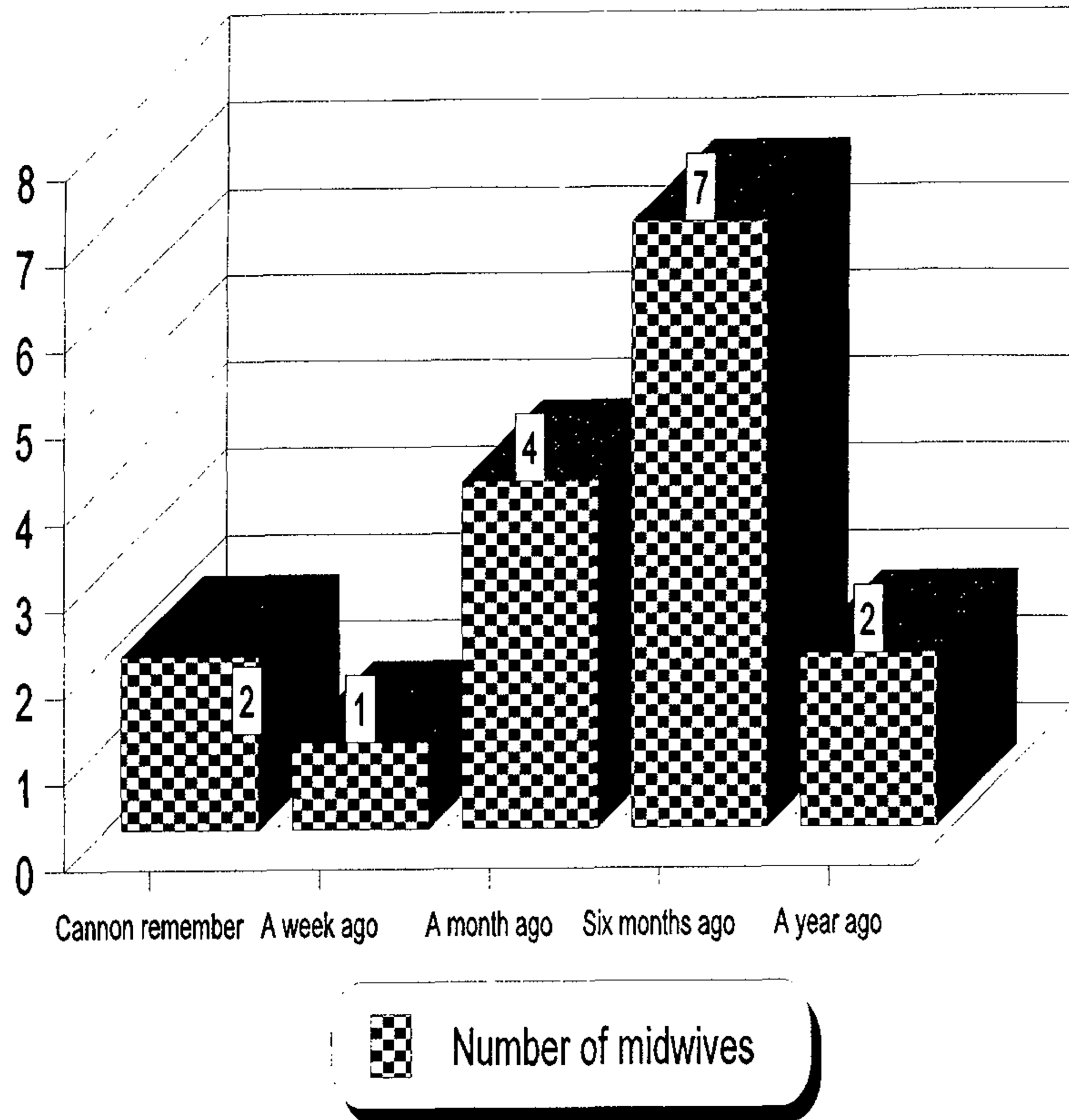


Figure 4.13

When last the protocol had been studies (N=16)

Of the 16 midwives, 7 (43,8%) had studied the protocol six months ago, 4 (25,0%) a month ago, 2 (12,5%) a year ago, 1 (6,2%) a week ago and 2 (12,5%) could not remember. The findings show that the period varied.

Item 4.4.2.4.2: Problems encountered in completing the partogram

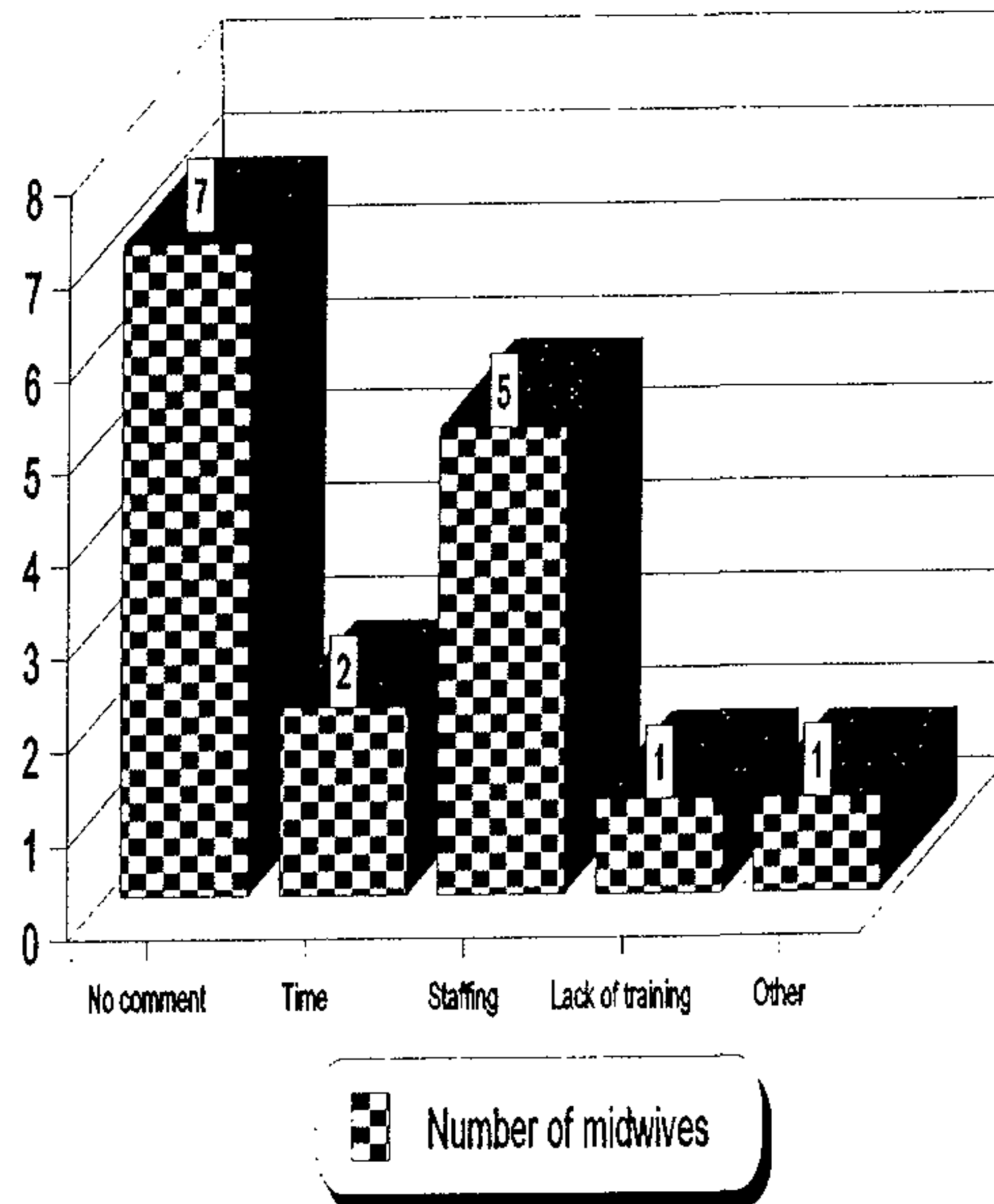


Figure 4.14

Problems encountered in completing the partogram (N=16)

Of the 16 midwives that were interviewed, 7 (43,8%) did not wish to comment, 5 (31,3%) said that there were staffing problems, 2 (12,5%) said that there were time problems and 1 (6,3%) said that there was a lack of training and 1 (6,3%) gave other reasons.

Item 4.4.2.4.1: Problems encountered with fully completing the partogram

Of the 16 midwives, 8 (50,0%) felt that they had problems with fully completing the partogram, and the other 8 (50,0%) felt that they had never had problems with fully completing the partogram.

The findings show different opinions in the group about problems with fully completing the partogram.

