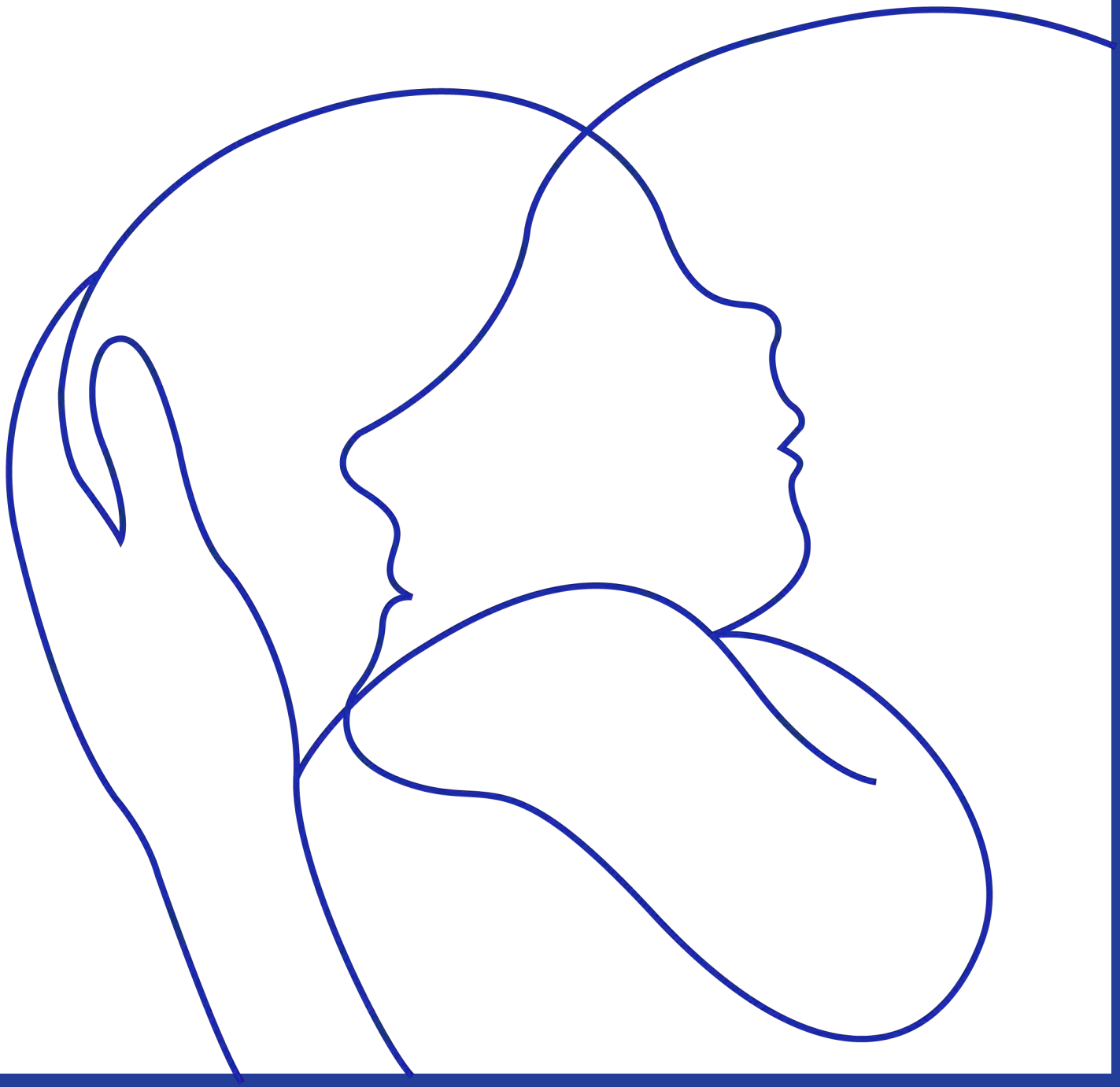
Life-Saving Skills

Manual for Midwives

4th Edition

"Used since 1990 by doctors, nurses, midwives, and other skilled birth attendants..."



Module 3. Labor **Module 4. Episiotomy**

About the Life Saving Skills Manual Fourth Edition Materials

The Life-Saving Skills Manual for Midwives,* *and its training program process, builds on years of experience of midwives practicing in rural and urban areas. The critical issues of family and community support and education are woven throughout the manual. The* ***LSS Manual*** *is focused on strengthening the capacity of midwives and others with midwifery skills to save the lives of women and babies. The management, medications, equipment and procedures suggested in the manual assume that only the most basic provisions are usually available (LSS 3rd Edition, 1998).*

What is the *LSS Manual*?

- Continuing education of **critical knowledge** for practicing midwives, nurses, doctors, other skilled birth attendants
- A Problem Solving Method to identify and manage woman and baby complications and care
- A review of skills and information
- New or updated skills and information
- Resource to supplement pre-service training
- Clinical reference

The *LSS Manual* has 5 books – 2 modules in each book:

Book 1	Module 1: Introduction,	Module 2: Antenatal
Book 2	Module 3: Labor,	Module 4: Episiotomy
Book 3	Module 5: Hemorrhage,	Module 6: Resuscitation
Book 4	Module 7: Infections,	Module 8: Stabilize & Refer
Book 5	Module 9: VE & Others,	Module 10: Postpartum

In each module:

- ***LSS Manual*** table of contents lists major module topics.
- Module table of contents with module page numbers.
- Statement of the goal and objectives.
- An introduction to give an idea of what is in the module.
- An experience of a midwife or doctor linked to the topic.
- Common medical terms are defined.
- Skill procedures with a skill description, illustrations, review questions and case studies.
- Learning Aids for additional information, used as needed, were developed in response to requests from practicing LSS midwives.
- *Index* for the entire manual is found inside the back cover of each book. The index lists the subjects in alphabetical order. Some subjects may be listed under more than one name. For example, information on hemorrhage, may be found under hemorrhage or bleeding.
- *Page numbers* are numbered with both the **module number** and the **page number**. For example, the number 5.3 is found in Module 5 on page 3. To find laceration of the cervix – look in the index, it is listed with number 4 indicating Module 4. Module 4 table of contents Cervical Laceration is listed on page 4.23. The information is on page 23.

What is the Guide for Caregivers?

It is a **separate and smaller book that comes with the LSS Manual** for use when learning and giving care. It includes:

- Skill checklist for each skill procedure, a step by step outline of procedures for Modules 2 through 10. The learner and trainer fill out the appropriate skill checklist and discuss how the steps were performed. It may be used after training, to review and practice skills or as reference.
- Formulary is a reference of suggested drugs with space to add according to local situations.
- Protocols give woman and baby care guidelines for LSS topics. This section may be reviewed in-country and adapted for local situations.

What is the Manual for Policy Makers and Trainers: A Life-Saving Skills Training Program Process?

It is a **separate book, sold separately,** used to develop and manage LSS training programs:

- A Ten Step Program Process includes experience and ideas from LSS programs in many countries.
- Trainers Section provides clinically active LSS learners opportunities to develop confidence and competence. The LSS trainer is not concerned as much about the **quantity** of times a particular skill is performed, but more about the **quality** with which it is performed.
- Sample Lesson Plans, Program Tools, Training Aids, and Forms for use, adaptation, and revision for local needs.

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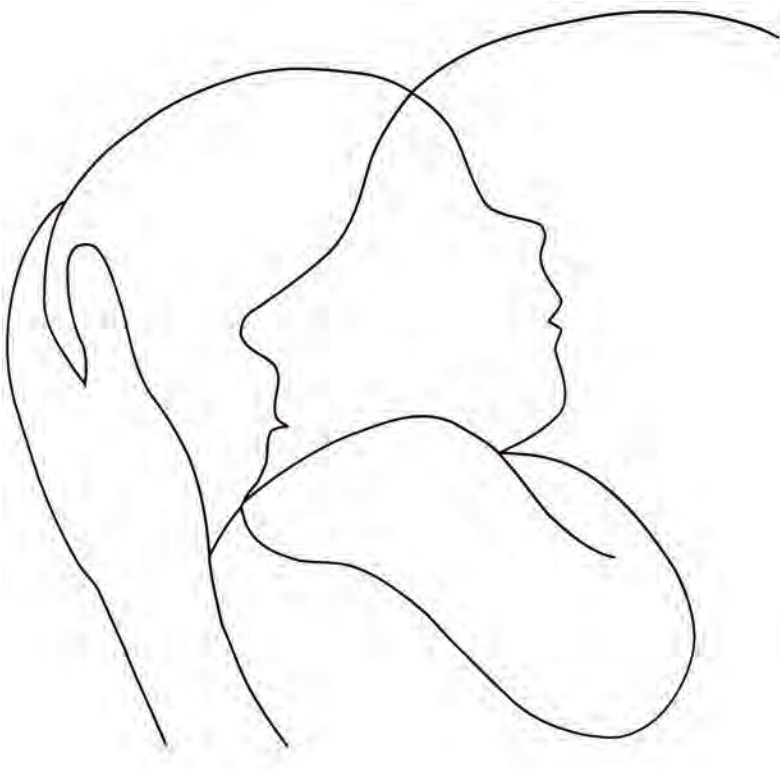
*** Note:** Much thought went into the naming of the manual, ***Life-Saving Skills Manual for Midwives.*** It was decided to highlight the **midwife,** as in many situations, the midwife is the first person called to help with a pregnancy related problem. Women and men using this manual to prevent and care for problems that cause women and babies to die during pregnancy, childbirth and postpartum might be called a doctor, nurse, midwife, or other skilled birth attendant. This manual **acknowledges and respects all who help. The manual uses the term midwife, and the pronouns 'she or her'** rather than alternating titles, pronouns (she/he) or using a generic description.

Life-Saving Skills
Manual for Midwives

Fourth Edition

Module 3: Labor – Monitor Progress and Give Care



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American College of Nurse-Midwives

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All those using this manual have a responsibility to review with their supervisors and medical authorities about medicines and medical procedures. This manual should be taught using hands-on clinical training. Procedures should only be done when they are mastered, when you are competent and confident. Always look, read, listen, learn, and ask to make sure you are offering safe and effective care to women and their babies.

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Printed in the USA
ISBN: 978-0-615-23322-2

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Life-Saving Skills Manual for Midwives

MANUAL TABLE OF CONTENTS

LABOR – MONITOR PROGRESS AND GIVE CARE

MODULE 3

Table of Contents

Note: Partographs and Latent Phase Chart for reproduction at the end of the module.

LABOR – MONITOR PROGRESS AND GIVE CARE

Goal

The midwife will review and update her knowledge and skills to provide care during labor and delivery using the problem solving method.

Objectives

The midwife caring for a woman during labor and delivery will be able to:

1. Describe the four stages of labor.
2. **ASK and LISTEN.** Take a history of a woman in labor using the skill checklist.
3. **LOOK and FEEL.** Do a general physical examination, including an abdominal and a vaginal examination using the skill checklist.
4. Monitor labor progress using the Partograph to prevent labor complications.
5. **IDENTIFY PROBLEMS and NEEDS.** Describe normal and abnormal findings of a woman and her baby during all stages of labor.
6. **TAKE APPROPRIATE ACTION.** Use the information from the history and physical examination to give care, comfort, emotional support and treatment.
7. **EVALUATE / REPEAT THE PROCESS.** Decide with the woman / family the results of the labor care. Repeat the problem solving steps to find out whether there is change in the labor progress.
8. Use infection prevention guidelines to protect the midwife, woman, and baby during labor and delivery.

Introduction

Monitoring the progress of labor allows the midwife to identify women and babies who are at risk during labor and to give life-saving care. Monitoring and understanding the progress of labor and early identification of problems can help prevent death or life threatening conditions in the woman or baby. Some conditions may lead to permanent disability. Prolonged labor may result in obstructed labor, maternal dehydration, exhaustion, uterine rupture, and fistula. This module describes care during normal and abnormal labor.

The Problem Solving Method is used to identify problems during labor. This module gives information for midwives providing care to women in clinics, health centers, and hospitals. The abnormal progress of labor is identified using the partograph. The learning aids include additional information for prolonged labor and prevention of HIV transmission during labor. Review questions and case studies help you learn and more effectively use the information. Skill checklists in the *Guide for Caregivers* guide you through the clinical skills.

A Midwife's Experience...

A woman was brought to me in labor. She was gravida 2, attended antenatal clinic, had normal vital signs. Her contractions were 3 in 10 minutes, each lasting 20 to 40 seconds; the head 4/5. The cervix was 4 cm. In 4 hours her contractions were the same; the head was 3/5 and the cervix was 5 cm. I explained to the husband that his wife was not progressing and needed to go to the hospital. He refused. I continued to explain and showed him the partograph. I told him that because labor had crossed the alert line, it was the rule that I had to take his wife to the hospital; something might be wrong. He finally agreed but had no money for transport. I paid the lorry driver and we went to the hospital. The woman was delivered by section (cesarean), a baby girl with the cord around the neck. The husband and family were very happy. They thanked me so much. I felt confident and it was easier for me to make a referral decision using the partograph.

LSS Midwife, Uganda

Common Medical Terms

APGAR – a tool for rapid assessment of the baby's condition at birth. The Apgar score does not determine need for resuscitation.

ARM – artificial rupture of the membranes

Breech – buttocks presenting, may be with flexed or extended legs.

Brow – the forehead or brow presentation. The forehead of the baby is lying against the cervix, is a possible cause of obstructed labor.

Caput Succedaneum – a swelling on the baby's head caused by serum and blood infiltrating into the scalp tissue. The swelling may cross suture lines. Sometimes referred to as "caput."

Cephalic – refers to the head.

Cephalopelvic disproportion – The fetal head (cephalic) can not go through the pelvis. It may be caused by a small or abnormally-shaped pelvis, or a large or abnormal baby.

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Dilatation – dilation, the opening of the cervix during labor, by vaginal examination (usually measured in cm, with 0 cm being closed and 10 cm being fully open).

Engagement of the head – This refers to the entry of the head into the pelvis. The biparietal diameter of the head (widest transverse diameter) has passed through the pelvic inlet.

Face Presentation – the baby is lying with the face against the cervix. It is a possible cause of obstructed labor.

Fistula – an abnormal passage between two cavities or between a cavity and the surface of the body. Rectovaginal fistula (RVF) is an opening between the vagina and the rectum usually from severe laceration during delivery. Vesicovaginal fistula (VVF) is an opening between the bladder and the vagina usually from prolonged pressure in obstructed labor.

Footling Breech – one foot, or both feet presenting.

Hypothermia – low temperature, skin is cold to touch, axillary temperature below 36° C.

Inertia – weak or tired, as in uterine inertia. In uterine inertia, the uterus is tired, not able to contract effectively.

Lie – relationship of the long axis of the fetus to the long axis of the woman's uterus, normally longitudinal.

Molding – the baby's cranial (skull) bones overlap so the head can fit through the pelvis of the woman. The head is squeezed or compressed to a different shape.

Obstructed labor – a condition in which it is impossible for the baby to be born normally.

Occiput – the back of the baby's head; the area over the occipital bone.

Occipitoanterior – as it comes through the birth canal the baby's occiput is to the front of the woman's pelvis.

Occipitoposterior – as it comes through the birth canal the baby's occiput is towards the woman's sacrum.

Partograph – a graph used to monitor labor progress, see **Learning Aid 3**. The partograph helps the midwife recognize and respond to complications in a timely manner. This can prevent maternal and neonatal morbidity or mortality.

Pelvic Brim (Inlet) – the upper opening of the pelvic cavity. This is the rounded opening in the woman where the presenting part of the baby goes into on its way to delivery. To measure the progress of labor and the descent of the baby, the top of the pubic bone area of the pelvic brim is used as a landmark or starting point.

Pelvic Outlet – the lower opening of the pelvic cavity. The diamond shaped opening has the greatest measurement from the apex of the pubic arch to the tip of the coccyx.

Position – the relationship of a part of the fetus to a part of the woman's pelvis. For example, when the fetal head is presenting and the back of the fetal head is towards the woman's symphysis pubis, the position is occipitoanterior.

Presentation – that part of the baby to go into the pelvis first, normally the head, sometimes the buttocks, occasionally the brow or shoulder.

Presenting Part – The part of the baby which lies lowest in the birth canal; the first part felt on vaginal examination.

Preterm (premature) – babies who are born before term (37 weeks gestation). Low birth weight babies are smaller but not always preterm. It is estimated that low birth weight babies (preterm, small for gestational age, or both) account for 60-80% of neonatal deaths. About half the babies in the world are weighed at birth, and less than half have a recorded gestational age, so it may not be clear if the baby is preterm or low birth weight.

Sero-status – usually refers to results of HIV test; whether positive or negative.

Shoulder – shoulder presentation. The shoulder of the fetus is pushed into the woman's pelvis. This is a cause of obstructed labor.

Shoulder Dystocia – difficulty in delivering the shoulders at the time of a vertex birth; delivery of baby is difficult.

Sinciput – the brow or forehead of the baby.

Term – the end of pregnancy, officially 40 weeks from the first day of the last normal menstrual period, a baby is considered term or mature when delivered any time after the 37th week of pregnancy.

Transverse – transverse lie; the length of the fetus lies across the woman's uterus. It can cause shoulder presentation and obstructed labor.

Vertex – the top of the head, the crown. The area of the head between the anterior and posterior fontanelles.

Equipment

For Monitoring and Care

Adult stethoscope
Blood Pressure machine
Fetal stethoscope
Thermometer
Urine testing equipment
Time piece: watch, clock, pulsometer
Records: Partograph, referral form, delivery record, birth certificate
Pen
Light food, cup and liquids to drink

For Delivery

2 clamps for cord, scissors for cord, suction device (bulb syringe, DeLee, electrical), umbilical ties, urinary catheter; cotton, gauze or cloth squares, oxytocic, syringe/needle, clean cloths and pads for woman

For Baby at Birth

2 cloths or towels; head cover; eye ointment; resuscitation kit, see Module 6: **Resuscitation**

For Infection Prevention

Gloves, apron, eye and foot protection, 0.5% chlorine solution, soap, water, cloths, containers

A Doctor's Experience…

A 19 year old woman pregnant for the first time was admitted to the maternity home in labor. Her husband, accompanied her. I provided her prenatal care and told her and her husband about husband-assisted births. The husband asked to accompany her in the delivery room. This was the first time a husband had requested to be present during the birth. The effect was tremendous, remarkable. Her husband held her hand, spoke reassuring words, and said some prayers, the delivery went without complication and they had a healthy 3.2 kilo baby boy. The experience left a big impression on everyone. The maternity home staff were very pleased with the results. The new mother, with great pride said "During prenatal care, when my husband and I learned about husband-assisted birth, we thought it would be a little terrible. After I thought about it, I changed my mind. The baby was born healthy. This is due not only to the skilled midwife and doctor but also to my husband who encouraged and supported me." The new father said "I have understood that my presence very much helped my wife have a safe birth. It was very special to be the first person to hold my son, to say a prayer and cut the umbilical cord. My wife and I plan to have more children and I would like to be near my wife during the birth."

LSS Doctor, Tajikistan

Stages of Labor

First Stage of Labor

The time from the beginning of regular uterine contractions until the cervix is completely open. This could be less than one hour or it could be 24 hours or more. The first stage of labor has two phases: latent and active.

Latent Phase. The contractions cause the cervix to thin out and shorten (effacement). The cervix begins to slowly open (dilate) from 0 cm to 4 cm. Latent phase is usually longer in primipara than multipara; contractions are mild and short, and may be 15 – 20 minutes apart.

Active Phase. Begins at 4 cm. The contractions are 3 – 5 minutes apart (longer, stronger, and closer) than in the latent phase and reach 2 – 3 minutes apart when dilatation is nearly complete. The strong and regular contractions and fetal descent cause the cervix to dilate more quickly **(about 1 cm each hour)** from 4 to 10 cm dilatation. The risk of life threatening conditions from obstructed labor increases when labor does not progress.

Second Stage of Labor

When full cervical dilatation is reached (10 cm), the contractions help push the baby out. Second stage may last a few minutes or as long as 2 hours. As the baby moves down into the birth canal, the woman feels like pushing with each contraction. Often she can not stop herself from pushing and she may make long, grunting or groaning noises from her throat. The second stage ends when the baby is born.

Third Stage of Labor

It starts after the birth of the baby and lasts until the placenta is delivered. The third stage usually is between 5 – 10 minutes especially with active management of third stage. The risk of hemorrhage increases when third stage is longer. Postpartum hemorrhage (PPH) is more common if the placenta is not delivered by 18 minutes. Severe postpartum hemorrhage is more common if the placenta is not delivered by 30 minutes after delivery.

Fourth Stage of Labor

The first 5 – 6 hours postpartum is a critical time for observation for bleeding, monitoring of the contracted uterus, initiation of breast feeding, keeping the baby warm, and bonding of the mother and baby. The midwife watches the woman and baby closely during this time.

SKILL: Care of the Woman During First Stage of Labor

Labor takes a woman's total physical and emotional effort. The care you provide will depend upon the needs of each woman. When you first see the woman in labor, you must check her condition and that of her baby. You will take care of her and help her through the labor process.

ASK and LISTEN - Take History

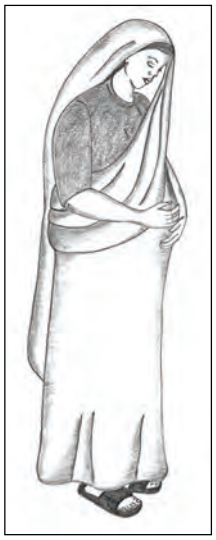


Figure 1. Woman in labor.

Welcome the woman and others coming with her. Show her a comfortable place to sit or lie depending on her choice. If the woman appears to be in active labor, decide whether she is about to deliver. **You must make a quick decision.** If you think the delivery may happen soon, decide the stage of labor, presenting part of the baby, any problems that might affect the woman or baby, and her cervical dilatation. Usually there is time to find out what has happened since her labor began, her gravid, para, and due date. She may wash and undress before or after the history. Explain to the woman that you need to ask her some questions about her labor. Review her antenatal record for information.

Write her name, age and other admission history on the partograph. Write the time of arrival. You will use this to follow the progress of labor. As you LISTEN to the woman's answers, write the information on the partograph, **Learning Aid 3**. In case she is in latent phase or is in second stage of labor, the partograph information will still be a useful part of the woman's chart. Refer to the *Guide for Caregivers – Skill Checklists* as needed when taking the history. ASK the following questions and LISTEN to the answers:

1. *When did your labor pains begin? How often do they come? How long do they last? Where do you feel the pain? Is the baby moving?*

   By listening carefully, you will get a good idea of just how the woman is doing and if she is afraid. She may not know exactly when the pains started, but she will be able to tell you if they started during the night, morning, or afternoon.

2. *Have you received antenatal care? With whom? How many visits? Have you had any problems?*

   If the woman has been coming to your antenatal clinic, you will have her record to review or she may bring her record with her. If you have not seen her before and she does not have an antenatal record, take her complete antenatal history, see Module 2: **Antenatal Care**. Women with a **history of any one of these** should be referred to the hospital or doctor:

• Any hemorrhage	• Manual removal of placenta	• Fistula repair
• Rupture of the uterus	• Five or more pregnancies	• Inverted uterus
• Cesarean section	• Forceps	• Vacuum extraction

3. *How many weeks pregnant are you?* If the woman in labor is not at term, REFER.

4. *Has your bag of waters (membranes) broken? When? What color?*

   Tell the woman that the bag of waters surrounds the baby and breaks during labor. The rush of water is a sign that labor has begun or will soon begin. She may notice a slow leaking of fluid or much water. **If the woman is not term, if membranes have been ruptured more than 18 hours, if labor is delayed, if signs of infection, or if the fluid (liquor) is meconium-stained, refer to *Guide for Caregivers - Protocols***. Listen to FHR as soon as membranes rupture.

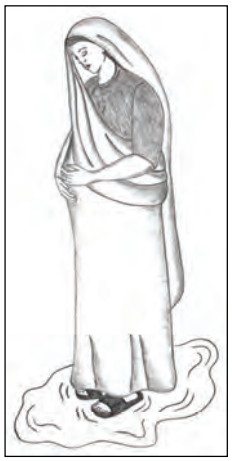


Figure 2. Ruptured membranes.

5. *Have you had any bloody mucus (show) or bleeding?*

   The woman may see a spot, or bloody show, on her clothing. She can tell the difference between bloody show and bleeding, as show is often sticky and stretches. Tell the woman that the bloody show is a spot of blood and mucus that comes out of the opening of the womb during early labor. Bloody show is another sign of early labor. Decide before the vaginal examination if the vaginal bleeding is normal bloody show, or more serious bleeding**. If there is serious bleeding, do not do a vaginal examination. Bleeding during pregnancy is a sign of serious problems.**

6. *Have you had any headaches, spots in front of your eyes, blurry vision, abdominal or epigastric pain, severe heart burn?*

   These complaints may be signs of pre-eclampsia. LOOK for high blood pressure, very active reflexes, and protein in her urine. If the findings are not normal she may need to go to the hospital or doctor.

7. *When did you last eat or drink? When did you last pass stool or urine?*

   A woman in labor needs a lot of energy. She may get hungry and thirsty. Explain to the woman that food and water give strength, and when she feels like it, she may eat small amounts of food. She should drink at least a full glass of water or other fluid every hour.

   An empty bladder is more comfortable for the woman during labor and birth. Explain to the woman that she should try to empty her bladder often. An enema is usually uncomfortable for the woman and not found to be necessary. An enema given to a woman in late labor may cause a rapid birth, when membranes are ruptured may cause contamination, when the fetal head is not engaged may cause cord prolapse, when the woman is bleeding may cause hemorrhage or infection, or when she has high blood pressure may cause convulsions. Giving an enema to a woman in labor may cause more harm than good.

8. *Medications. Have you taken any medicine or treatment to increase or decrease your labor pains? Are you taking other medicines? Are you allergic to any medicines?*

   A woman may have taken medicine for her labor pains. A traditional healer, family member, or friend may have given her some local medicine. You should know what medicine or treatment the woman has had and if the effects are helpful, harmless, or harmful.

9. *Did a traditional birth attendant or family member come with you? What is her name?*

   If a traditional birth attendant (TBA) came with the woman in labor, make sure to meet and welcome her. The TBA and/or other helpers may give you additional history. The TBA may be the person to follow up and help the woman when she returns to her home.

10. *According to policy in your country, ask: Did you have an HIV test during your pregnancy or other time? What was the result?*

    Sometimes the HIV test is not available or if the test was done, the woman may be shy to tell you. During the physical exam LOOK carefully for HIV/AIDS signs. When the immune system is weakened by HIV/AIDS, there may be secondary infections such as diarrhea, tuberculosis, candidiasis, herpes.

REMEMBER

ASK and **LISTEN** is the first step when caring for a woman in labor.

Review Questions

What Did I Learn? Find what you know and understand from this section. Answer the following questions. When you are finished, look for the answer in this module on the pages written in parentheses ( ).

What 10 questions will you ask a woman who comes to you in labor and explain why you need to know this information (pages 3.7 - 3.9)?

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Case Study 1

Read the following case study. Below it, write the labor admission questions you should ask, then look in the case study for this woman's answers. Write the answers under the questions. When you have finished, compare your answers with those in the Case Study Answers.

You welcome a 16 year old woman and show her and her family where to sit. You ask how she is. She is in her ninth month of pregnancy and comes to you because she feels sharp pains in her abdomen and has had some vaginal bleeding. She says this is her first child. She has had the pains in her abdomen for about two hours. They come about every twenty minutes. She has not been to an antenatal clinic and has not had her blood tested for HIV. Her bag of waters has not broken. The bleeding from her vagina appears to be more severe than bloody show. She is not taking any medications and does not have an attendant.

Labor Admission Questions and Answers:

Case Study 2

Read the following case study. Below it, write the labor admission questions you should ask; then look in the case study for this woman's answers. Write the answers under the questions. When you have finished, compare your answers with those in the Case Study Answers on the next page.

You welcome the woman and her family. You ask how she is. She says her bag of waters is broken. She has had labor pains for about 4 hours, and they are now coming every 10 minutes. Her baby is moving as usual. She attended antenatal clinic, had her blood checked for HIV and her pregnancy is healthy. This is her third child and today is the expected date to deliver.

She ate a big meal about 4 hours ago and that was the last time she drank anything. She has not passed stool in the last 24 hours, but urinated 2 hours ago. She is not taking any medications. Her TBA was told of her labor. She says that her TBA wishes to attend this birth and will be coming to the maternity soon. The woman has not bled from her vagina and she has not had any headaches or blurry vision.

Labor Admission Questions and Answers:

ANSWERS – Case Study 1

1. *When did your labor pains begin? How often do they come? Two hours ago, about every 20 minutes. Sharp pains.*
2. *Did you attend antenatal clinic? No. Since she has not been to antenatal clinic, ASK and LISTEN: (a) How old are you? 16 years old, (b) Is this your first pregnancy? Yes, (c) Have you had any problems with this pregnancy? No information at this time.*
3. *How many weeks pregnant are you? Nine months (36 – 40 weeks).*
4. *Has your bag of waters broken? No.*
5. *Have you had any bloody show or bleeding? Yes, vaginal bleeding.*
6. *Have you had any headache or blurry vision? No information.*
7. *When did you last eat or drink? About 2 hours ago. When did you last pass stool or urinate? About 3 hours ago.*
8. *Have you taken any medicine or treatment to increase or decrease you labor pains? No.*
9. *Do you have an attendant? No.*
10. *Have you had an HIV test? What was the result? No, I have not.*

ANSWERS – Case Study 2

1. *When did your labor pains begin? How often do they come? Four hours ago, about every 10 minutes.*
2. *Did you attend antenatal clinic? Yes, this is her first child. Her pregnancy is healthy.*
3. *How many weeks pregnant are you? Term (40 weeks).*
4. *Has your bag of waters broken? Yes.*
5. *Have you had any bloody show or bleeding? No.*
6. *Have you had any headache or blurry vision? No.*
7. *When did you last eat or drink? About 4 hours ago. When did you last pass stool or urinate? Twenty-four hours ago passed stool but urinated about 2 hours ago.*
8. *Have you taken any medicine or treatment to increase or decrease your labor pains? No.*
9. *Do you have an attendant? Yes, she will come to the maternity soon to see the birth.*
10. *Have you had an HIV test? What was the result? Yes, it was negative.*

LOOK and FEEL – Do Physical Examination

When you see a woman in labor, you must do physical examinations of the woman and her unborn baby to find out how things are going for them. Before you start, explain to the woman and her family what you are going to do. Give them time to ask questions and help them understand why you are doing the exam. A physical examination on admission will help you find any new problems or any problems that might have been missed in antenatal clinic. This exam is even more important for a woman who has not attended antenatal clinic. Examinations during labor will help you identify any problems **early**.

When you first see a woman in labor, you must make a quick decision. **Is she about to deliver?** If you think the delivery will happen soon, you need to know:

- Stage of labor
- Presenting part of the baby
- Any problems that might affect the woman or baby

Usually there is time to do the full examination, including abdominal examination and vaginal examination. Make sure your equipment is clean and ready.

REMEMBER

Write physical examination information on your labor record to help you identify problems and needs, and to take the appropriate action.

General Physical Examination

1. **Explain what you are going to do.** During the examination tell the woman what you are doing and why.

2. If there is time, **offer the woman time to bathe** (basin and water or shower). This may be done when the woman first arrives.

3. **Ask the woman to empty her bladder and collect a urine sample**. If there are signs of pre-eclampsia, test her urine for protein. See Testing Urine for Protein in *Guide for Caregivers – Procedures and Tests*.

4. **Wash your hands** before you begin and help the woman get comfortable.

5. **Take her temperature, pulse and blood pressure**.

Figure 3. Take blood pressure.

6. **LOOK at her general condition**. If she has no antenatal card, see if the woman is shorter than other women from her area. Too short (stunting) from malnutrition may cause a small pelvis. This can alert you to think about CPD if there are any problems with descent. Is she dehydrated? Is she ill or tired or in pain? Is she worried? Is she malnourished? LOOK at the eyes, ears, nose, mouth, throat, neck, and skin for signs of infection or anemia. LOOK at the hands and face for edema.

Abdominal Examination

An abdominal examination helps you find the progress of labor and the condition of the baby.

