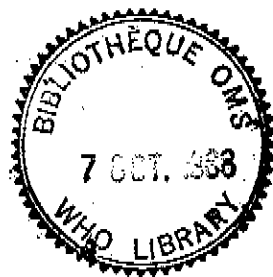




The Partograph

A MANAGERIAL TOOL FOR THE
PREVENTION OF PROLONGED LABOUR

SECTION II
A User's Manual



The World Health Organization Maternal and Child Health Unit
Division of Family Health
Geneva 1988



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THE PARTOGRAPH

SECTION II

A USERS MANUAL

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THE PARTOGRAPH

SECTION II

A USERS MANUAL

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GENERAL REMARKS

This manual is designed to teach the use of the partograph in the management of labour. It does not set out to teach all of the principles and physiology of labour.

The principle behind the partograph and particularly behind the partograph described in this manual with its pre-drawn alert and actions are described in Section I of The Partograph. The principle and strategy. (WHO document WHO/MCH/88.3). It is assumed that a tutor working with the users manual for teaching purposes will have acquired a working knowledge of these principles and can pass this information on to the trainees as appropriate. Consequently the manual concentrates on the practical aspects of using the partograph as a managerial tool in labour and not on theoretical aspects.

INTRODUCTION FOR USERS

This manual describes the use of the partograph as a tool to help in the management of labour. A partograph is used to record all observations made on a woman in labour. Its central feature is a graph where dilatation of the cervix as assessed by 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 developing prolonged and obstructed labour due to cephalo-pelvic disproportion which may lead to serious problems, such as ruptured uterus and death of the fetus. Other problems which may result from slow progress in labour include post-partum haemorrhage and infection.

By helping you to identify at an early stage those women whose labour is slow, the partograph should prevent some of these problems. It is also a very clear way of recording all labour observations on one chart, making it easy to detect any other abnormalities.

WHO SHOULD NOT HAVE A PARTOGRAPH IN LABOUR

Before describing how to use the partograph, it is important to realise that it is a tool for managing labour only. It does not help you to identify other risk factors which may have been present before labour started.

Only start a partograph when you have checked that there are no complications of the pregnancy which require immediate action.

OBJECTIVES OF THIS MANUAL

After studying this training manual the physician and midwifery personnel should be able to:

- understand the concept of the partograph;
- record the observations accurately on the graph;
- understand the difference between the latent and the active phase of labour;
- interpret a recorded partograph and recognize any deviation from the norm;
- monitor the progress, recognize the need for action at the appropriate time, and decide on timely referral;
- explain to mothers and other members of the community the significance of the partograph.

OBSERVATIONS CHARTED ON THE PARTOGRAPH (FIG. 1)

Observations and recordings are explained in the following sequence:

A. The progress of labour

1. Cervical dilatation
2. Descent of head
 - abdominal palpation of fifths of head palpable
3. Uterine contractions
 - Frequency/10 min.
 - Duration - shown by differential shading.

B. The fetal condition

1. Fetal heart rate
2. Colour and amount of liquor
3. Moulding of the fetal skull

C. The maternal condition

1. Pulse, blood pressure and temperature
2. Urine - volume, protein, acetone
3. Drugs and IV fluids
4. Oxytocin regime

PARTOGRAPH

Name..... Gravida.... Para.... Hospital No.
Date of admission Time of admission..... Ruptured membranes hrs

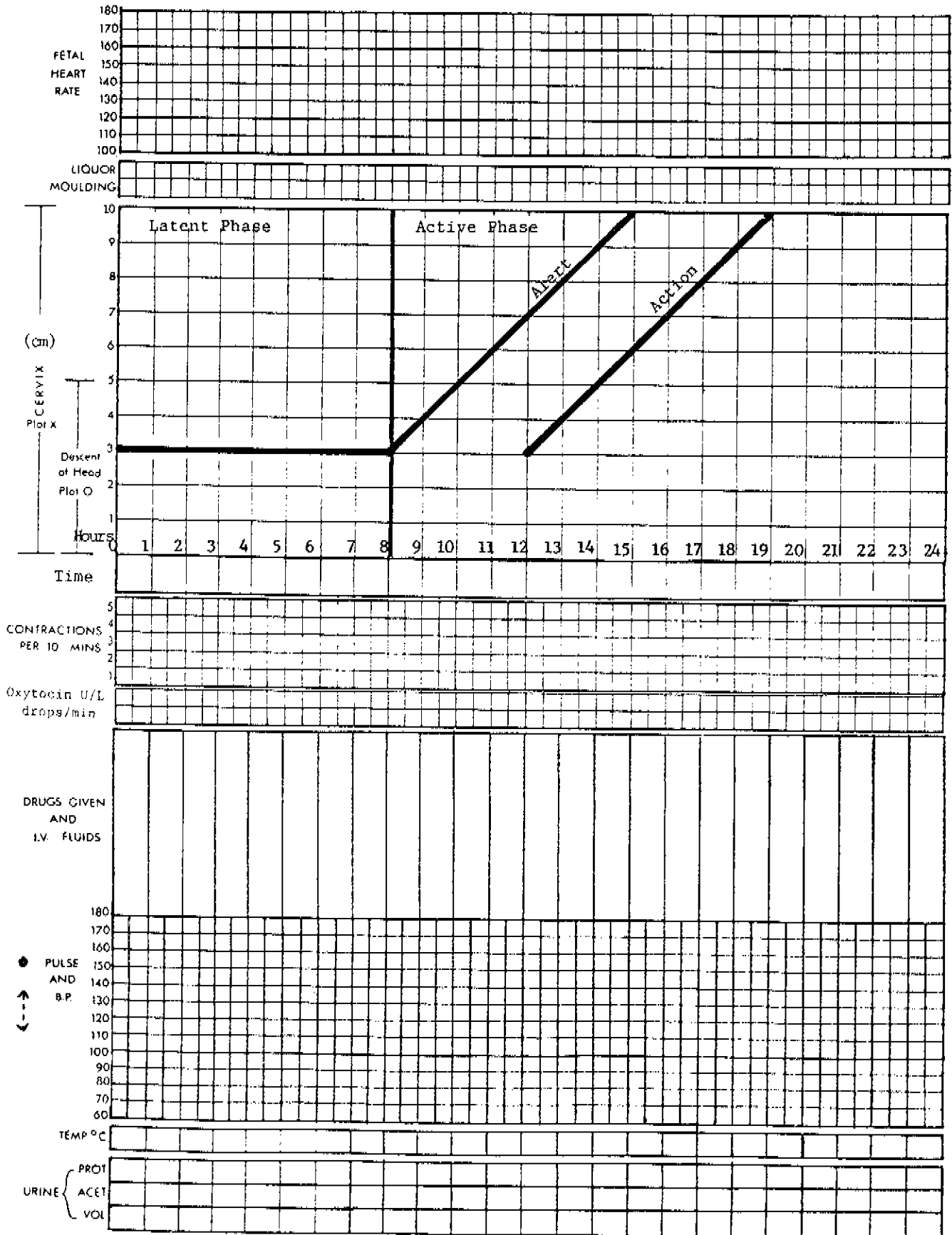


Figure 1

A. THE PROGRESS OF LABOUR

1. Cervical dilatation

The first stage of labour is divided into the **latent** and **active** phase

- The **latent phase** (slow period of cervical dilatation) is from 0-3cms with gradual shortening of the cervix
- The **active phase** (faster period of cervical dilatation) is from 3cm to 10cm (full cervical dilatation)

In the centre of the partograph is a graph; along the left side are the figure 0-10 against squares. Each square represents 1 cm dilatation. Along the bottom of the graph are numbers 0-24. Each square represents one hour.

Dilatation of the cervix is measured in centimetres (cm) and a diagram of a useful learning aid is found in Annex 1.

The dilatation of the cervix is plotted (recorded) with an 'X'. The first vaginal examination, on admission, includes a pelvic assessment and the findings are recorded. Thereafter, vaginal examinations are made every four hours, unless contraindicated. However, in advanced labour, women may be assessed more frequently, particularly the multipara.

Example 1

Plotting cervical dilatation when admission is in the **ACTIVE** phase.

Look at Figure 2. In the section marked active phase there is an 'alert' line, a straight line from 3-10 cm. When a woman is admitted in the active phase the dilatation of the cervix is plotted on the alert line and the clock time written directly under the x in the space for time.

