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**THE USE OF PARTOGRAPH IN THE MANAGEMENMT OF THE FIRST STAGE OF LABOUR**

 **THE VALUE OF USING THE PARTOGRAPH**

The partograph is a graphical presentation of the progress of labour, and of fetal and maternal condition during labour. It is the best tool to help you detect whether labour is progressing normally or abnormally, and to warn the midwife as soon as possible if there are signs of fetal distress or if the mother’s vital signs deviate from the normal range. Documenting findings on the partograph during the labour enables the midwife to know quickly if something is going wrong, and whether you should refer the mother to the nearest health center or hospital for further evaluation and intervention.

 **Finding your way around of the partograph**

The partograph is actually the record chart for the labouring mother, It has an identification section at the top where you write the name and age of the mother, her ‘gravida’ and ‘para’ status, her health post or hospital registration number, the date and time when you first attended her for the delivery, and the time the fetal membranes ruptured (her ‘waters broke’).

On the back of the partograph (if you are not using another chart), the midwife can also record some significant facts, such as the woman’s past obstetric history, past and present medical history, any findings from a physical examination and any interventions she initiate (including medications, delivery notes and referral).

**The graph sections of the partograph**

The graph sections of the partograph are where you record key features of the fetus or the mother in different areas of the chart.

* Immediately below the patient’s identification details, you record the Fetal Heart Rate initially and then every 30 minutes. The scale for fetal heart rate covers the range from 80 to 200 beats per minute.
* Below the fetal heart rate, there are two rows close together. The first of these is labelled Liquor – which is the medical term for the amniotic fluid; if the fetal membranes have ruptured, you should record the colour of the fluid initially and every 4 hours.
* The row below ‘Liquor’ is labelled Moulding; this is the extent to which the bones of the fetal skull are overlapping each other as the baby’s head is forced down the birth canal; you should assess the degree of moulding initially and every 4 hours
* Below ‘Moulding’ there is an area of the partograph labelled Cervix (cm) (Plot X) for recording cervical dilatation, i.e. the diameter of the mother’s cervix in centimetres. This area of the partograph is also where you record Descent of Head (Plot O), which is how far down the birth canal the baby’s head has progressed. You record these measurements as either X or O, initially and every 4 hours. There are two rows at the bottom of this section of the partograph to write the number of hours since you began monitoring the labour and the time on the clock.
* The next section of the partograph is for recording Contractions per 10 mins (minutes) initially and every 30 minutes.
* Below that are two rows for recording administration of Oxytocin during labour and the amount given. (You are NOT supposed to do this – it is for a doctor to decide! However, you will be trained to give oxytocin after the baby has been born if there is a risk of postpartum haemorrhage.)
* The next area is labelled Drugs given and IV fluids given to the mother.
* Near the bottom of the partograph is where you record the mother’s vital signs; the chart is labelled Pulse and BP (blood pressure) with a possible range from 60 to 180. Below that you record the mother’s Temp °C (temperature).
* At the very bottom you record the characteristics of the mother’s Urine: protein, acetone, volume. You learned how to use urine dipsticks to test for the presence of a protein (albumin) during antenatal care.

**The Alert and Action lines**

In the section for cervical dilatation and fetal head descent, there are two diagonal lines labelled Alert and Action. The Alert line starts at 4 cm of cervical dilatation and it travels diagonally upwards to the point of expected full dilatation (10 cm) at the rate of 1 cm per hour. The Action line is parallel to the Alert line, and 4 hours to the right of the Alert line. These two lines are designed to warn you to take action quickly if the labour is not progressing normally.

Important! You should refer the woman to a health cenre or hospital if the marks recording cervical dilatation cross over the Alert line, i.e. indicating that cervical dilation is proceeding too slowly. (The Action line is for making decisions at health-facility level.)



*Vaginal examination*

Cervical dilatation

Development of cervical oedema (an initially thin cervix may become thicker if the woman starts to push too early, or if the labour is too prolonged with minimal change in cervical dilatation)

Position (of the fetus, if you are able to identify it)

Fetal head descent

Development of moulding and caput

Amniotic fluid colour (if the fetal membranes have already ruptured).