1. **Explain to the woman and her family or helpers** that you will feel her abdomen many times until the baby arrives. Explain when you do this you are feeling for contractions, the baby's position, if the baby is moving down the birth canal, movements of the baby and listening to the baby's heart beat. Let them know you will tell them your findings so they will know the progress of labor and the condition of the baby. Tell them to ask any questions they have.

2. **Prepare the woman**. Help the woman get comfortable. Place a pillow or cloth under her head and upper shoulders. She should place her arms by her side or across her chest and bend her knees a little. Help her to relax with some deep breathing. Uncover her abdomen.

3. **LOOK for the shape of the uterus**, for any cesarean section scar, and for the way the baby is lying. LOOK for any movement of the baby. LOOK for contractions, unusual shapes or swelling. The normal uterus is longer than wide (ovoid). Jerky movements in one area are usually the baby's arms and legs moving.

4. **FEEL the abdomen using the 4 steps** to check for height of uterus, lie, presentation, position and engagement of the presenting part of the baby. Make sure your hands are warm and dry after washing them. Use the flat surface of your fingers for palpating. Keep your fingers together. Press evenly and firmly to feel the fundal height and the parts of the baby. Refer to Module 2: **Antenatal Care**, for fundal height measurements. Try to estimate the size of the baby and whether there is more than one baby.

   Step 1: What is in the top of the uterus?

   HOW: Stand beside the woman looking at her face. Put your hands on both sides of the top of the uterus and curve your fingers around, see Figure 4, Step 1. Palpate for shape, size, firmness, and how easily the baby moves. Ask yourself, "What is in the top of the uterus?"

   FINDINGS: If the fetal head is in the top of the uterus, you will feel a round and hard part which is movable. If the buttocks are felt, they will be irregular, bulky, and softer than the head, and the top of the uterus will feel full and not easily moved. If there is a transverse lie, the fundus will feel empty.

Step 2: Where are the baby's back, arms, legs?

HOW: Continue to stand at the side of the woman. Place both hands further down on the abdomen and push down with one hand, pushing the fetus to the other side of the abdomen, see Figure 4, Step 2. Feel the fetus so that you can tell the parts. Gently move the baby from side to side to find out which side has the back and which side has the arms and legs.

FINDINGS: A firm, continuous, smooth part will be the back of the fetus. If you feel small, bumpy, irregular parts, which may move or hit your hand, these will be the fetal feet or knees. If you can not feel the back on either side, this will tell you the back is towards the back of the woman, a posterior position. A transverse lie is when the baby's body is felt across the abdomen.

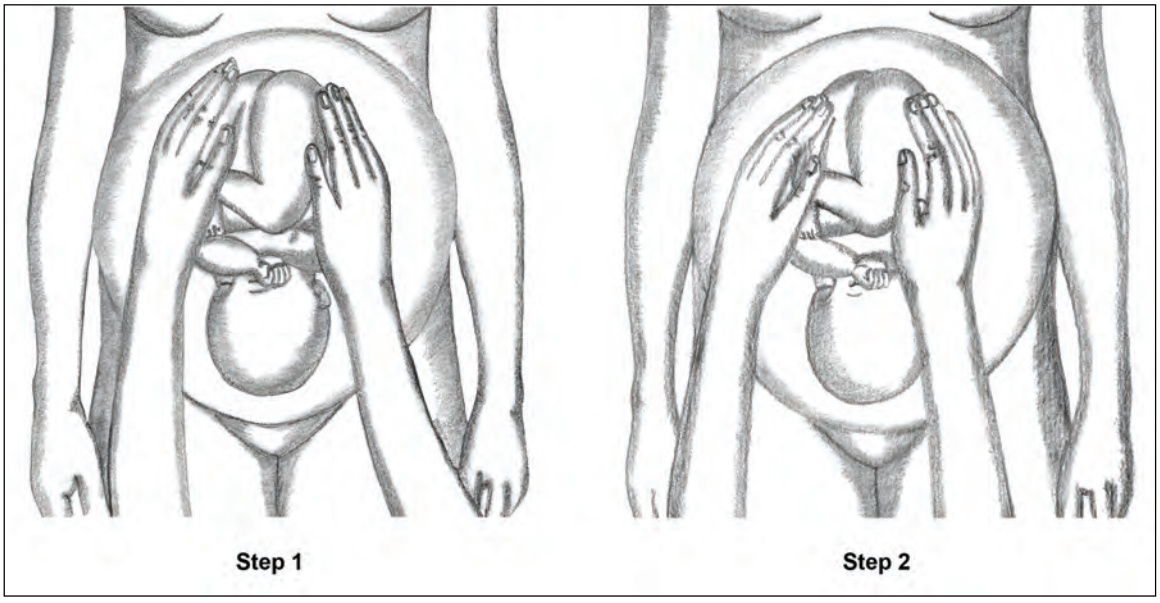


Figure 4. Palpation steps to decide position of the baby.

Step 3: What is in the lower part of the uterus and how easily does it move?

HOW: Turn your back toward the woman's feet as you stand to one side. Have the woman bend her knees. With one hand, feel the part of the baby in the lower part of the abdomen between your thumb and your fingers, see Figure 5, Step 3. Ask yourself, "What is in the lower part of the uterus?" Compare to your findings of the first palpation.

FINDINGS: If the mass moves up, the presenting part is not engaged. Most often, the head is the presenting part. This is a cephalic presentation. If the head is the presenting part, try to move it from side to side. If the head can not be moved, the head is engaged (usually after 36 weeks but sometimes not until labor starts). If neither the head nor the buttocks can be felt in the lower abdomen, the baby is lying sideways, a transverse presentation.

Step 4: What is the lie, presentation, position, engagement and attitude?

HOW: Turn your back toward the woman's head as you stand to one side. Make sure that the woman's knees are bent. Place both hands on the sides of the abdomen and press them down and towards the pelvis. (See Figure 5, Step 4.)

FINDINGS: Compare the findings to the other palpations and decide on the lie, presentation, position and engagement.

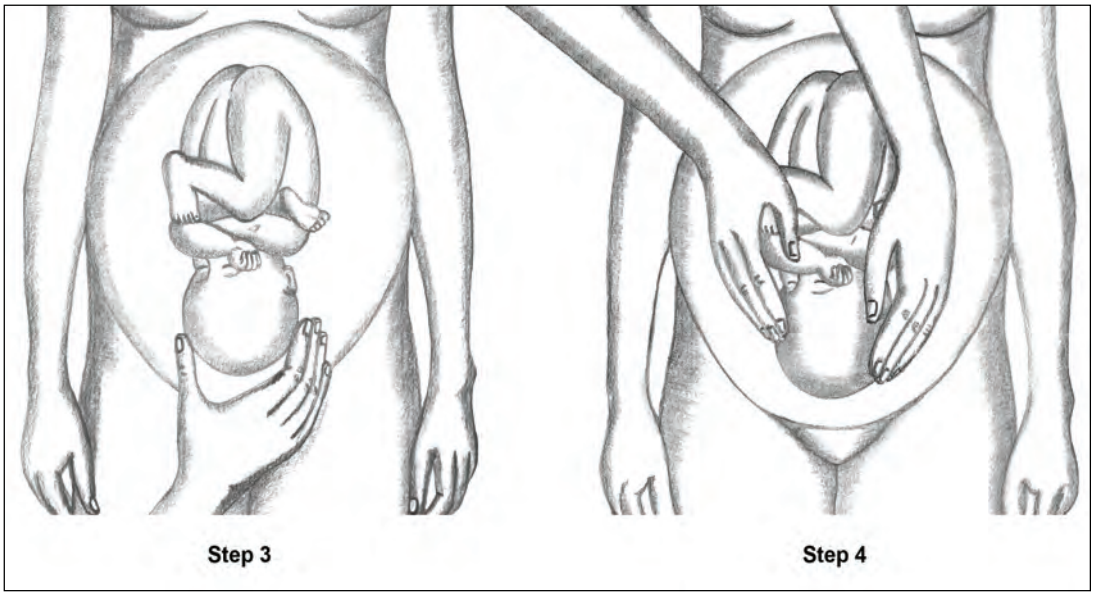


Figure 5. Palpation steps to decide the presentation and engagement of baby.

5. FEEL the abdomen for descent of the head

For labor to progress well, dilatation of the cervix and descent of the head through the woman's pelvis will happen together. Measuring the descent of the baby's head helps the midwife follow the progress of labor.

Landmarks used in measuring the descent of a vertex presentation are the fetal head and the maternal pelvic brim (inlet), see Figure 6. **FEELING the fetal descent through the abdomen is more comfortable for the woman than a vaginal examination.** When measuring the descent, the width of your hand (about as wide as the baby's head) is a guide to measure the fifths of the head above the brim. The brim is the entry to the pelvic cavity, and is level with the top of her symphysis pubis. As the head descends, fewer finger breadths will remain above the brim. The level of the head is plotted on the labor graph (partograph), see Figure 17 on page 3.39. The 'fifths' are the same for the occiput, face or brow presentation. Breech presentation does not have 'fifths' so measure the descent of a breech vaginally as it passes the ischial spines.

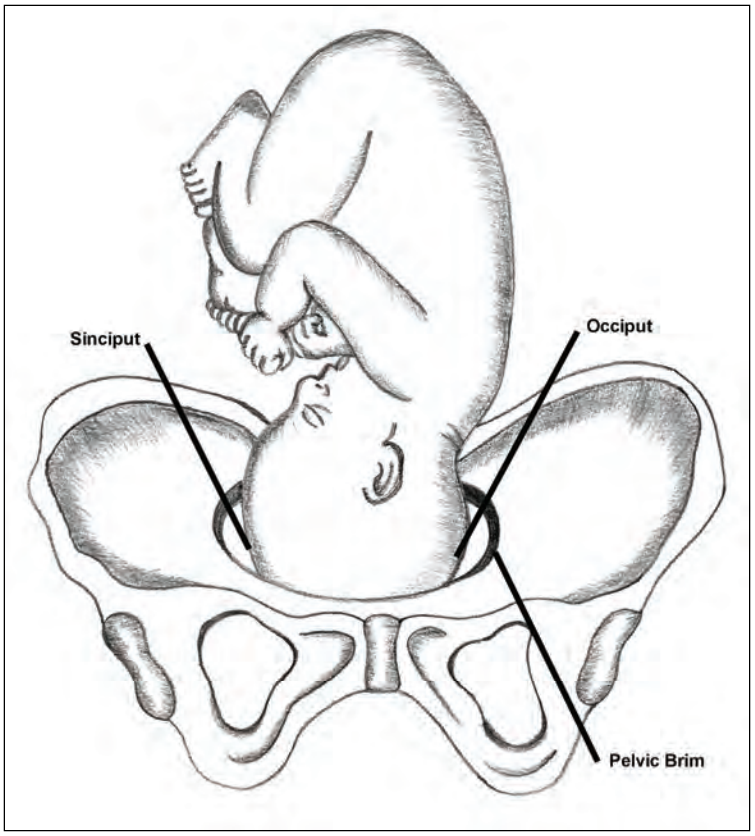


Figure 6. Landmarks for descent.

FEEL the level of the head or presenting part. Stand at the side of the woman. Put your hands on each side of her uterus and start feeling just below the level of her umbilicus. Slowly move your hands down until you feel the baby's occiput and sinciput or feel for the baby's jawbone, Figure 7 - A. Then decide how much of the baby's head is above the brim by finger widths.

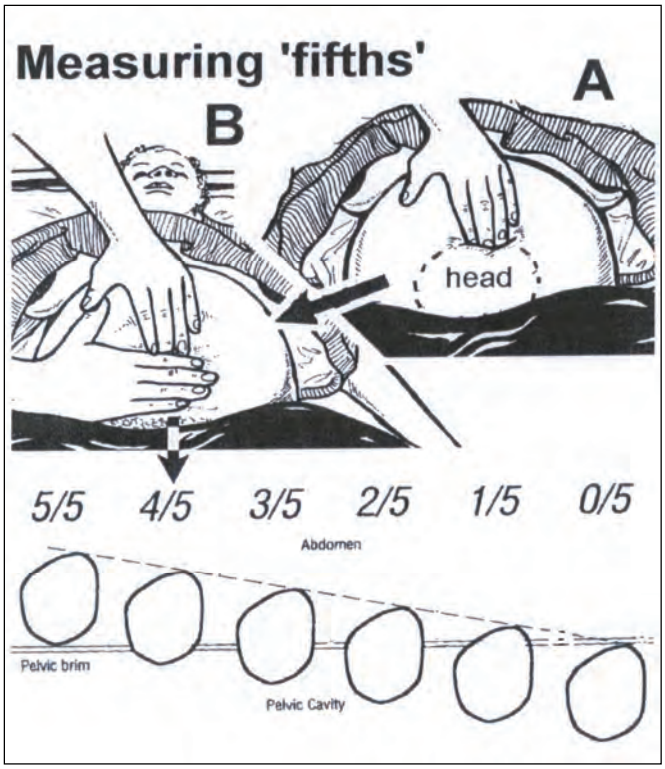


Figure 7. Head is 4/5 above brim.
Source: King 2003, figure 17-16.

5/5 = The whole head is above the brim. You can move it and it will accommodate the full width of 5 fingers. It is measured as five-fifths above the brim.

4/5 = The head is just entering the brim. The sinciput and occiput are easily felt, Figure 7 - B.

3/5 = More than half of the head is above the brim, 3 fingers can still go partially round the head. The sinciput is easily felt. The occiput is beginning to enter the brim.

2/5 = Two fingers measure the head above the brim. You can no longer feel the roundness of the head. The sinciput is felt but the occiput may be felt only a little. The head is **ENGAGED** at 2/5 descent. It is impossible to move the head.

1/5 = Only 1 finger measures the head above the brim.

0/5 = The head is all the way in the pelvis, you can not feel it abdominally.

REMEMBER

Descent of the head is measured
every 4 hours in latent phase and at least every hour in active phase.

LISTEN for and count the baby's heart rate

Listening to the fetal heart rate is a safe and reliable way of knowing how the baby is doing during labor. On the partograph there are darker lines at 120 – 160. These are the limits for a **normal fetal heart rate**. A normal fetal heart rate varies with each baby. Monitoring and listening for changes are the most important part of listening to the fetal heart rate.

HOW: Have the woman lie on her back. Find the heart beat before a contraction. Use a fetal stethoscope to listen for the fetal heart sounds over the chest or back of the baby. You will know where to find the chest or back of the baby after palpating the abdomen. LISTEN carefully when you find the place where the heart beat can be heard the loudest. Feel the woman's pulse with one hand to tell the difference between the fetal heart beat and the woman's pulse.

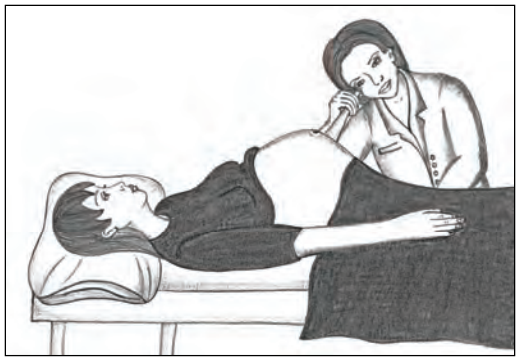


Figure 8. Listen to the fetal heart rate.

LISTEN for a full minute just as a contraction is ending to decide how well the baby is doing with the stress of labor. Count the number of beats.

- A **very slow fetal heart rate** (less than 120) without contractions or staying very slow or a drop of even 20 beats per minute during a contraction that continues for 15 – 20 seconds after a contraction ends before returning to normal (late deceleration) is a sign of fetal distress.
- A **very fast fetal heart rate** (more than 160) may be a response of the baby to maternal fever, drugs, hypertension, dehydration, antepartum hemorrhage or infection and may indicate fetal distress.
- A **very fast fetal heart rate** when the woman's pulse is within normal limits is a sign of fetal distress.

REMEMBER

Count and record the fetal heart rate
every one hour in latent phase and every 30 minutes during active labor.

---

6. **FEEL for the frequency, duration, strength, and relaxation of the contractions**

Good uterine contractions are needed for the progress of labor. Normally, contractions come more often and last longer as labor progresses. There are three things to look for in the contractions.

- **How often can you feel them (FREQUENCY)?** Count frequency from the beginning of one contraction to the beginning of the next.

- **How long do they last (DURATION)?** The duration of the contraction is from the time the contraction is first felt by your hand on the abdomen to the time when you can no longer feel the contraction.

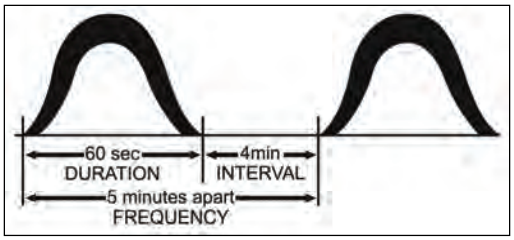


Figure 9. Timing contractions.

- **How effective are they (STRENGTH)?** A good, effective contraction **can not** be indented with your finger during the peak (strongest) part of the contraction. The experienced midwife **FEELS** for all three parts of a contraction: beginning, peak, relaxing. The beginning and relaxing part of the contraction take the same amount of time. The peak is the strongest. The strength of contractions may be noted in the labor notes at the back of the partograph.

  In early labor (latent phase), contractions usually start every 20 minutes (frequency), last about 15 seconds (duration), and the uterus can be indented with your finger (mild effectiveness). As labor progresses and the cervix is dilated 4 cm (active phase), contractions become more frequent, last longer, and get stronger. By the time a woman is dilated 7 centimeters, contractions are usually every 2 or 3 minutes, lasting more than 40 seconds, and the uterus can not be indented with your finger at the peak of the contraction.

- **Does the uterus relax?** It is important for the midwife to FEEL the relaxation of the uterus BETWEEN contractions. This relaxation is VERY IMPORTANT for the welfare of the baby, woman, and uterus. Relaxation of the uterus allows the baby to get more oxygen from the placenta. Relaxation of the uterus provides a resting time for the woman and prevents exhaustion of the woman and her uterus.

  When contractions are every 2 minutes or less and the relaxation time between contractions is less than 50 seconds, the relaxation time is too short. The baby does not get enough oxygen. The woman does not get time to rest. The uterine muscle does not stop working and does not relax, see *Guide for Caregivers – Protocols* where action is outlined for constant contractions.

Vaginal Examination

A vaginal examination will confirm the abdominal findings of descent and position. It does not feel very comfortable and can be a cause of infection in the woman. Be as gentle as possible. **Always feel the abdomen for descent and position of the baby before doing a vaginal examination.**

When you do a vaginal examination, LOOK and FEEL, decide the dilatation of the cervix, the status of the membranes, the presenting part, position and molding of the vertex presentation. Do a vaginal examination on labor admission and at least every four hours when a woman is in active labor. When a woman feels like pushing, she may need to be examined even if it has been less than 4 hours. NEVER DO A VAGINAL EXAMINATION IF THE WOMAN IS BLEEDING.

1. **Explain to the woman what you are going to do**. Reassure her and explain each step during the examination. Provide privacy. Gather your equipment.

2. **Position.** Ask the woman to lie on her back with her knees bent and her legs spread apart. Cover her as much as possible.

3. **Wash your hands with soap and water**. Put on clean, sterile or high-level disinfected gloves.

4. **LOOK for discharge** (blood, liquor, meconium) on her clothing and genitals.
   - A whitish, clear, watery, or blood tinged discharge may be the mucous plug or liquor (amniotic fluid).
   - A yellow or green stained liquor may be a warning sign of fetal distress.
   - The meconium (baby's stool) discharge may be a breech presentation.

5. **Clean the genital area**
   - Place 6 cotton balls or cloth squares or gauze in antiseptic or soapy solution.
   - **LOOK** for any drainage at the vulva. If you see blood that is more than bloody show, do not continue with the vaginal examination.
   - Wipe the woman's genital area from front to back using one cotton ball, cloth square or gauze for each wipe. Wipe each labia major (outer lips), each labia minora (inner lips), the clitoris and vulva.

6. **LOOK and FEEL the vaginal walls and cervix**
   a Dip the index and middle fingers of your gloved examining hand into an antiseptic lubricant.

   b Hold the woman's labia apart with the thumb and index finger of your other gloved hand. LOOK at the vaginal opening for discharge, blood, liquor, meconium, veins, sores and warts. **Never perform a vaginal examination if the woman is bleeding.**

   c Gently insert the 2 fingers of your examining hand into the woman's vagina. Once your fingers are inserted, do not take them out until the examination is complete. This decreases the risk of infection.

   d Feel the woman's vagina. Move your fingers around the vaginal wall. A hot and dry vagina may mean prolonged labor, dehydration or infection. Scarring of the vagina may indicate previous lacerations, episiotomy, or fistula.

   e Feel the cervix with the tips of your fingers, Figure 10. Cervical effacement and dilatation allow the baby to pass out of the uterus.

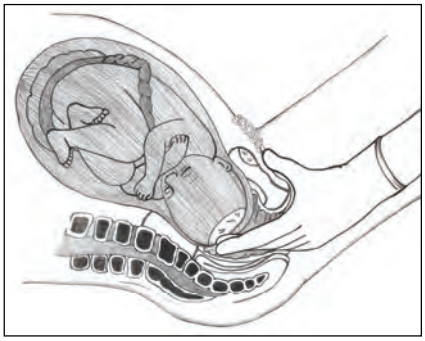


Figure 10. Feel the cervix.

Decide how much the cervix has thinned and shortened (EFFACEMENT). Full effacement is when the cervix is very, very thin (like skin on a mango).

Decide how much the cervix has opened (DILATATION). Complete dilatation of 10 cm occurs when the cervix is no longer felt. See **Learning Aid 1.**

7. **FEEL the bag of waters (membranes).** Intact membranes feel like a balloon filled with water. The membranes may break anytime before contractions start or during labor. The membranes may be intact when the cervix is fully dilated and you may need to do artificial rupture of the membranes (ARM) during second stage before the birth of the baby.

   Do ARM between contractions. Use a sterile toothed forceps to take a hold of the membranes. Make a small opening in the membranes to prevent splashing of the fluid. If the opening is too small use your fingers to make it larger.

   When the membranes rupture:
   - FEEL for the prolapsed umbilical cord. If it dropped through the cervix before the presenting part; it will feel soft and pulsating, **Learning Aid 6**.
   - LISTEN to the fetal heart beat.
   - LOOK at the amniotic fluid (liquor). It should be clear. If the fluid is stained with meconium, is bloody, or if there is very little or no fluid, the baby may be distressed. Thick black meconium is frequently seen in breech presentation even when the baby is not distressed (the baby's abdomen is being squeezed as the baby is descending).

8. **FEEL the head of the baby.**
   - **FEEL the presenting part of the baby.** Compare this information with your abdominal examination findings to be sure which part of the baby is at the cervix. Usually, the baby's head is at the cervix. Most babies deliver occipitoanterior (face looking to the woman's back).
   - **FEEL fontanelles to decide the baby's position** when the head is at the cervix.
     - Anterior fontanelle is a large diamond shaped joining of four sutures.
     - Posterior fontanelle is a small triangle joining of three sutures.
     - Decide where the baby's posterior fontanelle is (occiput area) in relation to the woman's pelvis (anterior, transverse, or posterior, and left or right). In a well-flexed vertex presentation, only the posterior fontanelle is felt. If the head is not well flexed (deflexed), both fontanelles are felt.

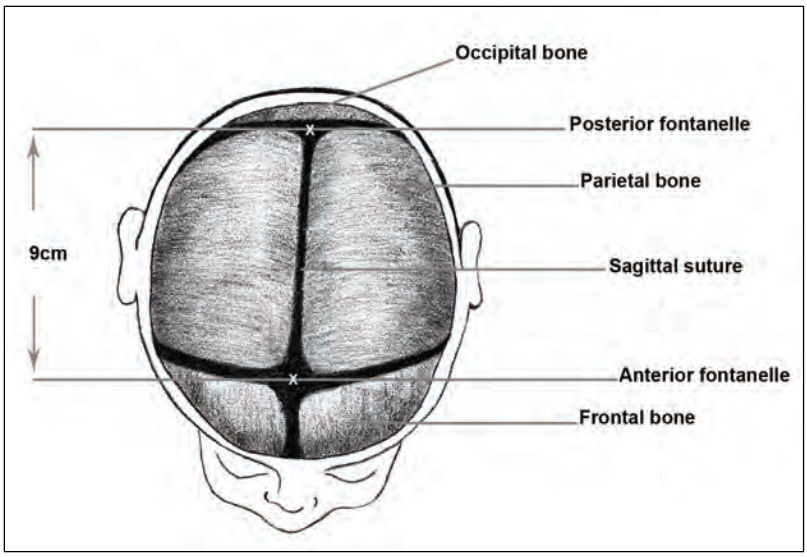


Figure 11. Fontanelles and landmarks

   - **FEEL for caput and molding**. If the baby has a lot of molding, the caput can be swollen and give the impression vaginally that the head is descending when it really is not, while much of the head can be felt abdominally. Usually you feel separated suture lines and a little caput. When molding is present (the amount the bones of the baby's head slide over each other or overlap), the fit of the baby's head may be tight. This may be a sign the baby will have trouble going through the pelvis of the woman. There may be cephalopelvic disproportion (CPD).
     - Borderline CPD: The degree of overlap of the fetal head is mild (+) or moderate (++).
     - CPD: Severe molding (+++) is a sign the head will not fit through the pelvis of the woman. Refer to the doctor immediately to prevent rupture of the uterus, and maternal or fetal death.

9. **Remove your hand from the woman's vagina.** LOOK for any discharge or bleeding. Smell for any odor. Remove your gloves and wash your hands. Help the woman to a comfortable position.

10. **Explain your findings to the woman and her family.** Record your findings on the labor graph (partograph). See *Guide for Caregivers – Protocols* when:

    - Presenting part is not head, **Learning Aid 8, Learning Aid 9.**
    - Presenting part is floating (at 5/5).
    - No progress in dilatation or descent, **Learning Aid 3.**
    - Presenting part is occipitoposterior position, **Learning Aid 5.**
    - Molding or caput are present.

REMEMBER

LOOK and **FEEL** is the second step when caring for a woman in labor.

Review Questions

What Did I Learn? Find out what you know and understand from this section. Answer the following questions. When you are finished, look for the answers in the module on the pages written in parentheses ( ).

1. Why do you examine a woman in labor (page 3.15)?

2. List the steps of a general physical examination (page 3.15).

3. Describe the steps used in abdominal palpation to decide the position of the baby (pages 3.16 - 3.20).

4. What is engagement? How can you find out if the baby's head is engaged (page 3.18 and 3.20)?

5. Why do you listen to the baby's heart rate? What are the normal heart rates (page 3.21)?

6. Why will you do a vaginal examination? List three reasons (pages 3.25).

IDENTIFY PROBLEMS

This is the third step of the Problem Solving Method. From your findings in the history and physical examination during admission in labor, or when monitoring during labor, you identify the woman's needs and possible problems. These problems can cause labor to go on for several days without active care. The woman can be exhausted, dehydrated, or depressed. She may even die. The risk of fetal distress is increased. The baby may also die. Record your actions on the partograph, see **Learning Aid 2,** or according to protocol at the health facility.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. Once you decide the woman's problems and needs, using the information from the history and examination, you will decide the care or actions to take for each need and problem. Some problems are discussed in the learning aids. For example, you may find that labor is progressing according to the partograph. If this is the case you will continue to monitor and give her care for normal labor, see *Guide for Caregivers – Procedures.*

Use your observations and write your findings on the partograph. When there is unsatisfactory progress in labor or other signs of problems, the midwife must give emergency care and help the woman get to the hospital or doctor. If timely action is not taken to relieve the woman's distress, the problem may lead to death. You will find "refer" written throughout the actions and in the *Guide for Caregivers.* **Each midwife will have to decide when to refer according to her situation**. If it is impossible to transport a woman, decide what you can do to try to keep the woman and her unborn baby alive. If you are at a hospital, call the doctor while you begin the actions.

Problems. If you have identified any danger signs or complications during labor, use the chart in **Learning Aid 3** and the *Guide for Caregivers – Complaint and Findings* to identify the problem and follow the actions to be taken.

Needs. During the first stage of labor the contractions soften and shorten the cervix and it begins to open. Usually the contractions are mild and short (about 30 seconds long) and come every 15 to 20 minutes. The contractions may hurt a little but the woman usually is active and wants to walk, talk, and do things. She may not come to the midwife at this time.

As labor progresses the contractions start coming 3 to 5 minutes apart. The woman usually stops everything and pays attention to the contractions. She may decide to come or call the midwife at this time. When it is closer to the time of full dilatation, the contractions may last up to a minute, with only 2 or 3 minutes between contractions. Sometimes the woman thinks the contractions never stop.

During labor the woman has many needs and there are many ways you can help her.

1. Emotional Support

Figure 12. Sitting in Labor.

The birth of a baby affects the whole family. If the husband or relatives want to be involved in the birth, include them. Let them watch, listen and help. The family will feel reassured when they realize you understand how important the birth is to them. A woman may have more discomfort and pain if she worries about the delivery or if she had problems before. Find out what the woman knows about labor and what she expects. Explain to her what will happen. Continuous support during labor has benefits for the woman and her baby such as reduced need for pain relief, fewer operative vaginal deliveries, fewer cesarean deliveries, and fewer 5-minute APGAR scores below 7.

- **Keep the woman relaxed.** Labor can be more difficult when the woman is afraid. Reassure the woman the pain she has is normal. Talk to the woman. Give emotional support and explain to her about what is happening. Massage her feet, arms or back (or whatever is traditional) during contractions. Ask the woman not to hold her breath during a contraction, but to breathe deeply and slowly. This will help her body stay more relaxed and she will use less energy.
- **Keep the woman cool.** Use a cool cloth on the woman's face, neck and chest if she gets hot. Use a hand fan to keep the woman cool. A cool wet cloth on the forehead usually feels good and may relax her.
- **Birth support person.** Have a family member or birth attendant be with the woman. This person can help with some of the woman's needs.

2. Comfort and Positions

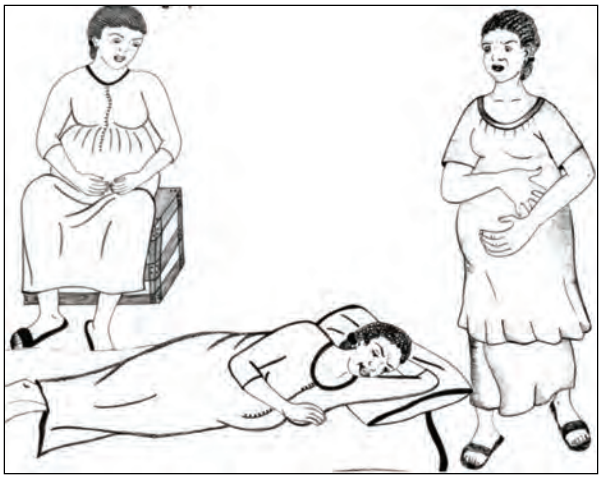


Figure 13. Change positions in labor.

Use comfortable positions for labor such as walking, sitting, lying on her side, rocking. Walking, sitting and squatting help the baby descend into the pelvis. Encourage her to move around and be active. **The woman in labor should NOT lie flat on her back.** Lying on her back squeezes or constricts the blood vessels bringing blood to her and her baby. The labor pains may get stronger if the woman walks and moves around.

3. **Fluids and Food**
Encourage the woman to drink nourishing fluids or water at least every 1 hour or more often during labor. She should also eat light foods when labor progress is normal. Women in labor who do not drink and eat small amounts of food have an increase of blood ketones and a decrease of amnio acids. This may increase fetal hypoglycemia. Fluids provide energy and prevent dehydration. If a woman does not pass urine every 2 hours, it is a sign she is dehydrated. **Dehydration can exhaust a woman and slow down contractions or make her contractions more irregular.** The routine of giving nothing by mouth during labor is only used when general anesthesia is anticipated.

4. **Cleanliness**
Infections that start during labor and childbirth may cause the death or illness of the woman or baby. A woman should bathe and wear clean clothes during labor. Bathing often during labor can help her to stay cool and more relaxed. These infection prevention procedures apply to all levels of care, see Module 7: **Infections.**

- Wash hands before and after wearing gloves and contact with the woman.
- Wash the woman's perineum with soap and water or antiseptic.
- Do not place herbs or other unclean objects in the vagina.
- Make sure the surface where the woman is lying for birth is kept clean.
- For cord cutting, use high-level disinfected instruments and clean cord ties.
- Throughout labor and childbirth, use disposable materials once and decontaminate reusable materials.