Item 4.4.2.6.1: Need for training in the use of the partogram

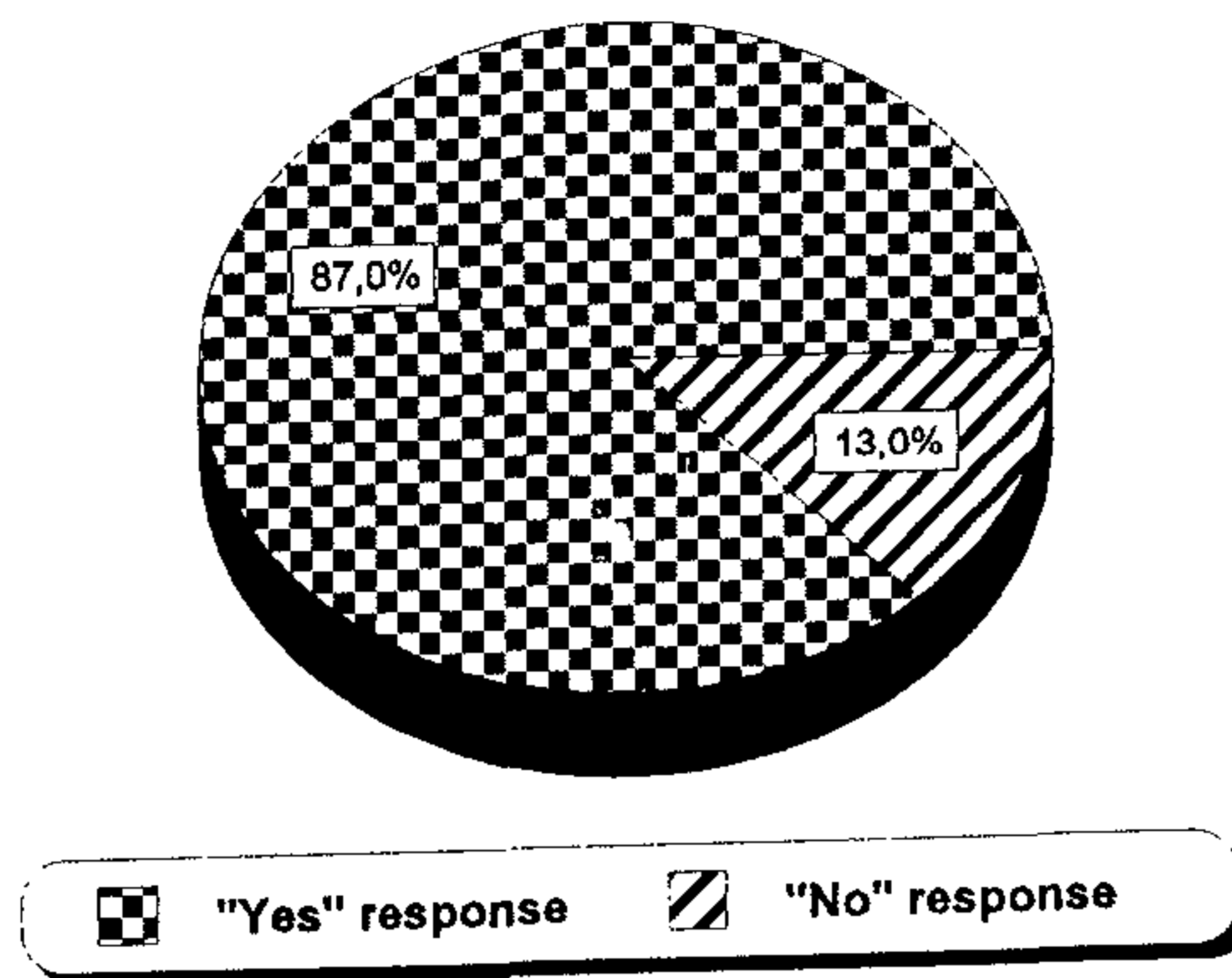


Figure 4.15

Need for the training in the use of the partogram (N=16)

Of the 16 midwives who were interviewed, 14 (87,5%) indicated the need for training in the use of the partogram, while 2 (12,5%) indicated that there was no need. This corresponds with what was said about the study on the Botswana Perinatal Project (1990) the study also revealed a need to update health workers on the use of the obstetric record. Essential obstetric care includes the provision of competent, trained midwives who should be able, to recognise abnormalities in labour through the use of the partogram (O'Loughlin 1997:622-625).

4.5 CONCLUSION

The findings of the study suggest that there are problems in the use of the partogram by midwives, but that those problems can be reduced. It has also been found there are factors that contribute to the problems in the use of the partogram by midwives. The conclusions and recommendations which arose from these findings will be presented in the next chapter.

Chapter 5

Recommendations and conclusions

5.1 INTRODUCTION

A summary of the findings conclusions and recommendations regarding this study will be discussed in this chapter. Problems relating to the use of the partogram and factors that could contribute to the problems in the use of the partogram by midwives were investigated in this study.

The use of the "Audit of patients' partogram records" (see Annexure C), the observation of midwives using the partogram in the labour ward" (see Annexure D), the "Interview schedule for midwives using the partogram" (see Annexure E), and that "Interview schedule with the Head Nurse" (see Annexure F) were used in the investigation.

The findings of the investigation that are presented later in this chapter answered the research questions.

5.2 OBJECTIVES OF THE STUDY

- ◆ **The objectives of the study were to**
 - audit completed partograms of delivered patients

- pinpoint problems experienced by midwives in the use of the partogram
- pinpoint factors that could have a negative influence on the use of the partogram
- observe the use of the partogram in practice
- draw up a training programme in the use of the partogram by midwives

5.3 FINDINGS CONCLUSIONS AND RECOMMENDATIONS

Nyangabgwe Hospital, as a referral and training institution, must provide comprehensive management of high-risk obstetric cases through the use of the partogram.

What follows, is a discussion of

- (i) the findings of the research, and
- (ii) the conclusions, which were drawn from the findings

The discussion is based on formulated audit criteria according to the Dynamic Standard Settings System of the United Kingdom as described by Booyens (1994:36). These criteria were used to evaluate to what extent the set standards for use of the partogram by midwives had been achieved and were derived from structural, process and outcome criteria which were formulated for the midwife using, the partogram through all the phases of labour.

Booyens (1994) also says that the auditing process is a process whereby performances are compared with previously-set standards of care in order to reveal shortcomings. These shortcomings should then be corrected in order to initiate changes that will result improved care.

The discussion of and the recommendations regarding the findings follow a structured sequence. The findings are grouped into major areas, as in the data-collection instruments:

- filling in the partogram with obstetric particulars from the date and time of admission until the outcome of the delivery
- assessment, and recordings on the partogram by midwives
- midwives' reaction to complications
- midwives' use of partogram throughout the process of labour
- observations of midwives using the partogram

- interviews with midwives using the partogram

Based on the conclusions from and the implications of the findings of the research, recommendations were made. What follows is a discussion of the findings of the research:

5.3.1 Filling in the partogram with obstetric particulars

The filling in of obstetric particulars in the partogram by midwives is a responsibility. The audit showed that the obstetric particulars had not been filled in completely for most of the items in the partogram, such as the four-hourly entries for moulding, the duration of the third stage of labour, the mothers condition after delivery, in the spaces provided. According to the Obstetric Record, such parameters should be filled in.

5.3.2 Assessment, and recordings on the partogram by midwives

A retrospective audit was done on the midwives' assessment and recordings on the partogram concerning the extent and progress of labour. Eight items were audited ranging from the half-hourly checking of the foetal heart rate, to moulding to the measurement and testing of urine.

The audit on assessment and recordings on the partogram by midwives during the progress of labour showed that the hourly checking of the descent of the foetal head, the checking of the frequency of contractions in a 10 minute period and of the liquor and membranes, and also the four-hourly checking of vital signs, had been recorded on the partogram in an incomplete manner.

Effective recording on the partogram by midwives plays a major role in the early detection of abnormal progress of labour, and is crucial for the mother and the foetus.

5.3.3 Midwives' reaction to complications

What was also audited, was the extent to which important obstetric parameters during the process of labour were reacted upon by midwives regarding a number of items, ranging from when the labour process crossed the alert line, through 12 items, up to the foetal head remaining at the same level for four hours.

The findings reveal that out of those cases that needed to be reacted upon by the midwives when ketones are seen in the urine, two (50,0%) could not be reacted upon. From the literature reviewed in chapter 2 under the topic “the Botswana Obstetric Record” we know that if ketones are seen in the urine, and are not reacted upon maternal and foetal complications will be missed which will lead to a high incidence of mortality, which in turn should be reduced.

5.3.4 Midwives’ use of the partogram throughout the process of labour

The findings show that some partograms had not been filled in completely by midwives during the latent phase of labour.

5.3.5 Observation of midwives using the partogram

A retrospective analysis was done of the extent to which recordings had been done on the partogram by midwives concerning the following items: endorsement of dates for every action taken, deletion of information after entry, legibility of the original entry and re-entries after deletions. The result for the items endorsement of dates for every action take and “legible entries” was positive, but it was shown that re-entries had been made on the partogram.

The findings show that the average number of parturients per midwife was 1,6 in the labour ward, and 0,19 in the delivery room. Staffing was therefore not a problem as far as use of the partogram was concerned.

5.3.6 Interviews with midwives using the partogram

A follow-up interview with midwives using the partogram was done on items ranging from the number of years they had worked in the labour ward, whether they worked in the labour ward, by choice the duration of their training in midwifery the frequency of in-service training on the use of the partogram, when last they had studied the protocol, the problems encountered in completing the partogram, problems encountered with fully completing the partogram, and the need for training in the use of the partogram.

The findings indicate that the midwives have varied experience and training, which means that their competencies in the use of the partogram will also vary.

The findings also revealed a need for training, as expressed by 87,5% (14) of the midwives who use the partogram.

Based on the conclusions from the findings and the implications deduced from the findings, of this research, what follows are the recommendations that are made:

5.4 RECOMMENDATIONS

◆ A training/guidance and support programmes

- There should be an orientation programme for midwives who have just joined service, either from training institutions, or from other health facilities or other countries.
- Each midwife should have a mentor/preceptor to supervise and support her in her work in the labour ward. A period of preceptorship of (at least two weeks) would be ideal. This would ensure effective clinical supervision in the use of the partogram.
- Audit committees should be formed which will do regular audits so that midwives can be evaluated on a continual basis as far as their use of the partogram is concerned.
- Observations made and interventions carried out on patients should be documented on the partogram on time and should be accurately and legibly signed, with both name and title.
- Ward supervisors and attendance of workshops, conferences and symposia would improve self-confidence, resulting in better partogram recordings and more responsibility and accountability, which would also safeguard against medicolegal issues.
- Performance appraisals should be formulated against which activities that should be performed by a midwife using the partogram should be assessed.
- Standards of practice for midwifery should be developed, which should help define midwives' scope of practice.
- Research projects on midwives' use of the partogram in the labour ward should be done, so that practice can be brought in line with the actual needs as far as the use of the partogram is concerned.
- A journal club should be established in for members of staff to read and study articles and

make presentations on a regular basis as far as the use of the partogram by midwives is concerned.

- Regular meetings should be held between doctors and labour-ward staff for sharing experiences in the use of the partogram.
- A system of appraisal, on at least a biannual basis, should be instituted in order to check on the performance of midwives as far as use of the partogram is concerned.
- Training programmes for TBA's should be upgraded, and sustained efforts should be made to improve the activities of TBA's in rural areas. TBA's should be given basic guidance on simple principles regarding the safe management of labour that will support the use of the partogram in Botswana.
- A roster should be drawn up for in-service lectures throughout the year.
- A model/checklist for nurse supervisors should be designed that will support the system of supervision in the labour ward that already exists. The checklist will help nurse supervisors and preceptors monitor midwives' use of the partogram on a timely and periodic basis.

5.5 LIMITATIONS

◆ This study was subject to the following limitations:

Since this study involved the auditing of obstetric charts for a specific month in 1999 which the old partogram, that is the one before the current one, was still in use, various improvements (such as those recommended in this research) may have been made in the meantime.

Findings from the research could not be generalised to include other health facilities in the south of Botswana, because the study focussed on Nyangabgwe Hospital as a referral hospital catering for referrals from the northern region of Botswana only.

5.6 IMPLICATIONS

The study revealed the following implications regarding the use of the partogram by midwives in Botswana:

A support programme should be instituted for improving the use of the partogram by midwives in Nyangabgwe Hospital and its hinterlands in the northern region of Botswana.

The programme should be compiled in such a way that it will indicate the parameters within which midwives need to make improvements throughout the labour process. The programme should be midwife-driven, whereby clinical supervisors will act as supportive figureheads throughout the labour process.

5.7 FURTHER RESEARCH

- The same type of study as the present one should be conducted to ascertain the applicability of the above research recommendations with reference to the new partogram.
- The effectiveness of training in midwifery under the new curriculum, which came into operation 1994, needs to be established.