You should record each of your findings on the partograph at the stated time intervals as labour, progresses. The graphs you plot will show you whether everything is going well or one or more of the measurements is a cause for concern. When you record the findings on the partograph, make sure that:

You start recording on the partograph when the labour is in active first stage (cervical dilation of 4 cm and above).

Your recordings should be clearly visible so that anybody who knows about the partograph can understand and interpret the marks you have made.

If you have to refer the mother to a higher level health facility, you should send the partograph with your referral note and record your interpretation of the partograph in the note.

**Cervical dilatation**

The first stage of labour is divided into the latent and the active phases. The latent phase at the onset of labour lasts until cervical dilatation is 4 cm and is accompanied by effacement of the cervix. The latent phase may last up to 8 hours, although it is usually completed more quickly than this. Although regular assessments of maternal and fetal wellbeing and a record of all findings should be made, these are not plotted on the partograph until labour enters the active phase.

Vaginal examinations are carried out approximately every 4 hours from this point until the baby is born. The active phase of the first stage of labour starts when the cervix is 4 cm dilated and it is completed at full dilatation, i.e. 10 cm. Progress in cervical dilatation during the active phase is at least 1 cm per hour (often quicker in multigravida mothers).

In the cervical dilatation section of the partograph, down the left side, are the numbers 0–10. Each number/square represents 1 cm dilatation. Along the bottom of this section are 24 squares, each representing 1 hour. The dilatation of the cervix is estimated by vaginal examination and recorded on the partograph with an X mark every 4 hours. Cervical dilatation in multipara women may need to be checked more frequently than every 4 hours in advanced labour, because their progress is likely to be faster than that of women who are giving birth for the first time.

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

**Descent of the fetal head**

For labour to progress well, dilatation of the cervix should be accompanied by descent of the fetal head, which is plotted on the same section of the partograph, but using O as the symbol. But before you can do that, you must learn to estimate the progress of fetal descent by measuring the station of the fetal head. The station can only be determined by examination of the woman’s vagina with your gloved fingers, and by reference to the position of the presenting part of the fetal skull relative to the ischial spines in the mother’s pelvic brim.

If the fetal head is lower down the birth canal than the ischial spines, the station is given a positive number. At station +1 and even more at station +2, you will be able to see the presenting part of baby’s head bulging forward during labour contractions. At station +3 the baby’s head is crowning, i.e. visible at the vaginal opening even between contractions. The cervix should be fully dilated at this point.

 **Assessing moulding and caput formation**

Sutures and fontanels in the newborn’s skull.The five separate bones of the fetal skull are joined together by sutures, which are quite flexible during the birth, and there are also two larger soft areas called fontanels. Movement in the sutures and fontanels allows the skull bones to overlap each other to some extent as the head is forced down the birth canal by the contractions of the uterus. The extent of overlapping of fetal skull bones is called moulding, and it can produce a pointed or flattened shape to the baby’s head when it is born.Whenever you detect moulding or caput formation in the fetal skull as the baby is moving down the birth canal, you have to be more careful in evaluating the mother for possible disproportion between her pelvic opening and the size of the baby’s head. Make sure that the pelvic opening is large enough for the baby to pass through. A small pelvis is common in women who were malnourished as children, and is a frequent cause of prolonged and obstructed labour.A caput (swelling) of the fetal skull is normal if it develops centrally, but not if it is displaced to one side.

**Recording moulding on the partograph**

To identify moulding, first palpate the suture lines on the fetal head. The skull bones that are most likely to overlap are the parietal bones, which are joined by the sagittal suture, and have the anterior and posterior fontanels to the front and back.

*Sutures apposed*: This is when adjacent skull bones are touching each other, but are not overlapping. This is called degree 1 moulding (+1).

*Sutures overlapped but reducible*: This is when you feel that one skull bone is overlapping another, but when you gently push the overlapped bone it goes back easily. This is called degree 2 moulding (+2).

*Sutures overlapped and not reducible:* This is when you feel that one skull bone is overlapping another, but when you try to push the overlapped bone, it does not go back. This is called degree 3 moulding (+3). If you find +3 moulding with poor progress of labour, this may indicate that the labour is at increased risk of becoming obstructed.