In addition to protecting the woman and newborn, healthcare workers use universal precautions to protect themselves by: (a) wearing protective clothing including foot covers, an apron or gown, and protection for the eyes from blood and fluid splashes, and (b) wearing gloves for vaginal examination, birth and when handling the placenta and body fluids.

5. **Passing Stool**
In the past, the routine in labor included the use of an enema. Sometimes, a woman may want an enema if she is constipated when she begins labor. **Enemas are no longer recommended for women in labor.** Women need to be reassured that it is normal and not shameful to pass stool during delivery. You should make every effort to help her keep herself clean and the delivery area as clean as possible.

6. **Passing Urine**
A woman in labor should pass urine often if she can. A full bladder may slow the baby's descent, slow uterine contractions, cause discomfort to the woman, and may even stop labor. **Laboring for many hours with a full bladder may cause a fistula** or other problems. Encourage the woman to urinate at least every 2 hours. If the bladder is full and she can not urinate, use sterile technique to pass a catheter to empty the bladder. The woman should empty her bladder before starting to push in second stage of labor.

7. **Documentation and Recording**
   Partograph and labor record forms differ from one place to another. If you already have a form, you should continue to use it when you return to your place of work. In this module, look at the labor record forms in the next section. As you study the forms, think about the information you are learning about and recording. Is any information missing from the form you normally use? Is there something you normally record that is missing from the forms in this module? You may wish to adapt this form or parts of the form to supplement the record you use when providing labor care.

EVALUATION AND REPEAT PROCESS

This is the fifth step of the Problem Solving Method. While monitoring labor, decide if the actions you take are effective at resolving the problem. The evaluation will be immediate if the problem was an emergency such as hemorrhage. The evaluation will be done later during labor if you are helping the woman walk around to reduce back pain. You will need to repeat the problem solving method from time to time as you monitor the woman and baby and evaluate the labor progress. You may have to develop a new plan for helping her if the labor does not progress. She and her family may need to have information or advice repeated to be sure they understand. She may need a different medication or treatment. She may need to be referred to a hospital or doctor. The ASK and LISTEN questions and the LOOK and FEEL actions you use with the woman during labor can help you find problems early.

The Partograph

A Midwife's Quote...

The partograph helps me diagnose abnormal labor when I still have time to refer the mother to the hospital.

LSS Midwife, Uganda

The partograph[1] is a clear way to record the history and physical examination information on one chart. It helps you see and show the progress of a woman's labor. It is a useful tool to manage the labor of women with and without complications. This graph can be used in hospitals, maternities, and homes to help identify women whose labors are not progressing normally. **The partograph is not a replacement for labor care**. The Ministry of Health may provide all labor forms to government health facilities. Midwives in private practice can have copies made for their own use. The midwife, doctor, and other healthcare workers caring for a woman in labor are responsible for recording and using the information.

LSS uses a labor record form with the **partograph (latent and active phases) on the front and the labor notes, outcome of the delivery and 4th stage monitoring on the back.** The WHO modified partograph with space to record active phase of labor may be used if you have that available. The suggested times for monitoring during labor are LSS recommendations but may be adapted to your situation. **Have a written partograph protocol posted in your labor ward for all to use,** see *Guide for Caregivers - Procedures.* **If at all possible a midwife should be with the woman throughout her labor and delivery.** Use the partograph form available in your place of work or found in this manual.

Use the sample partograph in Figure 17, page 3.39 to find the observations listed below. The top of the partograph includes identification information, date and time of admission, parity, LMP, EDD, and time membranes ruptured.

Progress of Labor	**Fetal Condition**	**Maternal Condition**
Cervical dilatation	Fetal heart rate	Pulse
Descent of fetal head	Membranes and liquor	Blood Pressure
Uterine contractions		Urine tests and volume
Molding of fetal skull		Medications given
		Fluid intake

[1] The partograph was designed in 1970, by Dr. R.H. Philpott, a professor in Obstetrics and Gynecology at the University of Rhodesia (now Zimbabwe) and has been used since then. The World Health Organization partograph was last modified in 2000, with the removal of the latent phase of labor. **LSS encourages monitoring women during the latent phase of labor and recording the care and progress of labor.** See the end of this module for a form to monitor latent phase if there is not a place on your partograph.

Recording on the Partograph - Front Page

When a woman is admitted in labor, you do a complete evaluation of her condition and the condition of her baby. This includes a history and physical examination, with both abdominal and vaginal examinations. The following information helps you learn how to record and interpret your findings on the partograph.

NOTE: This section describes the original WHO **partograph with both latent and active phases**. If you are using the WHO modified partograph with only active phase, the information during the latent phase should be recorded on another form. Look at the back of this module for a sample latent phase form. Begin by recording the woman's name, gravida, para, hospital number, date and time of admission and time of ruptured membranes.

The first stage of labor is divided into the latent and active phase. The **latent phase** is from 0 cm to 4 cm dilatation. The **active phase** is from 4 cm to 10 cm dilatation.

Cervical Dilatation

- **Record dilatation of the cervix.** Look at the partograph, Figure 14. Find the area along the left side, labeled: CX (cm) [Plot X]. Along the left side are the numbers 0 – 10. Each number and square represents 1 cm dilatation and represents the number of cm the cervix is dilated.
- **Record time.**[2] Find the bottom of the graph for numbers 0 – 24 for the Hours and Time in labor. Each number and square represents one hour. The time of admission is written below, and to the left of the first square, next to "Time".
- **Record labor progress**
  - **Alert line begins at 4 cm dilation and goes to 10 cm.** This line increases 1 cm per hour. Progress is satisfactory if the cervix dilates at least 1 cm per hour and remains on or to the left of the alert line.
  - **Action line is drawn 4 hours to the right of the Alert line for 4 cm to 10 cm dilatation**. Progress is not satisfactory if the cervix dilates less than 1 cm per hour and moves to the right of the alert line or on the action line.

Descent of the Fetal Head

Measure descent of the fetal head every **four hours in latent phase**, **every one hour in active phase** and **immediately before doing a vaginal examination.** Vaginal exams are usually done every four hours. As discussed in LOOK and FEEL, descent is measured abdominally in "fifths" of the head palpable above the pelvic brim. Descent is recorded using an '**O**' on the graph. This is shown in Figure 14. Progress is satisfactory if the fetal head descends.

[2] The examples in this manual for time are written 0900, 1300, 1600, and so forth. Some places use 9 AM, 1 PM, 4 PM and so forth. Write the time in the manner you are use to using.

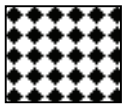
Uterine Contractions

Normally, contractions come more often and last longer as labor progresses. A woman must be in labor for the partograph to be useful in monitoring labor progress.

FEEL contractions for 10 minutes at a time to know how often they come and how many seconds they last. In latent phase feel every hour. In active phase feel every 30 minutes.

Look to the left side of the partograph below **Time**. Find where **Contractions per 10 minutes** is printed. There are five squares numbered 1 – 5 in a column. Each square represents one contraction. If two contractions are felt in 10 minutes, two squares will be shaded in the same column. There is a special way to mark the squares so that you can show how long each contraction lasts. This is explained below and shown in Figure 14.

Symbols for Contractions



Dots are for mild contractions that are less than 20 seconds.

Diagonal lines are for moderate contractions that are 20 to 40 seconds.

Solid color is for strong contractions that are longer than 40 seconds.

REMEMBER

Labor progress is satisfactory when
contractions become more frequent and last longer
with progressive dilation along or to the left of the alert line.

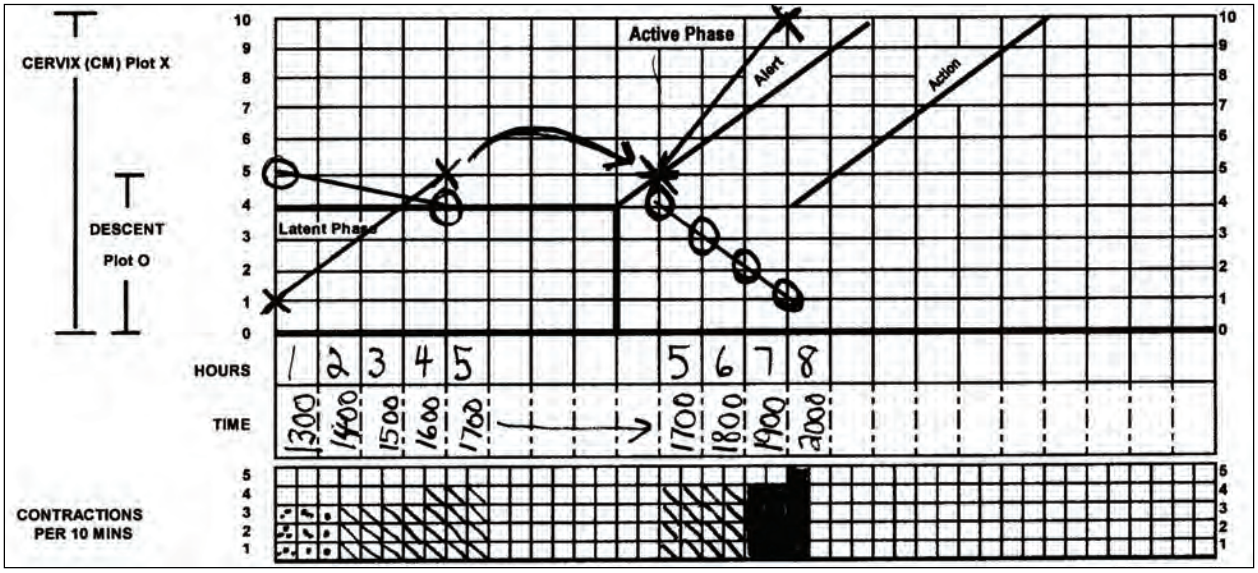


Figure 14. Recording progress of labor:
cervical dilatation from latent to active phase, descent, contractions.

- In Figure 14, the woman is admitted in latent phase of labor at 1300 hours, the head is 5/5 above the pelvic brim (recorded with an **O**) and the cervix is 1 cm dilated (recorded with an **X**). Contractions are 3 in 10 minutes, each lasting less than 20 seconds.
- After 4 hours at 1700 hours, the head is 4/5 above the brim and the cervix is 5 cm dilated. Contractions are 4 in 10 minutes lasting 20-40 seconds. Labor is now in the active phase. Cervical dilatation is moved (transferred) on to the alert line, descent of head and time are moved to the same vertical line. Remember that cervical dilatation is transferred first to the alert line.
- At 1800 hours, the head is 3/5 above the brim and contractions are 4 in 10 minutes lasting 20-40 seconds.
- At 1900, the head is 2/5 above the brim and contractions are 4 in 10 minutes lasting over 40 seconds.
- At 1930, the contractions are 4 in 10 minutes lasting over 40 seconds.
- At 2000 hours the head is 1/5 above the pelvic brim and the cervix is 10 cm dilated. Contractions are 5 in 10 minutes lasting over 40 seconds. The length of first stage of labor observed by the midwife is 8 hours.

When progress is good, latent phase of labor is usually 8 hours or less. The active phase of labor progresses from 4 cm to 10 cm at 1 cm per hour or less. Contractions come more often and last longer while the dilatation of the cervix remains on or to the left of the alert line as the baby's head descends into the woman's pelvis.

Maternal Condition

All the findings of the woman's condition are recorded at the bottom of the partograph. All entries are written on the time line at which the findings are made. Look at Figure 15 below, to find the following information:

- **Pulse, blood pressure, and temperature**. Take the blood pressure, pulse and temperature at least **every 4 hours** when they are normal. Satisfactory findings: pulse 60 – 90, blood pressure 90 / 60 – 140 / 90, temperature 37.2 C (98.6 F).
- **Urine protein and volume**. Look at and measure the amount (encourage the woman to pass urine **every two hours**). Check for protein on admission if blood pressure is elevated (sign of possible pre-eclampsia). Look for the concentration and urine output: decreased urine output or darker color urine are signs of dehydration, see *Guide for Caregivers – Procedures and Tests* for protein testing.
- **Drugs and intravenous fluids**. Give IV fluids and drugs as indicated and record on front of partograph. Offer oral fluids **hourly** and record on the back of the Partograph.
- **Oxytocin**. There is a separate column for oxytocin. Oxytocin in intravenous solution to augment labor is used **ONLY when a doctor is available and where cesarean section can be done.** See Module 9: **Vacuum Extraction and Other Procedures** the procedure.

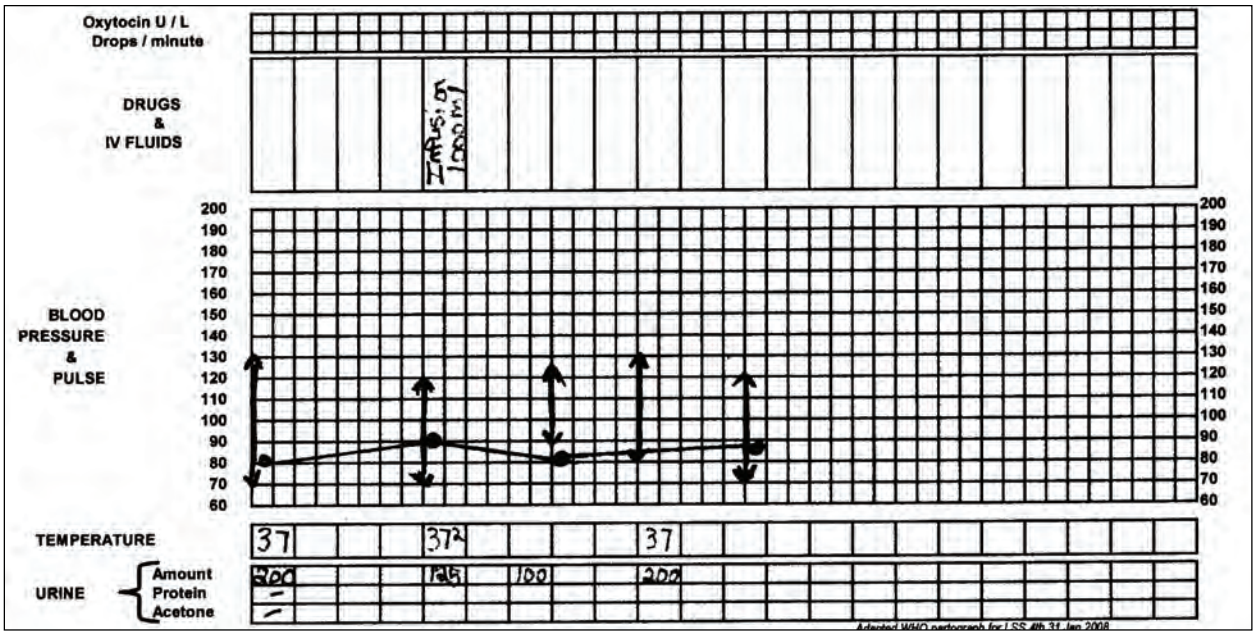


Figure 15. Recording maternal condition: vital signs, urine, drugs, IV fluids.

Fetal Condition

Fetal heart rate, membranes, liquor (amniotic fluid), and molding of the fetal skull bones give information about how the baby is doing during labor, Figure 16.

- **Fetal heart rate.** Record this at the top of the partograph. There are spaces to record the fetal heart rate every half hour. Each square represents 30 minutes. Take and record the fetal heart rate **at least every hour**, and every half hour when possible.

  The lines for 120 and 160 beats per minute are darker to remind you that a fetal heart rate less than 120 or more than 160 is a sign of fetal distress. With signs of problems, you may listen to the fetal heart after every contraction and when membranes rupture.

- **Membranes and liquor (amniotic fluid).** The color and odor of the liquor after the membranes rupture gives more information about the fetal condition. Normal liquor is clear. Record on the partograph immediately below the fetal heart rate recordings. The notes are made at each vaginal examination.

Record Membranes and Liquor

I	=	Intact membranes
C	=	Clear liquor
B	=	Blood stained liquor
M	=	Meconium stained liquor
A	=	Absent (no) liquor

- **Molding of the fetal skull.** Molding helps you know how well the baby's head is fitting into the woman's pelvis. Check molding **each time you do a vaginal examination**. If you feel moderate (++) or severe (+++) overlapping, the fit is tight. Record molding on the partograph under liquor.

Record Molding

O	=	Bones separated, sutures can be felt easily
+	=	Bones are just touching each other
++	=	Bones overlapping, **can be separated** easily
+++	=	Bones overlapping, **can not be separated**

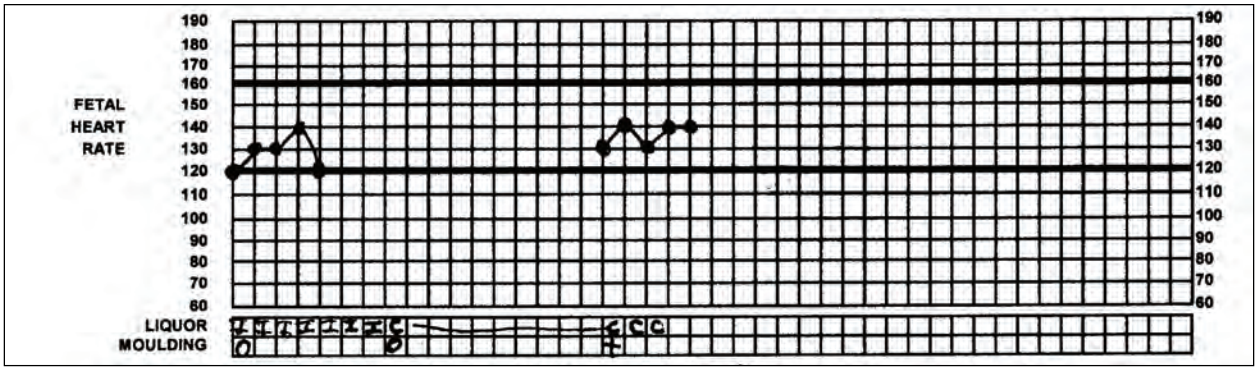


Figure 16. Recording fetal condition: fetal heart rate, liquor, molding.

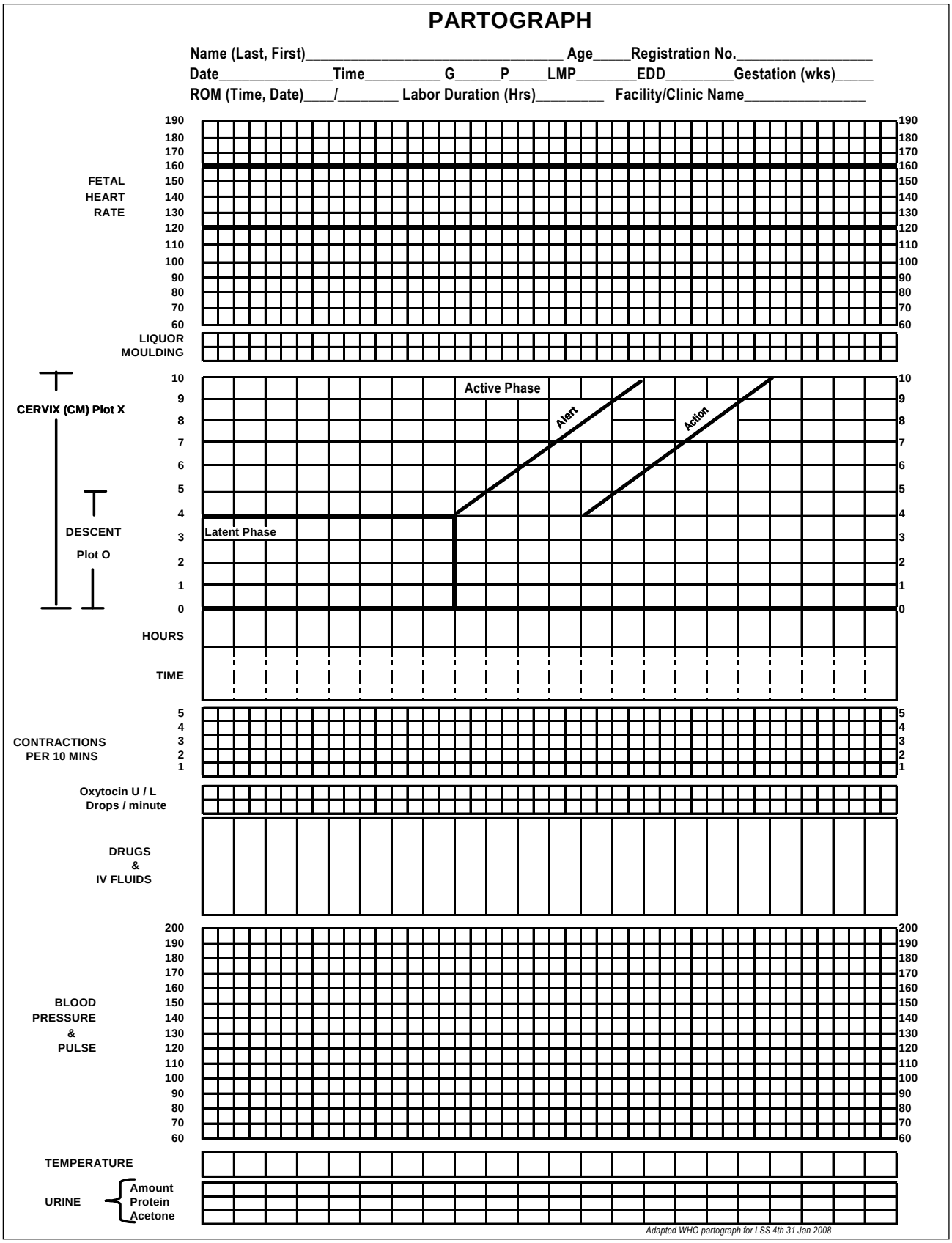


Figure 17. Partograph – front page.

Back of Partograph

LABOR NOTES

_____
_____
_____
_____
_____
_____
_____

Please circle or write responses.

DELIVERY

DATE: TIME: METHOD: Spontaneous / Vacuum Extraction / C/S / Forceps/ Destructive / Other

PERINEUM: Intact / Episiotomy / Laceration ANESTHESIA: None / Local / General

REPAIR: Yes / No _____

THIRD STAGE

ACTIVE MANAGEMENT: Yes / No Medication _____ Time _____ Dose _____IM IV
PLACENTA: Time: Complete / Incomplete

BLOOD LOSS AMOUNT:
Small (less than 250 cc)
Moderate (250-499 cc)
Large (more than 500 cc)

BABY

Weight: _____Length_____
Sex: Male / Female
Baby Presentation:
Vertex / Breech / Other

APGAR

Time	Color (Appearance)	Heart (Pulse)	Reflex (Grimace)	Tone (Activity)	Breath (Respiration)	TOTAL
1 min						
5 min						

COMPLICATIONS OF WOMAN / BABY: None / Other: _____

FOURTH STAGE MONITORING FOR WOMAN AND BABY

		WOMAN					BABY			
Frequency	Time	B/P	Pulse	Fundus	Bleeding	Bladder	Breathe	Suck	Warm	Cord
Every 15 minutes for first 2 hours										
Every 30 minutes for 1 hour										

Birth Attendant _____ **Date** _____

Figure 18. Partograph – back page.

Recording on the Partograph - Back Page

On the **back** of the partograph form, are labor notes and delivery outcome, Figure 18. This part of the form can be modified for your needs. You may use your form or this one if you do not have one. You may choose to have one page for labor notes and a separate page for the outcome of the delivery. All of this information makes a complete labor record form.

Labor notes

- Write additional labor care that you do not write on the front of the partograph.
- For example, each time you give the woman fluids to drink or food to eat, record it here. When the woman is walking around, has a bad backache, or takes a bath, record her activities.

Delivery

- Delivery date, time, method. Record the method as spontaneous, vacuum extraction, cesarean section, forceps, or destructive operation.
- Perineum and anesthesia. Record whether perineum is intact, any laceration (tear) or episiotomy and repair. Record any anesthesia given, such as local.

Third stage

- If active management of third stage labor was done: Record the time, type of medication and dose given.
- Placenta and membranes: Record time of placental delivery, and if complete or incomplete.
- Blood loss: Record the estimated amount; small (less than 250 cc), moderate (250 to 499 cc), large (more than 500 cc).

Baby

- APGAR of newborn: Record the baby's APGAR at 1 and 5 minutes after birth. (Refer to *Guide for Caregivers – Procedures* for information on APGAR).
- Newborn baby details: Record weight, length, sex, delivery presentation.

Complications of woman or baby

- Use this section to write any problems for the woman or baby. Details of management are written on a postpartum or newborn record.

Fourth stage

- The woman and baby are monitored every 15 minutes for 2 hours, then every 30 minutes for an hour, then every hour for 3 hours. Check woman: BP, pulse, fundus, bleeding and bladder. Check baby: breathe, suck, warm and cord for any bleeding. See back of partograph.

Midwife or person delivering and date: Filled in at the end of recording the information.

Review Questions

What Did I Learn? Find what you know and understand from this section. Answer the following questions. When you are finished, look for the answer in the module on the page written in parentheses ( ).

1. Why should a partograph be used (page 3.33)?

2. List the 11 parts of a partograph (page 3.33).

3. Describe the information on the back of the partograph (page 3.40-3.41).

4. In your own words, describe what happens in each of the stages of labor:

   First stage of labor (page 3.6).

   Second stage of labor (page 3.6).

5. Describe what happens to the cervix in:

   Latent phase of labor (page 3.6).

   Active phase of labor (page 3.6).

6. Look at the front page of the partograph, the completed partograph, Figure 19, page 3.45, of a **normal** first stage of labor. Answer these questions.

   - What was the fetal heart rate on admission?
   - What was the fetal heart rate at 0900?
   - When did the membranes rupture?
   - What was the condition of the liquor?
   - How much molding of the fetal head was recorded?
   - What was the dilatation of the cervix on admission?
   - What was the descent of the head?
   - What was the dilatation of the cervix when labor transferred from latent to active phase?
   - Describe the contractions at 0730.
   - List the vital signs on admission.
   - How many hours was the latent phase after admission?
   - How many hours was the active phase?

7. Interpret back page of partograph. Look at the completed back of the partograph, Figure 20, page 3.46, of a **normal** delivery. Answer these questions.

   - What time was the baby born?
   - How long was second stage?
   - What was the APGAR at 5 minutes?
   - What time was the placenta delivered?
   - How long was third stage?
   - What oxytocic was given?
   - How much did the baby weigh?
   - What was the baby's sex?
   - How much was the blood loss?
   - What happened during fourth stage?

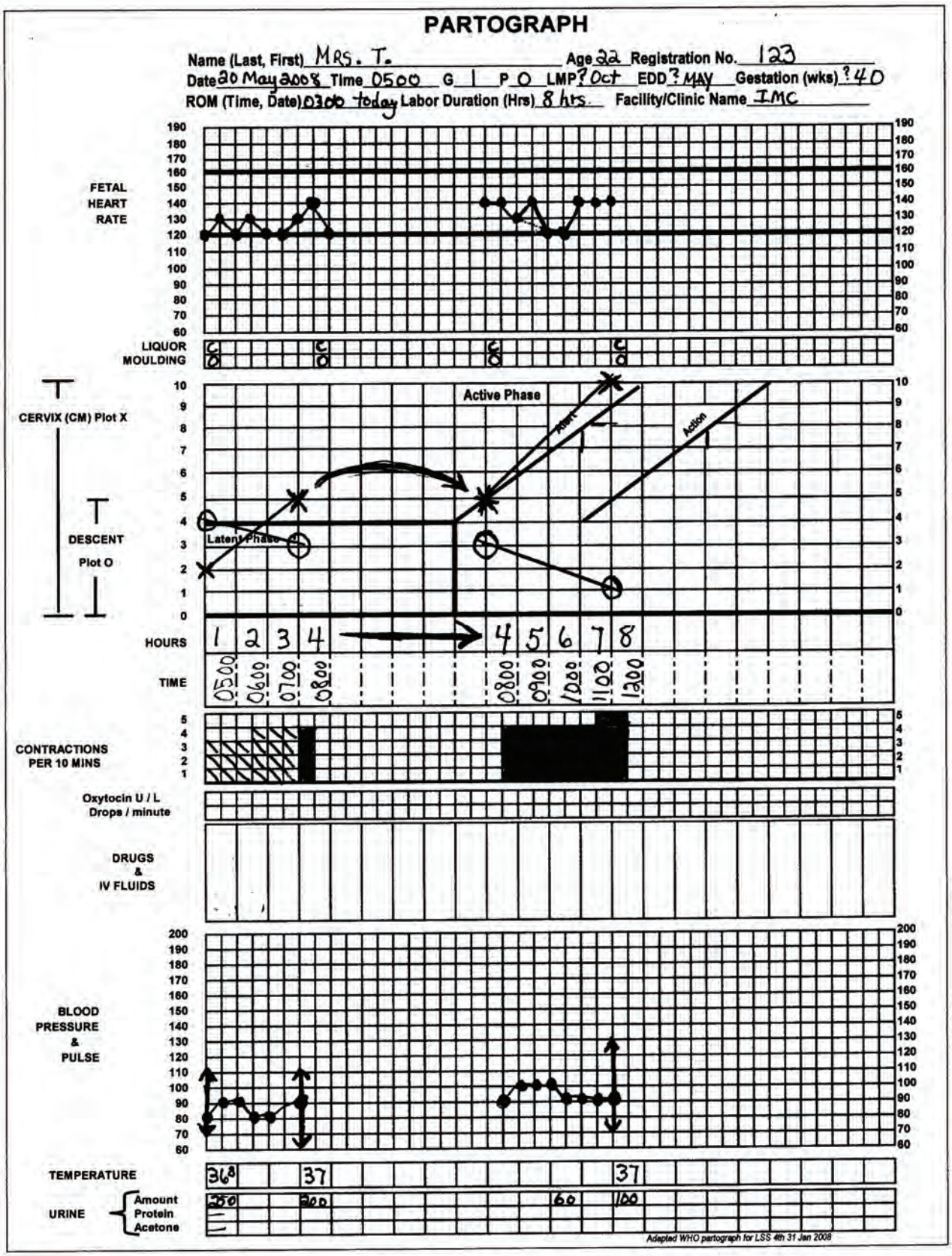


Figure 19. Completed front page of Partograph (use for Review Questions)

Back of Partograph

LABOR NOTES

0500 hungry - took tea, bread. Now resting.
0610 1 cup water
0640 1 cup water
0810 backache - 1 cup tea and sugar - sitting in chair
0930 1 cup water. 1110 1 cup water - lying on (L) side
1200 refuses water - squatting
1300 sips of water - feels like pushing

Please circle or write responses.

DELIVERY

DATE: 20 May 08 TIME: 1410 METHOD: (Spontaneous) / Vacuum Extraction / C/S / Forceps/ Destructive / Other

PERINEUM: (Intact) / Episiotomy / Laceration ANESTHESIA: (None) / Local / General

REPAIR: Yes / (No) _____

THIRD STAGE

ACTIVE MANAGEMENT: (Yes) / No Medication Oxytocin Time 1415 Dose 10 mg (IM) IV

PLACENTA: Time: 1420 (Complete) / Incomplete

BLOOD LOSS AMOUNT: (Small) (less than 250 cc) / Moderate (250-499 cc) / Large (more than 500 cc)

BABY

Weight: 2800 Length 50cm

Sex: Male / (Female)

Baby Presentation: (Vertex) / Breech / Other

APGAR

Time	Color (Appearance)	Heart (Pulse)	Reflex (Grimace)	Tone (Activity)	Breath (Respiration)	TOTAL
1 min	1	2	2	2	1	8
5 min	1	2	2	2	2	9

COMPLICATIONS OF WOMAN / BABY: (None) / Other: _____

FOURTH STAGE MONITORING FOR WOMAN AND BABY

			WOMAN					BABY			
Frequency	Time	B/P	Pulse	Fundus	Bleeding	Bladder	Breathe	Suck	Warm	Cord
Every 15 minutes for first 2 hours	1500	120/70	72	Hard	Nil	↘ 100 ml	good	Not interested	yes	No blood
	" 15	"	70	"	"		36/min			
	" 30	"	"	"	100 ml	empty	good		"	
	45	126/70	74	"	No		OK			
	1600	126/70			—	↘	↘	Sucking	"	No blood
	" 15	—			—		↘			
	"30	—	—	hard	100 ml	200 cc	↘		yes	
	45	—	-	"	No		↘			
Every 30 minutes for 1 hour	1700	120/70	70	hard	No	No	↘	↘	↘	↘
	1730	120/70	70	hard	No		↘	↘	↘	↘

Birth Attendant Nanna Nebbet **Date** 20 May 2008

Figure 20. Completed back page of the Partograph (use for Review Questions).