If progress is satisfactory the plotting of cervical dilatation will remain on or to the left of the alert line.

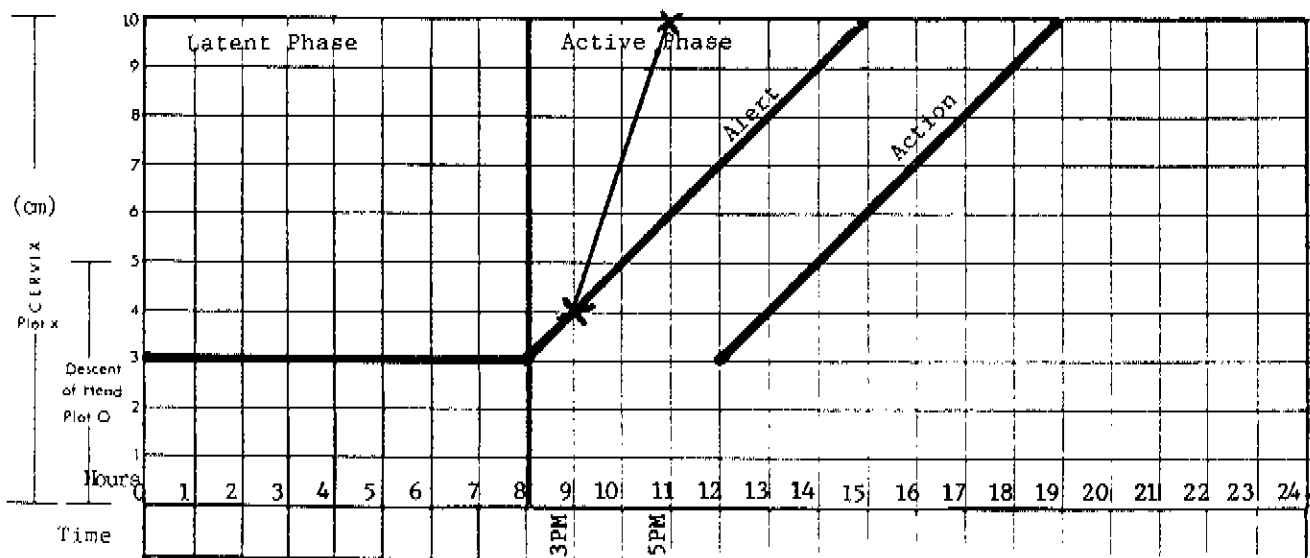


Figure 2

Observations to note on figure 7

- Dilatation of the cervix was 4cm - active phase
- Dilatation is plotted on the alert line at 4cmse
- The time of admission was 3.00 p.m.
- At 5 p.m. dilatation was 10cm.
- Time in the first stage of labour in hospital was only 2 hours.

Example 2 - Plotting cervical dilatation when admitted in the LATENT phase

Look at figure 3. The latent phase normally should not take longer than 8 hours. When admission is in the latent phase dilatation of the cervix is plotted at zero time and vaginal examination made every 4 hours.

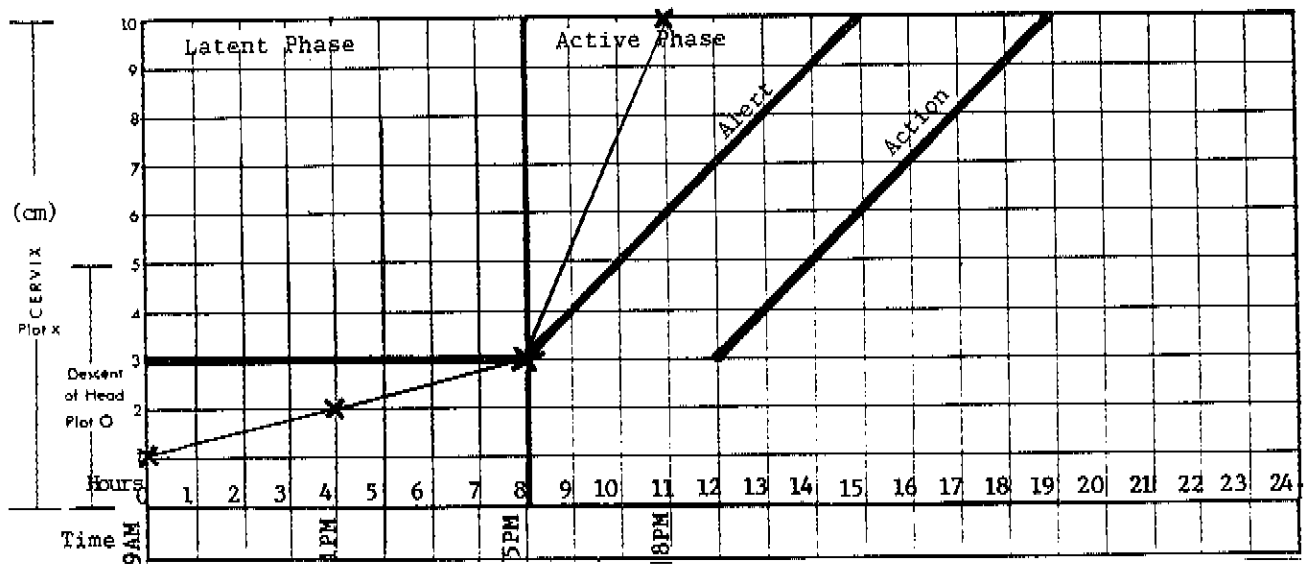


Figure 3

Observations to note on Figure 3

- Admission was at 9 a.m. and the cervix was 1 cm dilated
- At 1 p.m. the cervix was 2 cm dilated
- At 5 p.m. the cervix was 3 cm dilated when she entered the active phase of labour
- At 8 p.m. the cervix was 10 cm (fully dilated)
- Latent phase lasted 8 hours and active phase lasted 3 hours.

Example 3 - Transfer from latent to active phase

Plotting cervical dilatation when a woman is admitted in the latent phase and goes into active phase in less than 8 hours.

When dilatation is 0-3 cm plotting must be in the latent phase area of the cervicograph. When labour goes into the active phase plotting must be transferred by a broken line to the alert line. The recordings of cervical dilatation and time are plotted 4 hours after admission, then transferred immediately to the alert line using the letter 'TR', leaving the area between the transferred recording blank. The broken transfer line is not part of the process of labour.

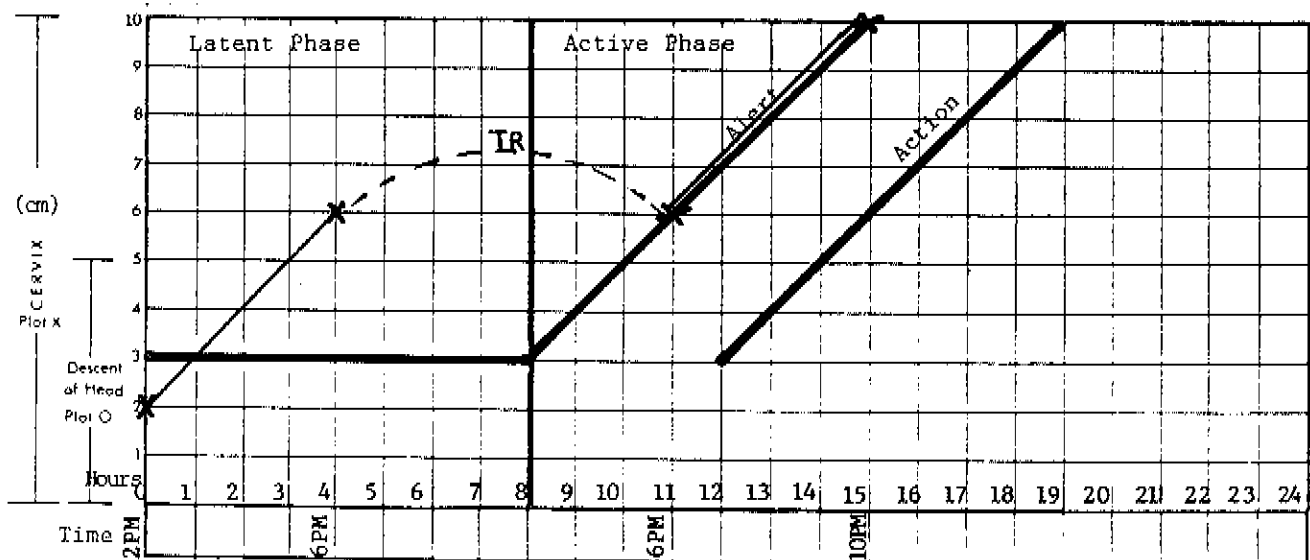


Figure 4

Observations to note on Figure 4

- Admission time was 2 p.m. and the dilatation was 2 cm
- She had a total of 3 vaginal examinations
- At 6 p.m. the dilatation was 6 cm - active phase
- Time and dilatation were immediately transferred to the alert line
- At 10 p.m. the cervix was 10 cm
- The length of the first stage of labour in hospital was 8 hours