**Uterine contractions**

Good uterine contractions are necessary for good progress of labour, normally contractions become more frequent and last longer as labour progresses. Contractions are recorded every 30 minutes on the partograph in their own section, which is below the hour/time rows. At the left hand side is written ‘Contractions per 10 mins’ and the scale is numbered from 1–5. Each square represents one contraction, so that if two contractions are felt in 10 minutes, you should shade two squares.

Different shading on the squares you draw on the partograph indicates the strength and duration of contractions.



**Assessment and recording of fetal wellbeing**

One can assess fetal conditions;

By counting the fetal heart beat every 30 minutes;

If the fetal membranes have ruptured, by checking the colour of the amniotic fluid.

*Fetal heart rate as an indicator of fetal distress*

The normal fetal heart rate at term (37 weeks and more) is in the range of 120–160 beats/minute. If the fetal heart rate counted at any time in labour is either below 120 beats/minute or above 160 beats/minute, it is a warning for you to count it more frequently until it has stabilized within the normal range. It is common for the fetal heart rate to be a bit out of the normal range for a short while and then return to normal. However, fetal distress during labour and delivery can be expressed as:

* Fetal heart beat persistently (for 10 minutes or more) remains below 120 beats/minute (doctors call this persistent fetal bradycardia).
* Fetal heart beat persistently (for 10 minutes or more) remains above 160 beats/minute (doctors call this persistent fetal tachycardia).

*Causes of fetal distress*

There are many factors that can affect fetal wellbeing during labour and delivery. The fetus is dependent on good functioning of the placenta and good supply of nutrients and oxygen from the maternal blood circulation. Whenever there is inadequacy in maternal supply or placental function, the fetus will be at risk of asphyxia, which is going to be manifested by the fetal heart beat deviating from the normal range.

Reasons for fetal heart rate deviating from the normal range

* Placental blood flow to the fetus is compromised, which commonly occurs when there is:
* Hypertensive disorder of pregnancy
* Maternal anaemia
* Decreased maternal blood volume (hypovolemia) due to blood loss, or body fluid loss through vomiting and diarrhea
* Maternal hypoxia (shortage of oxygen) due to maternal heart or lung disease, or living in a very high altitude
* A placenta which is ‘aged’
* Amniotic fluid becomes scanty, which prevents the fetus from moving easily; the umbilical cord may become compressed against the uterine wall by the baby’s body
* Umbilical cord is compressed because of prolapsed (coming down the birth canal ahead of the fetus), or is entangled around the baby’s neck
* Placenta prematurely separates from the uterine wall (placental abruption).

With that background in mind, counting the fetal heart beat every 30 minutes and recording it on the partograph, may help you to detect the first sign of any deviation for the normal range. Once you detect any fetal heart rate abnormality, you shouldn’t wait for another 30 minutes; count it as frequently as possible and arrange referral quickly if persists for more than 10 minutes.

**Recording fetal heart rate on the partograph**

The fetal heart rate is recorded at the top of the partograph every half hour in the first stage of labour (if every count is within the normal range), and every 5 minutes in the second stage. Count the fetal heart rate:

* As frequently as possible for about 10 minutes and decide what to do thereafter.
* Count every five minutes if the amniotic fluid (called liquor on the partograph) contains thick green or black meconium.

Whenever the fetal membranes rupture, because occasionally there may be cord prolapse and compression, or placental abruption as the amniotic fluid gushes out.

Each square for the fetal heart on the partograph represents 30 minutes. When the fetal heart rate is in the normal range and the amniotic fluid is clear or only lightly blood-stained, you can record the results on the partograph. When you count the fetal heart rate at less than 30 minute intervals, use the back of the partograph to record each measurement. Prepare a column for the time and fetal heart rate.

*Amniotic fluid as an indicator of fetal distress*

Another indicator of fetal distress which has already been mentioned is meconium-stained amniotic fluid (greenish or blackish liquor). Lightly stained amniotic fluid may not necessarily indicate fetal distress, unless it is accompanied by persistent fetal heart rate deviations outside the normal range. The following observations are made at each vaginal examination and recorded on the partograph, immediately below the fetal heart rate recordings.