5.8 CONCLUSION

The objectives of the study were the following: to audit the completed partograms, pinpoint problems experienced by midwives in the use of the partogram, pinpoint factors that could have a negative influence on the use of the partogram, observe the use of the partogram in practice and to make recommendations on the importance of supporting midwives in an attempt to improve the quality of life of the mother and the baby.

Four tools were used to collect data from the labour ward of Nyangabgwe Hospital. The research showed that there are problems and factors that can have a negative influence on the use of the partogram by midwives.

The findings make it clear that midwives need to be encouraged and supported in the use of the partogram throughout the process of labour.

Chapter 5

Recommendations and conclusions

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- (i) the findings of the research, and
- (ii) the conclusions, which were drawn from the findings

The discussion is based on formulated audit criteria according to the Dynamic Standard Settings System of the United Kingdom as described by Booyens (1994:36). These criteria were used to evaluate to what extent the set standards for use of the partogram by midwives had been achieved and were derived from structural, process and outcome criteria which were formulated for the midwife using, the partogram through all the phases of labour.

Booyens (1994) also says that the auditing process is a process whereby performances are compared with previously-set standards of care in order to reveal shortcomings. These shortcomings should then be corrected in order to initiate changes that will result improved care.

The discussion of and the recommendations regarding the findings follow a structured sequence. The findings are grouped into major areas, as in the data-collection instruments:

- filling in the partogram with obstetric particulars from the date and time of admission until the outcome of the delivery
- assessment, and recordings on the partogram by midwives
- midwives' reaction to complications
- midwives' use of partogram throughout the process of labour
- observations of midwives using the partogram

- interviews with midwives using the partogram

Based on the conclusions from and the implications of the findings of the research, recommendations were made. What follows is a discussion of the findings of the research:

5.3.1 Filling in the partogram with obstetric particulars

The filling in of obstetric particulars in the partogram by midwives is a responsibility. The audit showed that the obstetric particulars had not been filled in completely for most of the items in the partogram, such as the four-hourly entries for moulding, the duration of the third stage of labour, the mothers condition after delivery, in the spaces provided. According to the Obstetric Record, such parameters should be filled in.

5.3.2 Assessment, and recordings on the partogram by midwives

A retrospective audit was done on the midwives' assessment and recordings on the partogram concerning the extent and progress of labour. Eight items were audited ranging from the half-hourly checking of the foetal heart rate, to moulding to the measurement and testing of urine.

The audit on assessment and recordings on the partogram by midwives during the progress of labour showed that the hourly checking of the descent of the foetal head, the checking of the frequency of contractions in a 10 minute period and of the liquor and membranes, and also the four-hourly checking of vital signs, had been recorded on the partogram in an incomplete manner.

Effective recording on the partogram by midwives plays a major role in the early detection of abnormal progress of labour, and is crucial for the mother and the foetus.

5.3.3 Midwives' reaction to complications

What was also audited, was the extent to which important obstetric parameters during the process of labour were reacted upon by midwives regarding a number of items, ranging from when the labour process crossed the alert line, through 12 items, up to the foetal head remaining at the same level for four hours.

The findings reveal that out of those cases that needed to be reacted upon by the midwives when ketones are seen in the urine, two (50,0%) could not be reacted upon. From the literature reviewed in chapter 2 under the topic “the Botswana Obstetric Record” we know that if ketones are seen in the urine, and are not reacted upon maternal and foetal complications will be missed which will lead to a high incidence of mortality, which in turn should be reduced.

5.3.4 Midwives’ use of the partogram throughout the process of labour

The findings show that some partograms had not been filled in completely by midwives during the latent phase of labour.

5.3.5 Observation of midwives using the partogram

A retrospective analysis was done of the extent to which recordings had been done on the partogram by midwives concerning the following items: endorsement of dates for every action taken, deletion of information after entry, legibility of the original entry and re-entries after deletions. The result for the items endorsement of dates for every action take and “legible entries” was positive, but it was shown that re-entries had been made on the partogram.

The findings show that the average number of parturients per midwife was 1,6 in the labour ward, and 0,19 in the delivery room. Staffing was therefore not a problem as far as use of the partogram was concerned.

5.3.6 Interviews with midwives using the partogram

A follow-up interview with midwives using the partogram was done on items ranging from the number of years they had worked in the labour ward, whether they worked in the labour ward, by choice the duration of their training in midwifery the frequency of in-service training on the use of the partogram, when last they had studied the protocol, the problems encountered in completing the partogram, problems encountered with fully completing the partogram, and the need for training in the use of the partogram.

The findings indicate that the midwives have varied experience and training, which means that their competencies in the use of the partogram will also vary.

The findings also revealed a need for training, as expressed by 87,5% (14) of the midwives who use the partogram.

Based on the conclusions from the findings and the implications deduced from the findings, of this research, what follows are the recommendations that are made:

5.4 RECOMMENDATIONS

◆ A training/guidance and support programmes

- There should be an orientation programme for midwives who have just joined service, either from training institutions, or from other health facilities or other countries.
- Each midwife should have a mentor/preceptor to supervise and support her in her work in the labour ward. A period of preceptorship of (at least two weeks) would be ideal. This would ensure effective clinical supervision in the use of the partogram.
- Audit committees should be formed which will do regular audits so that midwives can be evaluated on a continual basis as far as their use of the partogram is concerned.
- Observations made and interventions carried out on patients should be documented on the partogram on time and should be accurately and legibly signed, with both name and title.
- Ward supervisors and attendance of workshops, conferences and symposia would improve self-confidence, resulting in better partogram recordings and more responsibility and accountability, which would also safeguard against medicolegal issues.
- Performance appraisals should be formulated against which activities that should be performed by a midwife using the partogram should be assessed.
- Standards of practice for midwifery should be developed, which should help define midwives' scope of practice.
- Research projects on midwives' use of the partogram in the labour ward should be done, so that practice can be brought in line with the actual needs as far as the use of the partogram is concerned.
- A journal club should be established in for members of staff to read and study articles and

make presentations on a regular basis as far as the use of the partogram by midwives is concerned.

- Regular meetings should be held between doctors and labour-ward staff for sharing experiences in the use of the partogram.
- A system of appraisal, on at least a biannual basis, should be instituted in order to check on the performance of midwives as far as use of the partogram is concerned.
- Training programmes for TBA's should be upgraded, and sustained efforts should be made to improve the activities of TBA's in rural areas. TBA's should be given basic guidance on simple principles regarding the safe management of labour that will support the use of the partogram in Botswana.
- A roster should be drawn up for in-service lectures throughout the year.
- A model/checklist for nurse supervisors should be designed that will support the system of supervision in the labour ward that already exists. The checklist will help nurse supervisors and preceptors monitor midwives' use of the partogram on a timely and periodic basis.

5.5 LIMITATIONS

◆ This study was subject to the following limitations:

Since this study involved the auditing of obstetric charts for a specific month in 1999 which the old partogram, that is the one before the current one, was still in use, various improvements (such as those recommended in this research) may have been made in the meantime.

Findings from the research could not be generalised to include other health facilities in the south of Botswana, because the study focussed on Nyangabgwe Hospital as a referral hospital catering for referrals from the northern region of Botswana only.

5.6 IMPLICATIONS

The study revealed the following implications regarding the use of the partogram by midwives in Botswana:

A support programme should be instituted for improving the use of the partogram by midwives in Nyangabgwe Hospital and its hinterlands in the northern region of Botswana.

The programme should be compiled in such a way that it will indicate the parameters within which midwives need to make improvements throughout the labour process. The programme should be midwife-driven, whereby clinical supervisors will act as supportive figureheads throughout the labour process.

5.7 FURTHER RESEARCH

- The same type of study as the present one should be conducted to ascertain the applicability of the above research recommendations with reference to the new partogram.
- The effectiveness of training in midwifery under the new curriculum, which came into operation 1994, needs to be established.

5.8 CONCLUSION

The objectives of the study were the following: to audit the completed partograms, pinpoint problems experienced by midwives in the use of the partogram, pinpoint factors that could have a negative influence on the use of the partogram, observe the use of the partogram in practice and to make recommendations on the importance of supporting midwives in an attempt to improve the quality of life of the mother and the baby. Four tools were used to collect data from the labour ward of Nyangabgwe Hospital. The research showed that there are problems and factors that can have a negative influence on the use of the partogram by midwives.

The research questions were answered. The findings pinpointed problems experienced by midwives in the use of partogram and also indicated factors that could have a negative influence such as staffing, training of midwives on the partogram. The importance of supportive midwives was expressed by midwives.

The findings make it clear that midwives need to be encouraged and supported in the use of the partogram throughout the process of labour.

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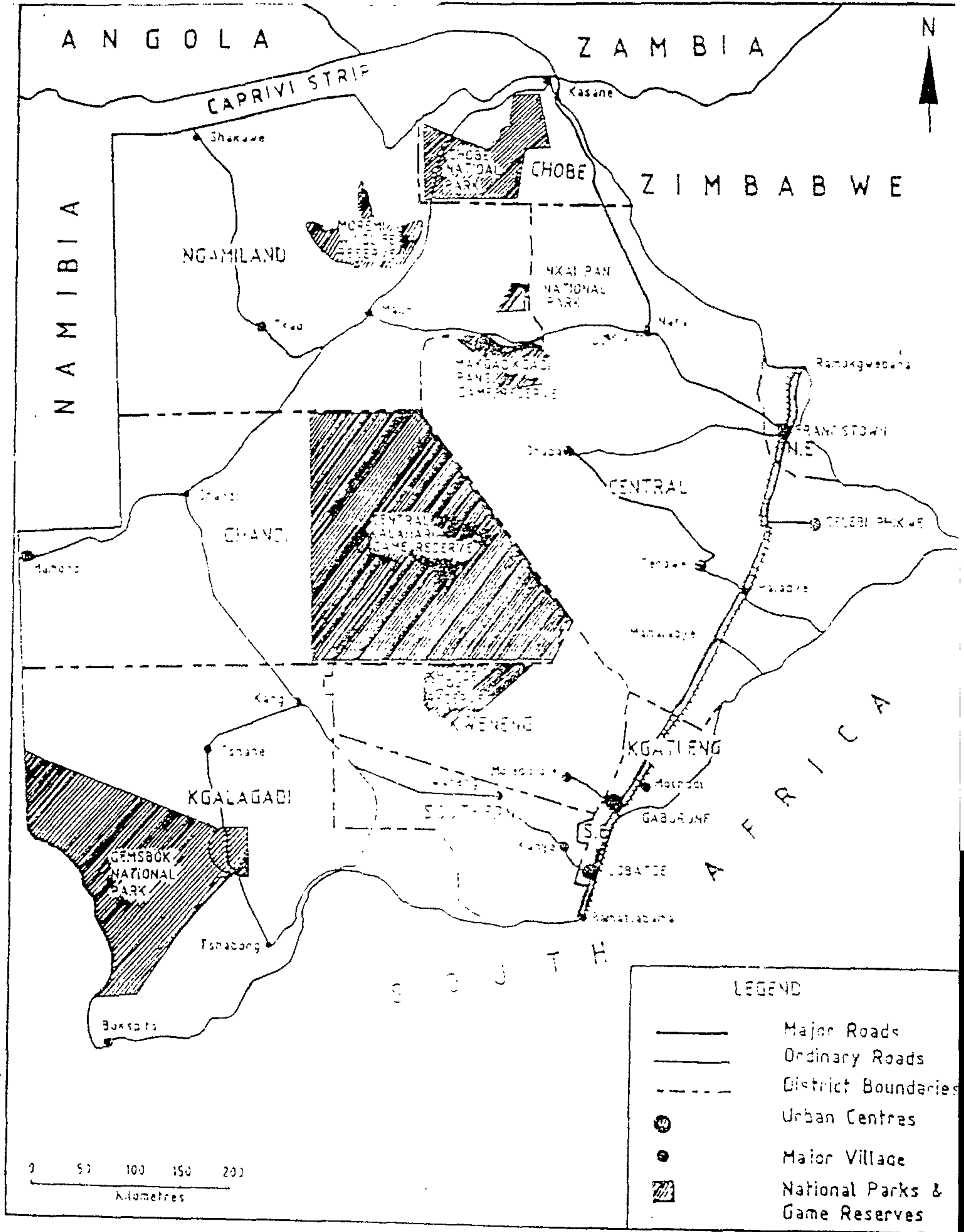
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Annexure A