Points to remember

1. The latent phase is from 0-3cm dilatation and is accompanied by gradual shortening of the cervix. It should normally not last longer than 8 hrs.
2. The active phase is from 3-10 cm and dilatation should be at the rate of at least 1 cm/hour
3. When labour progresses well the dilatation should not cross to the right of the alert line.
4. When admission to hospital takes place in the active phase, the admission dilatation is immediately plotted on the alert line
5. When labour goes from latent to active phase plotting of the dilatation is immediately transferred from the latent phase area to the alert line.

2. Descent of the fetal head

For labour to progress well, dilatation of the cervix should be accompanied by descent of the head. However, descent may not take place until the cervix has reached about 7 cm dilatation.

Descent of the head is measured by abdominally in fifths above the pelvic brim. It is found to be a more reliable way of gaging descent than vaginal examination where large caput formation often leads to the inexperienced to confuse scalp descent as opposed to skull descent. The following diagram illustrates the assessment of descent through the pelvic brim (Fig. 5) ¹.

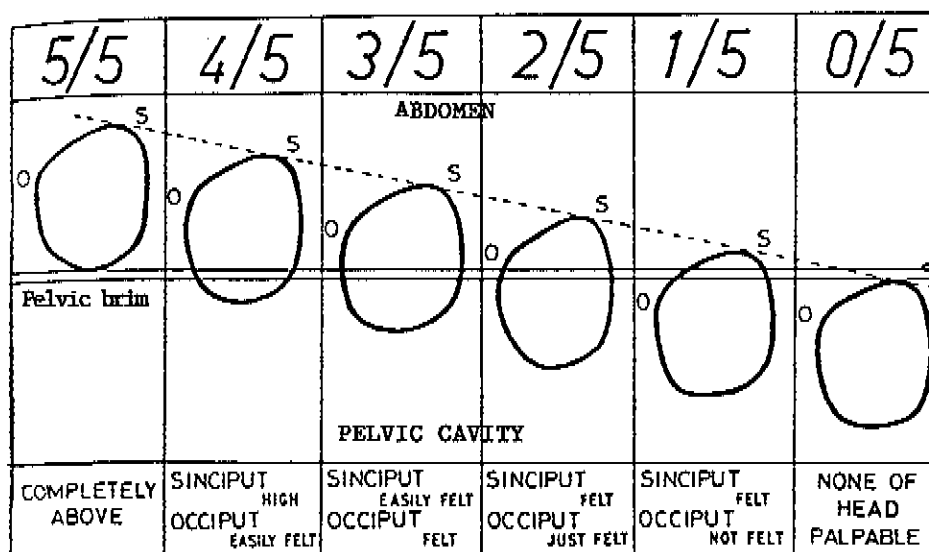


Figure 5

The level of the fetal head measured by abdominal palpation and expressed in terms of fifths above the brim. S = sinciput, O = occiput.

1. Philpott, R.H., and Castle, W.M. Cervicographs in the management of labour in primigravidae. I. The alert line for detecting abnormal labour. J Obstet Gynaecol Br Cweth, 79: 592-598 (1972)

Descent of the head should always be assessed by abdominal examination immediately before doing a vaginal examination.

For convenience the width of the five fingers is a guide to the expression in fifths of the head above the brim. A head which is mobile above the brim will accommodate the full width of five fingers (closed) (Fig. 6 and 6A).

As the head descends, the portion of the head remaining above the brim, will be represented by fewer fingers (4/5th, 3/5th etc.)

It is generally accepted that the head is engaged when the portion above the brim is represented by 2 fingers width or less (Fig. 7 and 7A).

Head is mobile above the brim = $5/5$

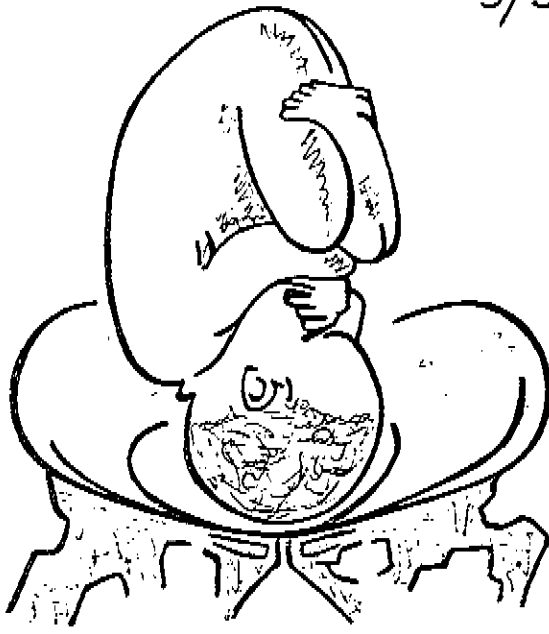


Figure 6

Head accommodates full width of five fingers above the brim

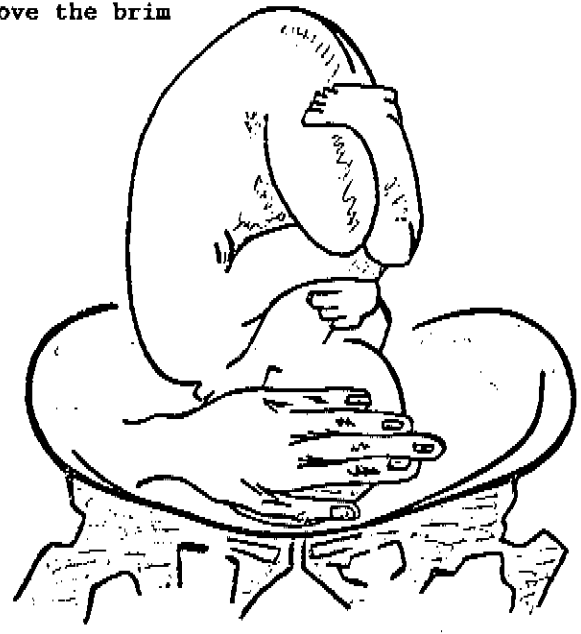


Figure 6 A

Head is engaged = $2/5$

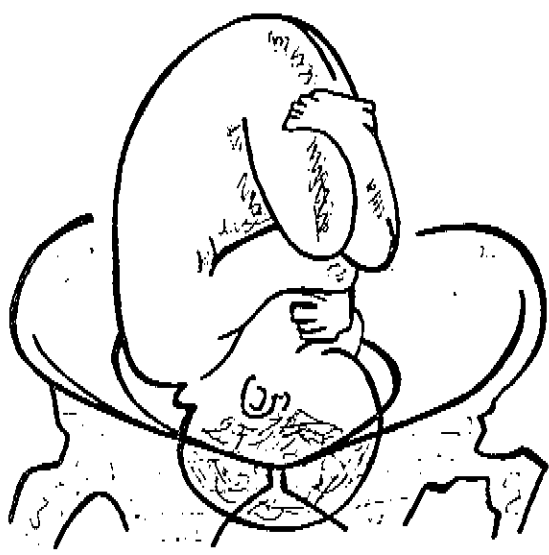


Figure 7

Head accommodates two fingers above the brim

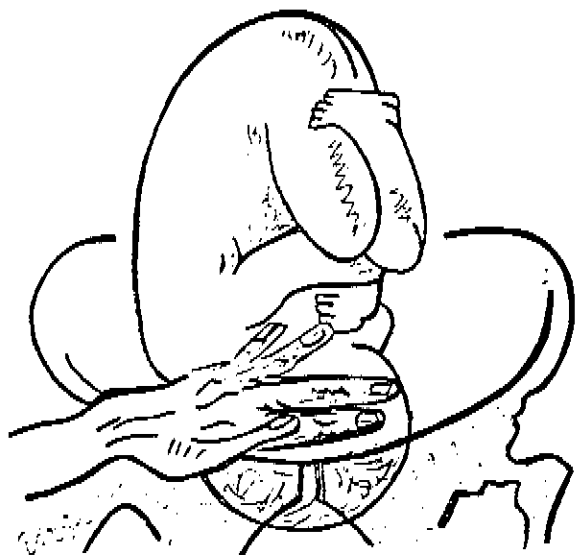


Figure 7 A

Plotting of descent of the head

On the left hand side of the graph is the word 'descent' with lines going from 5-0. Descent is plotted with an 0 on the cervicograph (Fig. 8)