If the fetal membranes are intact, write the letter ‘I’ (for ‘intact’). If the membranes are ruptured and:

* liquor is absent, write ‘A’ (for ‘absent’)
* liquor is clear, write ‘C’ (for ‘clear’)
* liquor is blood-stained, record ‘B’

liquor is meconium-stained, record ‘M1’ for lightly stained, ‘M2’ for a little bit thick and ‘M3’ for very thick liquor which is like soup

 **Assessment of maternal wellbeing**

During labour and delivery, after your thorough initial evaluation, maternal wellbeing is followed by measuring the mother’s vital signs: blood pressure, pulse, temperature, and urine output. Blood pressure is measured every four hours. Pulse is recorded every 30 minutes. Temperature is recorded every 2 hours. Urine output is recorded every time urine is passed. If you identify persistent deviations from the normal range of any of these measurements, refer the mother to a higher health facility.

 MANAGEMENT OF 2ND AND 3RD STAGES OF LABOUR

**MANAGEMENT OF 2ND STAGE OF LABOUR**

The second stage of labour is that of expulsion of the fetus. It begins when the cervix is fully dilated and the woman feels the urge to expel the baby. It is complete when the baby is born, it average duration is 2hrs in primigravidae and 30minutes in multiparae

During the second stage of labour, skilled attendants should:

* Continuously provide information, support, and encouragement to the woman and her companion.
* Encourage active pushing once the urge to bear down is present, with encouragement to adopt any position for pushing preferred by the woman, except lying supine which risks aortocaval compression and reduced uteroplacental perfusion.
* Listen frequently (every 5 minutes) to the fetal heart in between contractions to detect bradycardia.
* Check the maternal pulse and blood pressure, especially where there is a pre‐ existing problem of hypertension, severe anemia, or cardiac disease.
* Observe progressive descent and rotation of the presenting part. This includes observing progressive distension of the perineum and visibility of the presenting part, and vaginal examination especially where progress appears to be slow.
* Conduct the delivery with support for the perineum to avoid tears, and use of episiotomy only where a tear is very likely.
* Be ready to augment contractions with an intravenous oxytocin infusion during the second stage where contractions have become infrequent and where the fetal heart rate remains normal, to avoid the need for instrumental vaginal delivery or transfer.
* Be ready to undertake instrumental vaginal delivery (vacuum or forceps) where indicated for fetal bradycardia or nonadvance of the presenting part.

Close monitoring and the skills and capacity to offer timely intervention are required for all births to prevent adverse outcomes. High‐quality care in the second stage of labor is necessary to prevent stillbirth and newborn complications arising from undetected hypoxia and acidemia, as well as maternal mortality and morbidity from complications such as vesicovaginal fistula, genital tract lacerations, infection, hemorrhage, as well as worsening of hypertensive disease.

While attending a delivery, the timing and process of active pushing should be guided so that this is encouraged only when the cervix is fully dilated and when the presenting part has engaged in the pelvis and the woman feels the urge to push. The skilled attendant also has the role of encouraging the mother to adopt positions for active pushing that are culturally appropriate, comfortable, and mechanically beneficial; for example, squatting or sitting up as opposed to lying flat on a bed.

Assuring safety also requires the presence of a second person trained to assist [3]. In order to provide the 8 key aspects of care listed above, the presence of a second person is essential

**Initiation of active pushing**

A woman should be encouraged to push when full cervical dilatation, the fetal condition, and engagement of the presenting part have been confirmed, and the woman feels an urge to bear down. Even when the woman feels the urge, pushing should only be encouraged during a contraction. In the absence of the urge to push and in the presence of a normal fetal heart rate, care providers should wait before encouraging active pushing in primiparous women and women who have had an epidural for up to but not longer than 4 hours, and in multiparous women for up to but not longer than 1 hour. The basis for this recommendation is that under normal circumstances at the end of the first stage of labor, uteroplacental perfusion and fetal oxygenation only start to deteriorate once active pushing commences.

**Duration of active pushing in the second stage of labour**

Primiparous women should not actively push for more than 2 hours and multiparous women for more than 1 hour, owing to an increased risk of birth asphyxia and maternal infection. Lack of descent of the presenting part may also indicate obstructed labor.

Intervention should be considered promptly and options evaluated and acted upon before these indicative time periods if the maternal and/or fetal condition deviates from normal; for example, in the presence of fetal bradycardia or severe maternal hypertension.

**Maternal and fetal monitoring during the second stage**

Maternal parameters should be monitored when the second stage of labor is confirmed and thereafter, and for specific indications such as a history of high blood pressure, prolonged labor, and previously identified abnormal fetal heart rate.

