1. Management of Uncomplicated Labour

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Introduction

This guideline is to provide recommendations to aid General Practitioners and Obstetricians in the management of **Uncomplicated Labour**. This treatment could be initiated in a primary care setting or in centres with advanced facilities. The objective of management is to make an early diagnosis of any abnormality, treat, prevent complications and consequently to improve quality of life.

1.1 Scope of the guideline and definition

In Sri Lanka institutional deliveries are almost universal with over 98% of deliveries taking place in health care institutions under trained personnel. Vast majority of these are uncomplicated vaginal births in low risk patients who may be delivered in a unit without specialist services. Nevertheless, two thirds of births do take place in specialist units.

This document provides guidelines to all institutions, which offer services in the management of labour in uncomplicated pregnancies.

1.1.1 Definition of normal labour

Normal labour is a retrospective diagnosis. Definition of normal labour encompasses features such as spontaneous onset, low-risk at the start and remaining so throughout the process. The neonate is born spontaneously in the vertex presentation between 37 and 42 completed weeks of pregnancy. After birth mother and infant are in good condition.

A pregnancy is considered as a low risk pregnancy when no risk factors have been identified pre-pregnant or during the antenatal and intrapartum period.

Table 1.1: Risk factors identifiable in the pregnant woman[2]

Maternal risk factors

Teenage pregnancy	Medical disorders:
Advanced maternal age (>35 years)	Diabetes mellitus,
Subfertility	Renal disease,
Obesity	Liver disease,
Grand multiparity	Hypertension,
Short stature (<5feet)	Epilepsy,
Pelvic fractures	Heart disease,
	Psychiatric illness
	Thyroid disease

Risk factors from previous pregnancies

Miscarriages	Delivery complications:
Stillbirth	Instrumental deliveries,
Chronic hypertension	Caesarean Section,
Gestational diabetes mellitus	Post partum haemorrhage,
Abnormal babies	Retained placenta,
Small for gestational age	Uterine inversion,
Fetal macrosomia (>4kg)	Uterine rupture,
Sensitised Rh negative mother	Shoulder dystocia,
	3rd / 4th degree perineal tears,
	Birth asphyxia.

Risk factors in present pregnancy

Uncertain dates	Anaemia
Multiple pregnancy	Small for gestational age
Intrauterine fetal demise	Intrauterine growth restriction
Fetal anomalies	Fetal macrosomia
Antepartum haemorrhage	Polyhydramnios/oligohydramnios
Pregnancy induced hypertension	Malpresentation
	Prolonged pregnancy
Pelvic tumours	Preterm labour
Uterine abnormalities	Prelabour rupture of membranes
Uterine tumors	

1.2 Diagnosis of Labour

The presence of regular and painful intermittent contractions, which are of increasing frequency, duration and intensity, heralds the onset of labour.

This is often associated with blood stained mucus 'show' and less often, rupture of membranes.

For the diagnosis of labour to be clearly established, above symptoms and signs must be associated with a significant change in the effacement and dilatation of the cervix.

Provided that effacement of the cervix has occurred together with cervical dilatation of 3cm. or more in primiparae and 4cm. or more in multiparae, the diagnosis of commencement of labour is confirmed.

Recommendation
In whom it is not possible to establish whether they are in labour or not, it may be necessary to perform a repeat evaluation after two hours to confirm the diagnosis.
(Grade X)

The membranes may or may not rupture spontaneously at the onset of labour.

Recommendation
At the time of diagnosis of labour, reviewing of antenatal records, obtaining a detailed clinical history and performing an examination are necessary to identify risk factors. Examination of urine for protein should be performed. **(Grade X)**

Table 1.2: Diagnosis of stage and phase of labour

Symptoms and Signs	Stage	Phase
• Cervix uneffaced • Os <3 cms.	False labour/Not in labour	Latent
• Cervix dilated 4–9 cm. • Rate of dilatation typically 1 cm per hour or more • Fetal descent begins	First	Active
• Cervix fully dilated (10cm.) • Fetal descent continues • No urge to push	Second	Early (non-expulsive))
• Cervix fully dilated (10 cm.) • Presenting part of fetus reaches pelvic floor • Woman has the urge to push	Second	Late (expulsive)

1. Management

1.1 Transferring mothers to the labour suite

Recommendation
All mothers in labour must be managed in the labour suite. Once the mother develops painful contractions and 'show', and labour confirmed by vaginal examination, she should be transferred to the labour suite. (Stage 1 room) **(Grade X)**

Preparation of mothers prior to transfer to labour suite

1.1.1 Avoidance of faecal soiling during labour

Efforts must be made to minimize faecal soiling. This is necessary to overcome the practical difficulties associated with cleaning and maintaining sterility.