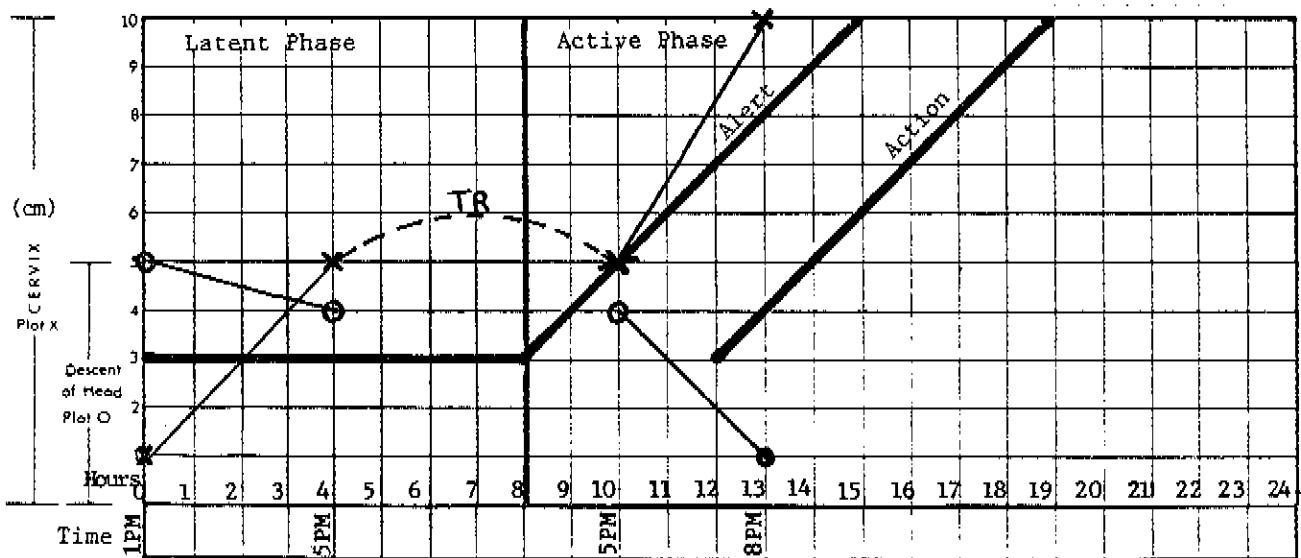


Figure 8

Example

- On admission at 1 p.m. the head was 5/5ths above the pelvic brim and the cervix was 1cm dilated.
- After 4 hours at 5 p.m. the head was 4/5ths above the brim and the cervix was 5cm dilated
- Labour is now in the active phase. Cervical dilatation, descent of head and time recordings are transferred to the alert line.
- After 3 hours the head was only 1/5th above the pelvic brim and the cervix was 10cm dilated.
- The length of the first stage of labour observed in the unit was 7 hours.

Points to Remember

1. Assessing descent of the head assists in detecting progress in labour.
2. Descent is assessed abdominally in fifths felt above the pelvic brim.
3. Immediately before a vaginal examination an abdominal examination must always be done.

3. Uterine contractions

In order for labour to progress well there must be good uterine contractions. In normal labour they usually become more frequent and last longer, as labour progresses.

a) **Observing** uterine contractions

(Observations on the contractions are made hourly in the latent phase of labour and half hourly in the active phase).

There are two observations made of the contractions

- The frequency - how often are they felt?
- The duration - how long do they last?

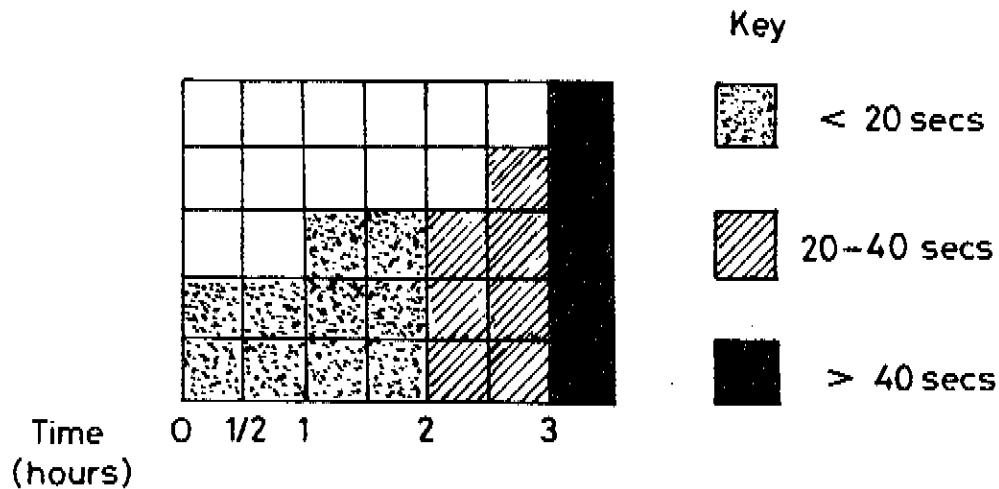
The frequency of contractions is assessed by the number of contractions in a ten-minute period. The duration of the contractions is from the time the contraction is first felt abdominally to the time when the contraction passes off measured in seconds.

b) **Recording** on the partograph

Below the time line there is a blank of five squares going across the length of the graph and at the left hand side is written 'contractions per 10 mins'.

Each square represents one contraction so that if 2 contractions are felt in 10 minutes two squares will be shaded (filled in).

Figure 9 shows the key to the three possible ways the duration of contractions can be shaded¹.



Interpretation of Figure 9

First Half Hour	In the last ten minutes of that half hour there were two contractions lasting less than 20 seconds.
Third Half Hour	In the last ten minutes of that half hour there were three contractions lasting less than 20 seconds.
Sixth Half Hour	In the last ten minutes of that half hour there were four contractions lasting between 20 and 40 seconds.
Seventh Half Hour	In the last ten minutes of that half hour there were five contractions lasting more than 40 seconds.

1. Philpott, R.H., Sapire, K.E., Axton, J.H.M. Normal labour and its management. In: Obstetrics, Family Planning and Paediatrics, P.61 Natal Witness (Pty) Ltd. (1977)