Equipment in good working order and devices that simplify detection of the fetal heart should be available at the recommended frequency. The frequency of fetal heart auscultation should be every 5–10 minutes or more often when bradycardia is suspected. One can get the best information about the condition of the fetus, and it is easiest to hear, by auscultating immediately after a contraction. The care provider should have the skills to interpret the fetal heart rate and take appropriate action when needed. While the traditional Pinard stethoscope (fetoscope) may be adequate in very quiet labor rooms, it is often difficult to use reliably owing to surrounding noise or maternal obesity, and especially in the second stage because of the woman's naturally vigorous movements. Wide availability of robust handheld Doppler devices with battery backup and/or wind‐up recharging technology should be part of standard equipment provision for safe maternity care. Service planners and managers should prioritize procurement and regular maintenance of such devices.

**Use of oxytocin during the second stage of labor**

Intramuscular oxytocin administration before delivery is contraindicated. Intravenous oxytocin should be administered only according to a health facility protocol (describing indications, dose, and intravenous route) by a trained care provider. A typical intravenous oxytocin infusion regime for labor augmentation is described by the World Health Organization (WHO). It should be noted that infusions based on counting drops in the intravenous giving set can result in highly inaccurate oxytocin dosing, and where an infusion pump is not available the resulting contraction frequency and strength should be observed especially carefully to avoid hyperstimulation. Where the contractions are poor and the fetal presentation, position, and heart rate have been confirmed as normal, the use of oxytocin infusion may reduce the need for instrumental vaginal delivery.

**Pain relief during the second stage of labor**

Pain relief options must be discussed with the woman prior to the onset of labor and offered according to her wishes and using health facility protocols and norms. The need for pain relief is highly variable between individuals and should be individually assessed. While psychosocial interventions such as having a birth companion and provision of supportive care may reduce the need for analgesia,

**Episiotomy**

An episiotomy is an incision made into the perineum for the purpose of enlarging the soft tissue outlet for a macrosomic or breech infant or to decrease the length of the second stage if the baby is in distress. Multiple reviews have demonstrated that a policy of restricted episiotomy (episiotomy only when necessary) has better maternal outcomes than a policy of routine episiotomy, with no adverse effects for the newborn. There is no evidence that a policy of routine episiotomy resulted in significant reductions in laceration severity, pain, or pelvic organ prolapse compared with a policy of restricted use. Furthermore, a policy of routine episiotomy is more costly. Where and how an attendant is trained and the rationale for the episiotomy often dictate which of the 3 main types of episiotomy mediolateral, median, J‐shaped is performed.

**MANAGEMENT OF 3RD STAGE OF LABOUR**

The third stage of labour begins with the birth of the baby and ends with the delivery of the placenta and fetal membranes. Normally, it should last less than 30 minutes.

**Natural processes during the third stage**

In a complication-free labour, the third stage is when natural physiological processes spontaneously deliver the placenta and fetal membranes. For this to happen unproblematically, the cervix must remain open and there needs to be good uterine contraction. In the majority of cases, the processes occur in the following order:

* Separation of the placenta: The placenta separates from the wall of uterus. As it detaches, blood from the tiny vessels in the placental bed begins to clot between the placenta and the muscular wall of the uterus (the myometrium).
* Descent of the placenta: After separation, the placenta moves down the birth canal and through the dilated cervix
* Expulsion of the placenta: The placenta is completely expelled from the birth canal

This expulsion marks the end of the third stage of labour. Thereafter, the muscles of the uterus continue to contract powerfully and thus compress the torn blood vessels. This, (together with blood clotting) quickly reduces and stops the postpartum bleeding.

 **Complications occurring during the third stage of labour**

Women who give birth unattended by a skilled healthcare provider are more likely to experience complications at all stages of labour, including the third stage. They can arise even in a delivery where the placenta was implanted in a good position in the top two-thirds of the uterus, labour was not prolonged and the birth was normal. In such cases, while a normal and spontaneous delivery of the placenta during the third stage might be expected, complications can still arise unpredictably. You should always be prepared for the unexpected emergency.