Case Study

Answer the following questions.

1. Mrs. N.L. comes to you in labor on September 30 at 0900 hours. She is having two contractions every 10 minutes that last more than 20 seconds. What questions do you want to ask her? (page 3.7 – 3.9).

2. When you examine Mrs. N.L., you find the cervix is 1 cm dilated, membranes are intact and the head is at 5/5. Her blood pressure is 120/75, pulse is 72, and temperature is 36.8° C. The fetal heart rate is 120. Record this information on the partograph in Figure 21 or use the partograph you are familiar with if it is not the same as the one in this manual. What care would you give Mrs. N.L. at this time? (page 3.30 – 3.32).

3. Four hours later, Mrs. N.L.'s cervix is 5 cm dilated, the head is at 3/5. Record this information on the partograph. What care would you give her at this time? (page 3.30 – 3.32).

4. One hour after her last vaginal examination, Mrs. N.L.'s water breaks. The fluid is clear. Record this information on the partograph. What care would you give her at this time? (pages 3.8 and 3.68

5. During Mrs. N.L.'s labor what do you need to monitor? How often do you need to monitor? (pages 3.33 – 3.38 and 3.84).

   a. The baby:

   b. Mrs. N.L.:

   c. The progress of labor:

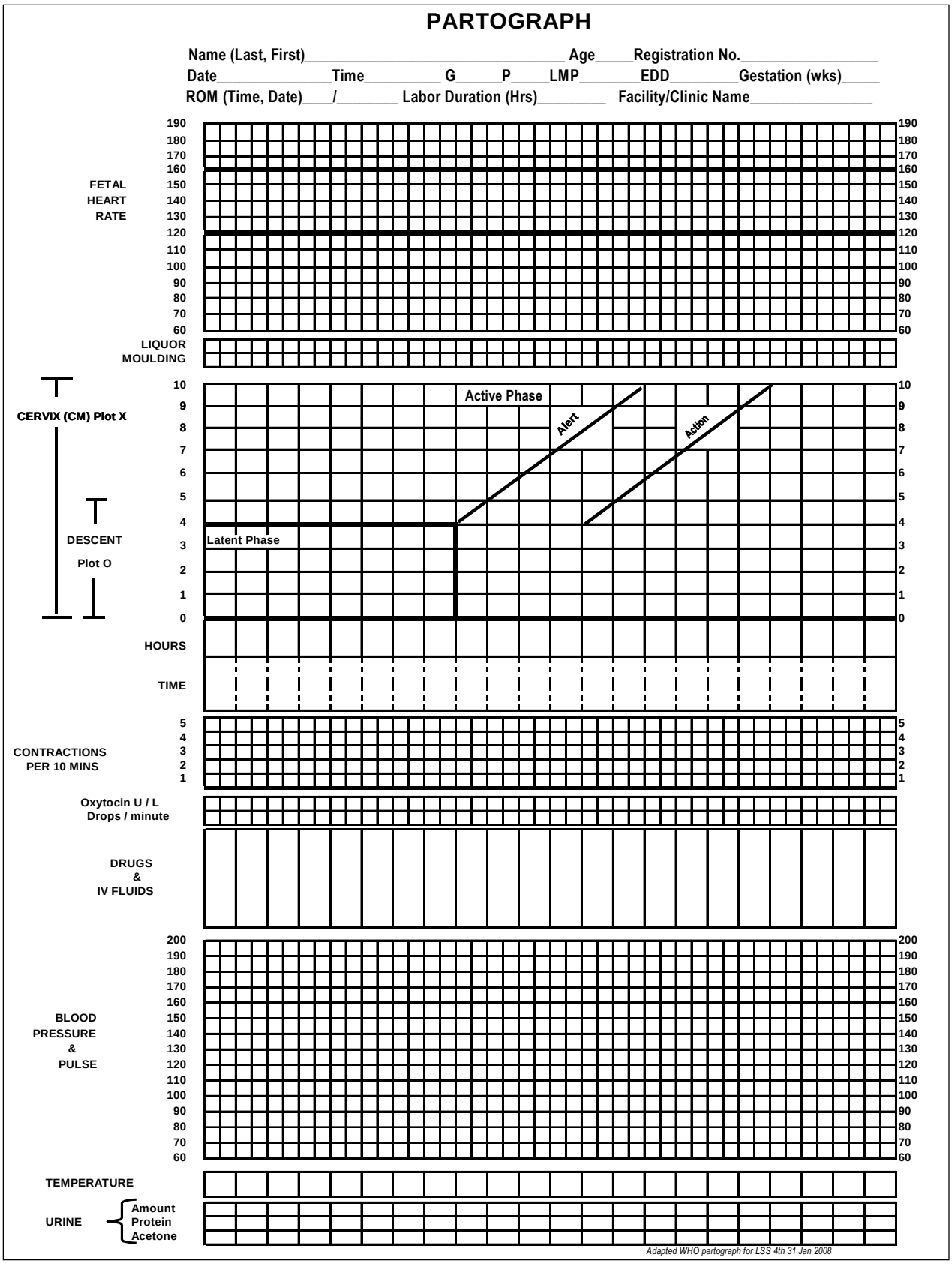


Figure 21. Partograph – Front Page of the Partograph (Use with Case Study).

Back of Partograph

LABOR NOTES

_____
_____
_____
_____
_____
_____
_____

Please circle or write responses.

DELIVERY

DATE: TIME: METHOD: Spontaneous / Vacuum Extraction / C/S / Forceps/ Destructive / Other

PERINEUM: Intact / Episiotomy / Laceration ANESTHESIA: None / Local / General

REPAIR: Yes / No _____

THIRD STAGE

ACTIVE MANAGEMENT: Yes / No Medication _____ Time _____ Dose _____ IM IV
PLACENTA: Time: Complete / Incomplete

BLOOD LOSS AMOUNT: Small (less than 250 cc) Moderate (250-499 cc) Large (more than 500 cc)

BABY

Weight: _____Length_____

Sex: Male / Female

Baby Presentation:

Vertex / Breech / Other

APGAR

Time	Color (Appearance)	Heart (Pulse)	Reflex (Grimace)	Tone (Activity)	Breath (Respiration)	TOTAL
1 min						
5 min						

COMPLICATIONS OF WOMAN / BABY: None / Other: _____

FOURTH STAGE MONITORING FOR WOMAN AND BABY

		WOMAN					BABY			
Frequency	Time	B/P	Pulse	Fundus	Bleeding	Bladder	Breathe	Suck	Warm	Cord
Every 15 minutes for first 2 hours										
Every 30 minutes for 1 hour										

Birth Attendant _____ **Date** _____

Figure 22. Back Page of Partograph.

SKILL: Care of Woman and Baby - Second, Third, Fourth Stages of Labor

When the cervix is fully dilated, the uterus contracts and the woman bears down, pushing the baby out of the uterus. The baby is pushed down through the birth canal (vagina) to be born (second stage of labor). Usually, within a few minutes, the placenta separates and delivers (third stage of labor). More information about the care of the woman and the baby after delivery is given in Module 10: **Postpartum Care.**

As the baby is born, and the uterus is emptied, contractions continue and the uterus gets smaller. These contractions also cause the placenta to separate from the uterine wall. Some of the small uterine blood vessels tear as the placenta pulls away, so there is bleeding until the uterus is completely empty and can contract fully.

In the past, midwives waited for the placenta to separate and encouraged the woman to deliver the placenta by pushing down during a uterine contraction. Today, to reduce blood loss, we recommend you deliver the placenta by **active management of third stage.**

You will care for the woman during second and third stage labor to make the birth as safe as possible. It is important to continue to ASK and LISTEN and to LOOK and FEEL so you give the best care for the woman and baby as the woman's labor continues.

Write your findings and actions during the delivery of the baby and the placenta on the back of the partograph, Figure 22, page 3.50. You and others can use this information when giving postpartum care to the new mother and baby as discussed in Module 10: **Postpartum Care**.

The complete list of equipment and supplies that are helpful in giving care to women in second and third stage labor can be found on page 3.5. If you do not have some of the equipment and supplies, you can still give good care. Make sure that everything is clean and disinfected so that it is ready to give care.

Giving birth is a natural part of life and most women can give birth without any help. It does involve powerful, sometimes painful, uterine contractions and much stretching of the woman's soft tissues. Birth can be frightening to some women. Fear, tension, and anxiety may all slow the birth process. As the midwife, give emotional support and loving care. The baby is usually pushed out gradually. Sometimes though, the multipara woman can deliver her baby in a few minutes after her cervix becomes fully dilated.

Second Stage Care

1. **Prepare the woman, equipment and the room**

   a. Make sure everything is clean and ready for the birth. When the birth is near, lay out your equipment in a clean place where it will be easy to reach. It is best to the room is warm. To protect the woman and baby's safety, a clean room is important. When the cervix is open, germs may enter from the vagina and cause serious infection, see Module 7: **Infections.**

   b. Use a regular bed, table, or clean pad on the floor for normal deliveries for a clean space that is comfortable for the delivering woman. This may also encourage more women to come to the hospital if they are more comfortable and allowed to use positions that have traditionally been used.

   c. Explain to the woman what will happen during the second stage of labor. Describe what you will be doing. Tell her you want her to concentrate on what you are saying. Remind her of the slow deep breathing she should use between contractions to stay relaxed. With contractions she should not hold her breath or push for a long time. This reduces oxygen to the baby. She should push as she slowly lets her breath out just before the baby is born. You will help her to know when to push and when to blow with short, fast, shallow breaths. The blowing breaths help to stop pushing when the urge to push is very strong. This allows for slow delivery of the baby's head to prevent tearing. If you provided her antenatal care, she has learned about the special breathing in Antenatal Clinic. If she does not know it, show her how to breathe, see Module 2: **Antenatal Care.**

2. **Check the woman and baby and record findings on the partograph**

   a. Check the woman's pulse and blood pressure as appropriate during second stage.

   b. Check the baby's heart rate at least every 15 minutes in second stage and more often if possible as the delivery becomes closer. If the heart rate is not within normal limits help the woman change position and deliver as soon as possible. LOOK for prolapsed cord, infection and bleeding. Always check for an umbilical cord around the baby's neck when the head delivers.

   c. Encourage the woman to urinate often, even more often than in first stage.

   d. Continue giving liquids to the woman to prevent her from becoming exhausted.

3. **Pushing. Confirm full dilatation of the cervix.** When the cervix is fully dilated and the baby's head begins to move into the birth canal, the woman usually feels like pushing.

   a. Help the woman get in a good pushing position. Most women, if given the choice, choose to give birth in "upright" positions. Allowing the woman to choose what is comfortable for her is an important part of caring behavior. If possible, let the woman decide which position she would like, including traditional positions. These positions have special benefits:

Semi-sitting (half-sitting). This is often the most comfortable position, and it makes it easier for the midwife to guide the birth of the baby's head and watch the perineum.

Hands-and-knees. Good when the woman feels her labor in her back. It can also help when the baby is having trouble turning to occiput anterior.

Figure 23.
Semi-sitting.

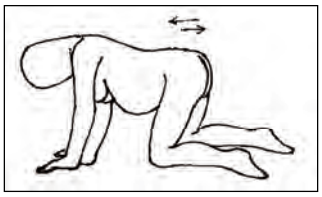


Figure 24.
Hands-and-knees.

Squatting or standing. Helps bring the baby down when the birth is slow or the woman does not feel like pushing.

Lying on the left side. This position is relaxing and may help the woman not to push when she feels like pushing before full dilatation.

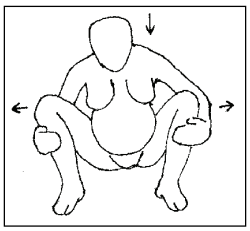


Figure 25.
Squatting.

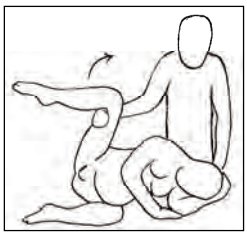


Figure 26.
Left side.

Lying flat on the back. This position makes it easy for the midwife to see. It is usually not good for the woman to lie flat on her back during a normal labor and birth. It may be necessary when there is a complication, but even then try to put a pillow under the woman's head and shoulders or under one hip. It can squeeze the blood vessels that bring blood to the baby and the woman so they get less blood and oxygen. Also, it is much harder for the woman to push when she is lying flat on her back.

b. Help the woman push effectively and correctly. A woman's own urge to push usually brings the baby down when the cervix is fully dilated. Help the woman t to not push until the cervix is fully dilated and she feels the urge to push. Encourage the woman to keep her mouth and legs relaxed and open, her chin down on her chest, and her bottom down during pushes. It is very important for the woman to slowly let her breath out as she pushes. Her baby will not get enough oxygen if she holds her breath for a long time while pushing.

- If the woman is having trouble pushing correctly, do not scold or threaten her. Try to explain how to push correctly. Try another position. Encourage her again and again to push. Praise her for trying. Encourage her by telling her when you see the baby is coming down. When you see the head, let the woman touch it. This may encourage her. DO NOT PUSH ON THE WOMAN'S ABDOMEN TO HELP PUSH THE BABY OUT. This hurts the woman very much and may rupture the uterus or cause the placenta to separate. help the woman to change her position and to push with her mouth open and her jaw loose and forward.

- If the woman does not want to push, but her cervix is open completely, the baby's head may not be engaged. This is more common in the woman having her first baby. Help her relax for a few contractions. She may get the urge to push within the next few contractions. Usually she will. If she does not, continue to count the fetal heart rate every 15 minutes, help the woman change positions and be patient. As long as there are no signs of problems, encourage the woman and wait. Pushing should not start until the urge to push is felt. A LONGER SECOND STAGE (WITHOUT PUSHING) CAUSES NO RISK TO THE WOMAN OR HER BABY. When the woman feels the urge to push, help her push correctly.

c. Support the woman's pushing. If a woman has difficulty pushing, do not scold or threaten her. Try to explain how to push correctly. Try another position. Encourage her again and again to push. Praise her for trying. Encourage her by telling her when you see the baby is coming down. When you see the head, let the woman touch it. This may encourage her. DO NOT push on the woman's abdomen to help push the baby. This hurts the woman very much and may rupture the uterus or cause the placenta to separate.

d. Guide her on when to push and when to blow to control the speed of the delivery.

e. Try to decide the progress of pushing. When you try to decide the speed of the birth, use your experience to judge how fast the baby's head will move through the birth canal. It is important to be aware if the head is moving too quickly or too slowly.

- If the head is moving too quickly, then you need to prepare for the delivery. The woman may also become frightened because the delivery is happening so fast. She will need your support.

- If the head is moving too slowly. Remember, the duration of second stage is not as important as the condition of the woman and baby when deciding if intervention is needed. Continue full assessments (contractions, maternal and fetal conditions, fetal presentation). Encourage the woman to push when she has the urge. Do not encourage her to hold her breath or push for a long time. This reduces oxygen to the baby. Continue to support and reassure the woman and her family. If the baby is moving too slowly or is not moving down, Check for the possible cause for the slow descent and take action as noted below and in the *Guide for Caregivers - Protocols.*

Second Stage Slow Descent

Problem / Cause	Action
Bladder too full?	Help woman urinate
Cervix not completely open?	Recheck the cervix. If cervix is not open, the woman should stop pushing. You should continue Care In First Stage Labor.
Membranes intact?	If cervix completely open and abdominal descent 1/ 5, artificially rupture, see page 3.24.
Not pushing effectively?	Help woman push effectively, see page 3.54 in this module.
Afraid, upset or tense?	Help the woman by talking with her to ease her fears or help solve the problem. Give massage or apply a cloth to her body (cool or warm, let the woman decide).
In best pushing position?	Help the woman try standing or squatting for pushing.
Contractions becoming weak or further apart? Dehydrated or exhausted?	Give the woman oral or intravenous fluids. Encourage her to relax between contractions. If contractions become weaker and farther apart, refer to hospital / doctor.
Molding increasing? Baby not descending? The baby may not be able to fit through the woman's pelvis?	Refer the woman to the hospital.
Baby in a difficult or impossible birth position/presentation such as deep transverse arrest (DTA), occipitoposterior, brow, face, extended breech, shoulder presentation?	If the baby is in an occipitoposterior position, see **Learning Aid 5: Occipitoposterior Position.** If the baby is in an impossible birth position such as mentoposterior, brow, DTA, refer.
Contractions too weak, woman or baby condition poor?	Refer to doctor. During referral give fluids, empty bladder and be prepared for delivery.
If no sign of progress (the head moving down) after 30 minutes of effective pushing for a multipara, or 1 hour for a primipara, and you have considered everything mentioned in the above box, REFER TO HOSPITAL or DOCTOR. Encourage the woman to stop pushing and get in a position with her hips up, such as knee – chest, to take pressure off the cervix and the urge to push.	

4. **When the baby's head is about to crown**, help the woman get in a good birthing position. The four pushing positions are also good birthing positions. If she chooses to lie on her left side, make sure there is someone to help hold up her right leg.

5. **Help prevent tears** around the vaginal opening. As the baby's head crowns try to prevent the woman's tissues from tearing. At this time the woman's feeling to push with a contraction can be very strong and she will want to push the baby out quickly. When the head is born slowly, the woman's skin has more time to stretch and is less likely to tear. During antenatal care in the third trimester, teach the woman perineal massage as culturally appropriate, Module 2: **Antenatal Care.**

Guide her when to push and when to blow to control the speed of the delivery. You need to watch the progress of the baby's descent and coach the woman so the baby's head can be born slowly. Advise her:

- If the baby is coming slowly she should push with each contraction.
- If the baby is coming very fast, ask her to stop pushing with a contraction and try to deliver the baby between contractions. To keep from pushing, the woman should blow with short fast hard breaths. Advise her by saying to her "Blow, blow, blow -- don't push -- blow, blow, blow". After the contraction is finished, ask her to give a small push. Each time, a little more of the head will come out. Keep the baby's head flexed. After the widest part of the head comes out, the rest of the head may come out without any pushing at all. During antenatal care in the third trimester, teach the woman how to stop pushing and review it again during labor.

6. **Check for the cord** around the baby's neck when the head is delivered. Again ask the woman to blow so she does not push. Feel for a cord around the baby's neck. If you see or feel the cord, usually you can gently loosen it and slip it over the baby's head or shoulders as it is born. If the cord is very tight, clamp it in two places and cut the cord, protecting the baby's neck with your hand. Cutting the cord before birth may cause reduced blood volume, anemia, and shock to the baby. Be prepared for resuscitation.

7. **Wipe the baby's face.**

8. **Deliver the baby's shoulders.** After wiping the baby's face, ask the woman to give a gentle push. Cup your hands parallel around the sides of the baby's head. Do not hold the neck. To prevent tearing of the birth canal, it is best to deliver one shoulder at a time.
   - Deliver the upper (anterior) shoulder. Gently move the baby's head toward the woman's coccyx.
   - Deliver the lower (posterior) shoulder. Gently move the baby's head toward the woman's abdomen.
   - Do not bend the baby's neck or pull on the baby's head too much or too hard. Do not pull with your fingers around the baby's neck or under the baby's arm pits.

9. **Deliver the baby's body.** After the shoulders are born, the rest of the body usually slides out easily. Remember that new babies are wet and slippery.

Active Management of Third Stage Care

1. **Give oxytocin for placenta separation.**

   a. Once the baby is born, note the time of birth and lay the baby on the mother's abdomen OR on the delivery table or bed between the mother's legs so she can see and touch her baby.

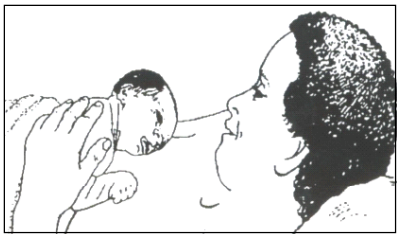


Figure 27. Skin to skin.
Source: Israel & Kroeger 2003.

   b. **Give newborn care**. Dry the baby with one cloth, including the head and face. This stimulates breathing and prevents the baby from getting cold. LOOK to see if the baby is breathing. If not breathing, help the baby breathe, see Module 6: **Resuscitation** and *Guide for Caregivers – Protocols*.

   c. Remove first cloth. Place baby skin to skin on the mother's abdomen, Figure 27.

   d. Cover with another dry cloth for warmth including the head. If there is a head cover like a hat, put it on the baby. Treat the new baby gently, birth is difficult.

   e. **Feel the uterus** to make sure there is no other baby.

   f. **Give 10 units oxytocin IM,** within 1 minute after the birth for placental separation, if no other baby is felt.

   g. **Clamp and cut the cord** 2-3 minutes after birth. "Blood volume is increased when cord clamping is delayed 3 or more minutes, even when the baby is placed on the mother's abdomen," (Mercer, 2001). Prevent blood splashing when cutting the cord:
      - Clamp or tie cord on baby's side
      - Milk cord to drain blood toward the placenta
      - Clamp or tie cord on placental side
      - Cut the cord between the 2 clamps (ties)

Figure 28. Clamp, cut cord.

   h. Keep mother and baby together. Let the mother hold her baby close, skin to skin, close to the breast. Cover mother and baby to keep them warm.

   i. Give the baby an Apgar score. "The Apgar score, at 1 minute of age, focuses attention on the condition of the infant immediately after birth. At 5 minutes, it is a rapid method for assessing effectiveness of newborn care and the condition of the infant," (Papile, 2001). Give the baby an Apgar score at 1 and 5 minutes after birth by giving points for the following criteria.

- LOOK at the color of the baby's skin.
- LISTEN / FEEL the baby's heart beat, count the number of beats in a minute.
- LOOK at the baby's face for response when you touch the feet or rub the baby with your fingers
- LOOK as the baby moves its arms and legs.
- LOOK at the baby's chest and abdomen to see the baby breathe.

APGAR Score: Normal Score = 7-10, Abnormal Score = 0- 6

Criteria	2 Points	1 Point	0 Points
Appearance (color)	Completely pink body and face	Pink body, blue arms and legs	Pale or blue body and face
Pulse (heart beat)	More than 100 beats per minute	100 or less beats per minute	No heart beat
Grimace (reflex to stimulation)	Crying, coughing, or sneezing	Grimace or puckering of face	No response
Activity (muscle tone)	Active movement, waving arms and legs, flexion	Some movement, some flexion	Limp arms and legs, no flexion, no movement
Respirations (breathing)	Strong cry, regular breathing	Slow, irregular breathing, retracting of chest wall, grunting or weak cry	No breathing, no cry

2. Deliver the placenta and membranes

a. **Guard the uterus.** Place the side of one hand just above the pubic bone and against the lower half of the contracted uterus. This counter-pressure supports the uterus, preventing uterine inversion and prolapse, see Figure 29.

b. **Hold the cord** close to the perineum by wrapping the cord around your fingers. With a uterine contraction, gently pull (follow the curve of the birth canal) with a firm, steady tension on the cord to guide the placenta out (controlled cord traction). **Be patient.** Sometimes the vaginal muscles contract and hold the placenta. It takes steady pressure for the vaginal muscles to relax and release the placenta. **Do not pull too hard** so you do not pull the cord off. The pressure should not be so weak that it does not work. Practice will make you comfortable with what is the best amount of tension.

Figure 29. Deliver placenta.

c. **Release the cord and uterine pressure as the placenta comes out.** Support the placenta with both hands. Deliver the placenta slowly to prevent tearing of membranes.

d. **Deliver the membranes** by gently turning the whole placenta. The turning makes the membranes like a rope and much stronger. **Move placenta and membranes up and down** until membranes are completely delivered, see Figure 30. Remember that a small amount of retained membranes can prevent the uterus from contracting.

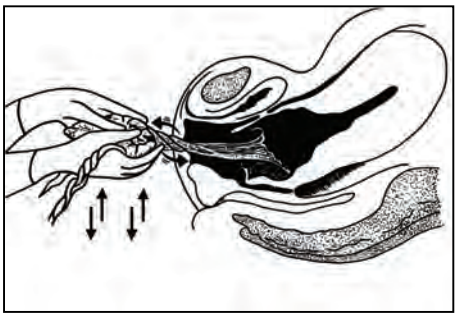


Figure 30. Deliver membranes.

Figure 31. Rub empty uterus.

3. **Rub the uterus immediately** after delivery of the placenta and membranes until the uterus gets hard, see Figure 31. Sometimes blood and clots will come out when massaging the uterus.

4. **Inspect placenta and membranes for completeness**, see Module 5: **Hemorrhage** for more information. Save **all** blood clots and blood stained cloths so you can look for products of conception and estimate the amount of blood loss.

Fourth Stage Care

1. **Check the genitals for tears** and any problems, see Module 4: **Episiotomy.**

2. **Monitor the woman and baby closely the first 6 hours postpartum.** Immediately after delivery, the mother is tired. Her cervix is still dilated. It is easy for her to get an infected uterus. Very heavy bleeding (hemorrhage) is also dangerous. It is the single largest cause of maternal deaths the first 4 hours after delivery, even in normal births. Prevent and manage signs of hemorrhage, infection, anemia and high blood pressure. The baby is just learning how to breathe and suck. Staying warm is critical. It is easy for a newborn to get an infection. Everything touching the baby must be as clean as possible.

   Give active fourth stage care to the woman and baby to prevent and recognize problems early. Close monitoring, support and counseling are part of active fourth stage care. If at all possible, the woman and baby should remain in, or close to, the birthing area for the first 3 hours of active care, see Module 10: **Postpartum**. Check the woman and baby every 15 minutes for 2 hours, every 30 minutes for 1 hour, and every hour for 3 hours.

Fourth stage active baby care

LOOK for breathing, warmth, sucking, and cord for bleeding.

- **Breathing.** Check the baby for breathing. Sometimes new babies forget to breathe and need a little stimulation like rubbing the back.
- **Warmth.** Encourage skin to skin contact to keep the baby warm and to encourage breast feeding as soon as the mother and baby are ready. Keep the baby with the mother, covering both. Delay first bath for 24 hours.

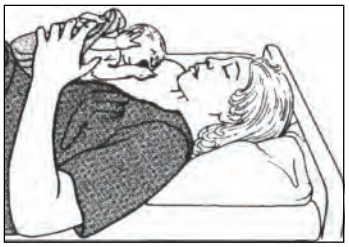


Figure 32. Skin to skin.
Source: King 2003

- **Sucking.** Check the baby for sucking. The baby takes the breast at her own speed. "The average time for a baby to attach spontaneously to the breast is 30 - 60 minutes," (Kroeger, 2004). Nipple stimulation and sucking help stimulate uterine contractions.
- **Cord.** Check cord for bleeding. Give cord care.

Fourth stage active mother care

- **Blood pressure and pulse.** Important signs for shock, hemorrhage and pre-eclampsia.
- **Uterine firmness.** FEEL the uterus to be sure it is firm and rub the uterus. Teach the woman what her firm uterus should feel like. She can rub it to keep it firm.
- **Vaginal bleeding.** LOOK at the amount of bleeding to make sure that the woman is not bleeding too much (hemorrhage). It is normal for the woman to bleed after the birth. The blood looks like the monthly menses. The blood comes out in little amounts when the uterus contracts and when the woman coughs, moves or stands.
- **Bladder.** Encourage the woman to empty her bladder every 2 hours.
- **Bonding.** The first hour after birth is the most important time for bonding. Do not hurry the newborn to the breast. Give healthy newborns uninterrupted full skin to skin contact with the mother. Attaching to the breast begins the bonding between mother and baby.
- **Other care. Help the woman clean herself after birth.** Wash your hands and put on gloves. Remove any soiled cloths. Wash blood and fluids off the woman's body. Wash the woman's genitals downward, away from the vagina using clean soapy water solution and a clean cloth. Be careful not to bring the cloth from the anus towards the vagina. Teach the woman about perineal care, see Module 10: **Postpartum.** Help the woman eat and drink. Most women are ready to eat soon after birth. If she is not hungry, she should take something to drink to get her strength back.
- **Give the new family some time alone if the woman and baby are healthy.**

3. **Record information** including the amount of blood loss, in appropriate charts, birth logs or other documents. If the baby had trouble breathing, include condition at birth, care given, results, and Apgar score in your record. Always sign any information you write.

Summary of Steps for a Normal Birth

Support the head and the perineum.	
Check for the cord around the neck.	
Wipe the baby's face.	
Deliver baby's shoulders and body.	
Put baby on mother's abdomen or on table between her legs.	
Dry baby, including head and face, with a cloth, and remove wet cloth.	
Clamp and cut cord 2-3 minutes after birth.	
Warm baby skin to skin with mother, cover with a second cloth, including the head.	
Keep mother and baby together.	
Give Apgar score.	
Third stage: Active management	• Feel uterus for another baby. • Give oxytocin within 1 minute of birth, if no second baby. • Deliver placenta and membranes. • Rub uterus immediately after delivery of placenta/membranes.
Fourth stage: Woman check	• BP and pulse. • Bleeding. • Firm uterus. • Empty bladder.
Fourth stage: Baby check	• Breathing. • Sucking. • Warm: skin to skin. • Cord for bleeding.
Give postpartum care.	
Teach woman to keep uterus firm and how to help the baby attach.	
Record information and sign.	

Review Questions

What Did I Learn? Find what you know and understand from this section. Answer the following questions. When you are finished, look for the answer in the module on the page written in parentheses ( ).

1. Mrs.T. is in second stage and is using the semi-sitting position for pushing. She is not making any progress after pushing for 20 minutes. What are 2 things that you can do to help Mrs. T. push better (page 3.54)?

2. What can you do to help prevent tears around the vaginal opening and perineum (pages 3.55-3.56)?

3. Mrs. T.'s baby is born. At one minute after birth the baby is flexing the arms and legs with slow, irregular breathing. The heart rate is 128. The baby is trying to cry and the body is pink with blue arms and legs. What Apgar score will you give (page 3.58)?

Color (appearance)	
Heart Rate (pulse)	
Reflex (grimace)	
Tone (activity)	
Breath (respirations)	
TOTAL	

What care will you provide for Mrs.T.'s baby, at this time (pages 3.57)?

At 5 minutes after birth, the baby is now crying loudly with a pink body. The hands and feet are still blue. The heart rate is 130, and the baby is grabbing at the blanket. What Apgar score would you give (page 3.58)?

Color (appearance)	
Heart Rate (pulse)	
Reflex (grimace)	
Tone (activity)	
Breath (respirations)	
TOTAL	

Learning Aid 1 – Cervical Dilatation Measurements

The dilatation of the cervix is measured in centimeters (cm). There is a circle of cervix felt at every dilatation.

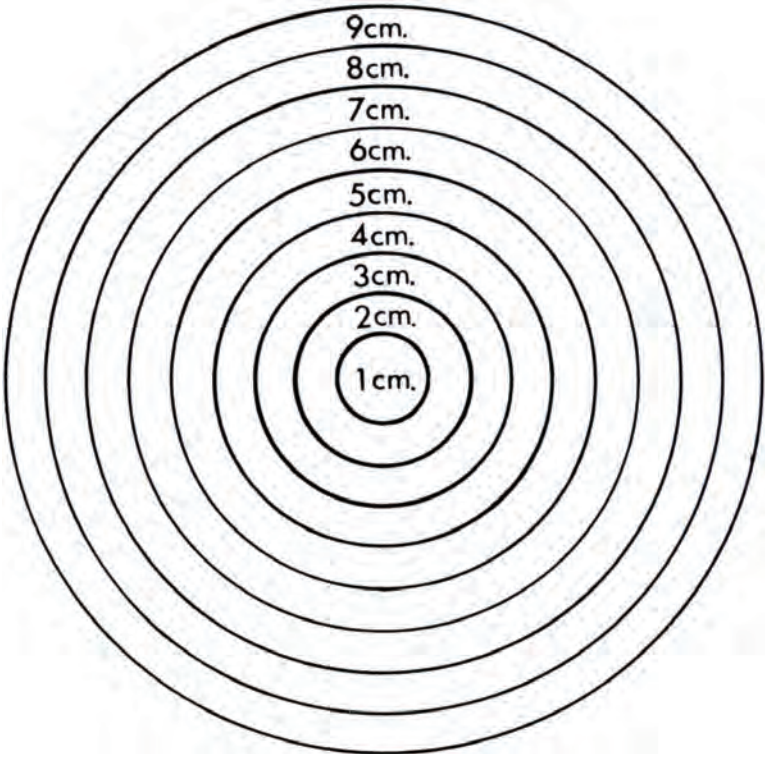


Figure 33. Measurement guide.