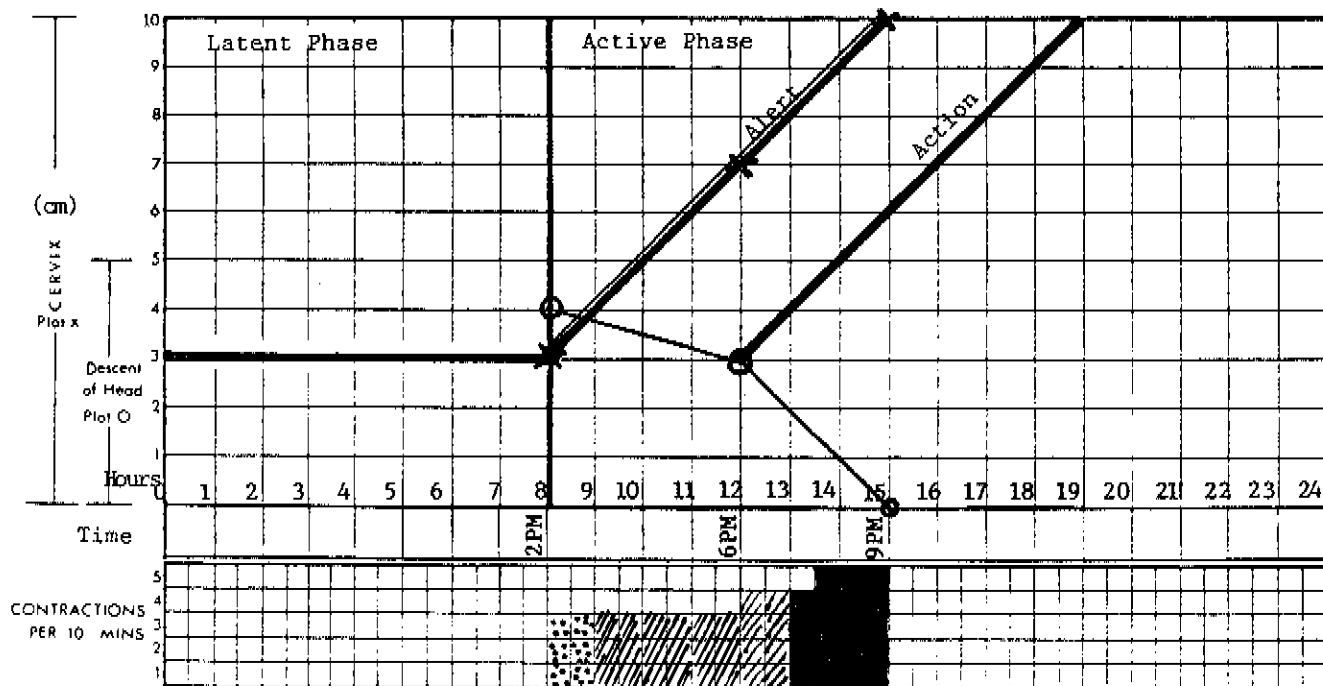
Example:

Figure 10

Observations on the graph - figure 10.

- The woman was admitted at 2 p.m. in the active phase of labour.
- The cervix was 3 cm dilated, the head was 4/5 above the pelvic brim.
- Contractions - these were 3 in 10 minutes, each lasting less than 20 seconds.
- At 6 p.m. the cervix was 7 cm dilated, the head 3/5 above the pelvic brim and contractions were 4 in 10 minutes and were lasting between 20 and 40 seconds.
- At 9 p.m. the cervix was 10 cm, the head 0/5 above the pelvic brim and contractions were 5 in 10 minutes and were lasting over 40 seconds.

Points to remember

1. Contractions are observed for frequency and duration.
2. The number of contractions in 10 minutes is recorded.
3. The 3 ways of shading in duration of contractions represent
1) up to 20 seconds 2) 20-40 seconds 3) more than 40 seconds.
4. Recording must be made beneath the correct time entry on the partograph.

B. THE FETAL CONDITION

1. Fetal Heart Rate

Observing the fetal heart rate is a safe and reliable clinical way of knowing that the fetus is well. The best time to listen to the fetal heart is just after the contraction has passed its strongest phase. Listen to the fetal heart for 1 minute with the woman in the lateral position if possible.

The fetal heart rate is recorded at the top of the partograph. It is recorded half hourly and each square represents one half hour. The lines for 120 and 160 are darker to remind the recorder that these are the limits of the normal fetal heart rate.

Abnormal fetal heart rates

1. A rate > 160 beats/min (tachycardia) and < 120 beats/min (bradycardia) may indicate fetal distress.

If an abnormal heart rate is heard, listen every 15 mins for at least 1 min immediately after a contraction. If the heart rate remains abnormal over three observations action should be taken unless delivery is very close.

2. A heartbeat of 100 or lower indicates very severe distress and action should be taken at once.

2. Membranes and Liquor

- b) The state of the liquor can assist in assessing the fetal condition.

There are four observations which are recorded on the partograph immediately below the fetal heart rate recordings. They are:

1. If the membranes are intact : record as the letter 'I' for intact.
2. If membranes are ruptured:
 - a) liquor is clear : record as the letter 'C' for clear
 - b) If the liquor is meconium stained : record as the letter 'M' for meconium
 - c) the liquor is absent : record as the letter 'A' for absent

The observations are made at each vaginal examination.

If there is thick meconium at any time or absent liquor at the time of membrane rupture listen to the fetal heart more frequently as these may be signs of fetal distress.

3. Moulding of the Fetal Skull Bones

Moulding is an important indication as to how adequate the pelvis is to accommodate the fetal head. Increasing moulding with the head high in the pelvis is an ominous sign of cephalo-pelvic disproportion.

Recordings are made immediately beneath those of the state of liquor.

Key:

- o = bones are separated and the sutures can be felt easily
- + = bones are just touching each other
- ++ = bones are overlapping
- +++ = bones are overlapping severely

Moulding may be difficult to assess in the presence of a large caput, but that in itself should alert the attendant to possible cephalo-pelvic disproportion.

Points to remember

1. Listen to the fetal heart rate immediately after the peak of a contraction with the woman in the lateral position.
2. Recordings are made half hourly in the first stage of normal labour.
3. Normal fetal heart rate is between 120-160 beats/min.
4. Increasing moulding with a high head is a sign of disproportion.

C. THE MATERNAL CONDITION

All the recordings for the maternal condition are entered at the foot of the partograph below the recording of uterine contractions.

1. Pulse, blood pressure and temperature

- pulse rate - half-hourly
- blood pressure - 4 hourly, or more frequently, if indicated
- temperature - 4 hourly, or more frequently, if indicated

2. Urine - Volume, protein and acetone

- protein or acetone in the urine
- urine volume - encourage woman to pass urine 2-4 hourly

1. and 2. are charted in that order from top to bottom on the chart.

3. Drugs and IV fluids

These are charted in the appropriate column under the contractions.

4. Oxytocin regime

There is a separate column for oxytocin titration above the column for IV fluids and drugs.

All entries are made in relation to the time at which the observations are made.

To see a completed partograph of a normal first stage of labour look at Figure 11.

Points to remember

1. Time of admission is zero time, when the woman comes in the latent phase of labour.
2. When the active phase of labour begins all recordings are transferred, plotting the cervical dilatation on the alert line.
3. When progress of labour is normal plotting of the cervical dilatation remains on the alert line or to the left of it.

ABNORMAL PROGRESS OF LABOUR**1. Prolonged latent phase**

If a woman is admitted in labour in the latent phase (less than 3cm dilated) and remains in the latent phase for the next 8 hours, progress is abnormal and she must be transferred to a hospital for a decision about further action.

This is why there is a heavy line drawn on the partograph at the end of 8 hours of the latent phase.