The map of Botswana

Republic of Botswana

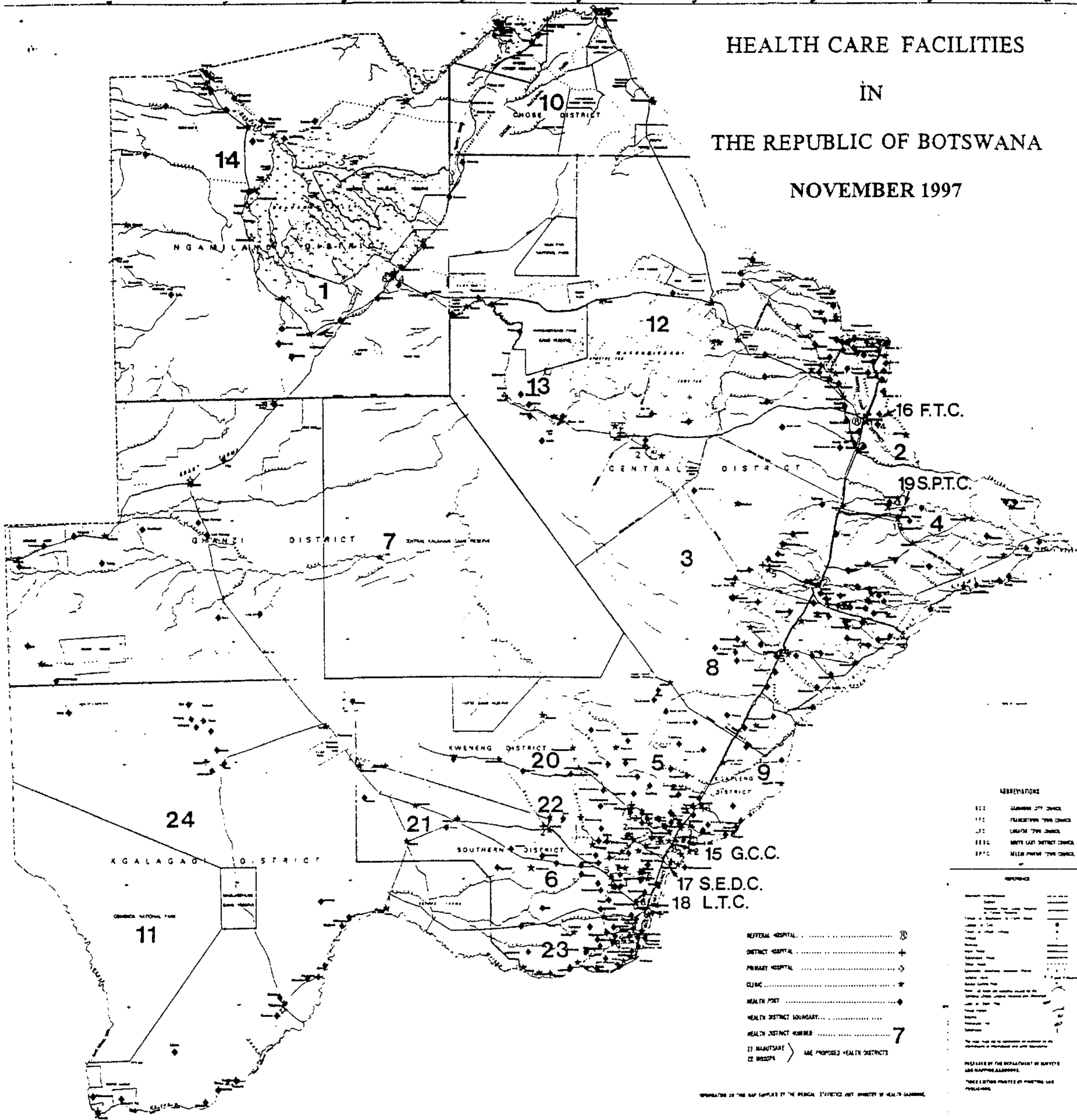


Source: NDD 8 1994-1998 - 2002/2003

Annexure B

The map of Botswana showing health facilities

HEALTH CARE FACILITIES
IN
THE REPUBLIC OF BOTSWANA
NOVEMBER 1997



ABBREVIATIONS

CC	GABORONE CITY COUNCIL
FTC	FALGOUTS TOWN COUNCIL
LTC	LEKOPOT TOWN COUNCIL
SEDC	SOUTH EAST DISTRICT COUNCIL
PTC	POLYPTHEM TOWN COUNCIL

- HOSPITAL
- DISTRICT HOSPITAL
- PRIMARY HOSPITAL
- CLINIC
- HEALTH POST
- HEALTH DISTRICT BOUNDARY
- HEALTH DISTRICT NUMBER
- 17 MAINTSARE
- 22 MESSIPA

REFERENCE

1	1997	1997	1997
2	1997	1997	1997
3	1997	1997	1997
4	1997	1997	1997
5	1997	1997	1997
6	1997	1997	1997
7	1997	1997	1997
8	1997	1997	1997
9	1997	1997	1997
10	1997	1997	1997
11	1997	1997	1997
12	1997	1997	1997
13	1997	1997	1997
14	1997	1997	1997
15	1997	1997	1997
16	1997	1997	1997
17	1997	1997	1997
18	1997	1997	1997
19	1997	1997	1997
20	1997	1997	1997
21	1997	1997	1997
22	1997	1997	1997
23	1997	1997	1997
24	1997	1997	1997

REPRODUCTION OF THIS MAP FOR OTHER THAN THE ORIGINAL STATISTICAL PURPOSES WITHOUT THE WRITTEN PERMISSION OF THE DEPARTMENT OF HEALTH IS PROHIBITED.

Annexure C

Tool 1

AUDIT OF THE PARTOGRAM OF PATIENT RECORDS (TOOL 1)

For
office use
only

[1]
1

Case Note Number:

[2-5]

SECTION A: OBSTETRIC PARTICULARS

1 Date of admission entered? Yes No

6

2 Time of admission entered? Yes No

7

3 Parity:

1	2	3	4	5	6
Nullipara	Primipara	Paucipara	Multipara	Grand-Multipara	Not Entered

8

4 Age group:

1	2	3	4	5	6
Less than 20 years	20 - 24 years	25 - 29 years	30 - 34 years	35 years or older	Not entered

9

5 Type of case:

5.1 Booked case Unbooked case

10

5.2 Referred case Non Referred case

11

5.3 If a referred case, tick the referring facility:

1	2	3	4	5	6	7	8
District Hospital	Primary Hospital	Clinic with maternity	Clinic	Health Post	Mobile Stop	Private Practitioner	Other

12

6 At what stage of labour was the patient referred to the facility? (Tick)

Latent phase Active phase

13

7.1	Were the reasons for referring the patient entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	14													
7.2	If yes, list the reasons for referral:															
8.1	Was the gestational age entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	15													
8.2	If yes, tick the gestational age:	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>20 - 24 weeks</td> <td>25 - 29 weeks</td> <td>30 - 34 weeks</td> <td>35+ weeks</td> </tr> </table>			1	2	3	4	20 - 24 weeks	25 - 29 weeks	30 - 34 weeks	35+ weeks	16				
1	2	3	4														
20 - 24 weeks	25 - 29 weeks	30 - 34 weeks	35+ weeks														
9.1	Was the duration of first stage of labour entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	17													
9.2	Was duration of labour entered at the correct space?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	18													
9.3.1	Was the duration of latent labour entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	19													
	If yes, state the detail:																
9.3.2	Was the duration of active phase of labour entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	20													
	If yes, state the hours:																
10.1	Was the outcome of delivery entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	21													
10.2	Outcome of delivery:	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>Alive baby</td> <td>Admitted special care baby unit</td> <td>Macerate Stillborn</td> <td>Fresh Stillborn</td> <td>Early Neonatal Death</td> <td>Other</td> </tr> </table>			1	2	3	4	5	6	Alive baby	Admitted special care baby unit	Macerate Stillborn	Fresh Stillborn	Early Neonatal Death	Other	22
1	2	3	4	5	6												
Alive baby	Admitted special care baby unit	Macerate Stillborn	Fresh Stillborn	Early Neonatal Death	Other												
10.3	If born alive, was the apgar score entered?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	23													
10.4	Was the apgar score entered:																
	1 minute?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	24													
	5 minutes?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	25													
	10 minutes?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	26													

11	Other outcomes of the delivery entered into the records:												
11.1	Was the weight of the baby entered?	Yes <input type="checkbox"/> No <input type="checkbox"/>	27										
11.2	Was the type of delivery entered?	Yes <input type="checkbox"/> No <input type="checkbox"/>	28										
11.3	Type of delivery (tick):												
	<table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>SVD</td> <td>Vacuum</td> <td>C/S</td> <td>Forceps</td> <td>Other</td> </tr> </table>	1	2	3	4	5	SVD	Vacuum	C/S	Forceps	Other		29
1	2	3	4	5									
SVD	Vacuum	C/S	Forceps	Other									
12.1	Were foetal complications during labour entered?	Yes <input type="checkbox"/> No <input type="checkbox"/>	30										
12.2	If yes, list the foetal complications:											
12.3	What was the cause of foetal complications?											
12.4	Was the baby admitted to special care baby unit?	Yes <input type="checkbox"/> No <input type="checkbox"/>	31										
12.5	Outcome of baby's admission to special care baby unit?												
	Alive <input type="checkbox"/> Dead <input type="checkbox"/>		32										