When the woman has reached 7 cm dilatation, think about the amount of cervix remaining during each vaginal examination. When the dilatation is 9 cm, you feel only a very thin rim of cervix. You know that the cervix soon will dilate completely. You know that second stage will soon begin.

Learning Aid 2 – Prevention of Mother to Child Transmission (MTCT) of HIV during Labor and Delivery

Source: Israel and Kroeger 2003.

The majority of women living with HIV/AIDS are asymptomatic and will either be untested, or shy about sharing their sero-status. An estimated 10-20% of MTCT of HIV happens in labor and delivery. This happens when the baby comes in contact with HIV positive mother's blood or body fluids or when there is an infection in the uterus. Half of these MTCT infections can be prevented with antiretroviral therapy and more can be prevented by reducing the baby contact with the mother's blood and fluids.

Counseling, Testing and Antiretrovirals. HIV-infected women should be offered antiretroviral therapy in labor to reduce MTCT. For women whose HIV status is unknown, some programs are now offering HIV rapid testing in labor or immediately postpartum, see Module 2: **Antenatal** and *Guide for Caregivers – HIV/AIDS Counseling.* In a Cameroon program, labor wards offered rapid testing for HIV. They had a 93% acceptance rate, and 11% of women tested positive. All positive women and their babies then received nevirapine, which can reduce MTCT by 50%. Recommended care of HIV-infected women during labor and birth is similar to routine labor and birth care with a few differences as noted below.

Labor and Delivery Practices to Reduce MTCT

- Continuous labor support
- Infection prevention precautions
- Monitor labor with partograph
- Minimize vaginal examinations
- Treat signs of infection
- Avoid early rupture of membranes
- Reduce episiotomies, lacerations, and instrument assisted births
- Immediate newborn care including safe cord care, reduce aggressive suctioning at birth
- Anti-retroviral drug therapy for woman and baby, if available and acceptable
- Immediate postpartum care for woman including initiating baby feeding as decided by woman

Continuous Labor Support. Women live with the stigma of HIV/AIDS and will benefit from kind and compassionate midwives and support helpers. Support during labor for all women, especially from a friend or relative, has a positive effect on delivery and reduces the need for interventions. Keep the woman calm, encourage her, help her with walking, position changes, fluids to drink, and light food to eat. Welcome her support helper and explain progress as it continues.

Infection Prevention. Midwives and other care providers should use universal precautions, wear gloves and dispose of waste safely. There should be a dedicated supply of antiretrovirals for staff who have contact with blood and fluids contaminated with HIV (like needle pricks). Try to reduce baby contact with maternal blood and vaginal fluids by following suggested care procedures, see Module 7: **Infections**.

Monitor Labor Using the Partograph. The partograph tells us that labor is progressing normally and warns us when labor is not progressing well.

Artifical Rupture of Membranes (ARM). This procedure has been used to speed labor and birth. When done too soon, ARM can increase chances of infection and increase the risk of MTCT. Artificially rupture membranes only when labor is not progressing normally. If at all possible rupture membranes during second stage between contractions to prevent splashing of fluid.

Vaginal Exams and Vaginal Cleansing. Vaginal exams should be done as gently as possible, and only as necessary according to partograph guideline. In HIV-infected women, frequent vaginal exams increase the risk of MTCT. Cleansing the birth canal with 0.25% chlorhexidine solution reduces neonatal and maternal postpartum infections (no information on MTCT). The maternal birth canal is wiped with a 0.25% chlorhexidine solution at admission and at every vaginal examination before delivery. The vagina may be wiped when membranes rupture. Babies may be wiped with chlorohexidine solution after birth.

Minimize Episiotomies and Lacerations. An episiotomy increases a woman's risk of too much bleeding, infection, and painful healing. The contact of the baby with the mothers' blood may increase MTCT. An episiotomy is done when the woman or baby is in distress, to give a faster delivery of the baby, or when the perineum is preventing the progress of second stage. The midwife should help the woman choose a birthing position to reduce the risk of lacerations. Midwives can help the woman during delivery to slow the birth of the baby's head preventing lacerations, see Module 4: **Episiotomy**.

Reduce Use of Forceps and Vacuum Extractors. Using forceps and vacuum extractors can cause more contact of the baby with the mother's secretions and blood. Forceps and vacuum extractors can cause trauma to the baby's skin and the woman's vaginal mucosa. They may cause cuts and bleeding and give more chance of infection. Forceps, extractors and other instruments for delivery should only be used when other interventions fail.

Cord Care. Care for the umbilical cord to prevent blood splashing. Put first clamp on close to the baby. With your gloved fingers, milk the blood in the cord toward the placenta. Put the second clamp on closer to the placenta. Cut the cord between the 2 clamps, holding a cloth or gauze over the cord to prevent splashing.

Immediate Newborn Care. The best care for newborns of HIV infected women is the same as for all newborns: dry, warm, give an Apgar score, avoid aggressive suctioning, put skin to skin and delay bathing.

Some Ways to Reduce the Risk of MTCT with Breast feeding

Counsel women in antenatal clinic on optimal feeding practices:

- Initiate breast feeding soon after delivery.
- Practice good breast feeding techniques to prevent cracked nipples. Treat oral lesions in the baby.
- Exclusively breastfeed babies for first 6 months, then introduce appropriate complementary foods.
- Limit / avoid mixed feedings (breast milk and complementary foods).

Learning Aid 3 – First Stage Slow Labor Progress, Woman Distress in Labor, Fetal Distress in Labor

PART 1: Slow Labor Progress and Findings			Actions
False Labor	Term pregnancy, 37 or more weeks gestation	No contractions or infrequent contractions	• Examine for urinary tract or other infection or ruptured membranes. • Not in labor, no abnormal findings, woman can go home or to waiting house. Give date for 1 week ANC
		Cervix not dilated or dilated 1-2 cm in multipara, infrequent contractions	
Prolonged Latent Phase		Contractions 2 or more in 10 minutes, each lasting 20 seconds or more, no cervical dilation	• Monitor contractions, descent and FHR hourly • Fluids: 250 cc/hour or more • Empty bladder • Latent labor care
		If contractions same or more in 4 hours and cervical effacement and dilatation changed – early labor	Continue to monitor labor progress, fluids, empty bladder, change positions
		If contractions same in 4 hours and no cervical changes	See false labor above
		Contractions same or more in 4 hours and cervix 4 cm – active labor	Active labor care
		Any abnormal findings	**REFER** to doctor at hospital
Between Alert and Action Line	Not at hospital	If membranes not ruptured AND cervix dilated 7 cm or more, AND descent is 0/5 (delivery is expected soon) and baby is not in distress	ARM between contractions, fluids, empty bladder, change positions, deliver
		If cervix dilated less than 7 cm (delivery not expected soon)	**REFER** to doctor. During referral: fluids, empty bladder, be prepared for delivery
	At hospital	Cervical dilatation between alert and action line	**REFER** to doctor. Continue according to partograph protocol and doctor advise
At and Beyond Action Line	Not at hospital	Active labor, slow cervical dilatation	• **REFER** to doctor. During referral give IV, empty bladder with catheter, give IM analgesic, monitor according to protocol • If unable to refer, hydrate, ambulate, monitor hourly, give IM analgesic, try urgently to organize transport, advise family of danger.
	At hospital		**REFER** to doctor, continue according to doctor protocol
CONTINUOUS SUPPORT FROM FAMILY AND MIDWIFE THROUGHOUT LABOR AND REFERRAL IS ESSENTIAL AND LIFE-SAVING.			

PART 2: Woman Distress in Labor		Action In Labor
VITAL SIGNS	**BLOOD PRESSURE** above 140/90	Take every 30 mins for 3 times, woman lie on left side, hydrate. • If BP **decreases**, monitor every ½ hour during labor. • If BP is still **high**, **REFER**
	BLOOD PRESSURE above 140/90 AND headache, OR blurred vision, OR brisk/quick reflex (hyper-reflexia).	**REFER. To prevent or control eclamptic fits:** • Give magnesium sulfate ($MgSO_4$) solution 20% - 4 grams (or dilute 8 ml of 50% $MgSO_4$ solution with 12 ml sterile water). Give IV slowly over 10 mins. Also give 10 gm 50% $MgSO_4$ solution IM deep (5 gm each buttock). If convulsion recurs after 15 mins give 2 gm of 50% $MgSO_4$ solution IV over 5 mins. • If unable to give IV, give two 7.5 gm 50% $MgSO_4$ solution IM deep in each buttock • Go with woman to doctor/hospital. Every four hours give 5 gm 50% $MgSO_4$ solution into alternate buttocks until reaching hospital unless respiration below 16 per minute, no reflexes, no urine output. If respirations stop, give calcium gluconate 1 gm (10 ml of 10% solution) IV slowly and see Module 6: **Resuscitation**. **Note:** If no $MgSO_4$, give diazepam 10 mg IV slowly over 2 minutes or 20 mg IM. If convulsions recur, repeat diazepam. Do not give more than 100 mg in 24 hours. **If referral is impossible and:** • **Close to delivery:** Manage as above, deliver quickly with vacuum extractor, active management third stage, be prepared for depressed baby and convulsion in woman. • **Early labor:** Give intramuscular anticonvulsant as above and hydrate. **REFER** if at all possible. Monitor labor, bedrest, and watch for signs of eclampsia.
	BLOOD PRESSURE below 90/60	Take every 30 minutes for 3 times, hydrate. LOOK for cause: illness, bleeding, infection, shock. If still less than 90/60 **REFER** if close to doctor. If pulse and temperature are normal continue to monitor labor, or if close to delivery, deliver.
	PULSE continuously above 90 or below 60 beats per minute	Take pulse every 30 minutes for 3 times between contractions, hydrate. If condition remains the same, look for cause. If blood pressure and temperature normal, continue to monitor labor and deliver. **REFER** if close to doctor.
	TEMPERATURE 38°C (100.6°F) or above	LOOK for signs of infection, malaria or dehydration. **REFER** if needed. Manage according to protocol.
PRESENTATION	Breech or Shoulder	• Do vaginal exam: If breech and no cord felt, see **Learning Aid 8: Breech.** If shoulder, REFER.
BLADDER	Full or distended bladder	If unable to urinate, catheterize.
CORD	Prolapsed cord. This is an **emergency.**	See **Learning Aid 6: Umbilical Cord Prolapse**

PART 2: Woman Distress in Labor		Action In Labor
DISCHARGE	Meconium stained liquor, yellow or green stained fluid or thick greenish stained liquor. Think of fetal distress.	Check condition of baby and cervix. If delivery not expected soon, **REFER**. Be prepared for resuscitation.
	Greenish, thick or frothy (bubbly) vaginal discharge, membranes intact. Think of STI.	Give broad spectrum antibiotics. Be prepared to treat baby's eyes.
	Black / green, thick vaginal discharge. Think of breech presentation.	Check condition and presentation of baby. See **Learning Aid 8: Breech Presentation**
MEMBRANES	Ruptured **less than 18 hours**, no contractions, term, clear or milky liquor, fetal heart tones in normal range	• **If head floating, no cord prolapse:** hydrate, rest. • **If head not engaged with cord prolapse**: hydrate, knee chest position. See **Learning Aid 6** • **If head engaged**: wait for labor, hydrate, encourage walking and resting, watch for signs of infection.
	Ruptured **18 hours or more**, no contractions, term, clear or milky liquor, fetal heart tones in normal range	Give broad spectrum antibiotic, hydrate, monitor for cord prolapse, **REFER**
	Ruptured before labor begins and pregnancy 28 to 36 weeks	**Do not do a vaginal examination,** give broad spectrum antibiotics and **REFER**
BREECH	Complete breech (thighs and legs flexed) or incomplete breech (frank/with extended legs). Footling breech is rare.	• Starting at 36 weeks, not in labor, membranes intact: attempt cephalic version. See Module 2: **Antenatal, Learning Aid 9: External Cephalic Version** • Explain to woman and family the importance of a hospital delivery if baby stays breech
	Term, breech, and not in labor	Refer to hospital **if at all possible.**
	Term, breech, and in labor	Refer to hospital **if at all possible. Or** continue with breech delivery procedure. See **Learning Aid 8: Breech**
OTHER PROBLEMS	Occipitoposterior Position	See **Learning Aid 5: Occipitoposterior Position**
	Shoulder Dystocia	See **Learning Aid 7: Shoulder Dystocia**
	Face, Brow, Shoulder Presentation, Transverse Lie or Multiple Pregnancy	Give intramuscular analgesic and IV. **REFER** as soon as possible to doctor or hospital. See **Learning Aid 9: Malposition and Malpresentation**
CEPHALOPELVIC DISPROPORTION OR OBSTRUCTED LABOR	Cervical dilatation and descent of presenting part stopped with good contractions. Molding, cervix poorly applied to presenting part, swollen cervix, possible retraction band, woman and baby in distress. Partograph action line reached or crossed.	**REFER.** During referral to doctor or hospital: Give IV fluids. Empty bladder frequently. Encourage change positions frequently (standing, squatting, sitting, lying on left side). Assess woman's fear/ anxiety level. Counsel, support, encourage family to support woman. Continue monitoring.
UTERINE INERTIA	Contractions not frequent, not painful, weak and slow cervical dilatation	See **Learning Aid 4: Tired Uterus. Be prepared for PPH.** Give fluids. Empty bladder frequently. Encourage to change positions frequently (walking, squatting, sitting in chair with legs open, lying on left side). Encourage labor exercises (pelvic rock, side rock). Give enema (plain water) if head not floating. Nipple stimulation. Assess woman's fear/anxiety level and give counseling and support. Continue to encourage family to support woman. Continue monitoring. **If after 4 hours no progress (reaches partograph action line), REFER to doctor or hospital**

PART 3: Fetal Distress		Action in Labor
HEART RATE	• Heart rate faster than 160 or slower than 120 beats per minute OR • Sudden change in the sound of the heart rate OR • Heart rate during and at end of contraction less than normal heart rate between contractions	Be prepared for a depressed baby at delivery. **In second stage:** Check woman's temperature and urine output to decide if fast FHR due to dehydration or infection. Hydrate woman, help change her position and deliver her as soon as possible making an episiotomy and using the vacuum extractor, if available. Remember to check for cord around the neck as soon as the baby's head is delivered. **Not in second stage:** Check woman's temperature and urine output to decide if fast FHR due to dehydration or infection**.** LISTEN to the heart rate during a contraction, if possible, and for 15 – 30 seconds after contraction ends. Change the woman's position **frequently** after listening to an abnormal heart rate. Do not have the woman lie on her back. Hydrate, watch for cord prolapse, and **REFER**. If referral not possible, closely monitor until delivery.
MECONIUM	Baby passes meconium stool causing a thick meconium stained liquor (amniotic fluid) to come from the vagina of the woman. The baby MAY be in distress from lack of oxygen and/or may be breech.	Check heart rate of the baby. Check for breech. If delivery not expected soon, **REFER.** If transportation is delayed, continue to monitor labor, change woman's position, hydrate her and be ready for delivery. Be prepared to do infant resuscitation and suction very thick meconium after delivery, if baby is having trouble breathing.
ACTIVITY	The baby moves around a lot in the uterus, as if it is having a problem and is trying to move around and get rid of the problem. The baby may even be having fits (convulsions).	If delivery not expected soon, **REFER** if at all possible. **Check the heart rate every 5 minutes.** If the heart rate is not within normal limits, check for prolapse of the cord. Be prepared for a depressed baby. Hydrate woman, change position and monitor labor.

Learning Aid 4 – Tired Uterus (Uterine Inertia)

Uterine inertia refers to low or poor tone in the uterine muscle fibers. This causes weak, irregular uterine contractions that are not as painful. Cervical dilatation is slow and labor is prolonged. If labor goes on for many hours without progress, the woman will be too tired for the active phase of labor and giving birth. Uterine inertia happens when a woman has had many children. Primary uterine inertia in a primigravida may be the first sign of CPD. Uterine inertia can happen in latent and active phases.

ASK and LISTEN. The woman will tell you that the contractions are not as painful. The woman feels good in the beginning because she is able to rest. Later she becomes tired and distressed because no progress is being made.

LOOK and FEEL. Contractions are few, lasting less than 20 seconds and are mild. The uterus can be indented (pressed into) even at the peak (strongest part) of a contraction. Abdominal examination shows slow or no fetal descent. The vaginal examination shows lack of progress in cervical dilatation and fetal descent. Pelvic assessment is often adequate, see Module 9, Learning Aid 12 – Measure the Size of the Pelvis. The following actions may help.

TAKE APPROPRIATE ACTION

1. Prevent maternal exhaustion by giving fluids and food. Help the woman to get comfortable, maybe have a bath, or take a walk. Give or ask support person to give a back massage to help her relax and rest. Reassure the woman and her family. Sometimes emotions such as fear or not wanting another baby can slow a labor. Talk with the woman, support and encourage her.

2. Help the woman learn how to stimulate her nipples, explaining that this may help to encourage the contractions. The nipple can be stimulated by rolling the nipple between your thumb and finger, pulling a little on the nipple. Contractions should start to get stronger within about 30 minutes. If they do not, nipple stimulation probably will not help.

3. If labor progresses to delivery, be prepared for postpartum hemorrhage. Do active management of third stage. The tired uterus may fail to contract well after delivery and the woman may bleed too much, see Module 5: **Hemorrhage**.

4. If you find fetal or maternal distress, cloudy or bad smelling amniotic fluid, signs of infection, or if the labor crosses the alert line on the partograph, **REFER** to a doctor or hospital for further assessment and possibly oxytocin augmentation. See **Learning Aid 3: Identify Problems and Take Action for Woman and Baby**. Explain to the woman and her family that at the hospital the doctor may help to stimulate her labor to help her uterus contact.

5. Record all actions.

Learning Aid 5 – Occipitoposterior Position

Most babies deliver head first, looking toward the back of their mother (occipitoanterior position). One of 10 babies (10%) comes head first, looking toward the stomach of their mother (occipitoposterior position). An occiput posterior position of the vertex may deliver without problems, but the woman's labor is often longer. With an occiput posterior position, the head does not flex forward so a larger diameter of the baby's head goes through the pelvis. The cervix dilates more slowly, labor is longer and there is a danger of fetal and maternal distress.

A Midwife's Experience...

One day there was a primigravida, 9 cms dilated with a persistent occiput posterior. The vital signs were normal and the contractions were good. Her back was very painful. The baby just did not move down. Remembering my LSS training, I helped the mother onto her hands and knees, resting her head on a cloth between contractions. After 2 contractions, the mother was fully dilated and delivered a crying baby. I felt a little afraid delivering the baby with the mother in this position, but there was no time!

LSS Midwife, Uganda

ASK and LISTEN. The woman will complain of a backache and seem restless as she tries to find a comfortable position. She will want to walk, sit, lie and turn, sometimes all at the same time.

LOOK and FEEL. Look at the abdomen. When there is an occiput posterior position you will often see a depression at or below the umbilicus. Sometimes it will look like the bladder is full. The high head with the depression above it looks like a full bladder. The woman often has a strong urge to push before the end of first stage because the back of the baby's head is pushing on her rectum.

Figure 34. High head may look like full bladder.

Feel the head. The most common cause of a high head in a primigravida during the later weeks of pregnancy and labor is posterior position. The head feels very large because the head is usually deflexed, with the occiput and sinciput at the same level in relation to the pelvic brim, so engagement takes place later, often only during labor. The back is difficult to feel. Limbs are felt on both sides of the abdomen. When you do a vaginal examination, you usually can not feel the posterior fontanelle until the head is flexed and low in the pelvis.

The first stage of labor may be slow even when there are good uterine contractions. Good contractions help the head to flex and descend. Spontaneous rotation to the anterior position happens 90% of the time. Sometimes, flexion and rotation do not happen. The baby is born with the persistent occipitoposterior position (POP). **The danger of an occipitoposterior position is that flexion does not take place and sometimes the head stops descending.**

TAKE APPROPRIATE ACTION

- **If the woman crosses the alert line and you are not at the hospital or with a doctor, REFER. Go with the woman and family to the hospital or doctor.**

- **If you are at the hospital and the woman crosses the alert line, notify the doctor. If the woman reaches the action line, REFER to the doctor.**

- **If you can not take the woman to the hospital or doctor, try to help the baby deliver:**

1. Explain to the woman and family what the problem is and what you are doing to help her.

2. Ask the woman to try to urinate every hour and drink frequently.

3. Help the woman to rest in a hands and knees position.

4. Encourage her to relax between her contractions by rubbing her back and whatever will help her to be comfortable.

5. Help her to change position at least every half hour. Try these positions: left side with pillow under her buttocks, sitting in a stool or small chair facing and leaning on a bed with legs open, then return to hands and knees position. In all these positions the woman's back is easily reached for massage.

6. Monitor her according to partograph protocol.

7. Be prepared for a depressed baby. Have resuscitation equipment ready, see Module 6: **Resuscitation**.

- **If you can not take the woman to the hospital or doctor and the cervix is fully dilated and the woman is ready to push, try to increase flexion:**

1. Make sure the bladder is empty.

2. Explain to the woman and family what you are doing.

3. Help the woman to get in a hands and knees position. If this position is difficult for the woman, help her to lie on her left side. Put a pillow or folded cloth under her hip and ask an assistant to hold the woman's right leg.

4. Insert your fingers into the vagina under the symphysis pubis.

5. Press on the baby's forehead before the next contraction.

6. Hold this position during a contraction to help flex the baby's head.

7. The baby's head should flex and deliver with 2 or 3 contractions.

8. If the baby's head does not flex and deliver; **between contractions** push the baby's head up above the ischial spines with your hand and try to help the head rotate. If this is successful, be prepared for a **very fast** delivery. Try to prevent the head from delivering too quickly. Sometimes the cord will prolapse, be prepared to manage prolapsed cord. (**Note** this action is suggested only when there is no possibility of reaching a facility where c/s is available.)

9. If the baby does not deliver, there may be a deep transverse arrest (DTA) when the ischial spines are prominent making it impossible for the head to flex. Without help the woman may either stop having contractions or her contractions continue and she may rupture her uterus.
   - Help the woman into a squatting position and try to flex the fetal head between contractions.
   - Encourage the woman to push well with each contraction.
   - If this does not work, sedate the woman with an injectable analgesic to stop contractions and prevent ruptured uterus.
   - Hydrate and reassure her. The baby may not live, but you can not give up. Help the woman and family.
   - Try to refer as soon as possible.

10. Be prepared for a depressed baby, see Module 6: **Resuscitation,** for bleeding from lacerations in the woman see Module 4: **Episiotomy,** for postpartum hemorrhage see Module 5: **Hemorrhage**.

11. Record your actions and outcome.

Learning Aid 6 – Umbilical Cord Prolapse

When the membranes (bag of waters) rupture, the cord will sometimes come down the birth canal in front of or beside the baby. Any problem that keeps the presenting part from fitting well into the birth canal also makes room for the cord to slip down past the baby. This is more likely to happen in a multipara woman when the presenting part is not engaged and the membranes rupture or are artificially ruptured (ARM). Other problems such as polyhydramnios (a lot of water or liquor), a long cord, a very large or very small size baby, a breech, or malpresentation may cause a prolapsed cord. If the cord is outside the vulva, the umbilical blood vessels can spasm because of the cooler temperature or manipulation. This spasm slows or stops the flow of blood and thus oxygen to the baby. Prolapse of the cord occurs about once in every 400 deliveries. **Cord prolapse is an emergency.**

A compressed cord is an emergency. We often do not know the cord is compressed. If the cord is around the baby's neck or body, has a knot, or gets caught in front or on the side of the baby, it can be compressed. In any of these situations, it is difficult for blood to get through the cord and bring oxygen to the baby. The baby may die from lack of oxygen.

ASK and LISTEN. Listen to the fetal heart beat routinely during labor. Any change in the fetal heart rate during labor may be a sign of fetal distress that could be caused by a prolapsed cord.

LOOK and FEEL. Look for the cord at the vulva when doing a vaginal examination, after spontaneous or artificial rupture of membranes, or when there is a sign of fetal distress. Every time you do a vaginal examination, FEEL for the cord, note the presentation and position of the baby and dilatation of the cervix.

IDENTIFY THE PROBLEM. Early identification of the problem may save the baby's life:

- The midwife feels the cord in the vagina, or sees cord outside the vulva.
- The baby's heart beat drops suddenly, especially right after the waters break, and does not return to normal.
- The baby's heart beat drops during a contraction, often down to 60 - 90 beats in a minute.

TAKE APPROPRIATE ACTION. Fast action may save the baby's life:

1. **If the cervix is fully dilated and the cord is beating, deliver as soon as possible with the woman in a knee chest position.** Use sterile or high-level disinfected gloves to FEEL for cervical dilatation and touch the cord gently to FEEL for a cord pulse (beat). Ask the woman to push hard with each contraction. If the woman is not successful delivering the baby, do a vacuum extraction. See Module 9: **Vacuum Extraction and Other Procedures**.

2. **If the cord is beating and the cervix is not fully dilated,** help get the woman to the hospital. A cesarean section is needed to save the baby.
   - While waiting for transportation, explain to the woman and family what you are doing.
   - Gently wrap the cord in a clean cloth to prevent chilling if outside the vulva. Try not to handle the cord as handling can produce a spasm of the umbilical blood vessels. A spasm will slow the supply of oxygen to the baby. Attempts to replace the cord inside the uterus usually fail. To replace the cord, you must handle it, and the cord can easily prolapse again, wasting valuable time.
   - Help the woman get into a position with her hips higher than her chest. A knee chest position is good but may be difficult during travel. A left lateral position with pillows under the buttocks is also good.
   - With sterile or high-level disinfected gloves, do a vaginal examination to push the baby's presenting part up, away from the cord to reduce pressure on the cord.
   - Place the other hand on the abdomen above the symphysis pubis to keep the presenting part out of the pelvis. Remove the vaginal examination hand. Continue this position until caesarean section.
   - Ask assistant to prepare equipment for delivery and infant resuscitation, see Module 6: **Resuscitation**. Take delivery and resuscitation equipment with you for referral.

3. **If it is not possible to get the woman to the hospital:**
   - Position the woman so her hips are higher than her chest, changing her position often (left lateral position with pillows under the buttocks, hands and knees, knee arm, or knee chest positions) and monitor the labor. Keep trying to get transportation; do not give up. Midwives report cases in which they kept pressure off the cord for 3 hours, and a live baby was delivered by cesarean section.
   - Keep the cord protected from cool air. Do not handle the cord.
   - Continue to push up on the presenting part with your gloved hand, especially during contractions.
   - Deliver the baby as quickly as possible once there is full dilatation of the cervix, asking the woman to push very hard with each contraction. If necessary, use a vacuum extractor. Be prepared for infant resuscitation, see Module 6: Resuscitation. Sadly, in this case the baby may die.
   - Be prepared to help the woman and her family the best you can.
   - When the delivery is completed, record actions and outcomes.

4. **If the cord has no pulse and there is no fetal heart beat,** the baby has already died.
   - If cephalic or breech, wait for full dilatation and deliver the baby vaginally.
   - If transverse lie, refer to doctor with surgical facilities.
   - Explain to the woman and family.
   - Continue to monitor the woman and support her during the labor.
   - Prepare the woman to deliver a stillborn baby.
   - Offer care and support to the woman and her family.

Learning Aid 7 – Shoulder Dystocia (Shoulders Are Stuck)

Shoulder dystocia is difficulty in delivering the shoulders at the time of a vertex birth. The shoulders are stuck. **The baby is in danger!** The baby may be injured or even die. **The woman is in danger!** She may get perineal and vaginal lacerations. The delivery is traumatic and painful. It is important for you to be able to manage shoulder dystocia, because you can only identify this problem after the head is born. The head seems to pull back against the woman, almost like it wants to go back inside.

ASK AND LISTEN. The best way to be ready to manage shoulder dystocia is to think about it and plan ahead for it. Shoulder dystocia is more common if the baby is very big and postmature (later than due date). It is also more common if the woman is a multipara, obese or diabetic. Fifty percent (50%) of the babies whose shoulders get stuck weigh less than 4 kg, so it can be a problem any time. **There are no reliable risk factors, so be ready for stuck shoulders with every baby.** The baby's head will be out, but the baby will not be able to breathe, so you have very little time.

LOOK AND FEEL. Sometimes it is possible to tell that the shoulders might get stuck by the way the head is born. The head may be born only after a lot of hard pushing, instead of coming out easily. The retraction of the baby's head against the perineum makes it look as if the head is going back into the vagina. This is called the turtle sign. Feel for an abnormal baby, locked twins, Bandl's retraction ring, or the cord, which may be short or around the neck.

IDENTIFY THE PROBLEM. The shoulders are stuck. One of the shoulders is stuck behind the woman's pubic bone (symphysis pubis). The baby's chin does not quite come out. The baby can not turn to face the woman's thigh. Even hard pushing by the woman will not bring the shoulders out. **The baby is in danger**.

TAKE APPROPRIATE ACTION

1. **Quickly Get Ready**. You must work calmly but quickly and direct your helpers. You may need all of the help you can get.
   - Refer as appropriate. Ask someone to call the doctor or transportation. It is really impossible to try to transport the woman at this time. However, you may need the transportation after the delivery. If available, you want the doctor to come as soon as possible. You may need help with resuscitation of the baby and caring for the woman. She may have a postpartum hemorrhage and/or lacerations to be repaired.
   - Prepare for resuscitation. Ask an assistant to prepare resuscitation equipment as in Module 6: **Resuscitation,** if not already prepared.
   - Prepare for hemorrhage. Ask an assistant to prepare the oxytocic. An over distended uterus from a large baby or a tired uterus from a long first or second stage increases the chance that the woman will bleed too much after delivery. See Module 5: **Hemorrhage**.

- Explain to the woman and her family the baby's shoulders are stuck. Tell them what you will do. Explain that you will ask the woman to work very hard, probably harder then she has ever worked. Her effort is very important as you help her to get the baby out. Everyone must think and listen very carefully. **This is an emergency.**
- If the cord is tight, clamp and cut the cord.
- Position the woman's buttocks higher than for a normal delivery when you are ready for her to push again. While waiting for preparations to be completed, ask the woman to lie on her back, plant her feet firmly on the bed, and lift her buttocks. Bring the woman's hips to the edge of the bed. If you are at a home delivery and she is on the floor, put something under her hips to raise them. This will give the baby's head more space when you deliver.
- Cut or enlarge the episiotomy, if necessary to give you more room to help deliver the shoulder, see Module 4: **Episiotomy**.

2. **Method 1: Use the Following Steps at the Same Time**

- Move baby's shoulders into oblique diameter. If the baby's shoulders are in transverse or anterior/posterior diameter of the pelvis, move the shoulders to oblique diameter. Ask the woman not to push. Place all fingers of one hand on the baby's chest and all fingers of the other hand on the baby's back. Press with enough force to rotate the shoulders to a right or left oblique. **Do not try to rotate the shoulders by moving the head.** This is a very important step.
- Help the woman flex her hips (McRobert's Maneuver). Ask your helpers and the woman to flex the woman's hips. They must do this very hard so her knees touch her breasts and are pulled out to each side. This may move the symphysis far enough upwards over the baby's shoulder to release the shoulder.
- Press down hard above the pubic bone. Ask another helper to push down hard just above the pubic bone while you pull down and out on the baby's head.
- Ask the woman to push while you pull with downward pressure firmly on baby's head. With a contraction, cup your hands parallel around the sides of the baby's head (do not hold the neck). With the woman pushing, firmly pull the head down towards the woman's anus and out while counting to 15. Be careful not to jerk, twist, or bend the neck. The pressure should be firm but not too much. If baby not delivered change direction and deliver shoulders with an upward pull while counting to 15. When you see the shoulder, pull up gently on the head and deliver. If baby does not deliver, ask the woman to take long slow breaths.