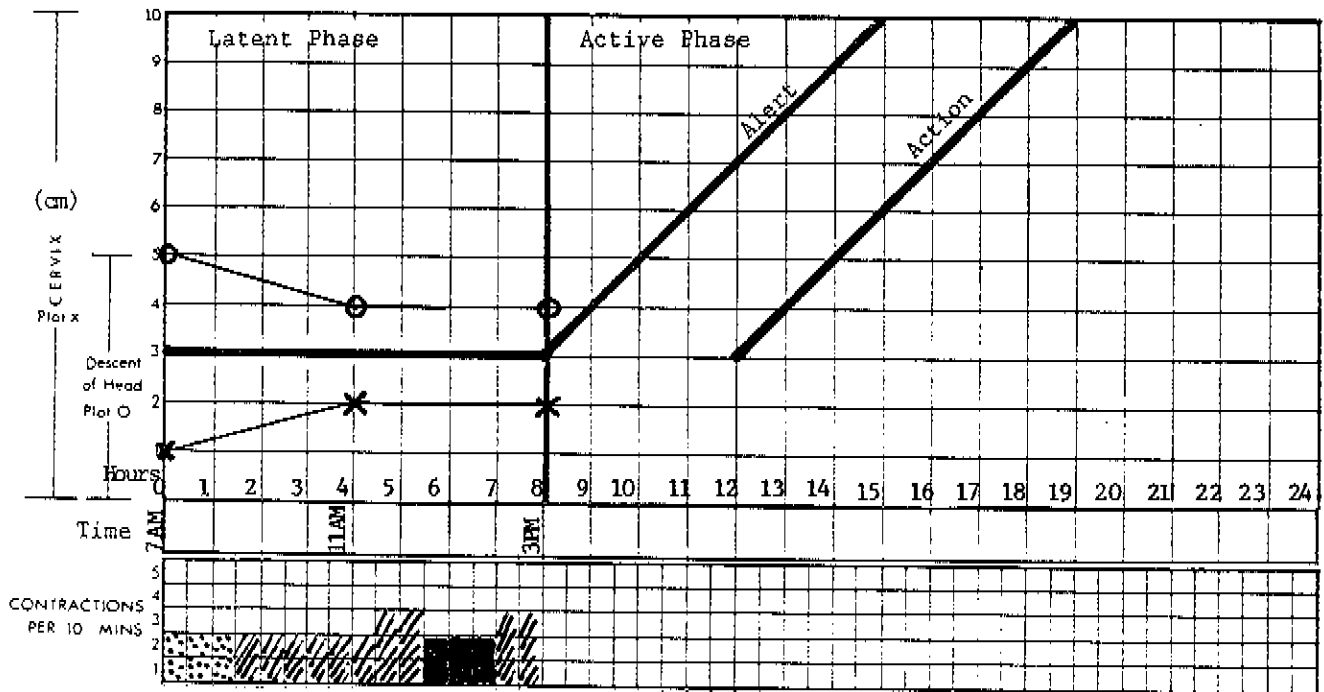
Example

Figure 12

- On admission at 7.00 a.m. the head was 5/5ths above the pelvic brim and the cervix was 1cm dilated. There were two contractions in 10 minutes lasting less than 20 seconds.
- After 4 hours at 11.00 a.m., the head was 4/5ths above the pelvic brim and the cervix was 2cm dilated. In the last ten minutes of that half hour there were two contractions lasting between 20 and 40 seconds.
- Four hours later at 3.00 p.m., the head was still 4/5ths above the pelvic brim and the cervix was still 2cm dilated. Contractions were three in ten minutes lasting between 20 and 40 seconds.
- The length of the latent phase was 8 hours in the unit.

2. Moving to the right of the alert line

In the active phase of labour plotting of cervical dilatation will normally remain on, or to the left of the alert line. But some will cross to the right of the alert line and this warns that labour may be prolonged.

When the dilatation moves to the right of the alert line and if adequate facilities are not available to deal with obstetric emergencies, the woman must be transferred to a hospital unless she is near delivery. By transferring her at this time, it allows time for the woman to be adequately assessed for appropriate intervention if she reaches the action line.

3. At the action line

The action line is 4 hours to the right of the alert line. If a woman's labour reaches this line, a decision must be made about the cause of the slow progress, and appropriate action taken. This decision and action must be taken in a hospital with facilities to deal with obstetric emergencies.

Look at figure 13 for an example of plotting of dilatation which crosses the alert line and reaches the action line.

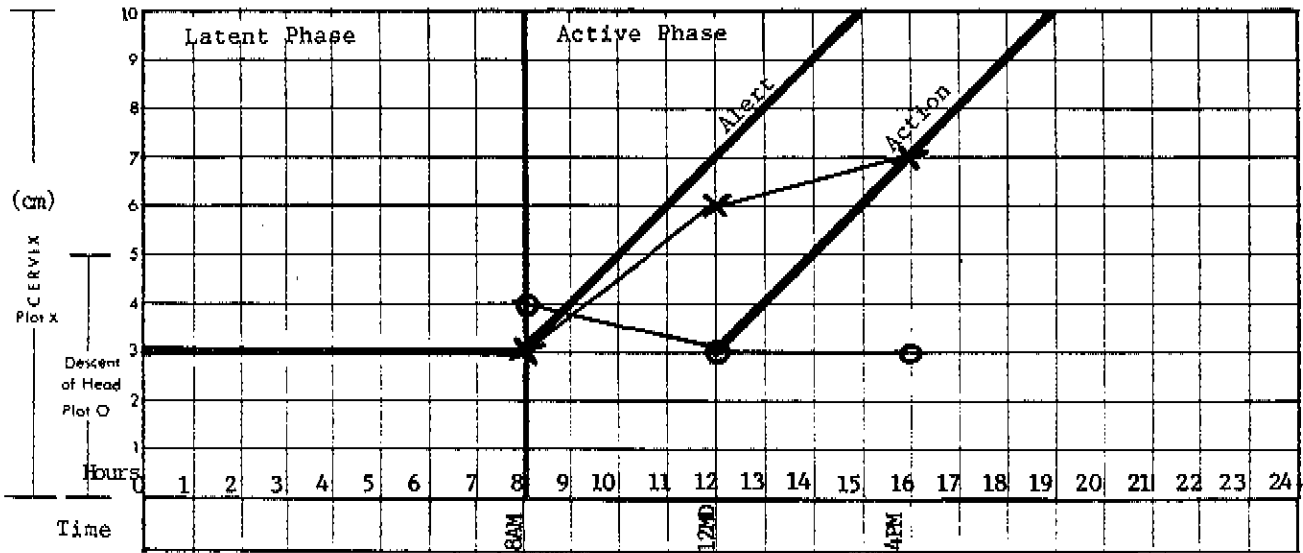


Figure 13

- At 8 a.m. the cervix is 3 cm dilated on the alert line. The woman may remain in the health unit.
- At 12 midday the cervix is 6 cm dilated and the graph has crossed alert line. The woman must be transferred to an institution with facilities for obstetric interventions.
- At 4 p.m. the cervix is 7 cm dilated and the graph is on the action line. A decision must be made on what action needs to be taken.

Note - Figure 14.

The shaded area between alert and action lines in the active phase and beyond 8 hours in the latent phase would require referral from a peripheral unit and/or extra vigilance in a higher level institution.

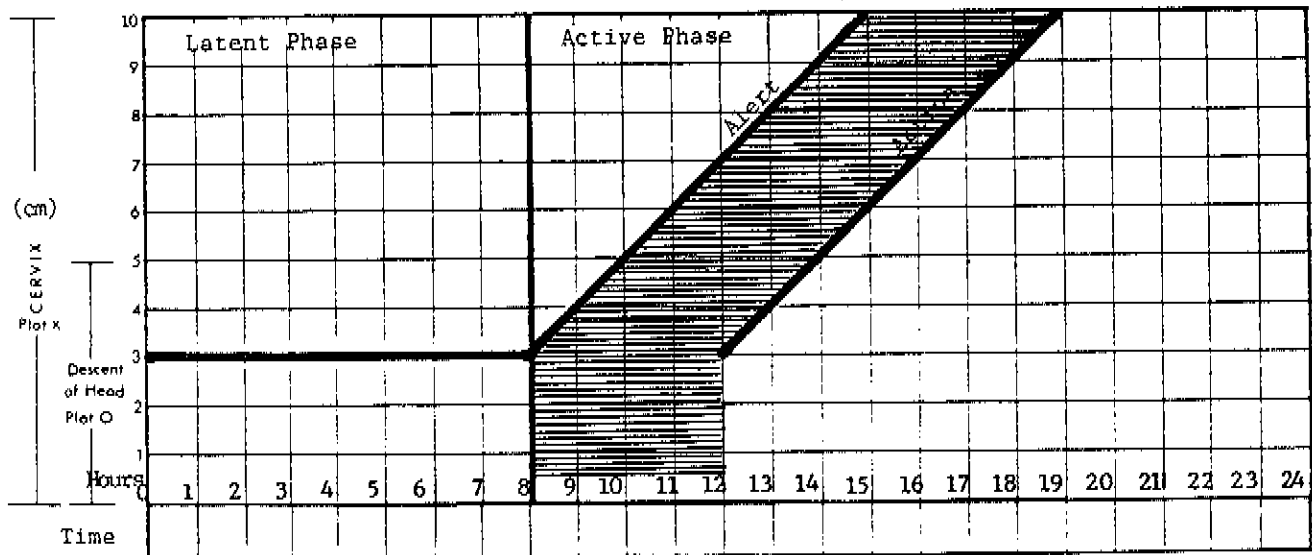


Figure 14

Points to remember

1. All women whose cervicograph moves to the right of the alert line must be transferred and managed in an institution with adequate facilities for obstetric interventions, unless delivery is near.
2. At the action line the woman must be carefully re-assessed for the reason for lack of progress and a decision made on further management.

NOTES ON MANAGEMENT OF ABNORMAL PROGRESS OF LABOUR

While use of the partograph demands a response from the midwife or physician, the management of labour when it departs from the norm will be laid down by the physician in charge of the unit. These notes are therefore only intended as guidelines.