All these complications are much more likely to occur if the third stage is not properly managed,

**Retained placenta**

* The placenta remains inside the uterus for longer than 30 minutes after delivery of the baby, usually due to one or more of the following:
* Uterine contractions may be inadequate to expel the placenta
* The cervix might have retracted too fast and partially closed, trapping the placenta in the uterus
* The bladder may be full and obstructing placental delivery.

**Excessive bleeding (PPH)**

PPH is the loss of more than 500 ml of blood following delivery of the baby. Most bleeding comes from where the placenta was attached to the uterus, and is bright or dark blood and usually thick. PPH occurs when the uterus fails to contract well, usually due to:

* Partially separated placenta (it remains partly attached to the uterine wall
* Completely separated placenta, but retained inside the uterus
* Atonic uterus; the muscular wall of the uterus could not contract powerfully enough to arrest the natural bleeding which occurs when the placenta separates.

**Uterine inversion**

The uterus is pulled ‘inside out’ as the baby or the placenta is delivered, and partly emerges through the vagina.

**Active management of third stage of labour**

A birth attendant applying active management of third stage of labour (AMTSL) is the key to reducing the risk of the complications. The term ‘active management’ indicates that you are not waiting for spontaneous placental delivery. Rather, you will intervene in a carefully programmed sequential manner, as follows:

* As soon as the baby is delivered, put it on the mother’s abdomen in skin-to-skin contact with her. Cover them with a blanket.
* Clamp the baby’s umbilical cord at two sites and cut it in between.

The six steps of AMTSL in sequence

* Check the uterus for the presence of a second baby.
* In less than one minute, administer a uterotonic drug (a hormone-like chemical that makes the uterus contract more powerfully).
* Apply controlled cord traction.
* After delivery of the placenta, immediately start massaging the uterus.
* Examine the placenta to make sure it is complete and none of it has been retained in the uterus.
* Examine the woman’s vagina, perineum and external genitalia for lacerations and active bleeding.

**Step 1 Check the uterus** – is there a second baby?

Immediately after the birth of the baby, check for the presence of a second baby by palpating the uterus through the mother’s abdomen. When you feel certain that the uterus does not contain a second baby, and you can feel that it has reduced in size to no larger than at 24 weeks of gestation, go to step 2. The reason for checking so carefully is because the drug you will administer to the mother in step 2 will make the uterus contract so powerfully that it will damage a baby that remains inside it. If you find that there is a twin, give the the uterotonic drug after the birth of the second baby.

**Step 2 Administer a uterotonic drug to help the uterus contract**

The commonly used uterotonic drugs in obstetric practice are:

* misoprostol (tablets)
* oxytocin (injectable)
* ergometrine (injectable).

These drugs help the uterus to continue contracting strongly and rhythmically after the baby is born: they facilitate placental delivery and help to prevent excessive bleeding from a relaxed (atonic) uterus. Although there are three possible drugs, for deliveries in low-resource settings, such as homes in rural areas of Ethiopia, on many occasions misoprostol may be the only one of these drugs that you will be able to use. Oxytocin is the drug recommended by the World Health Organization (WHO), but it may not be practical for the following reason:

* Health Posts are supplied with a refrigerator and mobile icebox for transport of vaccines to outreach events, as described in the Immunization Module.
* Oxytocin and ergometrine always have to be kept refrigerated at 2–8°C, so they are not suitable for a home delivery unless the household has a refrigerator, or you have a mobile icebox. They also have to be protected from exposure to light.

Dosages of uterotonic drugs

In less than one minute after the delivery of the baby, and after clamping and cutting the umbilical cord, give the mother one of the following:

misoprostol 600 micrograms (µg), i.e. three 200 µg tablets by mouth with a drink of water.

OR (if you carry this in an icebox)

oxytocin 10 international units (IU) injected deep into the woman’s thigh muscles (intramuscular injection, IM).

OR

ergometrine 0.4–0.5 milligrams (mg) injected deep into the woman’s thigh muscles (intramuscular injection, IM).

When the uterus is well contracted it will feel very hard. This should occur between 2–7 minutes after the administration of the drug, depending on which one is given.

*Note that ergometrine is not recommended for use by rural Health Extension Practitioners*.