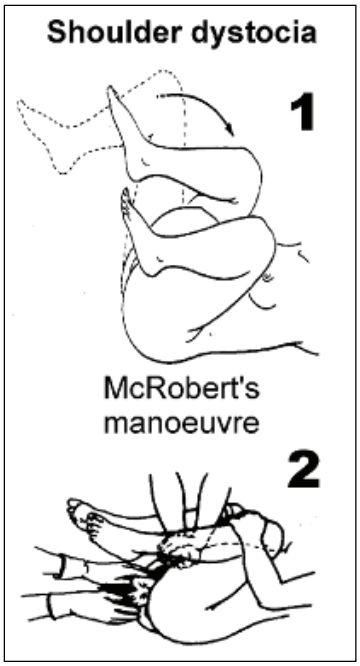


Figure 35. McRobert's Maneuver.
Source: King 2003 pg 21.6.

3. **Method 2: Deliver Posterior Arm**. Explain to the woman that you must put your hand inside her vagina to help the baby. You will try to be gentle, but it still may hurt.
   - Put your hand along the baby's lower back to find the posterior shoulder.
   - Follow the baby's posterior arm down to the wrist. Grasp the baby's hand.
   - Pull the baby's HAND up and across the baby's abdomen and chest to pull the posterior arm out of the vagina. If you pull using the baby's arm, there is a greater chance of breaking it. This may be a little difficult. Do not hook your fingers into the baby's armpit and pull as this will damage the baby.
   - Ask the woman to push, while you cup your hands around the baby's head and deliver the shoulders with downward and outward pressure while counting to 15.
   - If the baby does not deliver, change the direction and deliver the shoulders with upward and outward pressure while the woman is pushing and you count to 15.
   - If the baby does not deliver, encourage the woman and tell her that you will need to try something else to deliver her baby.

4. **Method 3: Use Corkscrew Method**.
   - Ask the woman not to push. Place all fingers of one hand on the baby's chest and all fingers of the other hand on the baby's back. Press with enough force to turn the baby one half circle so the posterior shoulder is where the anterior shoulder was located**. Always turn the body of the baby so that the back is anterior.**
   - Ask the woman to push, while you cup your hands around the baby's head and deliver the shoulders with downward and outward pressure while counting to 15.
   - If the baby does not deliver, again ask the woman not to push and turn the baby again one half circle keeping the back up.
   - Deliver the shoulders with upward and outward pressure while the woman pushes and you count to 15.
   - If the baby does not deliver, encourage her and tell her that you will need to try something else to deliver her baby.

5. **Method 4: Break the Baby's Clavicle** (collar bone).
   - Reach in with your fingers of both hands and find the anterior clavicle.
   - Pull up (so you do not puncture the baby's lung) on the middle of the clavicle between your two thumbs and break it. This takes much pressure. This will allow the anterior shoulder to become free from behind the symphysis pubis.
   - Ask the woman to push. At the same time, cup your hands around the baby's head and deliver the shoulders with downward and outward pressure while counting to 15.
   - If the baby does not deliver, change the direction and deliver the shoulders with upward and outward pressure while counting to 15.

6. Continue with infant care, third stage care of the woman, record actions taken.

Learning Aid 8 – Breech Presentation

In a breech presentation, the baby delivers with the buttocks or legs first. Breech delivery occurs in about 3 per cent of pregnancies. Remember 95% of breech babies are born without trouble, especially if the woman has other children. A breech presentation has 2 major dangers.

The **first danger** is that the head can get stuck (can not deliver). This may happen when the cervix dilates enough to deliver only the body of a small baby, but not enough to deliver the head. Also, the woman's pelvis may be wide enough for the body of the baby, but not the head.

The **second danger** is a prolapsed cord. The umbilical cord comes before the shoulders. The cord may be compressed, cutting off the baby's oxygen supply. Both dangers may cause the baby's death. For these reasons, it is best for a woman with a breech presentation to deliver at a hospital with a doctor where surgery can be done, if it is necessary. If your situation makes birth impossible at a hospital with a doctor, make sure you are skilled in breech birth.

A Midwife's Experience...

A gravida 3 with complete breech on the perineum was brought to me. The mother was pushing all of the time. I advised my assistants to help position the mother on her back with her buttocks at the edge of the table. I quickly scrubbed, put on gloves, cleaned the perineal area, and advised the mother to push long and hard with each contraction. I kept my hands together "like I was praying" and actually I was! I knew that I should not touch the baby until the hairline on the back of the neck was seen. I watched the buttocks, then the stomach, then the legs fall out. I felt the cord to make sure it was not tight. Then the mother pushed, the baby turned and the anterior arm delivered and then the posterior. (It all seemed like a dream.) I kept wanting to hold the baby, but was patient until the hairline was showing. Then I held both feet, extended the legs and body, and slowly delivered the head. I felt confident using this new delivery way.

LSS Midwife, Indonesia

When a breech is identified during antenatal examination anytime after 36 weeks, the woman should be advised to go to a hospital for an external cephalic version. If the baby is still breech she should go to the hospital for the delivery, see Module 2: **Antenatal**. If the woman had no antenatal care, you will not find the breech presentation until she is in labor. The family may call you or bring the woman to you, when the baby's body is delivered and the head is stuck. This baby may not live.

LOOK at the abdomen. It may look like a normal vertex presentation. FEEL the abdomen. At the lower part of the uterus, you will feel a large, soft mass (buttocks). In the top of the uterus you will feel a round hard mass (head) which can be moved, independent of the back. The fetal heart beat is usually heard around the woman's umbilicus until there is progress in descent.

FEEL cervix dilatation and the presenting part. When membranes rupture spontaneously, do a vaginal examination to FEEL for umbilical cord prolapse, dilatation of the cervix, presentation, position, and descent of breech.

Get supplies and equipment for a normal delivery and episiotomy if needed. You must have a table or a delivery bed for second stage. Be prepared for infant resuscitation and postpartum hemorrhage.

Delivering a Complete or Frank Breech

1. Assess labor progress. If you can not refer the woman to a hospital or doctor, then you must proceed. Explain to the woman and her family what you are doing and what you will do. Reassure them as best you can. *Explain to the woman even when she has a strong urge to push, she must wait until you tell her that her cervix is completely open.*

2. Check that she is fully dilated before she starts to push. *Tell her that when the cervix is fully dilated, she may push in a way that feels right to her.* Encourage the woman to push in any position that is comfortable. Make sure her bladder is empty.

3. When you see the baby's buttocks pushing on the perineum, help her into lithotomy position (lying on her back with legs bent). She should be: at the edge of the table or bed, feet supported, or she may want to spread her legs and pull them back when she pushes.

4. Wash your hands and put on gloves. Wash the genital area.

5. The breech will begin to pass through the outlet. **Now is the time for self control. Keep your hands off the baby until you see the umbilicus.** The baby's bottom and belly will usually be born without any help from you.

6. **When you see the umbilicus, touch the baby for the first time**. Use one finger to flex the baby's knees and pull down a loop of umbilical cord. This prevents compressing the cord. FEEL for pulsation. Handle the cord gently to prevent spasms of the blood vessels.

7. As the woman pushes, the buttocks and legs deliver, the body usually hangs down and the back turns from oblique to directly upwards (anterior). The face is looking down towards the woman's back. Wrap the baby in a blanket or cloth to keep warm. **Do not push on the uterus or the baby**.

8. The body slowly rotates (turns) as the first shoulder and then the other shoulder delivers. The arms become visible. They are usually folded across the chest. If the arms do not deliver with the next contraction, free the posterior arm first. To do this insert 2 fingers into the vagina, FEEL the baby's humerus and follow it to the elbow. Splint and support the arm between your fingers and bring it downward. Then the anterior arm will usually deliver.

9. As the woman pushes, the baby is born to the neck. Allow the baby to hang by its own weight, which brings the flexed head down to the pelvic floor. The occiput and back rotate upwards (anterior).

10. The baby can hang for 1 - 2 minutes. Gradually the neck delivers, and you can see the hairline and feel the suboccipital region. If you have problems with the descent or delivery of the head, use Jaw Shoulder Traction below.

Jaw Shoulder Traction (Mauriceau Method)

Source King 2003, pg 21-12.

Use this method if you have problems delivering the head because it is not flexed enough.

1. If you have an assistant, have her apply suprapubic pressure to keep the head flexed, Figure 36-A.
2. Lay baby face down with the length of its body over your hand and arm.
3. Place first (index) and third fingers of this hand on the baby's cheekbones.
4. Place second finger in the baby's mouth to pull the jaw down and flex the head.
5. At the same time apply downward pressure on the jaw to bring the baby's head down until the hairline is visible.
6. Use your other hand to grasp the baby's shoulders and place the middle finger on his occiput. You can now gently flex his head toward the chest and deliver him, see Figure 36-B.
7. Ask the woman to push as you pull gently to deliver the head. Ask the assistant to push gently above the woman's pubic bone as the head delivers.
8. Raise the baby, until the mouth and nose are free, see Figure 36-C.

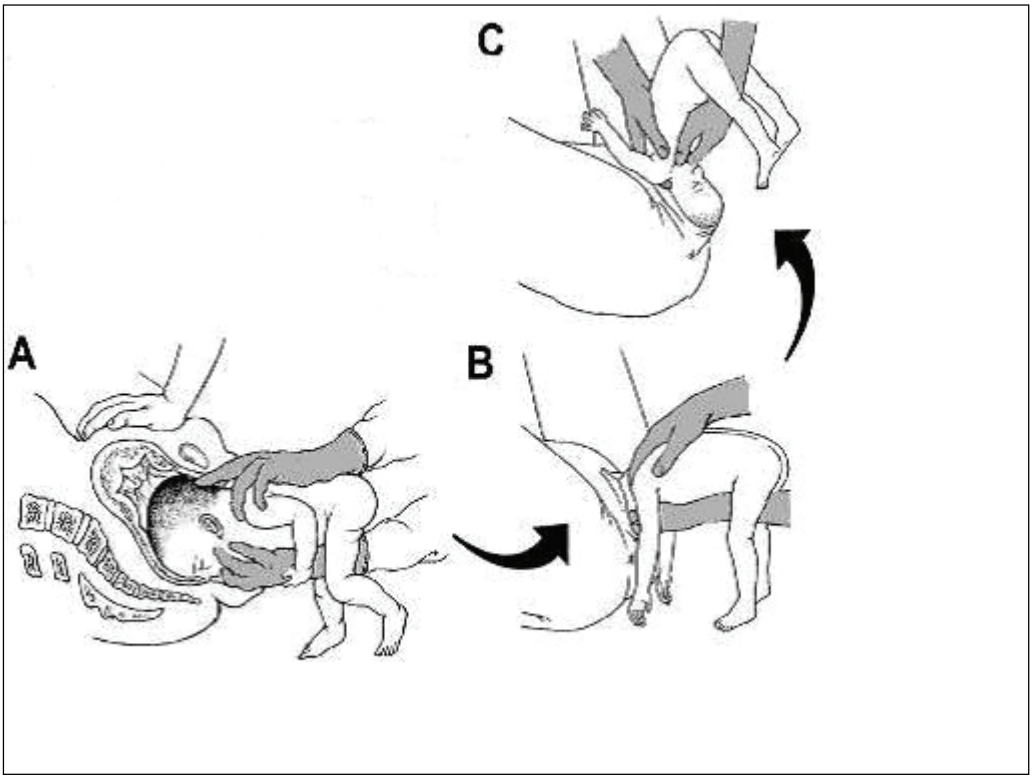


Figure 36. Jaw Shoulder Traction.

11. Hold the baby's ankles. Pull firmly outward on the legs to prevent the baby's neck from bending backwards and breaking. The suboccipital region, not the neck, should pivot under the apex of the pubic arch.

12. Keep the body straight by pulling a bit and lift in a circular movement (an arc of 180 degrees) until chin, mouth, and nose are free at the vulva.

13. Wipe the mouth and nose. The baby can now breathe.

14. Slowly and carefully deliver the rest of the head. Allow 2 or 3 minutes for it to deliver. Ask the woman to take regular breaths. Explain to her it is best not to push but 'breathe the head out' slowly. Patience protects the head from injury and prevents tearing the perineum. Sometimes pressure above the symphysis pubis may help to deliver the head.

15. When the baby is delivered, note the time and proceed as you do for a normal delivery.

16. The third stage is usually very quick in breech delivery. Be prepared for hemorrhage, see Module 5: **Hemorrhage.**

17. When the woman and baby are comfortable, record your actions and outcomes.

Learning Aid 9 – Malposition and Malpresentation

When a labor is too long, as with a malposition or malpresentation, the woman and her baby may be injured or even die. Many times long labor causes the vaginal tissue to be damaged and make a fistula. To prevent a fistula, refer women with any of the following conditions to the doctor or hospital as soon as possible. Teach community members to help women in labor get help from a midwife or doctor as soon as possible.

Face Presentation
Face presentation usually occurs during labor rather than before the labor. When you do a vaginal examination, the presenting part may be high (5/5 or 4/5), soft, and irregular. The chin becomes the leading part. The labor may be prolonged. The cord may come first. Usually the baby is born spontaneously when the chin is anterior. **If the chin is posterior, the woman can not deliver spontaneously.** Give the woman Pethidine, see *Guide for Caregivers – Formulary* to stop the contractions and refer the woman to hospital or doctor for delivery.

Brow Presentation
Brow presentation is usually diagnosed during labor. The presenting part will be high (5/5). The anterior fontanelle may be felt on one side and the orbital (eye) ridges felt on the other side of the presenting part. The woman can not deliver spontaneously unless the baby is very small. Give the woman Pethidine, see *Guide for Caregivers - Formulary* to stop the contractions and refer the woman to hospital or doctor as soon as possible.

Shoulder Presentation
Shoulder presentation happens with a transverse lie, and more often with a twin birth. The presenting part does not fit well into the pelvis. The membranes usually rupture early. The cord may prolapse. The woman can not deliver spontaneously with a shoulder presentation. Give Pethidine, see *Guide for Caregivers – Formulary* to stop the contractions and refer the woman to the hospital as soon as possible.

Multiple Pregnancy
Multiple pregnancy diagnosis is not always easy. Always palpate the entire uterus of a pregnant woman even though a head is found immediately at one or the other end of the uterus – there may be more than one baby. The heads may feel small in relation to size of the uterus. Many baby parts may be felt. At times the presence of more than one baby is not known until the uterus is still large and high after delivery of a first baby. Labor is often premature in multiple pregnancy. The babies may be too small. See *Guide for Caregivers - Referral* for referral to the hospital/doctor.

REMEMBER

Abnormal presentations and positions in labor often happen
when the woman has a contracted pelvis or cephalopelvic disproportion (CPD).
Do not delay referral to hospital or doctor.

Learning Aid 10 – Labor Monitoring Frequency

What	If Normal and in First Stage of Labor	If Not Normal or in Second Stage of Labor
Dilatation	4 Hours	Variable
Pulse	4 Hours	30 Minutes
Blood Pressure	4 Hours	30 Minutes
Temperature	4 Hours	1 Hour
Urine Volume	2 Hours	2 Hours (or more often if needed)
Fetal Heart Rate	1 Hour	15 Minutes (or more often if needed)
Fluids (oral)	1 Hour	1 Hour (or more often if needed)
Descent	1 Hour	30 Minutes
Contractions	Latent Phase: 1 Hour Active Phase: 30 Minutes	Latent Phase: 30 Minutes Active Phase: Continuously Second Stage Normal: 30+ Minutes (Time of 2nd stage not important if FHR and woman are in good condition) Second Stage Not Normal: Continuously

Learning Aid 11 – Constriction Ring (Bandl's)

Constriction (contraction) ring is a spasm of a ring of circular muscle fibers of the uterus. This condition is not too common but happens in about 1 in 1,000 labors. It may happen during any of the three stages of labor. If it is found during third stage, it is called an hourglass contraction.

Causes
The most common cause of a constriction ring is uterine manipulation by procedures such as aggressive rubbing or pushing on the uterus, internal version, manual removal of the placenta, manual exploration of the uterus, and others. The spasm may be caused by abnormal uterine action with too great muscle tone, or by premature rupture of membranes irritating the uterus.

First and Second Stage of Labor Constriction Ring

Findings:
There is no progress in the descent of the presenting part. Membranes are usually ruptured. The upper segment feels tender to the touch. The uterus is easily stimulated to contract by gentle palpation. The woman feels very painful contractions with little relaxation of the uterus between contractions. The constriction ring is identified by vaginal examination or during cesarean section. Constriction ring must not be confused with Bandl's retraction ring which is felt as a transverse ridge across the abdomen, a sign that the uterus will rupture soon.

Action:
Reduce the spasm. Give narcotic analgesic IM, and hydrate. Help the woman relax in a comfortable position, and explain to the woman and family what is happening. Monitor woman and baby. REFER if there are any problems, see Module 3: **Labor**.

Third Stage of Labor Hourglass Contraction

Findings:
There is a retained placenta. An early rupture of membranes, or internal version and extraction of a baby may have caused a constriction ring. The gradual development of a constriction ring may be felt while manually removing the placenta.

Action:

- If the placenta must be removed manually, a quick, gentle and complete removal of the placenta is possible by an experienced midwife.
- If the placenta is not out and the woman **is not bleeding**, help the woman relax and explain what is happening. Give hydration, a narcotic analgesia and monitor vital signs and bleeding. Usually the spasm will relax within 4 hours and then you can complete the manual removal.
- If the spasm is very strong and the woman **is bleeding**, refer to Bimanual Compression, Module 5: **Hemorrhage**. REFER to doctor or hospital immediately.

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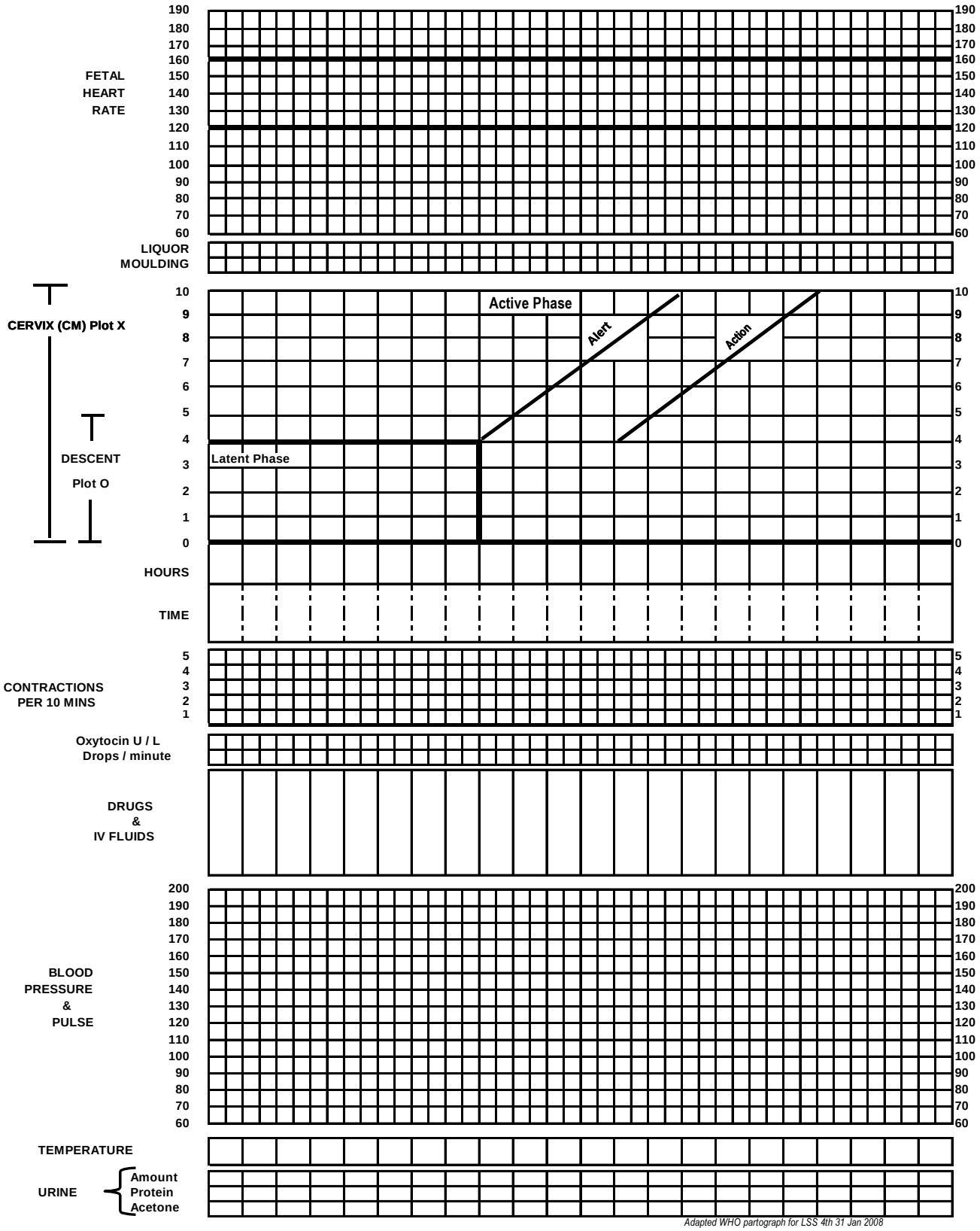
PARTOGRAPH

Name (Last, First)_____ Age_____Registration No._____

Date_____Time_____ G_____P_____LMP_____EDD_____Gestation (wks)_____

ROM (Time, Date)____/_____ Labor Duration (Hrs)_____ Facility/Clinic Name_____



Adapted WHO partograph for LSS 4th 31 Jan 2008

Back of Partograph

LABOR NOTES

_____
_____
_____
_____
_____
_____
_____

Please circle or write responses.

DELIVERY

DATE: TIME: METHOD: Spontaneous / Vacuum Extraction / C/S / Forceps/ Destructive / Other

PERINEUM: Intact / Episiotomy / Laceration ANESTHESIA: None / Local / General

REPAIR: Yes / No _____

THIRD STAGE

ACTIVE MANAGEMENT: Yes / No Medication _____ Time _____ Dose _____ IM IV
PLACENTA: Time: Complete / Incomplete

BLOOD LOSS AMOUNT:
Small (less than 250 cc)
Moderate (250-499 cc)
Large (more than 500 cc)

BABY

Weight: _____Length_____
Sex: Male / Female
Baby Presentation:
Vertex / Breech / Other

APGAR

Time	Color (Appearance)	Heart (Pulse)	Reflex (Grimace)	Tone (Activity)	Breath (Respiration)	TOTAL
1 min						
5 min						

COMPLICATIONS OF WOMAN / BABY: None / Other: _____

FOURTH STAGE MONITORING FOR WOMAN AND BABY

		WOMAN					BABY			
Frequency	Time	B/P	Pulse	Fundus	Bleeding	Bladder	Breathe	Suck	Warm	Cord
Every 15 minutes for first 2 hours										
Every 30 minutes for 1 hour										

Birth Attendant _____ **Date** _____

Latent Phase Care Record

Latent Phase Care (when using active phase Partograph)										
Monitor	If normal, check according to the following and record findings and time:		**Time and Findings**							
			Write time of findings below:							
Progress of Labor	Dilatation[3]	4 hours								
	Descent	1 hour								
	Contractions	1 hour								
Fetal Condition	Fetal heart rate	1 hour								
	Membranes, liquor	1 hour								
	Molding	4 hours								
Maternal Condition	Pulse	4 hours								
	Blood pressure	4 hours								
	Temperature	4 hours								
	Urine volume	2 hours								
	Urine test	As needed								
	Fluid intake	1 hour								
	Medications	As needed								
Care	Emotional	1 hour								
	Comfort and Position	1 hour								
	Cleanliness	As needed								
Other										

[3] **Note**: when cervical dilatation reaches 4 cm, start Active Phase Partograph.

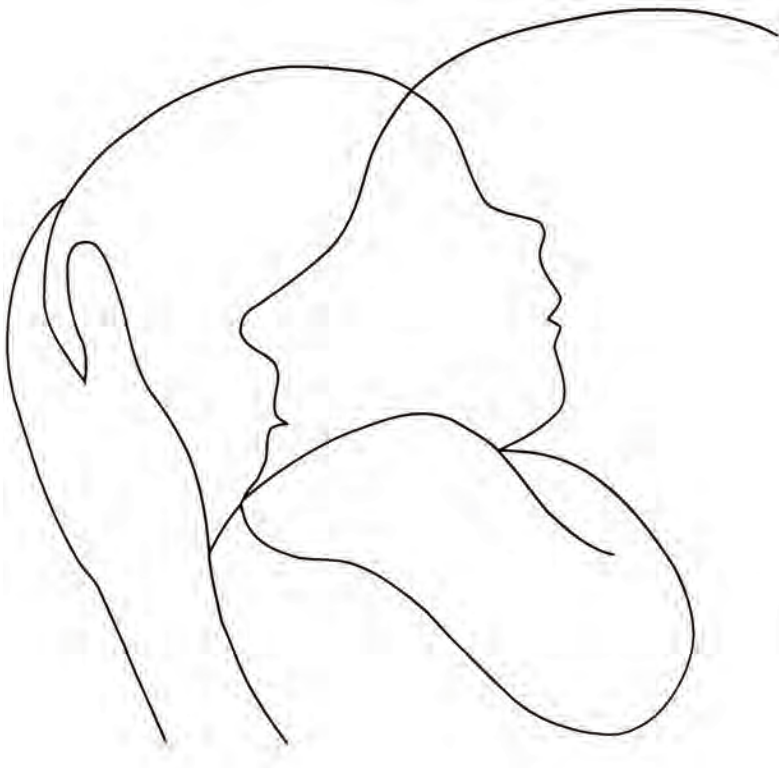
Notes

Notes

Life-Saving Skills
Manual for Midwives

Fourth Edition

Module 4: Episiotomy – Prevent and Repair



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American College of Nurse-Midwives

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Copyright © 2008 by the American College of Nurse-Midwives
Printed in the USA
ISBN: 978-0-615-23322-2

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Life-Saving Skills Manual for Midwives

MANUAL TABLE OF CONTENTS

EPISIOTOMY – PREVENT AND REPAIR

MODULE 4

Table of Contents

EPISIOTOMY – PREVENT AND REPAIR

Goal

The midwife will review and update her knowledge and skills to prevent and manage lacerations and episiotomies using the problem solving method.

Objectives

The midwife caring for a woman in labor and delivery will be able to:

1. Prevent episiotomies and lacerations.
2. Describe reasons for cutting an episiotomy.
3. Do a complete inspection of the periurethral area, vagina and cervix.
4. Inject local anesthetic before doing an episiotomy.
5. Cut and repair an episiotomy.
6. Identify and repair a laceration.
7. Identify and manage a female circumcision scar.
8. Use infection prevention guidelines to protect the midwife and woman during episiotomy and laceration procedures.

.

Introduction

An episiotomy is not a normal procedure. Episiotomy increases the woman's risk of too much bleeding, infection, and painful healing. There is no information that an episiotomy lessens the risk of severe perineal trauma or helps perineal healing. There is no information that an episiotomy prevents fetal trauma, or reduces the risk of urinary stress incontinence after delivery, see Module 10: **Postpartum Care**. It is very important that midwives know how to prevent an episiotomy and protect the perineum from lacerations.

Genital trauma after spontaneous vaginal birth is common. Lacerations and episiotomies cause more trauma including scarring, unsatisfactory sexual intercourse, heavy blood loss, infection, and even death. A small laceration of the cervix, not repaired, can cause death. It is important that midwives know how to repair both lacerations and episiotomies, to reduce both sickness (morbidity) and death (mortality). Look in the *Guide for Caregivers* for the skill checklist.

A Midwife's Experience...

It was the first baby, and the woman pushed hard for over an hour at home. When she came to me she was crying and asking for help. The baby's head was swollen, fetal heart was 100. The perineal tissue was so tight and the mother did not want to be cut. I finally convinced the mother to allow me to help the baby deliver. With a right mediolateral episiotomy, she delivered a big male baby in satisfactory condition. I gave local anesthesia and used the new LSS repair method. The woman can walk and sit without pain after the episiotomy repair. Other women are asking for the same care. I felt very competent to manage this case using the suture sparing method.

LSS Midwife, Vietnam

Common Medical Terms

Centimeter – a measure of one-hundredth part of a meter; 100 centimeters (cm) = 1 meter.

Continuous Suture – a suturing method: the suture is not cut and tied until the end of one or more rows of stitches.

Cubic Centimeter – a measure of volume or capacity, same as milliliter (ml), one-thousandth part of a liter. 1000 cubic centimeters (cc) = 1 liter.

Deep Muscles – in the perineal area; the levator ani and coccygeal muscle groups.

Episiotomy – a cut made in the perineum at the end of the second stage of labor to let the baby out when the baby or woman is in distress.

Fistula – an abnormal opening between the rectum and vagina (recto-vaginal) or between the bladder or urethra and vagina (vesico-vaginal).

Fourchette – a small band or fold of mucous membrane that forms the back edge (posterior) of the vulva and connects the posterior ends of the labia minora.

Hymenal – a fold of mucous membrane which normally partially covers the entrance to the vagina; when stretched it forms a hymenal ring.

Interrupted Suture – a suturing method: each stitch is cut and tied.

Laceration – a wound or tear of the tissue.

Median Episiotomy – a cut made in the center of the perineum from the vagina towards the rectum. May also be called midline or medial.

Mediolateral Episiotomy – a cut made in the perineum either left or right of center at a 45 degree angle. The diagonal cut is made from the vagina beginning in the center of the fourchette in a straight line, toward the buttock, away from the rectum.

Subcutaneous Layer – the layer of tissue lying under the subcuticular layer.

Subcuticular Layer – the layer of tissue lying under the skin.

Suture - (1) the action of sewing (suturing) tissue together; (2) a thread or other material used to sew parts of the body together. Suture may be absorbable or non-absorbable. Refer to **Learning Aid 1** for suture information and using suture equipment.

Suture Sparing Continuous Method – a suturing method: the suture is not cut and tied until the episiotomy or laceration is completely repaired.

Equipment

A light source.
Soap and water.
Gauze (4 x 4's).
Vaginal tampon.
Absorbable suture.
Gloves (HLD or Sterile).
Tissue forceps without teeth.
Needle holder or toothed clamp.
Sponge forceps (smooth, ring forceps).
Scissors (one blade rounded or bandage scissors).
Suture need, curved, round body, **Learning Aid 1**.
Syringe: size 10 to 20 cc, but use what you have.
Injection needle: 1 ½ inch 22 gauge or what you have.
Local anesthetic (lidocaine hydrochloride without epinephrine).

Preventing an Episiotomy and Lacerations

Women can be helped to prevent tears of the perineum beginning with antenatal care and during labor. Antenatal perineal massage reduces the need for an episiotomy and is usually well accepted by women. You can help to prevent perineal lacerations (tears). Teach women how to massage the perineum. See Module 2: **Antenatal Care, Learning Aid 7.** During the second stage of labor, the midwife and woman work together as a team to reduce the need for an episiotomy. Explain to the woman why moving around in labor is good. Talk with her about the breathing method and why a slow delivery is better.

Tears around the vaginal opening may be prevented by using positions that manage the descent of the baby and by slowing the birth of the head. An episiotomy to let the baby out may be needed in an emergency and sometimes for a woman who has had a circumcision.

Birthing Position

Studies show that lacerations in primigravidas can be reduced by one-third (33%) by delivering the woman in a lateral (lying on the left side) position and applying warm cloths to relax the perineum in second stage. Using the lithotomy (lying on the back) position with stirrups for delivery causes too much stretching of the perineum and increases the risk of lacerations.

When the baby's head is about to crown, help the woman get in a birthing position of her choice. Birthing positions to prevent lacerations and manage descent (baby moving down) include: (a) semi-sitting; descent may be faster. (b) squatting; descent may be faster, (c) lying on the left side with someone holding the woman's right leg; slows descent, (d) on hands and knees; slows descent.