1. When cervical dilatation moves to the right of the alert line

- a) In a health centre - the woman must be transferred to hospital immediately, unless the cervix is almost fully dilated.
Note If the head remains high in spite of good uterine contractions the woman should be transferred to hospital even when dilatation of the cervix is satisfactory.
- b) In hospital equipped for operative delivery
- a careful reassessment of labour and a decision on further management is made

2. When cervical dilatation reaches the action line

When the action line is reached there are three options.

1. terminate the labour
2. augment labour
3. Observe the woman with supportive therapy

Augmentation of labour

If the membranes are intact, perform ARM before commencing oxytocin infusion.

- a) the primigravidae with inefficient uterine action
 - adequate hydration (chart in the column for IV fluids on the partograph)
 - appropriate analgesia - (chart in the column for drugs on the partograph)
 - oxytocin infusion: it should be titrated against uterine contractions and increased half-hourly until contractions are 3 or 4 in 10 minutes lasting 40-50 seconds. The infusion should be maintained at that rate throughout the second and third stage of labour (chart dosage and rate in the appropriate box on the partograph).
 - more frequent assessment of labour, fetal and maternal condition
 - a time limit to terminate labour - 6-8 hours after oxytocin augmentation is recommended

Note. If there is evidence of uterine hyperactivity and/or fetal distress, the oxytocin infusion should be reduced or stopped.

b) the multipara

- adequate hydration and analgesia as for the primigravida
- however, if oxytocin infusion should ever be used in the multipara the decision should be made by an experienced clinician.

3. **The membranes**

- If membranes have been ruptured for more than 12 hours and if delivery is not close, antibiotics should be administered.

4. **Fetal distress**

- a) In a peripheral health unit - a woman with evidence of fetal distress should be transferred to a facility equipped for obstetric intervention.
- b) In hospital - immediate management
 1. If on oxytocin infusion, stop the drip.
 2. Turn the woman on her left side
 3. Do a vaginal examination to exclude cord presentation/prolapse and observe colour of liquor
 4. Adequate hydration
 5. Give oxygen, if available

5. **Prolonged latent phase**

If the latent phase is longer than 8 hours, a decision about management has to be made by the physician in charge. Possible action is similar to that suggested in the active phase when the action line is reached.

EXERCISES

Exercise No. 1

Look at the partograph (see Fig. 15) and answer the following questions:

Questions:

1. On admission to hospital
 - a) what was the clock time?
 - b) what was the cervical dilatation?
 - c) What phase of labour was the woman in?
2. Describe the frequency and duration of the uterine contractions at 7 a.m.
3. At 7 a.m. what was the fetal heart rate and the state of the membranes.
4. What is the purpose of the alert line?

PARTOGRAPH

Name..... Gravida.... Para.... Hospital No.
Date of admission Time of admission..... Ruptured membranes hrs

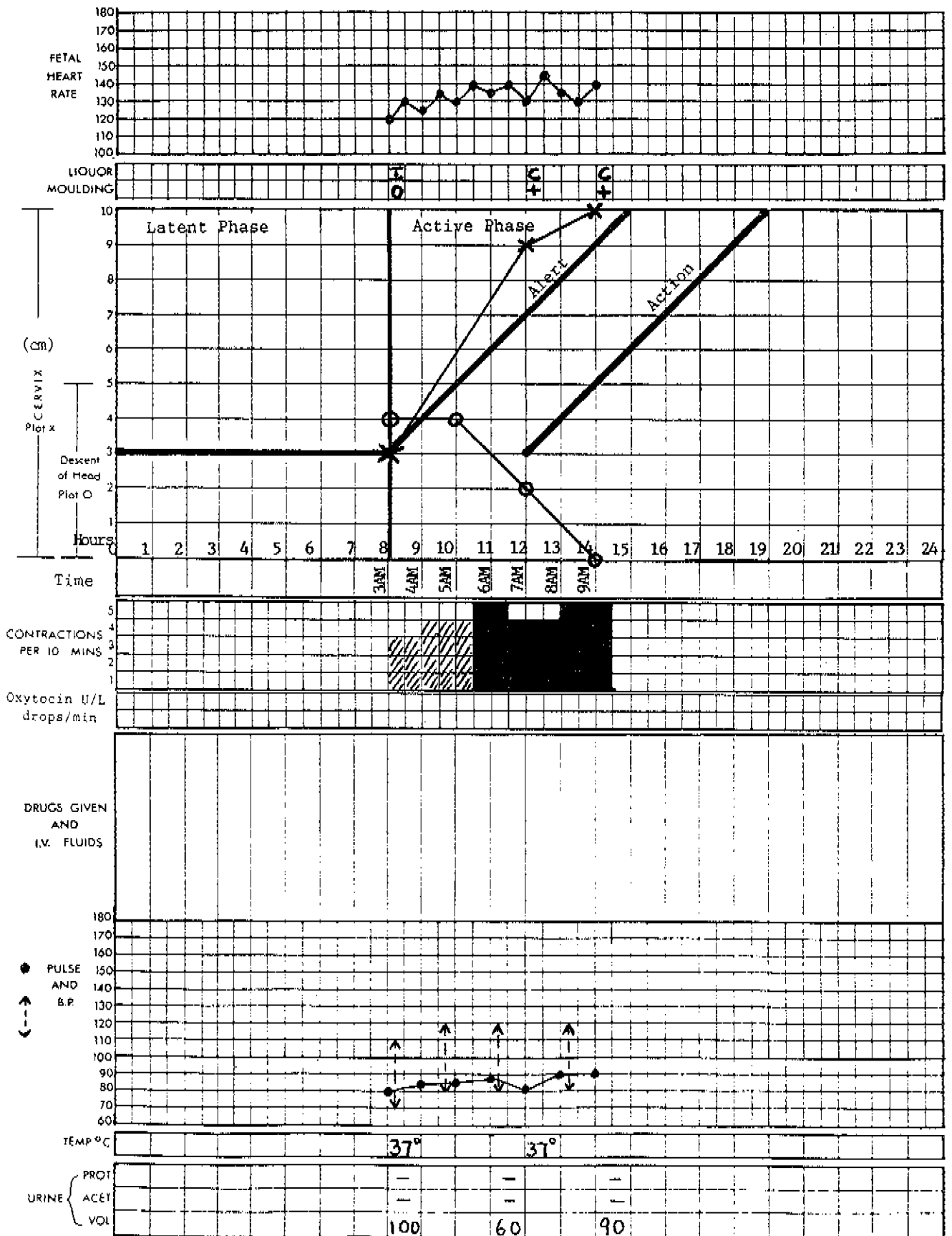


Figure 15

Exercise No. 2

Recording and plotting on the partograph (see Fig. 16)

Mrs X was admitted in labour at 2 p.m. On abdominal examination the contractions were 2 in 10 minutes, lasting 20 seconds. The head was 5/5 above the brim and the fetal heart was 130/min. On vaginal examination the cervix was 2cm dilated, membranes were intact, no moulding felt.

Her blood pressure was 110/70 mm Hg; her pulse 78/min; temperature 36.6 C. She passed 100 mls of urine; protein and acetone were negative.

1. An abdominal and vaginal examination was carried out on Mrs X at 6 p.m.

Record and plot the following:

a) Time of examination

b) Fetal heart rate of 140/min

c) Membranes ruptured, liquor clear

d) No moulding

e) Cervix 5 cm dilated

f) Descent of the head 3/5th above the brim

g) Uterine contractions 3 in 10 minutes, lasting 50 seconds.

h) Blood pressure was 105/70 mm Hg; pulse 80/min., temperature 37 C.

2. What is the latest expected time Mrs X will reach 10 cm dilatation of the cervix should labour progress satisfactorily?

3. If a vaginal examination is made at 10 p.m. and the cervix is 7 cm dilated, what would the management be in a) a peripheral health unit b) in a hospital.

Answers to Exercise No. 1

1. a) 3 a.m. b) 3 cm c) Active phase
2. 4 contractions in ten minutes, lasting over 40 seconds, at 7 a.m.
3. Fetal heart rate 130/min. Membranes were ruptured (liquor clear) at 7 a.m.
4. Acts as a warning that labour in the active phase is delayed when cervical dilatation crosses over to the right of it, or assists in early detection of delay in labour or warns the attendant of time to transfer a woman to hospital.