Available evidence does not support the practice of routine administration of enema in reducing faecal soiling, neonatal infection, perineal wound infection or duration of the second stage of labour.

1.1.2 Shaving of pubic hair

Routine shaving of pubic hair has no added advantage. However, it may be necessary to trim excessive pubic hair, to facilitate unhindered performance and repair of the episiotomy.

1.1.1 General

i. Oral fluids during labour

In low risk patients clear fluids may be allowed during early labour after consultation with the anaesthesiologist.

ii. Intravenous access

Recommendation
Facilities should be available to achieve intravenous access rapidly in all labouring mothers. **(Grade X)**

iii. Posture and mobility during labour

Mobility and posture during labour may vary according to maternal preferences. However, the wellbeing of the mother and the fetus should be given the priority. Supine and sitting positions result in a significant reduction in cardiac output with reduction in uterine blood supply. Standing and lateral recumbent positions minimize the above drawbacks and improve uterine contractions thus enhancing progress of labour.

1.2 Routine care in the labour suite

1.2.1 Monitoring

Once the mother is admitted to the labour suite, she should be monitored with regard to;

- Progress of labour,
- Maternal condition,
- Fetal condition.

i. Assessment of progress **(Grade X)**

Progress of labour is monitored by periodic assessment of cervical dilatation, descent of the presenting

part and uterine contractions. Ensuring the presence of adequate uterine activity is necessary for satisfactory progress of labour.

Special attention should be paid to detect inadequacy of the pelvis, macrosomia, fetal malpositions, caput formation and presence of moulding.

ii. Assessment of maternal condition **(Grade X)**

Periodic observation of maternal pulse, blood pressure, temperature and level of hydration is required.

Careful evaluation of necessary administered drugs (oxytocin, antibiotics, anti-hypertensives, analgesics etc) is important.

Mothers should be encouraged to pass urine as and when necessary and catheterization under aseptic condition should be considered only if clinically indicated.

iii. Assessment of fetal condition **(Grade X)**

Intermittent auscultation of the fetal heart and observation of liquor for meconium is required to assure the wellbeing of the fetus. In the event of any abnormality of these parameters, cardiotocography etc. is required to exclude fetal compromise.

A. Partogram

Partogram is a graphical record of all events of labour against time. Maintenance of the partogram is commenced once the mother is admitted to the labour suite.

Recommendation
To facilitate monitoring during labour a partogram is recommended. **(Grade X)**

Table 1.□: Partogram

- Patient identification details, date and time
- **Progress of labour**
- Cervical dilatation (Use of standard cervical dilatation charts to determine the degree of the cervical dilatation in centimetres)
- Descent of the fetal head (Recorded in fifths assessed by abdominal palpation. One finger breadth is considered equal to one fifth of the fetal head)
- Frequency, duration and strength of uterine contractions
  - **Frequency**: Interval in minutes between two palpable contractions is recorded over the timeline in the allocated space according to the duration that is described below.
  - **Duration:** Duration of contractions is measured by timing the contraction by palpation.
- **Fetal wellbeing**
- Fetal heart rate
- Description about liquor
  - C- clear
  - A- Absent liquor
  - I – Membranes intact
  - B- Blood stained
  - M- Meconium stained
- **Maternal wellbeing**
- Blood pressure
- Pulse rate
- Level of hydration
- Temperature
- **Others**
- Degree of moulding
  - - absent
  - + - groove between the frontal bones is absent
  - ++ - overlap of frontal bones present, but reducible with finger pressure
  - +++ -overlap of bones present and not reducible with finger pressure
- Alert line, action line
- Medications administered.