Warm Cloths

Warm cloths around the vaginal opening help increase circulation to the skin. This makes the skin soft and more able to relax and stretch. Use cooled boiled or clean water. Put a clean cloth in water and wring it out. Touch the cloth to the inside of your wrist so you know it is not too hot. You do not want to burn the woman. Hold the cloth on the woman’s genitals. Make sure she agrees to this and knows when you are going to put warm cloths on her perineum. You can support the perineum with a warm cloth when the baby’s head is crowning.

Slow the Birth of the Head

As the baby's head crowns, try to prevent the woman from tearing. If the head is born slowly, the woman's perineal tissue has more time to relax and stretch and is less likely to tear. Remember that the woman's need to push is very strong. Allow the woman to push when the perineum is not tight. To stop pushing, the woman can blow with short, fast breaths. See Module 2: **Antenatal** – Client Education and Counseling for the breathing method. The midwife can use gentle, firm pressure on the baby's head to slow a delivery that is going too fast. This will help prevent tears. After the widest part of the head comes out, the rest of the head usually follows without any pushing. Teach the woman in antenatal clinic how to stop pushing. Review it with her during labor. Explain that her urge to push will be very strong.

SKILL: Cutting an Episiotomy Safely

An episiotomy is not a normal procedure. An episiotomy increases the woman's risk of too much bleeding, infection, and painful healing.

Reasons for Cutting an Episiotomy

The best time to cut an episiotomy is when the presenting part is pushing against the perineum. The blood loss may be greater if you cut too soon. An episiotomy may be needed:

- To have a fast delivery when the baby and/or woman is distressed.
- To make more space when there is an abnormal presentation or the baby is too large.
- To let the baby out when the woman has a very swollen perineum due to early pushing or has thick scar tissue that does not stretch.
- To help the baby out when the woman has had a circumcision or female genital cut (FGC) and the vaginal opening is too small.
- When an instrument delivery is done (forceps or vacuum extraction). See Module 9: **Vacuum Extraction and Other Procedures**.

Giving Local Anesthesia Before the Episiotomy

If you decide an episiotomy is needed, give local anesthetic just before cutting the episiotomy. Prepare your needle and syringe. Explain to the woman what you are going to do and help her to relax.

1. Fill the syringe with 10 cc of 1% local anesthetic without epinephrine.
2. Place your two fingers between baby's head and the perineum see Figure 1. It is very important that your fingers serve as a protection in front of the baby's head. Injecting anesthetic into the head of a baby can cause death.
3. Inject 3 lines of anesthetic from 1 entry point.
    a. Insert the whole length of the needle from the fourchette. Infiltrate just below the skin of the perineum and under the vaginal mucosa along the line the episiotomy will follow, and into the perineal muscle
    b. Pull back on the plunger of the syringe a little to check for blood. Injecting local anesthetic directly into a woman's blood vessel is dangerous.
    c. Inject about 3 cc evenly as you pull out the needle. Do not remove the needle from the fourchette tissue, move and insert needle to each side of the line to be cut.

Figure 1. Protecting the baby's head when injecting local anesthetic.

4. **Repeat step 3 on each side of center** (the cut line for the episiotomy), injecting another 3 cc (1% anesthetic) on each side. Remember to protect the baby's head by keeping your fingers between the baby's head and the needle. By this time, you should have injected 10 cc of anesthetic. [1]

5. If there is time, wait a minute or two before cutting the episiotomy. Remember the thinning and stretching of the perineum also gives natural anesthesia. The anesthetic will be working by the time you start the repair.

6. During the repair, if the woman is uncomfortable, inject up to 10 cc more anesthetic in the area where the woman feels pain. Always try to inject evenly as you pull out the needle, to prevent the solution from staying all in one area, and to lessen the chance of injecting into a blood vessel.

[1] Lidocaine hydrochloride with no epinephrine is common anesthetic. Maximum safe dose is 20 ml of 1 % strength lidocaine hydrochloride or up to 40 cc of 0.5% strength for repair of episiotomy or laceration. For dilution of 2% strength see *Guide for Caregivers - Formulary*.

Giving Local Anesthesia After the Episiotomy

If there was no time to give anesthesia before the baby was born, give it as soon as possible after the birth. Prepare your needle and syringe. The local anesthetic used should not have epinephrine. Explain to the woman what you are going to do and help her relax. This same procedure is used before suturing a perineal laceration.

1. Fill the syringe with 10 cc of 1% anesthetic, without epinephrine.

2. Because the episiotomy (or laceration) is already cut, you now have two sides which need anesthetic. See Figure 2. Look carefully at the shape of the wound.

3. Inject about 5 cc (1% anesthetic) from one entry point into the open muscle in 3 directions on one side of cut as indicated by dotted lines in the drawing in Figure 2.

    a. For each direction (1) toward the vagina (vaginal mucosa), (2) toward the muscles (perineal muscle), and (3) toward the perineum (under the skin of the perineum), insert the whole length of the needle.

    b. Pull back on the plunger of the syringe to check for blood (aspirate). If local anesthetic is injected directly into a woman's blood vessel it could cause heart problems.

    c. Inject about 1.5 cc each direction as you pull out the needle.

    d. Pull the needle out to just below the skin after injecting in the first and second directions. Pull the needle out completely after injecting in the third direction.

4. Repeat on the other side as in step 3 (see dotted lines in Figure 2). At this point, you should have injected 10 cc of anesthetic.

5. Wait a minute or two to let the medication work before starting to sew the episiotomy. The anesthetic will be working (taken effect) by the time you start the repair. Touch the cut areas with the sharp point of a clean/sterile needle to make sure the area is numb (anesthetic is working).

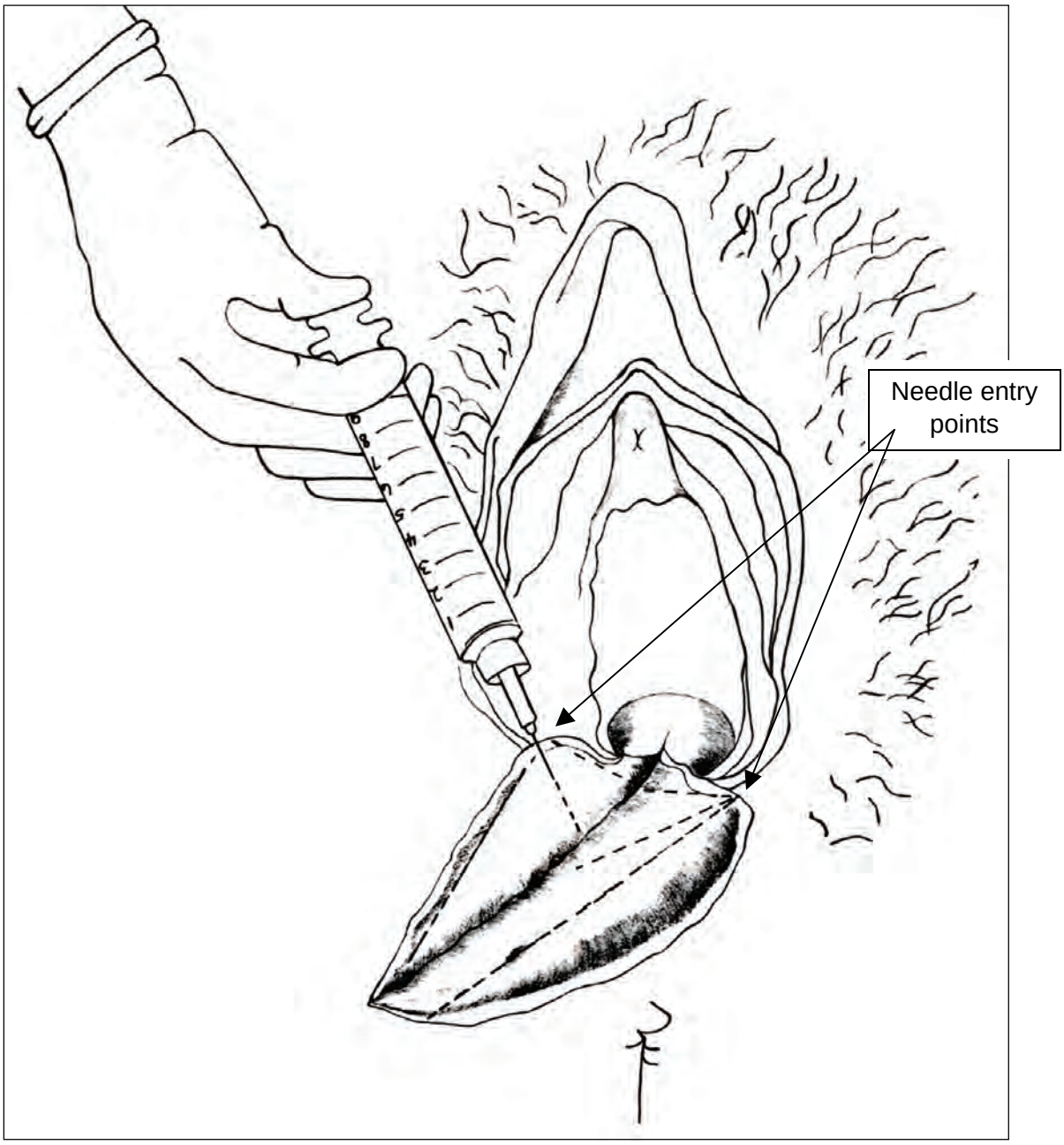

Figure 2. Injecting local anesthetic after delivery.

6. If the woman is uncomfortable while you are suturing, inject up to 10 cc more anesthetic in the area where the woman feels pain. Try always to inject as you pull out to prevent the solution from staying in one area, and to lessen the chance of injecting into a blood vessel.

Mediolateral Episiotomy

A mediolateral episiotomy is less likely to extend into the rectum. The best time to cut an episiotomy is when the perineum is thinned and pale or shiny. The blood loss will be greater if you cut too soon. Cut during a contraction.

1. **LOOK and FEEL**. Is the perineum long or short? Thick or thin? Does it have varicose veins, genital warts, or other problems? These findings will help you decide where to cut the episiotomy, see Figure 3.

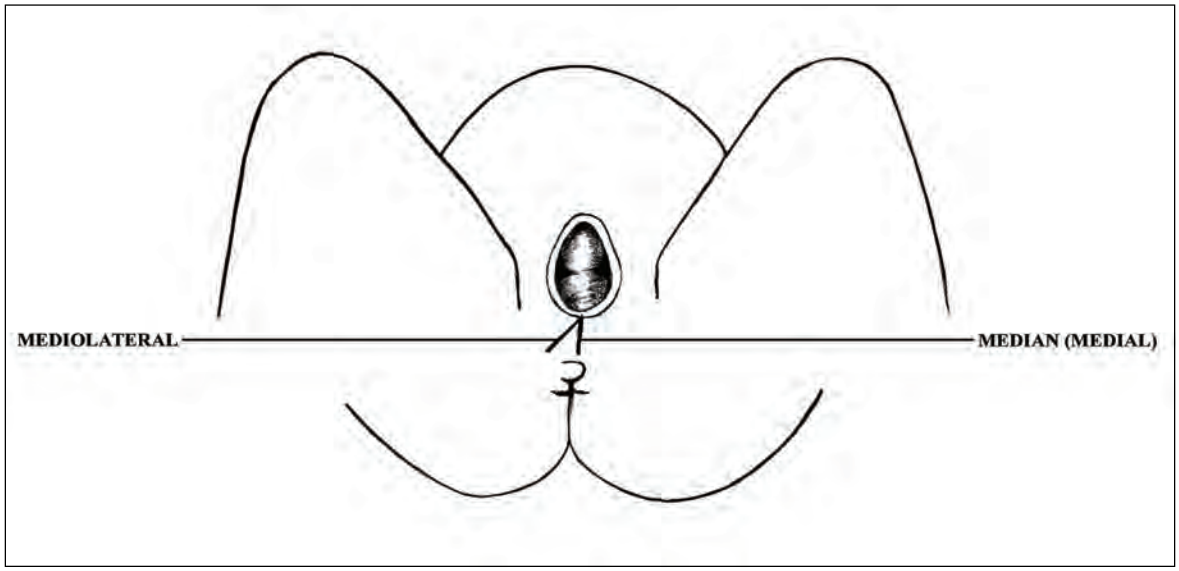

Figure 3. Positions to cut episiotomies.

2. Cutting the episiotomy

   a. Place two fingers of one hand in the vagina between the scissors and baby's head, to prevent accidentally cutting the baby.

   b. With the other hand open the scissors and put the rounded (blunt) blade inside the vagina.

   c. Start at the center of the perineum and angle (slant) your scissors out at a 45 degree angle, see Figure 4 on the next page. If you are right handed, cut towards the woman's right buttock. If you are left handed, cut towards the woman's left buttock.

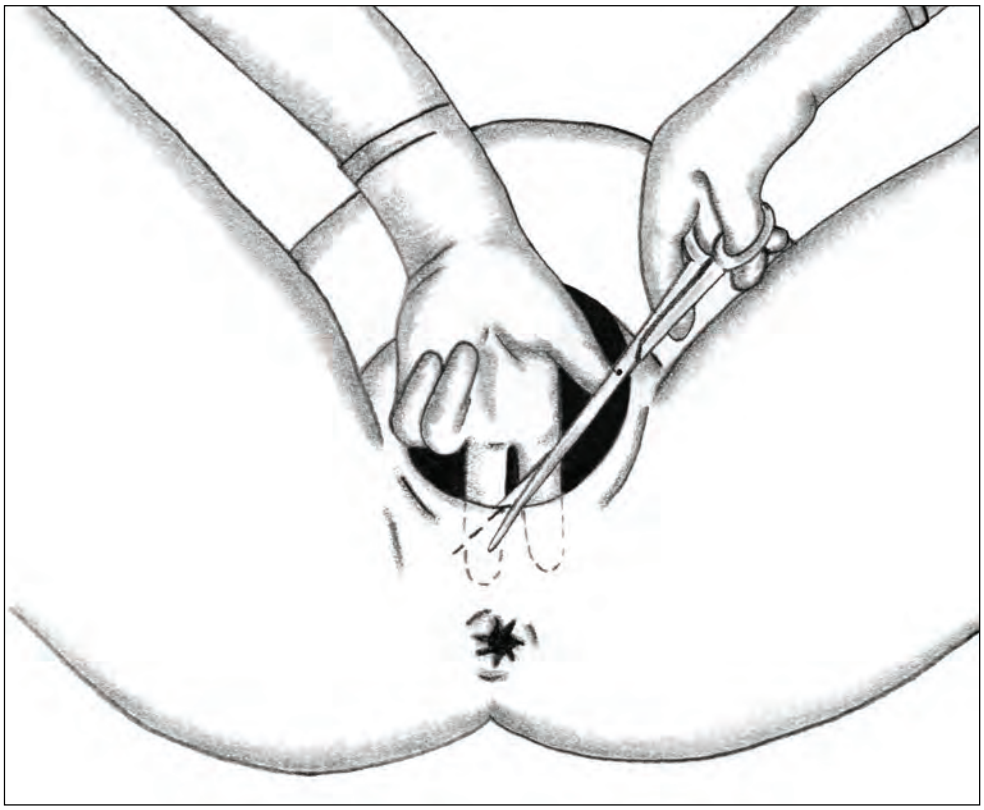

Figure 4. Cutting a mediolateral episiotomy.

d. Make the episiotomy with 1 or 2 large cuts for an opening of about 4 centimeters (1½ inches). Many tiny cuts may give a ragged edge to the wound and will make repair and healing more difficult. The incision should be long enough to let the baby come out.

e. After the perineal cut is made, **FEEL** the cut into the vagina. Is there a band of tight or strong vaginal tissue? If yes, or if the presenting part is not free to come out, open the vaginal side of the cut.

f. Turn your scissors around and position them facing up the vagina. As you did when cutting the perineal cut, place your two fingers in the vagina between the scissors and baby's head, to prevent accidentally cutting the baby. Cut up the center of the posterior vagina so the presenting part can come out.

3. Press a gauze firmly over the cut area if you are waiting for another contraction, to keep the blood loss small.

SKILL: Cervical and Vaginal Inspection for Lacerations

Bleeding from a tear of the cervix, vagina or perineum must be stopped. There may be more than one tear. Use a light during your examination. Perineal tears that do not bleed or perineal tears that close when the woman places her legs together usually do not need repair. Some tears can cause too much bleeding so it is very important to look for any tears. You should do this procedure for women you deliver and for women who are referred to you with bleeding.[2] If there is too much bleeding, see Module 5: **Hemorrhage** and the *Guide for Caregivers – Protocols.* If there is no bleeding, make the woman comfortable, and continue to monitor her uterus, bleeding, and vital signs, see Module 3: **Labor**.

Procedure

Prepare to do an examination of all of the perineal area and a cervical exam to see where the bleeding is coming from.

1. Explain to the woman and her family what you must do so that you can help her. Let her know you want to look at her to see if she has a tear. Tell her that this procedure will not feel good, but you will do it as quickly and gently as possible.

2. Ask someone to adjust your light source so you can see well. Gently and quickly wash the woman's genitals with soap and water.

3. **LOOK** at the perineum. With your gloved hand, open the labia (vaginal lips). Tears are hard to see clearly. You may need to use a gauze or pad to remove blood so you can see. Look for any tears in the labia majora, labia minora, or around the urethra (periurethral). Continue to look at the perineum extending from the fourchette toward the rectum. Locate where the episiotomy or tear ends.

4. **LOOK** in the vagina. Look carefully into the vagina for any tear, blood clot or hematoma (collection of blood under the tissue). A woman's vagina is often swollen after birth and blood clots can get in the way. See Figure 5. Put all 4 fingers of one hand into the vagina. Press firmly on the back wall of the vagina. Look deep into the vagina. Bleeding from a laceration may be slow oozing (moving), or spurts from a pumping artery. Locate where the episiotomy or tear begins.

5. **LOOK** at the vaginal walls. Slowly press against the vaginal wall and move your fingers up the side wall of the vagina, one side and then the other side. Is the side wall smooth? Are there any places where you notice bleeding? If you find a tear, where does it start and stop? **Be sure to feel all the way up the vagina to the cervix.**

---

[2] If the woman comes to you after delivering at home, **ASK** about the birth: when did you deliver, how is the baby, how much bleeding, did the placenta deliver in one piece, did you take any medicines. Also **LOOK** for signs of shock and **FEEL** that the uterus is firm and that the bladder is empty.

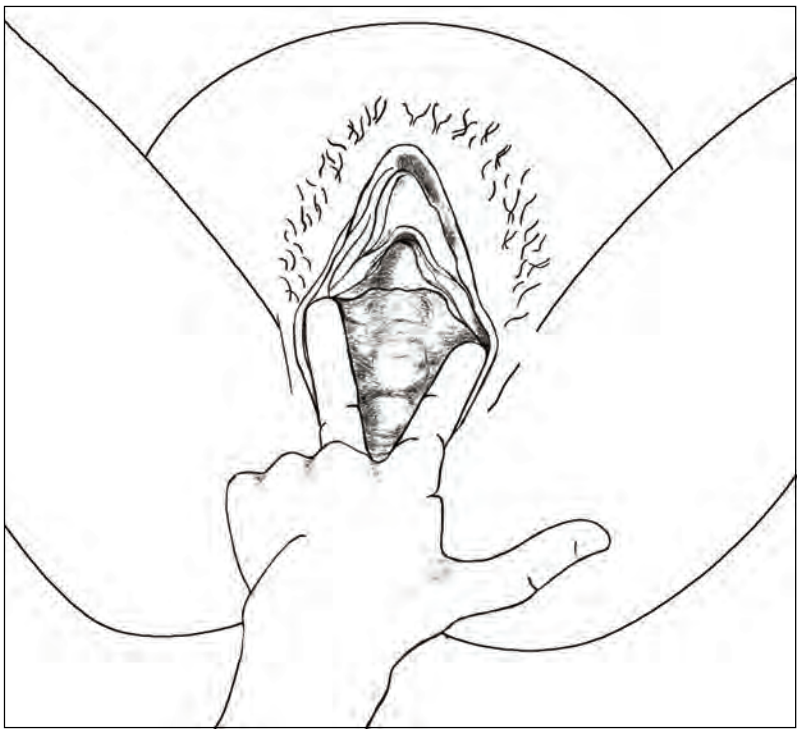

Figure 5. LOOK and FEEL for tears in vagina and cervix.

6. **LOOK** at the cervix. Ask your assistant to press down firmly on the woman's uterus. This will move the cervix lower in the vagina so you can examine it more carefully. Press firmly on the back wall of the vagina with one hand.

   a. If you see bleeding or tears from the cervix, look at the whole cervix.

   b. Use sponge forceps (ring forceps) and clamp all of the rounded part of the forceps onto the anterior lip (top lip) of the cervix. Pull gently on the forceps. Be sure the clamp is on enough of the tissue to prevent tearing off a piece of the cervix causing more bleeding.

   c. You should be able to see the cervix clearly. Look carefully at all sides of the cervix. Do you see oozing or spurts of blood? Lacerations happen most often on the sides of the cervix at 3 or 9 o'clock (mid-right and mid-left), see Figure 6.

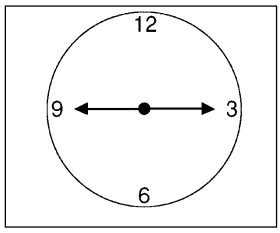

Figure 6. Most common sites for cervical tears.

7. Check to be sure you have not left any gauze or pad in the vagina when you are finished.

SKILL: Episiotomy and Laceration Repair

There are several methods that can be used to repair episiotomies. The method shown here is called the **suture sparing continuous method**. This method has been chosen for several reasons. The midwife has to learn only one type of suture (stitch) and one or two types of knots. The woman will have less pain after repair because only a small amount of suture is left in her tissue. The repair of a median episiotomy is described in **Learning Aid 4.**

When needed, the midwife may change the suture method for the situation. For example: If a woman has a very deep laceration or her episiotomy is very long, you may sew another muscle layer using interrupted (individual) sutures for added strength. Use aseptic methods, stop the bleeding, close the space, and bring tissue layers together with care.

Preparation for Repair

1. Explain to the woman (and family) what you are going to do.

2. Remove any soiled cloths from under her.

3. Wash her genitals.

4. Position the woman with her buttocks at the edge of the bed or table. Her legs may be put in stirrups or held up by attendants or her family.

5. Put on clean HLD/sterile gloves. If these are not available, wash the gloves you are wearing with soap and water.

6. Place a tampon or gauze into the vagina to keep blood away from where you are suturing.

7. Place a sterile or very clean cloth under her buttocks.

8. Check or give anesthesia:

    a. If you are repairing a laceration, or were unable to give anesthesia before the episiotomy was cut, give the local anesthesia now.

    b. If you gave her local anesthesia before cutting the episiotomy, check to see if it is working well. To do this, touch the cut areas with the sharp point of a sterile needle. If she feels sharp pain, you need to give her more anesthesic before the repair.

9. Ask someone to adjust your light source so you can see well into the vagina. This is very important. If you can not see very well, it is easy to miss lacerations, or fail to see the top of the episiotomy, or insert the needle in the wrong place.

10. Sit down and make yourself comfortable. If your body is relaxed and comfortable, you will do a better job.

11. Perform a complete vaginal, cervical, and perineal inspection, if you have not yet done an inspection. Open the suture and gently stretch it out until it is straight. See **Learning Aid 1** for choosing a suture.

12. Put the needle in the needle holder in the correct position, see Figure 7. Clamp the teeth of the holder firmly shut. If not clamped well, the needle will twist in the tissue as you sew and be difficult to control.

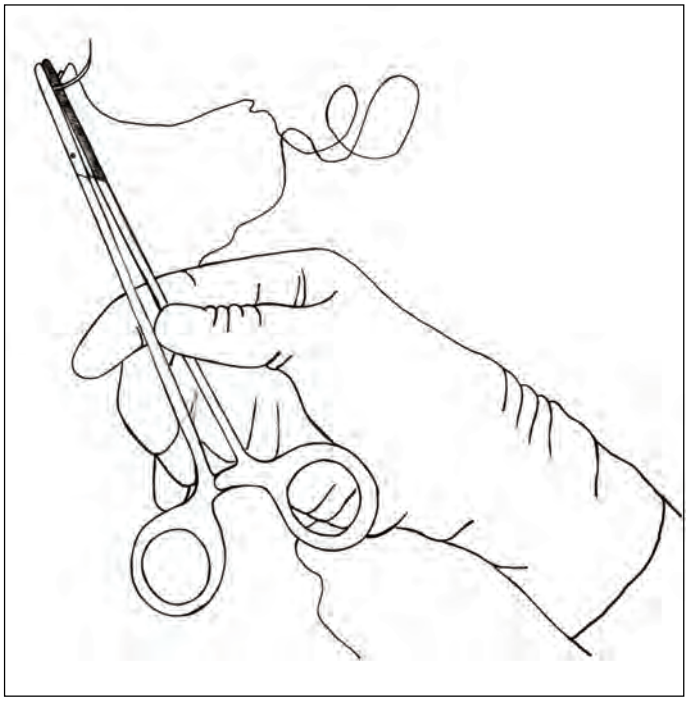

Figure 7. Correct position of needle in needle holder.

Mediolateral Episiotomy Repair

The suture sparing continuous method is used in the repair of a mediolateral episiotomy when you have absorbable suture. This method uses fewer knots and less suture. **When the perineum is cut on a slant (as in a mediolateral cut), the tissue pulls apart unevenly.** One side looks longer than the other. You must make a longer stitch in the tissue on the longer side of the cut. You must make a smaller stitch in the tissue on the smaller side. This makes the cut come together evenly. Move your body and needle holder to the side so you are parallel with the wound. Hold your needle holder parallel to the cut when suturing to make the position of suturing correct, see **Learning Aid 1**.

Figures 8 and 9 show using continuous sutures for the vaginal mucosa. If the episiotomy is very deep or uneven in depth, put a few or a row of interrupted sutures in the deep part of the cut. Use absorbable suture. This closes the space before doing the rest of the repair.

1. Put in the first suture. Feel all along the cut with your fingers. See clearly the beginning of the wound in the vagina. Put your first stitch about 1 cm (½ inch) above the top of the wound in the vagina. Hold the thumb forceps in your other hand. Use the thumb forceps to steady the needle. Pull the needle through the tissue **with the needle holder** as in **Learning Aid 1**. Tie a square knot and trim the short thread to about 1 cm (½ inch), see Figure 8.

2. Suture the vaginal mucosa. Use a continuous stitch (continuous suturing), sewing down to the hymenal ring. See Figure 9.

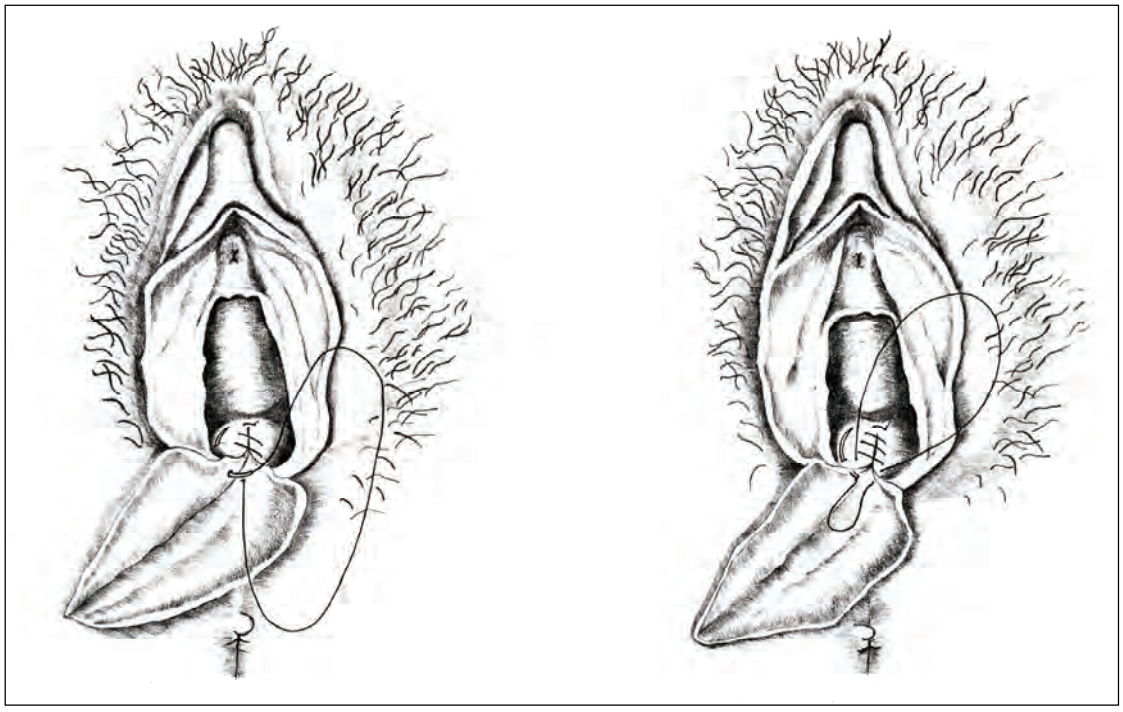

Figure 8. Sew vaginal mucosa.

Figure 9. Continuous suturing to hymenal ring.

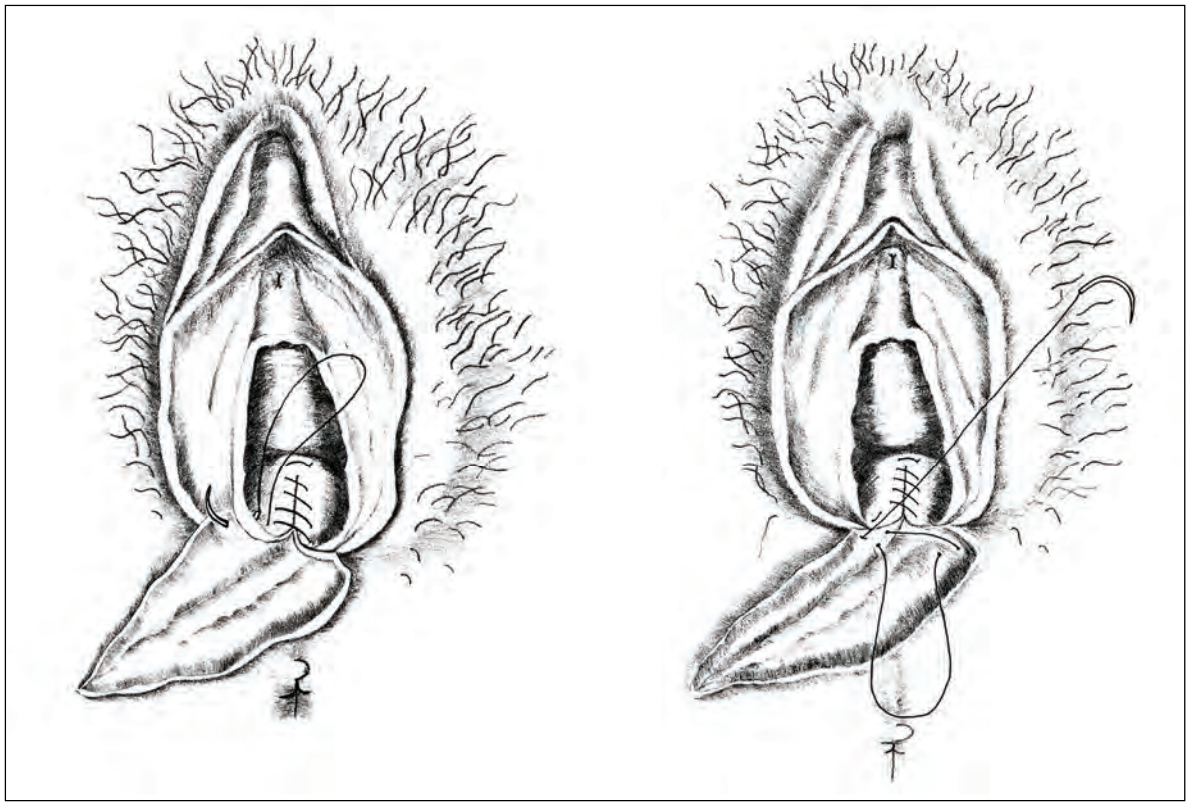

Figure 10. Suture moved to perineum.

Figure 11. Continuous suturing.