Answers to Exercise No. 2

1. Completed partograph (see Fig. 17)
2. 11 p.m.
3. a) immediate transfer to hospital because of delay - crossing the alert line.
4. b) careful reassessment of cause of delay and cephalo-pelvic disproportion.

PARTOGRAPH

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Name..... Gravida.... Para.... Hospital No.

Date of admission Time of admission..... Ruptured membranes hrs

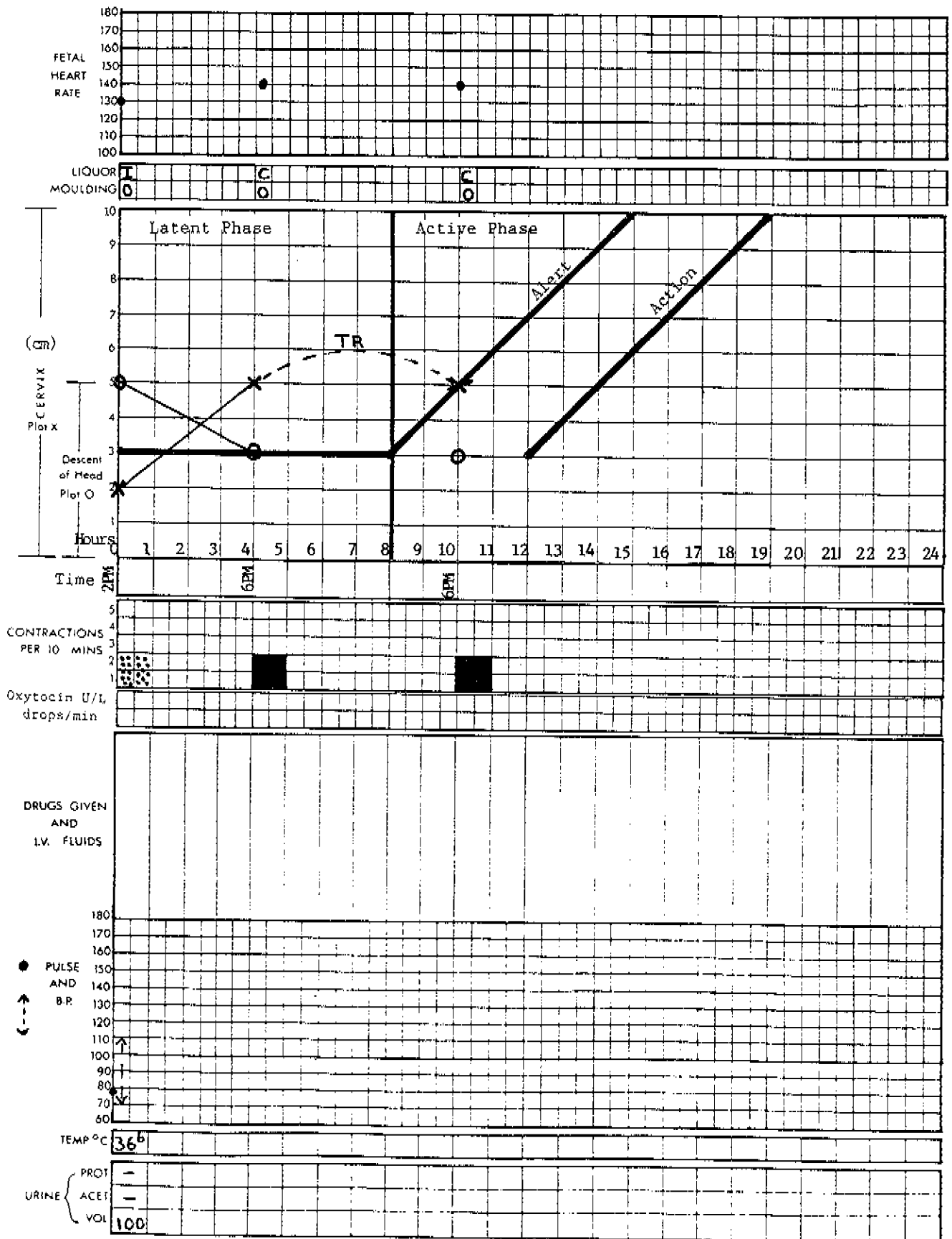


Figure 17

Annex 1

D I L A T A T I O N O F C E R V I X

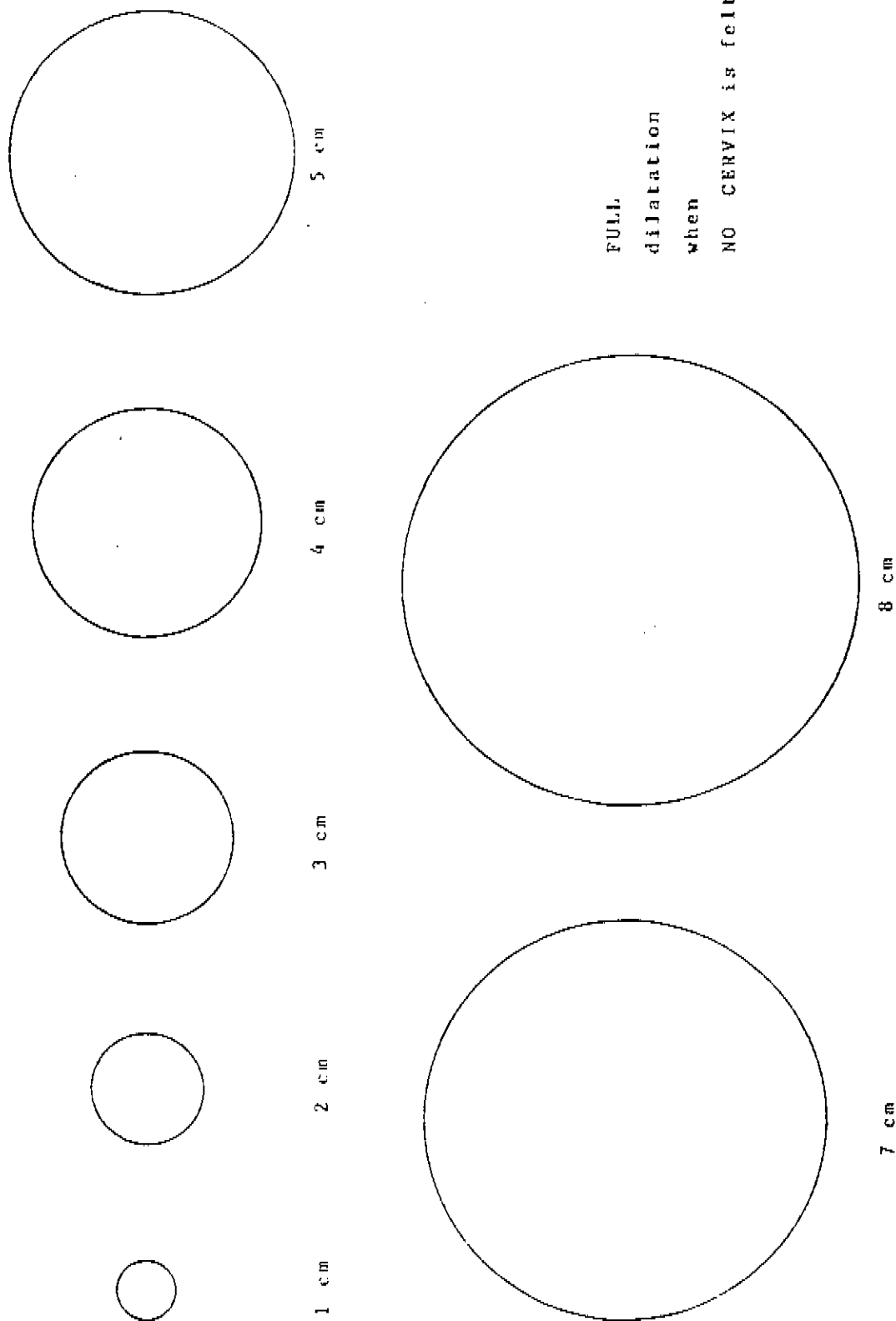


Figure 18

This aid cutout of plywood is a useful tool in the practice of accurate measuring of dilatation. It may be hung in the labour ward for use by staff and students.