SECTION B: RETROSPECTIVE AUDIT OF PARTOGRAM

OUTCOME 1

Midwife-use of Partogram: Was the following recorded?		Complete	In- complete	Absent	N/A	
1	Foetal heart ½ hourly					33
2	Cervical dilatation 4 hourly					34
3	Descent of foetal head hourly					35
4	Frequency of contraction occurring in a 10 minute period every 30 minutes					36
5	Liquor and membranes hourly					37
6	Moulding 4 hourly					38
7	Vital signs 4 hourly: • Temperature • Maternal pulse • Respiration • Blood Pressure					
						39
						40
						41
					42	
8	Urine measured and tested for protein, sugar and ketones every time specimen is checked					43

OUTCOME 2				
Midwife-use of Partogram: Complications recorded on the Partogram: Had the following complications been reacted upon by the midwife?	Complete	In- complete	Absent	N/A
1 Labour crossing alert line				44
2 Labour crossed action line				45
3 Rise in blood pressure				46
4 Rise in temperature				47
5 Rise in foetal heart rate				48
6 Drop in foetal heart rate				49
7 Rise in maternal pulse				50
8 Drop in maternal pulse				51
9 Ketones in urine				52
10 Fresh meconium stained liquor				53
11 Old meconium stained liquor				54

PROCESS 1

Midwife-use of Partogram: Use of Partogram commenced when the patient is in labour: Evidence of use of Partogram throughout the labour process?		Complete	In-complete	Absent	N/A
1	Latent phase				55
2	Active phase				56

STRUCTURE 1

Midwife-use of Partogram:		Complete	In-complete	Absent	N/A
1	File has obstetric chart				57
2	Endorsement of signatures				58
3	Endorsement of dates for every action taken by midwife.				59
4	Evidence of deletions of information after entry				60
5	Original entry still readable				61
6	Evidence of re-entries				62

Annexure D

Tool 2

**OBSERVATION OF MIDWIVES USING THE
PARTOGRAM IN THE LABOUR WARD
(TOOL 2)**

For
office
use only

[2]
1

Midwife: [A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M]

2-5

STRUCTURE 1 [N] [O] [P]

1 How many **midwives** are on duty in the labour ward at the time of observation: []

6-7

2 Number of **patients in the labour ward** allocated to the midwife under observation: []

8-9

3 Number of **patients in the delivery ward** allocated to the midwife under observation: []

10-11

4 Type of shift during time of observation:

1	2	3
Morning (am)	Afternoon (pm)	Night

12

STRUCTURE 2

Midwife-use of Partogram:				
1	File has obstetric chart	Yes <input type="checkbox"/>	No <input type="checkbox"/>	13
2	Endorsement of signatures on the patient's partogram	Yes <input type="checkbox"/>	No <input type="checkbox"/>	14
3	Endorsement of dates for every action taken by midwife on the partogram	Yes <input type="checkbox"/>	No <input type="checkbox"/>	15
4	Evidence of deletions of information after entry on the partogram	Yes <input type="checkbox"/>	No <input type="checkbox"/>	16
5	Original entry still readable on the partogram	Yes <input type="checkbox"/>	No <input type="checkbox"/>	17
6	Evidence of re-entries on the partogram	Yes <input type="checkbox"/>	No <input type="checkbox"/>	18

OUTCOME 1

Midwife-use of Partogram: Has the midwife recorded the following?		Complete	In-complete	Absent	N/A
1	Foetal heart ½ hourly				19
2	Cervical dilatation 4 hourly				20
3	Descent of foetal head hourly				21
4	Frequency of contraction occurring in a 10 minute period every 30 minutes				22
5	Liquor and membranes hourly				23
6	Moulding 4 hourly				24
7	Vital signs 4 hourly: <ul style="list-style-type: none"> • Temperature • Maternal pulse • Respiration • Blood Pressure 				
					25
					26
					27
				28	
8	Urine measured and tested for protein, sugar and ketones every time specimen is checked				29

OUTCOME 2

Midwife-use of Partogram: Complications recorded on the Partogram: Have the following complications been reacted upon by the midwife?	Complete	In- complete	Absent	N/A	
1 Labour crossing alert line					30
2 Labour crossed action line					31
3 Rise in blood pressure					32
4 Rise in temperature					33
5 Rise in foetal heart rate					34
6 Drop in foetal heart rate					35
7 Rise in maternal pulse					36
8 Drop in maternal pulse					37
9 Ketones in urine					38
10 Fresh meconium stained liquor					39
11 Old meconium stained liquor					40
12 Descent of the foetal head remained at the same level for 4 hours					41

Annexure E

Tool 3

**INTERVIEW SCHEDULE FOR MIDWIVES
USING THE PARTOGRAM
(TOOL 3)**

For
office
use only

Midwife: [A] [B] [C] [D] [E] [F] [G] [H] [I] [J] [K] [L] [M]
[N] [O] [P]

[3]
1

2-5

SECTION A: PROFESSIONAL PARTICULARS

1 After you qualified as a midwife, for how long have you worked in the labour ward?

1	2	3	4
Less than 1 year	1 - 5 years	6 - 10 years	11 years or more

6

2.1 Is it by your choice that you are working in the labour ward?

Yes No

7

2.2 If no, what will your choice be?

.....

2.3 State your reasons:

.....
.....
.....

3 Duration of your midwifery training:

- 12 months
- 18 months
- Other

(Specify:)

8

SECTION B: INFORMATION ON PARTOGRAM USE

1 In the labour ward, how often do you attend inservice training on the use of the partogram?

- Once a week
- Once a month
- Once a year
- Other

(Specify:)

9

2 When last did you attend inservice training regarding the partogram?

- A week ago or less
- A month ago
- Six months ago
- A year or longer ago

10

3.1 Do you have a protocol/policy on the partogram in the labour ward?

Yes No

11

3.2 If yes, when last did you study the protocol regarding the partogram in the labour ward?

- A week ago or less
- A month ago
- Six months ago
- A year or longer ago

12

4.1 In your opinion, do you ever encounter problems completing the partogram completely when patients are in labour?

Yes No

13

4.2 If yes, what problems do you encounter to complete the partogram completely?

- Time
- Staffing
- Lack of training
- Other

(Please specify:)

14

5	Which recommendations do you think could be made to improve the situation mentioned in question 4.2?	15
.....		
6.1	Do you feel that there is a need for training midwives in the use of the partogram?	
Yes <input type="checkbox"/> No <input type="checkbox"/>		
6.2	If yes, why?	
.....		
6.3	If no, why not?	
.....		
7	Any other comments/suggestions regarding the use of the partogram?	
.....		

Annexure F

Tool 4

**INTERVIEW SCHEDULE
WITH HEAD NURSE
(TOOL 4)**

1 How many midwives do you usually have on duty?

1.1 **Per shift:**

- Morning shift [_ _ _ _]
- Afternoon shift [_ _ _ _]
- Night shift [_ _ _ _]

2 Which criteria do you use to allocate the number of midwives for each shift?

.....
.....
.....

3.1 Do you have a protocol/policy for the use of the partogram? Yes No

3.2 If yes, how often is the partogram protocol/policy discussed/taught to staff members?

.....

3.3 If no, state the reasons for not having a protocol:

.....
.....
.....

4.1 How do you ascertain that midwives in the labour ward use the partogram **timeously**?

.....
.....
.....

4.2 How do you ascertain that midwives in the labour ward use the partogram **correctly**?

.....
.....
.....

5.1 Is the protocol/policy regarding the partogram included in the inservice training programme?

Yes No

5.2 If yes, how often is the topic delt with in the inservice training programme?

.....

5.3 If no, state the reasons for not including the protocol in the inservice training programme:

.....
.....
.....

6 How do you orientate newly appointed staff regarding the partogram?

.....
.....
.....

7 What problems do you encounter on the use of the partogram by midwives in the labour ward?

.....
.....
.....

8 What recommendations do you think could be made to improve the situation mentioned in question 7 above?

.....
.....
.....

9 How do you maintain quality control regarding the use of the partogram in the labour ward?

.....
.....
.....

Annexure G

A letter to the participant

Private Bag 127
Francistown

..... 2000

Dear Participant

The recent advances on safe motherhood and the challenge to reduce maternal and infant morbidity and mortality by at least 50% by the year 2000, has placed constant demands on health staff including midwives. All countries have therefore been called by World Health Organization to put strategies to this era in place.

The aim of this study is to identify factors that contribute to the problems involved in the use of the partogram by midwives.

You are invited to participate in this research study, titled "Refinement of the partogram: an educational perspective".

It is hoped that this research study will determine problems in the use of the partogram by the midwives and also establish contributing factors that could influence negatively on the use of the partogram. It is hoped that information gained from the research study will help improve the quality of labour management in the labour ward.

During collection of data, I will personally be available to answer questions emanating from the completion of checklists and interview, or I may be contacted at bleep number 108. Checklists will be collected by me personally.

The results of the study will be made available, on request to participants.

Thank you for your willingness to complete participate in the study.

Yours faithfully



Kedibonye Mmachere Mareka
Researcher

Annexure H

Consent agreement letter

AGREEMENT

I,,

on this day of 2000 hereby consent to

- 1 Participate in the study conducted by Kedibonye Mmachere Mareka on the topic:

Refinement of the partogram: an education perspective

- 2 The use of data derived from this study by the researcher in a research report as she deems appropriate.

I also understand that

- 1 I am free to terminate my involvement or to recall my consent to participate in this research at any time I feel like it.
- 2 Information given up to the point of my termination of participation could, however, still be used by the researcher.
- 3 Anonymity will be maintained by the researcher and that data will under no circumstances be reported in such a way to reveal my identity.
- 4 No reimbursement will be made by the researcher for information given on participation in this project.
- 5 I may refrain from answering questions should I feel these are an invasion of my privacy.
- 6 By signing this agreement I undertake to give honest answers to reasonable questions and not to mislead the researcher.
- 7 I will be given the original copy of this agreement on signing it.

...../2

I hereby acknowledge that the researcher has

- 1 Discussed with me in detail the aims and objectives of this research project.
- 2 Informed me about the contents of this agreement.
- 3 Pointed out the implications of signing this agreement.

In co-signing this agreement the researcher has undertaken to

- 1 Maintain confidentiality, anonymity and privacy regarding the participant.
- 2 Arrange in advance a suitable time and place for the data collection to take place.
- 3 Safeguard the duplicate of this agreement.

Informant:

Researcher:

Witness:

Date:

(LoBiondo-Wood & Haber, 1994: 322-330)

Annexure I

Request for a research permit from Ministry of Health

Science with University of south Africa. The above stated research is to be submitted in fulfilment for the above stated degree. Furthermore, the Department of Nursing Science encourages students to do research in their own country in order to address their own country needs. I have therefore identified a research topic in the area of Midwifery, Labour Ward.