1.□.□ Management of the second stage of Labour

Second stage is the period from full dilatation of the cervix to the complete delivery of the fetus. It is important to diagnose the commencement of the second stage to monitor progress of labour and to advice the mother when to bear down. Ill-advised bearing down by the mother leads to maternal exhaustion, trauma to the cervix and an increase in instrumental delivery rate.

1.□.□.1 Diagnosis and duration of second stage

Recommendation
With the mother's desire to bear down, full dilatation of the cervix should be confirmed by vaginal examination. **(Grade X)**
Perineal distension and anal dilatation with uterine contraction are very common signs of the second stage.

1.□.□.2 Positioning

Recommendation
Mother should be encouraged to assume the most comfortable position.

1.□.□.□ Phases of second stage

Second stage of labour has an early descent phase followed by an expulsive phase.

i. Descent phase

After full dilatation of the cervix the fetal head will descend to the level of the pelvic floor during this phase.

Recommendation
Mother must be discouraged from bearing down during the descent phase. Fetal heart rate should be assessed every 15 minutes. **(Grade X)**

ii. Expulsive phase

After the descent phase when the fetal head reaches the pelvic floor mother feels the urge to bear down.

Recommendation
During the expulsive phase the mother should be encouraged to bear down with contractions. Fetal heart rate should be assessed after each contraction. **(Grade X)**

1.3.3.4 Episiotomy

Decision to perform an episiotomy should be made judiciously. It is indicated if there is a need to expedite delivery or if there is a threat of perineal injury.

Recommendation
If an episiotomy is considered necessary a medio-lateral episiotomy is preferred and should be performed at the time of crowning of the fetal head. **(Grade X)**

1.□.□.5 Delivery

The fetal head should not be allowed to extend till the occiput is felt below the symphysis pubis. The perineum should be supported during the delivery of the head. Once the head is delivered the woman should be discouraged from bearing down. Following restitution and external rotation, shoulders must be delivered with appropriately directed traction on the fetal head.

Delay in the second stage of labour and retraction of the head in between contractions may indicate impending shoulder dystocia

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1.□.□.6 Duration of second stage

Recommendation
A flexible approach with regard to the duration of the second stage is appropriate provided that the fetal and maternal conditions are satisfactory. **(Grade X)**

1.□.4 Management of the third stage of labour

The third stage of labour is the period from the complete delivery of the baby to the complete delivery of the placenta and membranes.

1.□.4.1 Active management of third stage

Active management of third stage is preferred over expectant management as it is associated with a significant reduction of the incidence of postpartum haemorrhage, postpartum maternal anaemia, post natal blood transfusion, need for therapeutic oxytocics and the third stage lasting longer than 20 minutes.

Recommendation
Active management of third stage should be offered to all mothers. **(Grade X)**

i. Choice of Oxytocics[1]

Oxytocin given in therapeutic doses, has minimum adverse effects. Ergometrine and oxytocin-ergometrine combinations, though equally effective, have the adverse effects of nausea and vomiting and a potential risk of retained placenta.

Oxytocin is given in a dose of five units intravenously or 5-10 units intramuscularly with delivery of the anterior shoulder. The recommended safe and effective dose of ergometrine is 500µg intravenously (IV) or intramuscularly (IM).

ii. Controlled cord traction

Recommendation
Once the baby is delivered and the umbilical cord is clamped and cut, controlled cord traction should be applied. **(Grade X)**

After clamping the cord closer to the perineum a hand should be placed above the pubic symphysis to stabilize the uterus by applying counter traction during controlled cord traction.
Application of cord traction with a relaxed uterus may lead to acute inversion of the uterus.

Recommendation
The placenta, membranes and the umbilical cord should be examined after delivery for completeness and abnormalities. **(Grade X)**

1.□.4.2 Repair of Perineum and Vestibule.

Episiotomy, perineal and vestibular tears if present should be sutured promptly to minimize the blood loss from these sites. Adequate and effective pain relief should be provided prior to these repairs. Complicated episiotomies and extensive tears should be attended to by the most senior or an experienced team member.

(Grade X)

1.□.5 Monitoring after delivery

Most complications of postpartum period occur within the first few hours after delivery. These include primary post partum haemorrhage, congestive cardiac failure, eclampsia and post partum collapse. Therefore vigilant monitoring in the immediate post partum period is mandatory. **(Grade X)**

Recommendation
Every mother should be monitored in the labour room for at least two hours after delivery for any complications.
All mothers after vaginal delivery should be observed for bleeding and their general condition and vital parameters must be monitored during this period. **(Grade X)**

The labour room staff should be satisfied about the condition of the mother prior to transferring her from the labour suite.