Advantages and disadvantages of the uterotonic drugs

Misoprostol is less effective than oxytocin and has more side-effects. However, in many rural situations you will have no other option but to use it because of the need to store oxytocin in a refrigerator or icebox. It will be important therefore to advise the mother that while it will be effective in preventing bleeding, she may also experience some side-effects. This applies whichever uterotonic drug you are giving, but especially in the case of misoprostol, which causes side-effects in a significant proportion of women. They are:

* Shivering: this may start 1 hour after taking misoprostol and will subside after 2–6 hours. Ask the family to offer the mother warm tea or ‘atmit’, as well as blankets.
* Fever: this is rarer, but may start after the shivering. It is not necessarily a sign of infection and it will disappear within 2–8 hours after taking the drug.
* Diarrhoea: may also occur and normally lasts less than a day.
* Nausea and vomiting: can also occur, but will subside 2–6 hours afterwards.

**Oxytocin** is the recommended uterotonic drug in all situations where it is feasible to use it, because it is more effective than the other drugs and has fewer side-effects. Oxytocin is a naturally occurring hormone in the woman’s body, which is involved in the onset and progression of uterine contractions during labour. Manufactured oxytocin is given after the delivery to ensure that the uterus goes on contracting rhythmically, like natural uterine contractions. However, it does not have a sustained action (the effect subsides quite quickly) and it must be stored in a refrigerator and protected from light.

**Ergometrine** is less widely used because it is such a strong uterotonic drug that it may hasten the closure of the cervix before the delivery of the placenta. It takes longer to act than oxytocin (6–7 minutes when given intramuscularly) and it causes marked spasm of the uterus by a series of rapid sustained contractions, which are unlike the natural uterine contractions. However, it is long-lasting, with an effect over approximately 2–4 hours.

*Important!* It is not planned to use ergometrine in the rural Health Extension Service. It must never be given to a woman with pre-eclampsia, eclampsia or high blood pressure, because it causes the blood vessels to constrict, forcing her blood pressure even higher.

**Step 3 Apply controlled cord traction with counter-pressure**

When the uterus is well contracted it will feel very hard. This should occur 2–3 minutes after the administration of one of the uterotonic drugs. Then controlled cord traction with counter pressure is used to help to expel the placenta

***Important!*** To avoid inversion of the uterus (turning inside out and coming out of the vagina), controlled cord traction should NEVER be applied without counter-pressure to the abdomen.

Controlled cord traction. The right hand is pulling the clamped umbilical cord (making traction) while the left hand is exerting counter-pressure on the lower abdomen, just above the pubic bone.

 *How to do controlled cord traction with counter-pressure*

* Clamp the umbilical cord close to the perineum (once pulsation of the blood vessels stops in the cord of a healthy newborn) and hold the cord in one hand.
* Place the other hand just above the woman’s pubic bone and stabilise the uterus by applying counter-pressure to the abdomen during controlled cord traction.
* Keep slight tension on the cord and await a strong uterine contraction (usually every 2–3 minutes).
* With the strong uterine contraction, encourage the mother to push and very gently pull downward on the cord to deliver the placenta. Continue to apply counter-pressure to the uterus.
* Between contractions, gently hold the cord and wait until the uterus is well contracted again.
* With the next contraction, repeat controlled cord traction with counter-pressure.
* If the placenta does not descend during 30–40 seconds of controlled cord traction do not continue to pull on the cord.

The following actions complete the rest of the delivery of the placenta.

As the placenta is delivered, it should be caught in both hands at the vulva to prevent the membranes tearing and some being left behind. Hold the placenta in two hands and gently turn it until the membranes are twisted. Slowly pull to complete the delivery of the placenta.

*Delivery of the placenta.*

Delivery of the placenta marks the end of the third stage of labour. At this time the uterus should be hard, round and movable when you palpate the abdomen. You should be able to feel it midway between the mother’s umbilicus (belly button) and her pubic bone. There should be no bleeding from the vagina. The bladder should be empty.

**Step 4 Massage the uterus**

Right after the placenta is delivered, rubbing the uterus is a good way to contract it and stop the bleeding. Many women need their uterus rubbed to help it to contract

A health extension worker shows a woman how to rub her own uterus.

 Rub the uterus immediately after the birth, then every 15 minutes for 2 hours, then every 30 minutes. Show the woman how to rub her own uterus, or a relative may help.