The purpose of my study is to look into the use of the partogram by nurse midwives in Nyangabgwe Hospital. Finally, while looking into the use of the Partogram, problems encountered by nurse - midwives in completing it will be determined. Finally a teaching Program on how to fill the Partogram correctly will be designed for midwives.

Therefore, I request to do collection of data by Audit Method on completed Partograms for one month in any of the years. If granted permission, this would mean doing data collection in the month of May, 1999.

Waiting for a favourable response.

Thanking you in advance.

Kedibonye Mmachere Mareka. *Machere 26/4/99*

Supervisor : Mrs J. E. Tjallinks (S. A).

Joint Supervisor : Dr. N. T. Mulumba (Botswana).

Annexure J

**Request for a research permit from
Nyangabgwe Hospital**

The proposed study is of significance to help improve the quality of labour management in the labour ward. I am therefore requesting for permission to use your hospital in order to do collection of data by audit method on the use of partogram by midwives.

- 1) Auditing process will involve the following:
 - a) Maternity register for 1999 will be obtained.
 - b) From the register total number of deliveries for one month will be noted and listed.
 - c) One month deliveries will then be audited against the checklist designed using their obstetric records.
 - d) Each obstetric record will have it's own checklist form
- 2) Observation of midwives using the partogram in the labour ward.
 - a) Observe atleast 10 midwives using the partogram in the labour ward.
 - b) Interview these midwives about the use of the partogram.
- 3) Interview the headnurse on factors that could influence negatively on the use of the partogram.

Permission has already been granted by the Ministry of Health (See enclosed copy to do the clinical research.

Finally enclosed a copy of my research proposal.

I have planned to start collection of data second week of August in order to bit the deadline of end of August 2000.

Your cooperation in this regard will be appreciated.

Yours faithfully

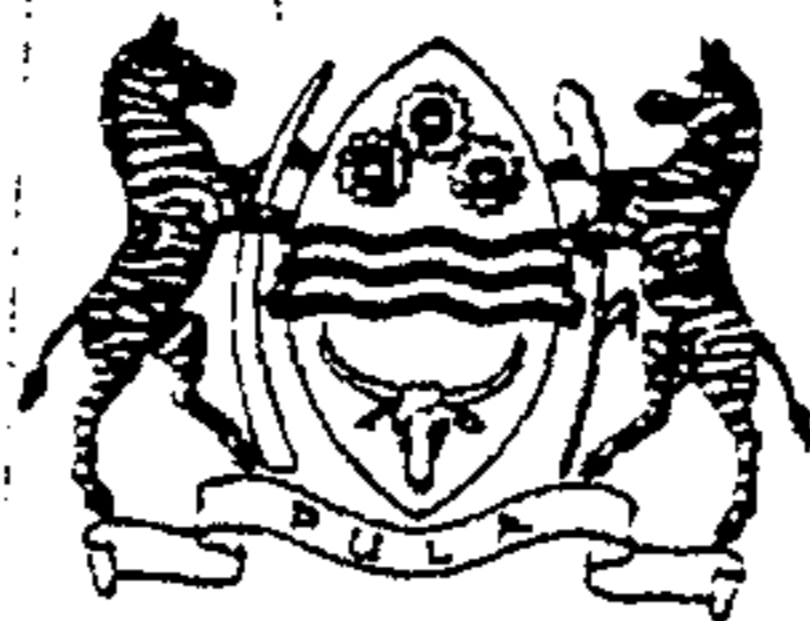
A handwritten signature in cursive script, appearing to read 'Mareka'. The signature is written in black ink on a white background.

Kedibonye Mmachere Mareka (Mrs)

Annexure K

**Grant of research permit from the
Office of the President, Ministry of Health,
Nyangabgwe Hospital**

TELEGRAMS: PULA
TELEPHONE: 350800
TELEX: 2655 BD



REPUBLIC OF BOTSWANA

OFFICE OF THE PRESIDENT
PRIVATE BAG 001
GABORONE

REF: OP. 46/1 LXXIV (42)

May 19, 1999

Ms. K.M. Mareka
Nyangabgwe Hospital
Private Bag 127
Francistown

Dear Madam,

RE: GRANT OF A RESEARCH PERMIT: MAREKA

Your application for a research permit dated May 10, 1999 refers.

We are pleased to inform you that you have been granted permission to conduct research on "Refinement of the Partogram: An Educational Perspective". The study will be conducted at Francistown for a period not exceeding eight (8) months, with effect from May 1999.

The permit is granted subject to the following conditions:

1. Copies of any papers written as a result of the study are directly deposited with the Office of the President, National Archives, National Library Services and the Ministry of Health.

2

2. The study is conducted according to the particulars furnished in the application.
3. You obtain permission from concession holders where you wish to conduct the study.
4. You work in liaison with Health authorities at the place of your study.
5. The permit does not give authority to enter any premises, private establishment or protected area. Permission for such entry should be negotiated with those concerned.

Yours faithfully,



J. Sethibe

For/PERMANENT SECRETARY TO THE PRESIDENT

Cc: Permanent Secretary
Ministry of Health
Director, National Library Services
Director, National Institute for Research
Government Archivist
District Commissioner, Francistown
City Clerk, Francistown

JS/atm



REPUBLIC OF BOTSWANA

Ref 13/18/1

1st June 1999

Mrs Kedibonye M. Mareka
Nyangabwe Referral Hospital
Francistown.

Dear Mrs K M. Mareka

Grant of a Research Permit:

Your application for a research permit refers.

We are pleased to inform you that you have been granted permission to conduct research on "Refinement of the partogram: An educational perspective"

The permit does not give authority to enter any premises, private establishments or protected areas without permission of concerned parties. Such permission should be negotiated with those concerned. You may also need to request permission from other relevant authorities, i.e. Hospital Management of Nyangabwe referral Hospital.

You are also requested to submit at least one copy of the findings of your study to the Ministry of Health, Health Research Unit.

Yours sincerely

Pilate Khulumani
For Permanent Secretary.

TELEPHONE: 211000
TELEGRAMS: 211367
REFERENCE:



NYANGABGWE HOSPITAL,
PRIVATE BAG 127,
FRANCISTOWN

NH 3/54 I

REPUBLIC OF BOTSWANA

29th August, 2000

Mrs K M Mareka
Nyangabgwe Hospital
Private Bag 127
Francistown.

Dear Madam

**REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN NYANGABGWE
HOSPITAL ON "REFINEMENT OF PARTOGRAM:
AN EDUCATIONAL PERSPECTIVE**

Permission is hereby granted for you to conduct research on "Refinement of the Partogram an Educational Perspective". You are requested to submit a copy of the findings of your study to the Hospital Superintendent, Nyangabgwe Hospital.

I wish you good luck in your studies.

Yours faithfully

Dr L N Chansa - 
For HOSPITAL SUPERINTENDENT

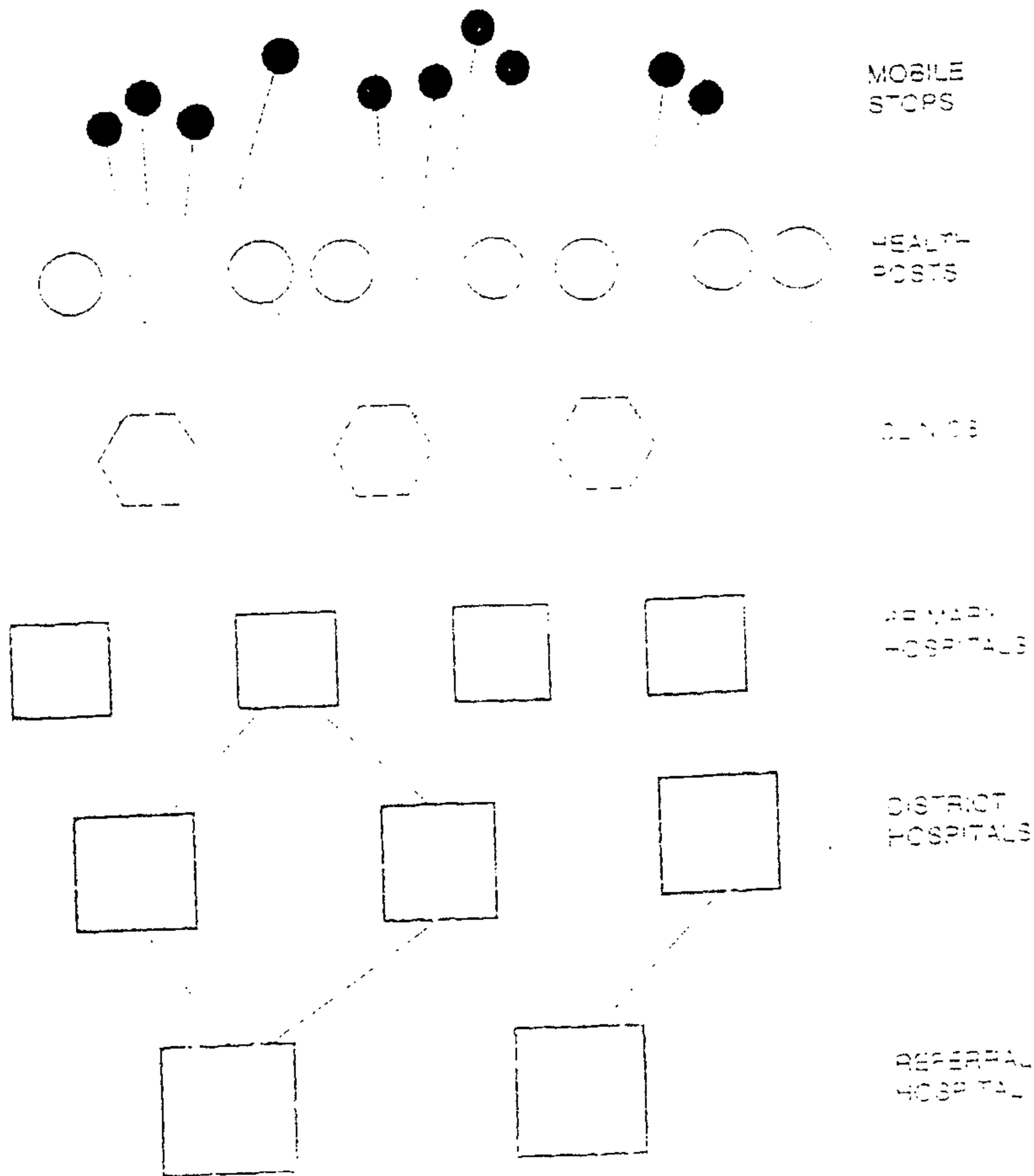
Annexure L

Levels of referral Health Care System in Botswana

ORGANISATION AND STRUCTURE OF THE REFERRAL SYSTEM

THE REFERRAL SYSTEM IN BOTSWANA IS BASED ON A STRUCTURE COMPRISED OF SUCCESSIVE LEVELS OF SERVICES AND ACTIVITIES, EACH HAVING INCREASING DEGREE OF SOPHISTICATION.