1.4 Special circumstances

1.4.1 Pain relief in labour

There is no evidence that pain in labour is beneficial to either mother or fetus. Deleterious effects of pain may cause distress to the mother with exhaustion and loss of morale. Maternal exhaustion could result in prolonged labour leading to fetal acidosis. Therefore it is logical to abolish pain in labour.

Recommendation
A labouring mother should be provided with adequate analgesia. **(Grade Y)**

Recommendation
The selection of the method of pain relief should be in accordance with the patient preference, availability of resources and the institutional protocols. **(Grade Z)**

1.4.1.1 Methods of pain relief in labour

i. Inhalational analgesia- Entonox

Entonox is a 50:50 mixture of nitrous oxide and oxygen and it has a very short half-life. Nitrous oxide is eliminated unchanged from the body mostly by the lungs. It has no known side effects on the fetus. This should be administered via a demand valve. The mixture improves fetal oxygenation.

The onset of action is 30 sec. to 1 minute. Therefore, the patient should be instructed to start inhaling just at the beginning of the tightening sensation. Longer and deeper breaths give better results. Between contractions the patient should be advised to stop using Entonox inhalation.

Entonox is contraindicated in intestinal obstruction, pneumothorax, middle ear and sinus disease, and following cerebral air-contrast studies in the parturient mother.

ii. Opioids

A.Pethidine

In Sri Lanka, pethidine is the most frequently used opioid in labour.

Maternal side effects include nausea, vomiting and a reduction in gastric motility with a subsequent increase in gastric acidity. Therefore it should be coupled with intramuscular promethazine or metoclopramide.

In the fetus, pethidine may lead to decrease in beat-to-beat variability and respiratory depression at birth. In the neonate neuro-behavioural side effects can be exhibited as changes of feeding patterns and abnormal reflexes. Neonatal respiratory depression is seen more commonly if the delivery takes place after one hour of drug administration. However this is uncommon if the delivery takes place four hours after intramuscular pethidine.

The dose of pethidine is 1 to 1.5mg/kg intramuscularly. Analgesic effect begins in 15 minutes and last for 3 to 4 hours.

Naloxone-a pure opioid antagonist should be available in the labour suite to treat neonatal respiratory depression. Naloxone is given to the baby in a dose of 100µg /kg. It has a short duration of action; therefore the baby should be kept under observation.

B. Other opioids

- **Fentanyl** - Should be used under the supervision of an anaesthesiologist, in doses of 50 to 100µg/hour as an intravenous infusion. Pain relief occurs in 3 to 5 minutes after commencement.
- **Tramadol** - Is an analgesic with minimal sedation, respiratory depression, and abuse potential. It produces moderate to satisfactory pain relief in labour. The dose is 50 to 100mg intramuscularly.

iii. Regional analgesia

A. Epidural analgesia - Epidural analgesia is the most effective form of pain relief in labour at present. It can be given as a bolus with top-ups or as a continuous infusion.

It minimizes exhaustion and hyperventilation in the mother and therefore prevents metabolic acidosis in the fetus.

Maternal complications like hypotension, dural tap, and total spinal blockage have been reported. A continuous infusion is preferred as top-ups have a higher incidence of hypotension. It is known to increase the duration of labour.

An anaesthesiologist and resuscitation facilities are mandatory for setting up and monitoring of epidurals. **(Grade X)**

Epidural analgesia should not be offered in situations such as maternal refusal, bleeding tendencies, local or systemic sepsis, hypovolaemia and non-availability of trained medical or para medical personnel. **(Grade X)**

B. Other methods - Spinal analgesia, combined spinal epidural analgesia, walking epidural analgesia and pudendal nerve block are also established methods of relieving pain during labour.

iv. Non-pharmacological methods for pain relief during labour

Non-pharmacological methods of pain relief in labour include breathing techniques, hot and cold therapy, transcutaneous electrical nerve stimulation (TENS), massaging, relaxation techniques, positioning and movement, acupuncture, herbalism, hypnosis and water birth.

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