**Step 5 Examine the placenta and fetal membranes**

You must look carefully at the placenta to be sure that none of it is missing.

If a portion of the maternal surface is missing, or there are torn membranes with blood vessels, suspect that retained placenta fragments remain in the uterus and refer the mother quickly.

*Checking the placenta for completeness*

* Hold the placenta in the palms of your hands, with the maternal side facing upward. Make sure that all the lobules are present and fit together.
* Then hold the cord with one hand, allowing the placenta and membranes to hang down.
* Place the other hand inside the membranes, spreading the fingers out, to make sure that the membranes are complete.
* A health extension worker holds the membranes open with her hand splayed at the top to check they are complete.
* Ensure that the position of cord attachment to the placenta is normal, and inspect the cut end of the cord for the presence of two arteries and one vein
* Safely dispose of the placenta by either burying it where it will not be dug up by animals, or incinerate it if you have the facilities to do so in your community.
* If the membranes tear, gently examine the upper vagina and cervix of the woman. You must wear sterile/disinfected gloves and use a sponge forceps to remove any pieces of membrane that are present.

It is dangerous for the mother if any parts of the placenta or membranes are left behind in the uterus.

**Step 6 Examining for cuts, tears and bleeding**

A deep tear in the vagina can lead to postpartum haemorrhage.

To complete the management of the third stage of labour, do the following:

* Gently separate the labia and inspect the lower vagina and perineum for lacerations that may need to be repaired to prevent further blood loss (Figure 6.10).
* Gently cleanse the vulva and perineum with boiled (then cooled) warm water or a weak antiseptic solution.
* Apply a clean pad or cloth with firm pressure to the area that is bleeding for about 10 minutes. If bleeding continues after this time, refer the woman immediately, keeping the pressure applied to the wound.
* Monitor the woman every 15 minutes - this means measuring her vital signs, massaging her uterus to ensure that it is contracted and checking for excessive vaginal bleeding.

**Intervention in complications after applying AMTSL**

 *Excessive bleeding (postpartum haemorrhage or PPH)*

The main points are summarised briefly here.

* Rubbing the uterus and (if you have been trained to do it) using the two-handed pressure method (Study Session 11).
* Giving a second dose of oxytocin 10 IU by intramuscular injection, or a second dose of misoprostol 400 µg rectally (by pushing the tablets gently into the rectum through the woman's anus), or by putting the tablets under her tongue where they can slowly dissolve.
* Initiating breastfeeding immediately after delivery: the contractions that expel the milk will also make the uterus contract.

Remember not to exceed 1,000 µg of misoprostol (5 tablets). If the woman has already taken 600 µg (3 tablets) after the birth of the baby, and she needs a second dose because of excessive bleeding, it should be no more than 400 µg (2 tablets) via the rectum. This way, the woman will have fewer side-effects. If she did not take 600 µg of oral misoprostol after the birth of the baby and has signs of excessive bleeding, give her 1,000 µg of misoprostol via the rectum in one dose.

Do not give additional misoprostol if oxytocin was the drug used originally.

*Important!* If excessive bleeding occurs, the mother should be taken to the health facility immediately.

If the bleeding does not stop quickly after the second dose of misoprostol, then refer the woman to the nearest health facility urgently. Sometimes, bleeding comes from a torn vagina, a torn cervix, or a torn uterus. Usually this bleeding comes in a constant, slow trickle. The blood is usually bright red and thin. Actions to take while waiting for transport:

* Lie the mother down with her feet higher than her head and her head turned sideways; keep her warm with blankets.
* Secure an intravenous (IV) line and begin fluid infusion with Normal Saline or Ringer’s Lactate solution. You may be trained to add a further dose of oxytocin to the fluids in the IV bag, but this is only possible if you can keep the drug refrigerated until needed.
* Keep the area of the vulva and perineum clean.
* Arrange to accompany the mother to the hospital if at all possible.
* Also ask family members or friends to go with the mother and look after the baby (and to be possible blood donors).

*Retained placenta*

Retained placenta is when the placenta remains in the uterus beyond 30 minutes after the birth of the baby. If this happens:

* Do not attempt further controlled cord traction to separate the placenta.
* Follow the instructions for pre-referral treatment as given above for PPH and get the woman to a health facility for emergency care as quickly as possible.