4.0 LEVELS OF REFERRAL SYSTEM



Source - Manual of Patient Referral.

Annexure M

Botswana Obstetric Record

Facility No

Name

**BOTSWANA
OBSTETRIC RECORD**

Date

HISTORY

No. of Risks

PRESENT PREGNANCY

No. of Risks

MENSTRUAL HISTORY: LNMP _____

Usual cycle ____/____ days

If only month known early/mid/late

Bleeding since LNMP yes/no

Details _____

Uncertain dates _____

FAMILY PLANNING:

Has practised? yes/no

Method used _____

Date stopped _____

Wants FP after delivery? yes/no

Method chosen _____

FAMILY HISTORY:

HPT Diabetes Twins Genetic Oth.

Details _____

MEDICAL COMPLICATIONS:

Cardiac Renal STD TB Diabetes

Anaemia HPT

Other _____

On treatment? _____

Allergies _____

Details _____

OPERATIONS AND ACCIDENTS:

Details _____

PAST PREGNANCIES: Grav Para Ab
No. alive Age of youngest yrs.

Complications (1 point for each risk)

Comment/Indic'n

Prolonged labour (>24 hrs.)	
Precipitate labour (<2 hrs.)	
Vacuum/Forceps	
Symphiotomy	
Caesarian Section	
APH	
PPH	
PIH/Eclampsia	
SB or NND	
Recurrent Abortion	

OTHER RISKS:

Under 16 yrs. _____

Over 35 yrs. _____

Primig. over 30 yrs. _____

Late booker _____

Unsatisfactory home conditions _____

Unwise habits - alcohol _____

- tobacco _____

- obesity _____

Other _____

GENERAL EXAMINATION:

Nutrition _____ Breasts _____

Thyroid _____ Nipples _____

Heart _____ Varicose veins _____

Chest _____ Xray req'd yes/no

Details if abnormal _____

Height (if under 150 cm.) _____

Shoe size _____

Non-pregnant weight _____ kg.

VAGINA EXAMINATION:

Vulva _____ Vagina _____ Cervix _____

Uterine size _____ wks. Adnexa _____

Pelvic size small/borderline/norm.

Pap smear done/not done

Details if abnormal _____

LABORATORY RESULTS:

	Date	Result	Action
HB 1st visit			
HB 34-36 wk.			
VDRL			
Blood group			
Pap smear			
MSU			
RH antibodies			
CXR(if req'd)			

TETANUS TOXOID: (write in the date)

Booster only _____

1st of 2 _____ 2nd of 2 _____

TOTAL NO. OF RISKS AT BOOKING

NOTES AND SPECIAL PROBLEMS:

SPACING OF PREGNANCIES: (Fill in the year)

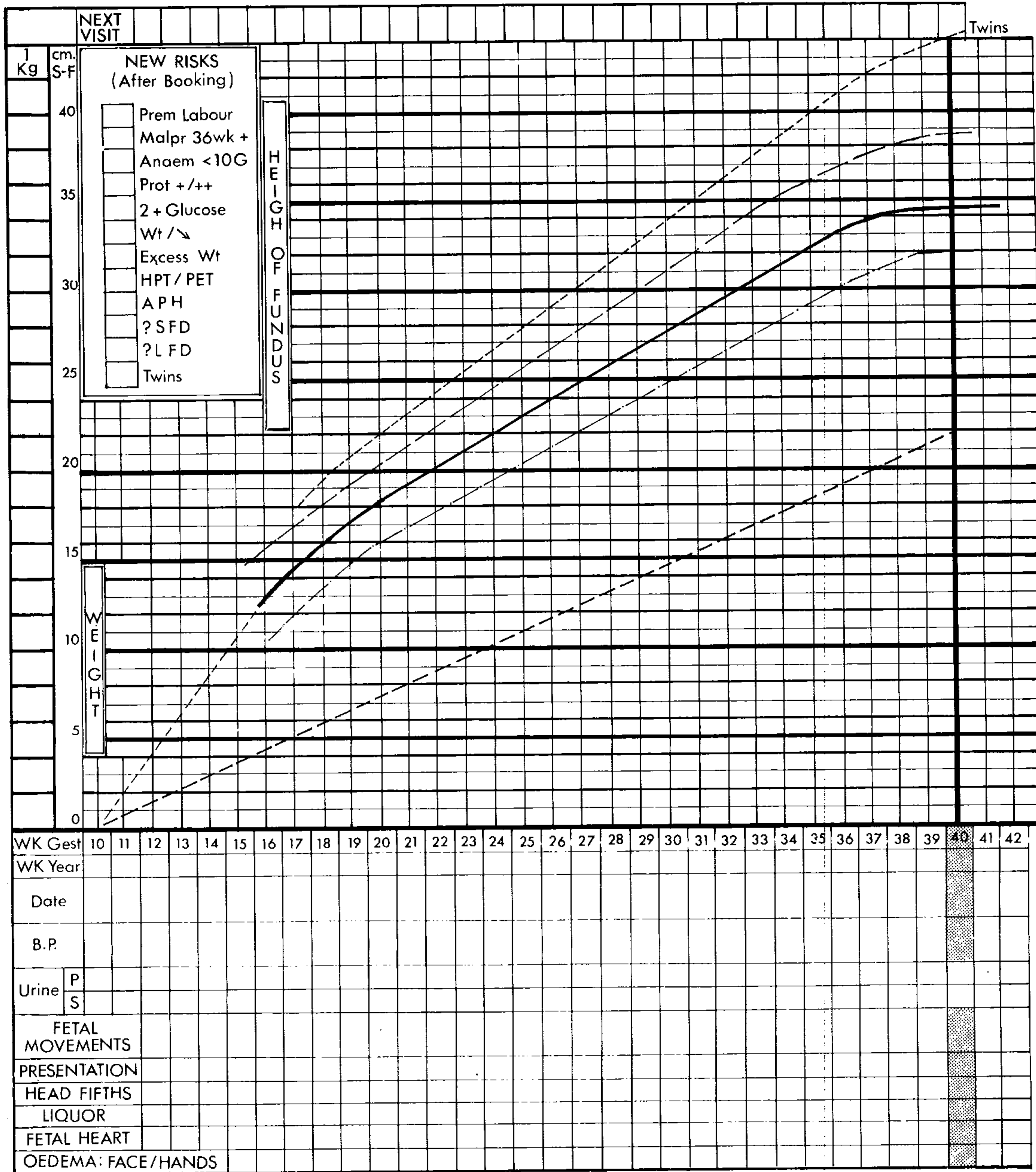
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2

ANTENATAL FETAL GROWTH AND MATERNAL WEIGHT CHART

PLOT: Symphysis-fundus height (cm.) = o
 Maternal weight (kg.) = x

FILLING IN WEIGHT AT THE FIRST VISIT: Follow the "week of gestation" line up to where it meets the dotted weight line. Write the weight, in whole kg., in the blank square at the extreme left side opposite it. Write the next kg. in the square above, and so on. Now using this newly calibrated weight scale plot the exact weight of the mother along the "week of gestation" line.

L.N.M.P. E.D.D. First FMF



4

DEGREE OF RISK AT BOOKING	ADVISED PLAN OF ACTION	DEGREE OF RISK AT 36 WEEKS	REVISED PLAN OF ACTION
Normal	Deliver by Midwife	Normal	Deliver by Midwife
Moderate	Refer for check	Moderate	Refer for check
Severe	Deliver in hospital	Severe	Deliver in hospital

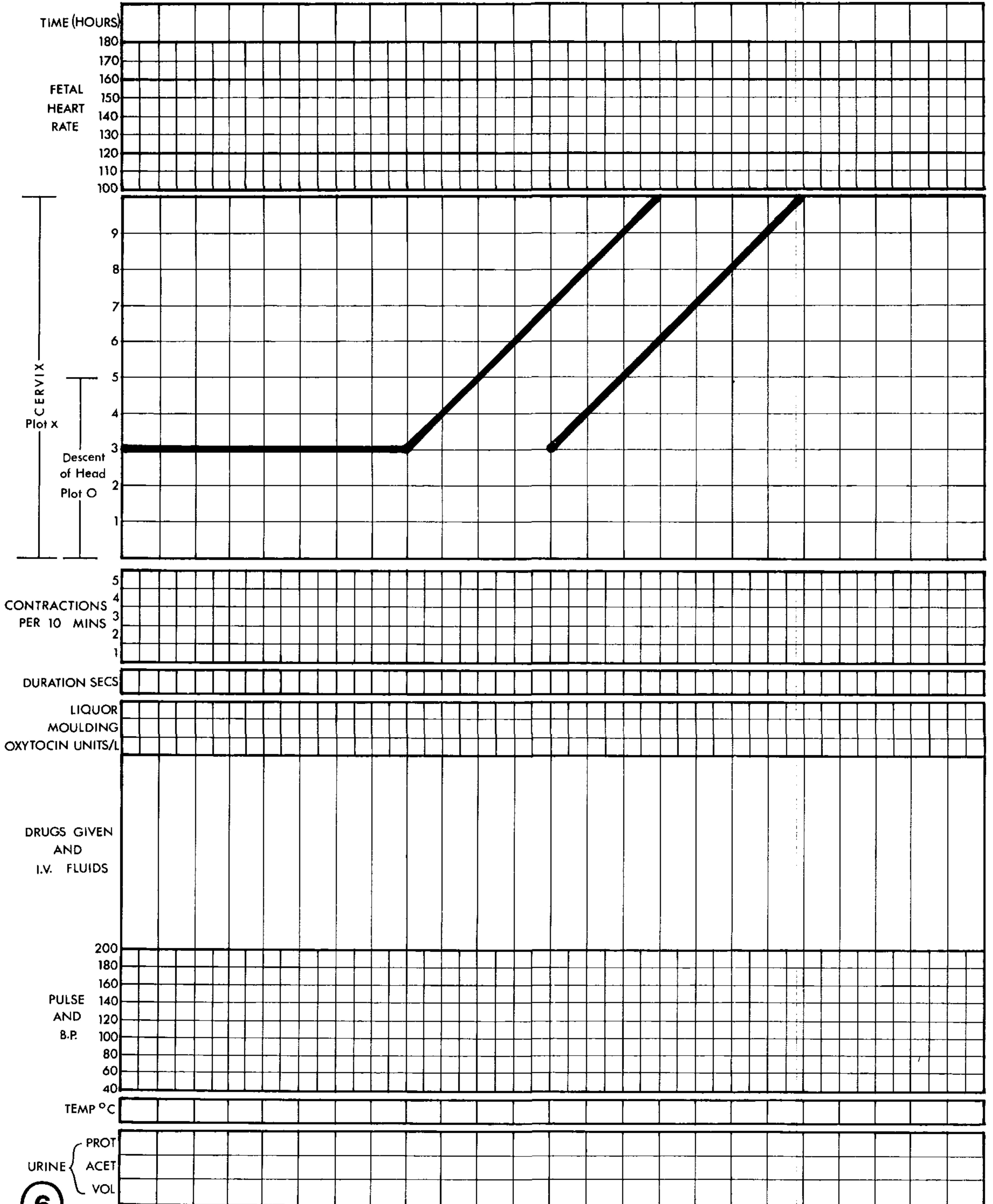
LABOUR AND DELIVERY SECTION

Place

Date of Admission

Time of Admission

Special Instructions



DELIVERY SUMMARY

Place of Birth _____ Date _____ Time _____ Delivered by _____

Method of Delivery: SVD Breech Vacuum Forceps Symphysiotomy C/S
 Indication if not SVD _____

Duration of Labour: _____ Date _____ Time _____ Hours _____ Minutes _____

	Date	Time
Contractions began		
Membranes ruptured		
Delivery		
3rd stage complete		

	Hours	Minutes
1st stage		
2nd stage		
3rd stage		
Total		

Oxytocic given: _____

Blood Loss: _____ mls.
 If PPH (over 500 mls.) Cause _____
 Treatment _____

Episiotomy/Laceration 1° 2° 3° _____ Sutured by _____

Infant: Single/Multiple Alive/SB If SB Fresh/Macerated
 FHH on admission yes/no FHH during labour yes/no
 NND at (age) _____ Date _____ Time _____
 Sex M/F Weight _____ gms. Length _____ cms. Head Circ. _____ cms.
 Gestation by ANC _____ weeks Gestation by examination _____ weeks

AGGAR SCORE	1 min.	5 min.	10 min.
Heart Rate			
Resp. Effort			
Colour			
Muscle Tone			
Reflex Resp.			
TOTAL			

RESUSCITATION Mask/Intubation
 By Whom? _____
 Drugs given and response _____

Congenital Abnormalities _____

Birth injuries _____

Vit K given yes/no By Whom? _____
 Tetracycline eye ointment given yes/no By Whom? _____
 Meconium passed yes/no Urine passed yes/no

Placenta and Membranes: Complete/Incomp. Weight _____ gms.
 Method of delivery _____ Abnormalities _____

Mother; General Condition _____ Temp. _____ °C Pulse _____ BP _____ mmHg
 PV loss since delivery _____ mls. Treatment given _____

Comments: _____

DATE	NOTES	SIGN.

PREGNANCY SUMMARY

(To be filled out in duplicate and one copy given to the mother)

Surname _____ Date of Birth _____ Age _____ yrs.

Forenames _____ Gravida _____ Para _____ Ab. _____

Address _____

Home Village _____

ANTENATAL

Place(s) of ANC _____ Weight at first visit _____ kg.

Gestation at first visit _____ weeks Number of visits _____

Admissions	1	2	3	4
Place				
Gestation				
Diagnosis				

Abnormal Lab. or Xray results _____

Action taken _____

Drugs given (all) _____

Comments _____

LABOUR AND DELIVERY

Facility _____ Date _____ Gestation _____ weeks Weight _____ kg.

Mother: Duration of labour _____ hrs. Complications _____

Method of delivery _____ Indication if not SVD _____

Blood Loss _____ mls. _____

Details if PPH _____

Problems/Comments _____

Infant: Sex M/F Weight _____ gms. Apgar at 1 min. _____ 5 min. _____ 10 min. _____

Alive/ SB If stillborn Cause _____

If NND Age _____ hrs. Cause _____

Abnormalities/Injuries _____

Drugs given _____

Problems/Comments _____

POSTNATAL (6-8 weeks)

Facility _____ Date _____ BP _____ mmHg Weight _____ kg.

Mother: Healthy yes/no If no Details _____

Treatment given _____

Complications _____

Action taken _____

Infant: Normal/Abnormal If abn. Details _____

Weight _____ gms.

Breast feeding well yes/no If no, details _____

Problems _____

Action taken _____

Comments _____

FAMILY PLANNING

Accepted yes/no If yes, date _____ Method _____ Next visit _____

If no, give details _____

CURRENT MEDICATIONS (Mother and Infant) _____

COMMENTS (Re future health and pregnancies) _____



PREGNANCY SUMMARY

(To be filled out in duplicate and one copy given to the mother)

Surname _____ Date of Birth _____ Age _____ yrs.
 Forenames _____ Gravida _____ Para _____ Ab. _____
 Address _____
 Home Village _____

ANTENATAL

Place(s) of ANC _____ Weight at first visit _____ kg.
 Gestation at first visit _____ weeks Number of visits _____

Admissions	1	2	3	4
Place				
Gestation				
Diagnosis				

Abnormal Lab. or Xray results _____
 Action taken _____
 Drugs given (all) _____
 Comments _____

LABOUR AND DELIVERY

Facility _____ Date _____ Gestation _____ weeks Weight _____ kg.
Mother: Duration of labour _____ hrs. Complications _____
 Method of delivery _____ Indication if not SVD _____
 Blood Loss _____ mls. _____
 Details if PPH _____

Problems/Comments _____

Infant: Sex M/F Weight _____ gms. Apgar at 1 min. _____ 5 min. _____ 10 min. _____
 Alive/ SB If stillborn Cause _____
 If NND Age _____ hrs. Cause _____
 Abnormalities/Injuries _____
 Drugs given _____
 Problems/Comments _____

POSTNATAL (6-8 weeks)

Facility _____ Date _____ BP _____ mmHg Weight _____ kg.
Mother: Healthy yes/no If no Details _____
 Treatment given _____
 Complications _____
 Action taken _____

Infant: Normal/Abnormal If abn. Details _____
 Weight _____ gms.
 Breast feeding well yes/no If no, details _____
 Problems _____
 Action taken _____

Comments _____

FAMILY PLANNING

Accepted yes/no If yes, date _____ Method _____ Next visit _____
 If no, give details _____

CURRENT MEDICATIONS (Mother and Infant)

COMMENTS (Re future health and pregnancies)

Annexure N

**Permission to reproduce from Botswana
Obstetric Record instructions for midwives
and WHO partogram**

Nyangabgwa Hospital
Private Bag 127
Francistown

09/12/2001

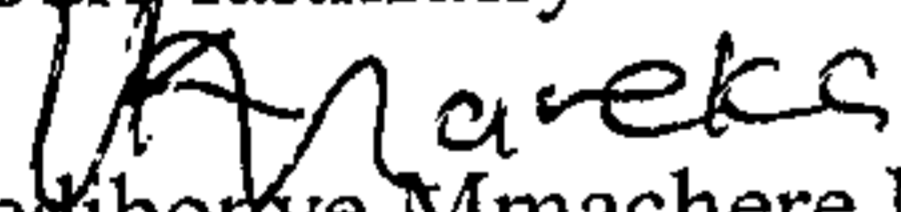
WHO Representative
Maternal Health and safe
Motherhood Program
Division of Family Health

RE: Request for Permission to reproduce figures from your manual

Please refer to the above subject matter. I am a masters student at the University of South Africa and at the sometime Mofswana working at the above mentioned Hospital. I am currently doing a dissertation in clinical research in the area of obstetrics. I was auditing 303 completed partograms of delivered mothers for 1999 in the month of September. I also determined problems of midwives in the use of partogram and established contributing factors that influenced negatively on the use of the partogram and I observed the use of the partogram in practice and finally recommended a training programme for midwives on the use of the partogram. On the literature review, I would like to use figures on WHO safe motherhood Practical guide, entitled " Preventing prolonged labour: a practical guide", The partograph figures in page 3 figure 1.1, 6 figure 1.2 to describe graphic recordings on the labour graph to enable midwives to recognise deviations from normal labour and when to take action. Friedman's curve is to give history of the partograph.

I therefore request for permission to reproduce the above requested figures. I request permission at least before the 15/12/2001 as submission of the dissertation for exams has long been overdue since 30/11/2001.

Yours faithfully


Kedibonye Mmachere Mareka

Nyangabwe Referral Hospital
Private bag 127
Francistown

8 December 2001

Director
Hospital Services
Ministry of Health
Private bag 0038
Gaborone

Dear Sir,

**Re: Request for permission to reproduce figures from Botswana
Obstetric Record-Instruction's for Midwives.**

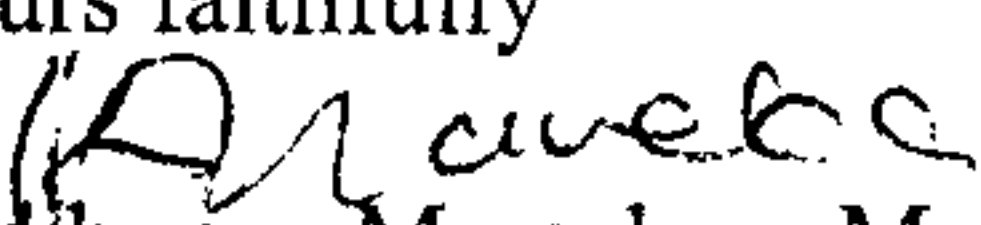
Please refer to the above subject matter. I am currently submitting my Masters dissertation at the University of South Africa for examination which involved clinical Research, in the area of obstetrics. I was auditing completed 303 partograms of mothers who delivered in 1999 in the month of September. I also determined problems of midwives in the use of partogram and established contributing factors that influenced negatively on the use of the partogram and I observed the use of the partogram in practise and finally recommended a training programme for midwives on the use of the program.

On the literature review, I would like to use figures on the Botswana Obstetric Record. Instructions for midwives by Dr Lake prepared it at Princess Marina Hospital and later the same preparation was produced by the Health Unit, Ministry of Health, the ^{year} is not known.

With the above background I request to reproduce it's figures from pg 27, 28, 29,30,31, 32, 33, 34, 35, 36 .The same figures will help describe graphic recordings on Botswana Obstetric record during labour to enable the midwife to recognise deviations from normal labour and when to take action

If permission is granted it has to be done before 15/12/2001 because submission for exams is almost overdue.

Yours faithfully


Kedibonye Mmachere Mareka
Supervisor-Mrs J E Tjallinks (South Africa)
Joint Supervisor-Dr N T Mulumba (Botswana)

Nyangabgwe Hospital.
P/Bag 127
Francistown

10-1-2002
Director Health Services.
Ministry of Health
P/Bag 0038
Gaborone.

**RE: Request for permission to reproduce figures from Botswana Obstetric Record-
Instructions for midwives-MY MASTERS DISSERTATION**

Kindly refer to the above subject matter. It was on the 8-12 2001, when I submitted a request of permission in relations to the above (find enclosed letter of request). I am therefore making a follow-up of the outcome of the request.

Furthermore on the same note I had also indicated in another letter a request to reproduce WHO partogram which I also indicated a request from your office (find enclosed letter of request).

In conclusion, if permission is granted let it be before the third week of January 2002, since, the examination board that is sitting for my masters dissertation has scheduled it for the last week of January 2002 in Pretoria, South Africa.

YOURS FAITHFULLY,


Kedibonye Mmachere Mareka