3. Go from the vagina to the perineum. The needle then goes through the vaginal mucosa, **behind** the hymenal ring, and comes out on the wound of the perineum. See Figure 10. Notice how close the needle is to the top of the wound.

4. Suture the perineal muscle layer. Use continuous suturing as you suture the muscle layer in the perineum, see Figure 11. Look inside the cut for the muscle layer. It looks a little red in color and feels firm to touch. It is important to sew muscle to muscle. Feel the bottom of the cut. The suture should come through just above the bottom of the cut. When you reach the end of the wound, you have closed the deep muscle layer.

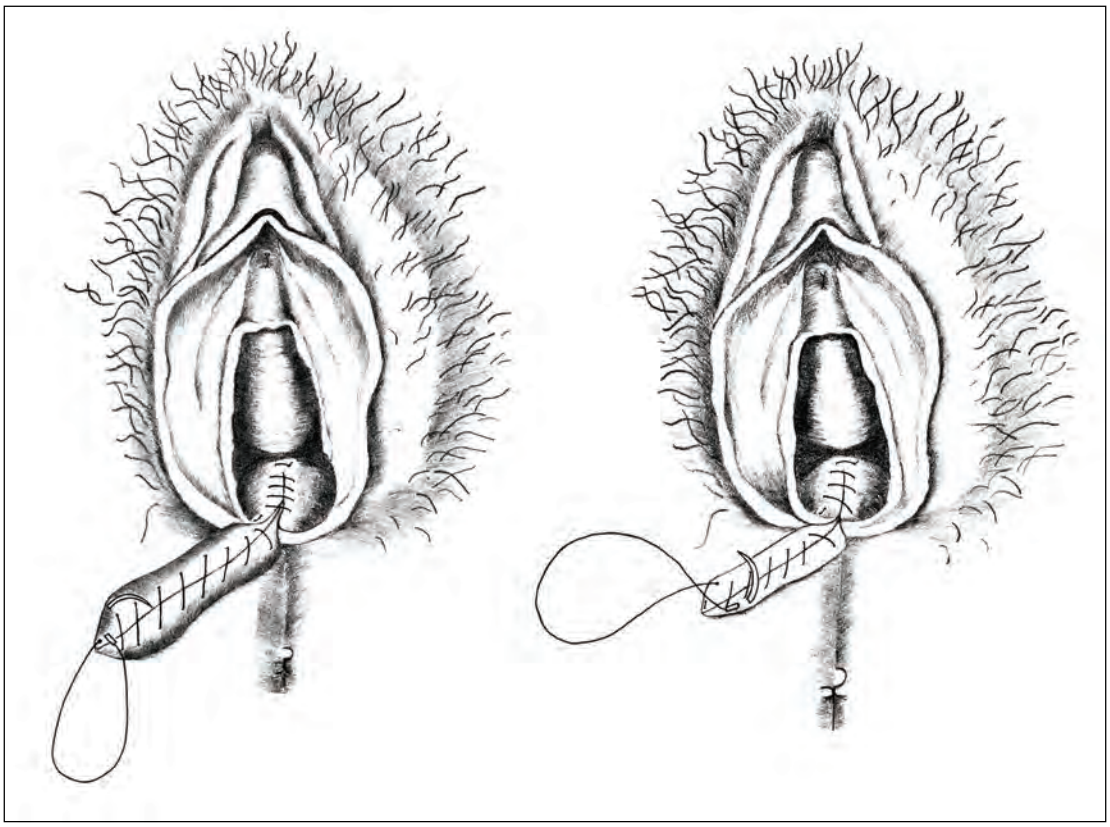

Figure 12. Sew from the very end of the wound.

Figure 13. Subcuticular layer starts.

5. Suture the subcuticular layer. Look for the subcuticular layer just under the skin. This tissue is soft to touch and has almost the same color as the vaginal mucosa. You are now making a second layer of stitches. The subcuticular layer of stitches will not be seen on the outside of the skin.

   Once you have reached the end of the wound on the perineum, turn your needle over and start to sew up towards the vagina. Notice the way the needle is turned in Figure 12. Take horizontal bites through the subcuticular layer on alternating sides of the wound.

   Use continuous stitches to close the subcuticular tissue, see Figure 13. The step by step outline for the subcuticular layer is on the next page.

Step By Step Subcuticular Suturing

a. Start the first stitch on the left side of the wound, at the bottom of the wound.

b. Hold the tissue with tissue forceps at the place your needle will come out.

c. Direct the needle, curving it under the skin and up, so the needle tip comes out about 1 cm from where you inserted it. Look at the angle of the needle in Figures 12 and 13.

d. Steady or hold the needle with tissue forceps. Release the needle holder from the needle. Grasp the tip of the needle with the needle holder and lock the needle holder.

e. Pull the needle through and out the tissue with a rotation of your wrist.

f. Reposition the needle in the needle holder, using the tissue forceps. **Do not use your fingers**. The next stitch is placed on the right side of the wound directly across from where the needle came out on the left side.

g. Direct the needle, curving it under the skin and up, so the needle tip comes out about 1 cm from where you inserted it.

h. Hold the needle with the tissue forceps and release the needle holder from the needle. Grasp the tip of the needle with the needle holder and lock the needle holder.

i. Pull the needle through and out the tissue with a rotation of your wrist.

j. Reposition the needle in the needle holder. Continue placing stitches alternately on left and right sides of the wound until you reach the vaginal opening. **There are no stitches through the outside skin.** This subcuticular layer of suture will leave the wound open about 0.5 cm (1/4 inch). This will close by itself as it heals.

REMEMBER

Always use your needle holder and tissue forceps to hold and reposition the needle.
Do not use your fingertips to feel for the tip of the needle.

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6. Go from the perineum to the vagina. Move the suture again from the perineal part of the wound back into the vagina behind the hymenal ring. See Figures 14 and 15 to see how the suture comes out behind the hymenal ring.

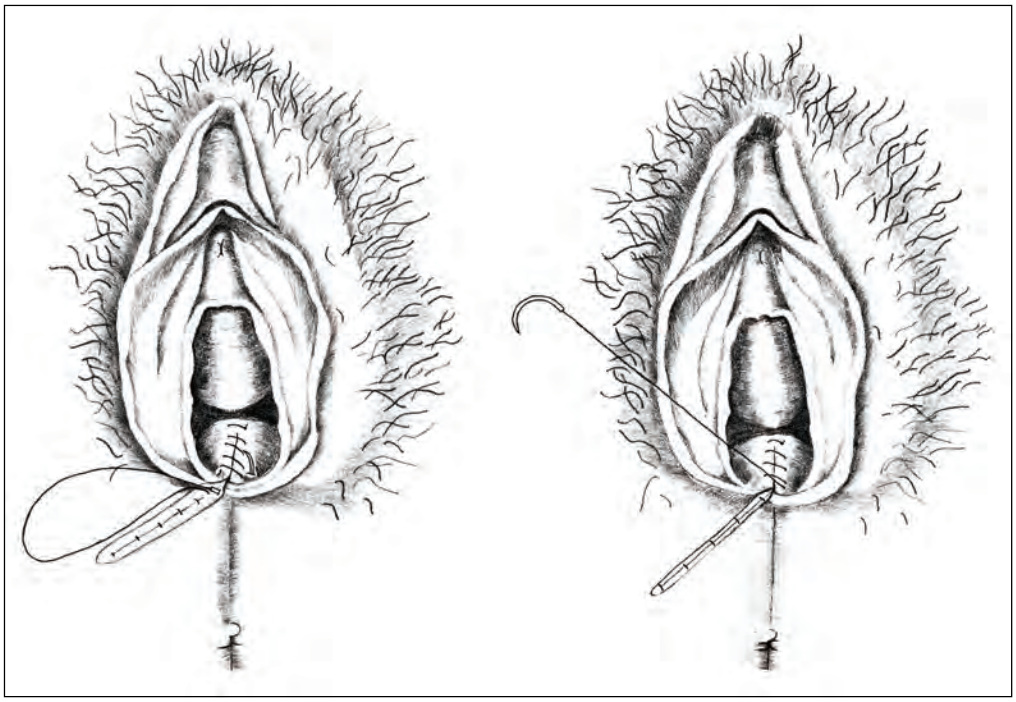

Figure 14. Move needle back into vagina. **Figure 15.** Tie off in vagina.

7. Tie off the suture. Make a small stitch behind the hymenal ring for the purpose of having ties for a knot. Do not pull the suture all the way through the tissue. Leave a loop of suture to use for tying. Remove the needle off the suture for the second tie. To make a very secure last knot, do a one and a half square knot. See **Learning Aid 2** for knot tying. Tie your knot to allow for some swelling during the healing of the wound. Cut the two ends of suture off, leaving about 1 cm (½ inch). If you cut the ends too short, the knot may pull apart and the episiotomy will be loose and may pull apart.

8. Look again to be sure you did not leave any gauze, tampon, or instruments in the woman's vagina that may cause infection. Wash her genitals with soapy water. Dry her and make her comfortable.

9. Tell the woman to wash the area well with soapy water 3 to 4 times per day and dry well after each washing. Tell her to not put anything into her vagina. Record findings: location and repair, vital signs, fluids, care, medications, and estimated blood loss on back of the Labor Form in Module 3: **Labor**.

10. Visit the woman every day to check her perineum for 3 to 4 days or ask her to come back in one week. LOOK for bleeding, redness, pus, opening of the sutures, or a hematoma. A hematoma may look like a bruised or shiny swelling. The woman will say she has pain. If the hematoma is bigger than 4 cm (about 1 ½ inches), refer her to a hospital or doctor.

Periurethral Laceration Repair

Tears around the clitoris and urethra can bleed very heavily and can be very difficult to repair. If you do not feel competent to do this repair, refer the woman. To prepare her for referral, pack sanitary pads or other gauze bandages firmly against the vulva and have her keep her legs pressed together. You may wrap her thighs together with cloths to remind her to keep her legs firmly together.

To repair a periurethral laceration:

1. Explain to the woman (and family) what you are doing.

2. Choose the most thin (fine) suture you have, see **Learning Aid 1** - Choosing a Suture.

3. Wash your hands and put on gloves.

4. Place a catheter in the bladder. This will help you identify the urethra and keep you from sewing the urethra or damaging it, Figure 16.

5. LOOK and FEEL how long the tear is and how much the tissue is torn.

6. Press tissue together. Do not hurry. Lacerations are like puzzles. The tear must go together again so the tissue looks like it did before the laceration. As you press the tissues together, plan where you will place the sutures so the tear will heal well.

7. P**l**ace interrupted sutures to close the tear, spaced about 1 cm (½ inch) apart. Or, use a continuous suture technique. The entry and exit points are directly across from each other. See Tie a Square Knot in **Learning Aid 2**.

8. Continue making interrupted sutures along the laceration. When the laceration is small or comes together easily with little bleeding, one or two interrupted stitches cause little trauma. Too many stitches may cause more bleeding. Too tight stitches may cause tissue damage.

REMEMBER

The most important thing with periurethral lacerations is to control the bleeding.

- If blood continues to ooze from the laceration, press gauze firmly over the wound for a couple of minutes.

- Carefully take off the gauze.

- If the bleeding has stopped, clean and dry the woman, make her comfortable.

- If she continues to bleed, press gauze over the wound with steady continuous pressure for at least ten minutes. **Do not look during that ten minutes.** Normal clotting time is usually less than 7 minutes. If she continues to bleed, you may need to add one or more stitches to control the bleeding.

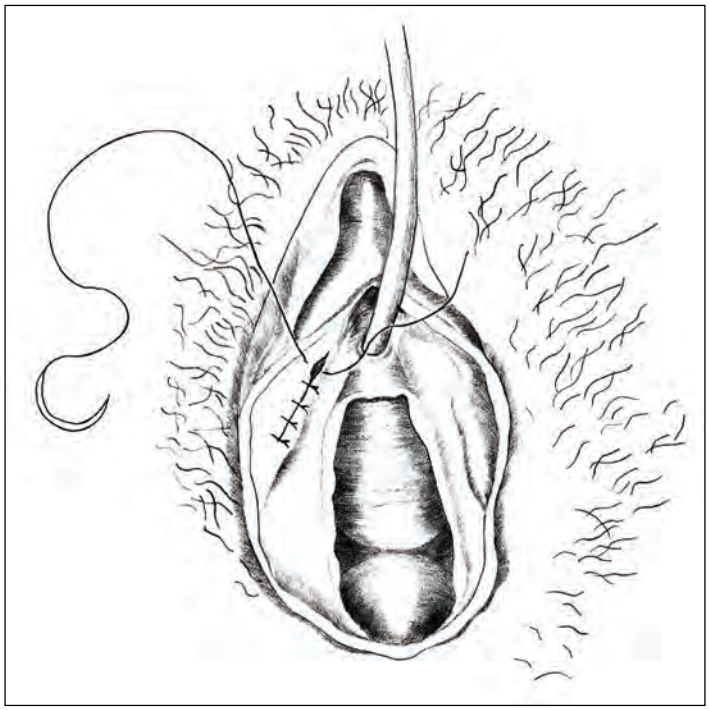

Figure 16. Repair of an anterior periurethral laceration with interrupted sutures. The catheter in the urethra protects the urethra.

Cervical Laceration Repair

Lacerations may be found when you do a cervical inspection. Giving oxytocic will not stop bleeding from a torn cervix, because the cervix does not contract as the uterus does.

The cervix may tear when the woman starts pushing before her cervix is fully open. Cervical lacerations can also happen in easy deliveries. A careful cervical examination should be done. Women can die from small cervical lacerations that were not repaired with two or three stitches. Surgery at a referral hospital may be needed to repair a cervical tear that has gone deep beyond the vagina into the uterus.

1. Place your sponge forceps on one side of the laceration. See Figure 17. If you have a second sponge forceps, place it on the other side of the laceration. Hold the handles from both forceps in one hand.

2. Pull the handles gently towards you. This will help you see the cervical laceration better.

3. Place the first stitch about 1 cm above the apex of the laceration to prevent bleeding.

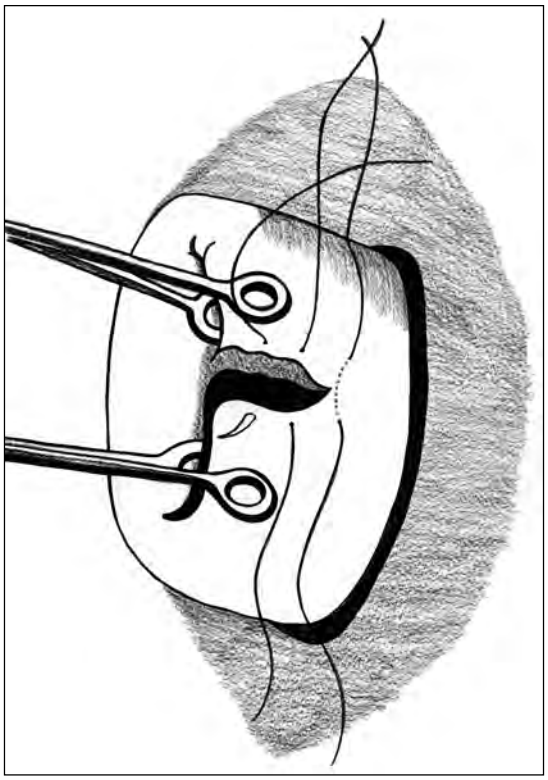

Figure 17. Holding the cervix for laceration repair.

4. Place sutures along the wound, spaced about 1 cm apart, as described in the periurethral section above. Cervical lacerations are repaired with either interrupted or continuous stitches. When the laceration is small, one or two interrupted stitches causes little trauma. Too many stitches may cause more bleeding. Be careful not to suture the cervix closed. See Figure 18.

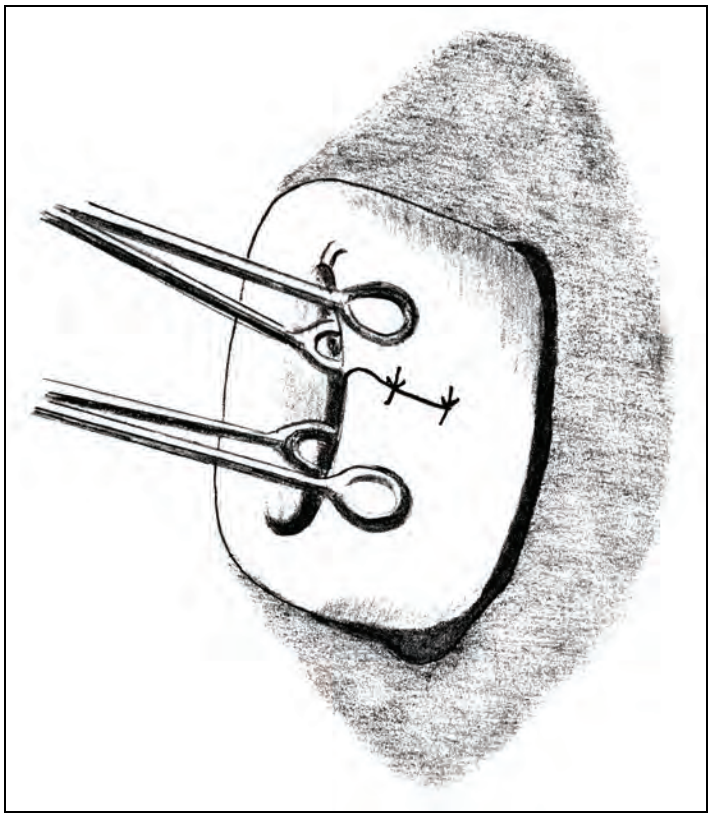

Figure 18. Interrupted sutures on the cervix.

5. If you do not have sponge forceps to grasp the cervix, have your assistant put on a pair of gloves. Have her press on the posterior (back) wall of the vagina. This will help hold the vagina out of the way so you can see the laceration better. You can also ask someone to press down firmly on the woman's uterus. It is very difficult to sew without the forceps to hold the cervix steady, but it can be done in an emergency. Do not use toothed forceps or clamps. Instruments with teeth can cut the cervix or you might pull off a piece of cervix, causing much greater bleeding.

6. If you are not able to repair the cervical laceration:

    a. Place your sponge forceps over the cervical laceration, see Figure 19. If you put pressure on the bleeding point, it will stop bleeding for some time.

    b. Wipe out the vagina and make certain the bleeding has stopped. If the laceration is very large, prepare the woman and family for referral to a place where a doctor with obstetric experience can repair the laceration.

    c. Release the forceps for a short time every 15 minutes or so if it is possible. This will keep the edges of the lacerated cervix from dying from lack of blood. If the forceps can not be released every 15 minutes during transport of the woman, keep the cervix clamped and get her to the referral hospital as fast as possible.

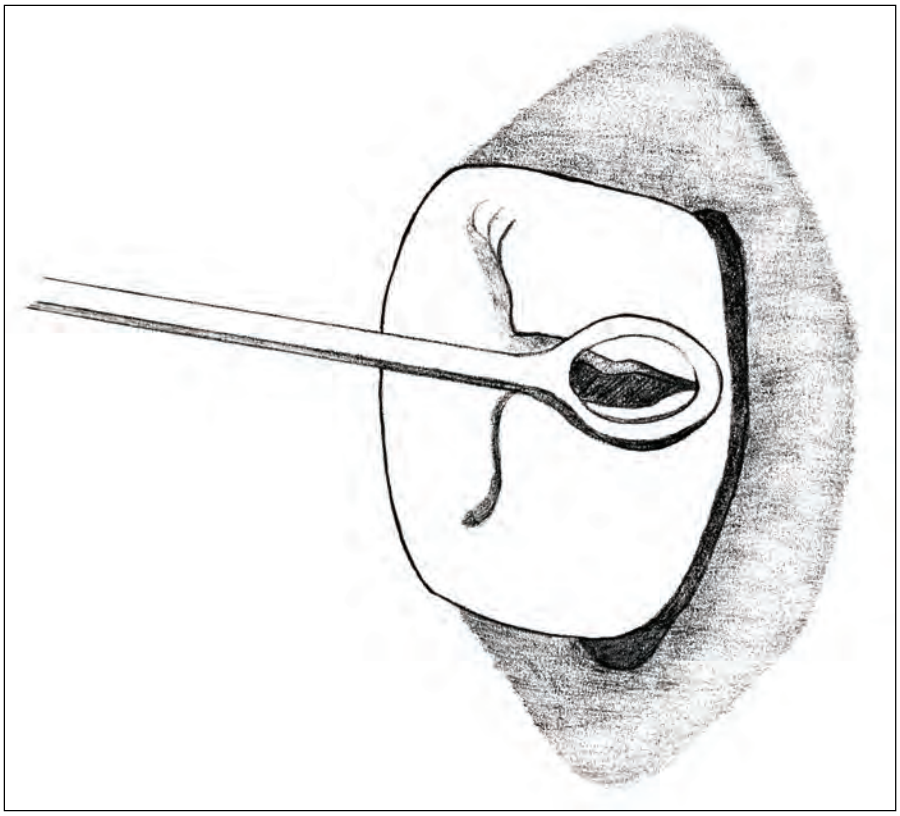

Figure 19. Sponge forceps over cervical laceration.

7. If you do not have sponge forceps:

    a. Place your gloved hand with gauze or cloth over the cervical laceration.

    b. Put pressure with your fingers.

    c. Continue the pressure while transporting the woman to the hospital.

8. If the laceration is not large, clamping with the forceps may prevent suturing the cervix, which can cause more bleeding:

   a. Keep the sponge forceps clamped on for 15 minutes.

   b. Carefully release the forceps and watch to see if the bleeding has stopped.

   c. If the bleeding has stopped, remove the forceps and clean the woman.

   d. If the bleeding continues, repair the laceration.

REMEMBER

Stop the bleeding from a laceration with pressure from your gloved fingers if you can not repair the laceration and do not have a sponge forceps.

Vaginal Laceration Repair

Lacerations of the vagina are repaired as described on repair of vaginal mucosa for an episiotomy and in Figure 8. A thicker suture thread is a better choice for vaginal lacerations, see **Learning Aid 1**. A catheter in the urethra is not needed unless the laceration is on the anterior vaginal wall.

Circumcision Scar Repair

In some parts of the world, women are circumcised. This is also called female genital cutting (FGC). With some types of circumcision, there is a problem during delivery. Scarred tissue from circumcision may not stretch, causing tearing, pain, and bleeding. If the vaginal opening is very small, it must be opened so the baby can deliver. See **Learning Aid 3** to learn how to open and repair the cut.

Review Questions

What Did I Learn? Find what you know and understand from this section. Answer the following questions. When you are finished, look for the answer in the module on the page written in parentheses ( ).

1. What can you do to prevent an episiotomy or laceration (page 4.3)?

2. What are the reasons a woman may need an episiotomy (page 4.5)?

3. What actions help to reduce MTCT during labor and delivery (page 4.28)?

4. What steps will you take to perform a vaginal and cervical inspection (page 4.11)?

5. Tell how to inject local anesthetic before the baby is born (pages 4.5 – 4.6).

6. Why is absorbable suture preferred to sew genital lacerations and episiotomies (Learning Aid 1)?

7. Explain to a woman in labor, how and why to slow the birth of the head of the baby (page 4.4).

HIV/AIDS PROTECTION

Source: Israel and Kroeger 2003.

Most women living with HIV/AIDS have no symptoms and will be untested, or not willing to tell about their sero-status. You can reduce Mother to Child Transmission (MTCT) by using infection prevention and universal precautions. Remember that some women are HIV-positive. An estimated 10-20% of MTCT occurs during labor and delivery, when:

- The fetus comes in contact with maternal blood or cervical secretions.
- Fetal and maternal blood mix after the normal placenta separates.
- A serious infection is in the uterus (sexually transmitted infection or other).

About half of the MTCT infections that occur during labor and delivery can be prevented with antiretroviral drugs (ARVs), see *Guide for Caregivers – HIV/AIDS Counseling.* Midwives should try to lessen fetal contact with maternal blood and vaginal fluids. This means doing procedures such as rupturing membranes or episiotomy only when necessary. Episiotomy increases the woman's risk of too much bleeding, infection, and painful healing. The contact to a woman's blood from an episiotomy may increase MTCT.

ARVs can be helpful in stopping MTCT when used in combination with the other prevention strategies mentioned below. There are some countries where there is a supply of ARVs for mothers with HIV, but many countries do not have them.

Regular monitoring and support during labor and delivery helps the fetus and woman remain as healthy as possible during birth. Keep the woman calm and encourage normal labor with these interventions: work with the woman, have a support person, encourage walking and position changes, encourage frequent urination, give plenty of fluids to drink and light food. Keep the family informed of her progress.

- Use the partograph to follow labor progress and to tell you when labor is not progressing.
- Vaginal exams should only be done if necessary according to partograph guidelines, because vaginal exams increase the risk of MTCT.
- Monitor and treat any signs of infection, a risk factor for MTCT, such as chorioamnionitis (an infection in the uterus).
- Rupture membranes only if progress of labor is not normal.
- Vaginal cleansing (lavage) with antiseptic solution before birth may lessen maternal secretions.
- Have few or no lacerations by helping the woman control her pushing during delivery.
- Using forceps and vacuum extractors can cause more contact of the fetus with the mother's secretions and blood. Forceps and vacuum extractors can cause trauma to the baby's skin and the mother's vaginal mucosa. They may cause cuts and bleeding, and give more chance of infection.
- Use universal precautions, wear gloves and dispose of waste safely. There should be a special supply of antiretroviral drugs for health care workers who have had contact with HIV.

PROBLEM SOLVING METHOD CASE STUDIES

The Problem Solving Method is an organized way of giving care to women. It is a way of thinking about the care you give. This case study will help you review the Problem Solving Method. Use Modules 1, 4, 5, 8, and *Guide for Caregivers* for reference as needed.

We solve problems every day of our lives. We do not think about the steps involved in problem solving. The Problem Solving Method is a way to help us follow steps in giving care to women. Write your answers to the questions in these cases.

The five steps of the Problem Solving Method are:

1.

2.

3.

4.

5.

(Check your answers by looking in Module 1)

Case Study 1

ASK and LISTEN

This is the first step in caring for a woman. Ask questions about the reason she came to see you. In an emergency you are asking questions, looking, feeling, making decisions, and taking actions all at the same time. It is very important the five steps of the Problem Solving Method are practiced over and over, so that you do not have to look in a book or stop and say, “Now, what should I do first?” In an emergency, you must know the steps.

Mrs. C. L. comes to the maternity in a truck (lorry). Her husband is shouting for you to come and help his wife. Mrs. C. L. is lying in the back of the truck on a mat soaked with blood and fluid. Another woman is sitting beside her holding a baby. As you greet Mrs. C. L. while she is still lying in the truck, you immediately **FEEL**_____.

(Complete this sentence.)

Now that you know the uterus is firm and contracted, you quickly remember that Mrs. C. L. is a primipara who registered in her fifth month of pregnancy. She had a normal pregnancy and she was seen by the doctor at the hospital 4 times during the pregnancy. You and the doctor both asked her to deliver at the hospital. She attended antenatal clinic last week. The baby was close to term and breech. Mrs. C. L. was going home to get her things and move to the hospital maternity village until she delivered.

As you help get Mrs. C. L. into the maternity, you ask the driver to please wait because she may need to go to see a doctor or go to the hospital. What questions would you ask Mrs. C. L. and her family?

1.

2.

3.

4.

You find that Mrs. C. L. is very weak and afraid. She is thirsty. The woman holding the baby tells you that Mrs. C. L. was waiting for market day (today) for transport to the hospital. She delivered 4 hours ago. The baby was born feet first and the baby's head did not come out for a long time. Someone helped the baby deliver by pulling on the baby. After the placenta came out, the bleeding did not stop. Mrs. C. L. has not taken any liquids or food since the delivery. She has not taken any medicines.

You do not waste any time writing down the above information at this time. You know that prolonged bleeding after delivery can lead to shock and death. You can see that Mrs. C. L. is close to shock. You must continue quickly with the Problem Solving Method and prevent shock at the same time.

LOOK and FEEL

This is the second step when seeing a woman. As you prevent shock, find out where the bleeding is coming from. What will you do to prevent shock?

Refer to Module 8.

As you help her lie down, you cover her to keep her warm and dry. You give her liquids to drink, talk to her, and comfort her so she is not too afraid. Quickly **LOOK and FEEL**.

What will you find as you **LOOK and FEEL**?

1.

2.

3.

4.

5.

You find that Mrs. C. L. is nervous (anxious) and afraid. Her respirations are shallow and fast (44 in a minute); pulse is strong but fast (100 beats in a minute); blood pressure is low (70/48). Her skin is cold and wet. The uterus is still firm and contracted. She is still bleeding. After a genital inspection you find the perineum is intact. There is a tear at the middle right (3 o'clock position) of the cervix.

IDENTIFY THE PROBLEM

This is the third step of the Problem Solving Method. You must identify the problems, using the information from the first two steps.

What is the problem(s)?

Using the information from **ASK and LISTEN** (difficult delivery of breech, primipara, placenta is delivered, thirsty, nervous, bleeding), the **LOOK and FEEL** (anxious, respirations shallow and fast, pulse 100 but strong, blood pressure 70/48, skin cold and wet, uterus firm and contracted, tear in cervix), you **IDENTIFY** the problem -- Mrs. C. L. has a cervical laceration and is close to shock.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. You must decide what should be done to take care of each problem. Mrs. C. L. has a very serious problem. Mrs. C. L.'s problem could cause death. She is close to shock and is bleeding from the cervical laceration.

What EMERGENCY actions will you take, and why will you take each action?

Refer to Modules 4, 6, and 8.

It is important to take emergency actions for both the bleeding and the shock at almost the same time. Make sure her airway is open as her breathing is fast at 44. To stop or slow the bleeding it is important to put pressure on the cervix as soon as possible and go to the doctor/hospital. This is done most quickly with a gloved hand. If you have a sponge forceps and know how to repair the cervical laceration ask your assistant to get the suture pack to repair the cervical laceration. If you are not able to do the repair, put pressure on the laceration with sponge forceps or gloved hand.

For shock, ask your assistant to cover the woman and keep her warm, raise her feet and legs, start an IV, and check the blood pressure and pulse every 15 minutes. Go with Mrs. C. L. and her family to the doctor/hospital.

EVALUATE AND REPEAT THE PROCESS

This is the fifth step of the Problem Solving Method. Follow-up visits are important to see if the woman is feeling better, staying the same, or getting worse. Decide if the actions taken were effective at resolving the problem.

What do you for the woman and her baby during the follow-up visit?

The follow-up evaluation is done at the next visit to check for healing, any infection, and other postnatal care. You will need to repeat the problem solving method. You check her hemoglobin / hematocrit to see whether the bleeding from the laceration has made a change in her hemoglobin / hematocrit numbers. See *Guide for Caregivers – Postpartum Counseling* and *Formulary* for care, iron and Vitamin A dose.

You may have to develop a new plan for treating her. She may need to have information or advice repeated to be sure she understands. She may need a different medication or treatment. She may need to be referred to a hospital or doctor.

Repeat Postpartum Visits. Repeat postpartum visits are just as important for the woman and the baby. A woman or baby can develop a problem at any time. The **ASK and LISTEN** questions you discuss with the woman during her follow-up visits can help you find problems early while you are showing her that you are interested in her, see Module 10: **Postpartum.**

Case Study 2

Mrs. V. L. comes to the maternity by taxi. She was at the market when her bag of waters broke, labor contractions started and she delivered. She had a lot of difficulty finding transport to the maternity. Her cloth is soaked with blood. The baby is crying and moving around a lot.

What do you do **immediately**?

You help Mrs. V. L. lie down, feel and rub the uterus to make sure it is firm and contracted, wash her genitals with soap and water, put the baby to each breast for 3 to 4 minutes, and ask your assistant to take the blood pressure and pulse.

As you care for Mrs. V. L., you see that there is a steady stream of bright red blood coming from the vagina.

ASK and LISTEN

Since Mrs. V. L. delivered at the market and this is the first time you have seen her, you must find what happened to her. Do not waste time. You do not know how much blood she lost before you saw her. She may be close to shock or death.

What do you ask her in this situation?

1.

2.

3.

4.

5.

6.

You find out that this is her first baby and there was no bleeding before or during the delivery. She has the placenta wrapped in a cloth. You can see that it came out in one piece. She only saw the bleeding when she got out of the taxi. She has not taken any medicines or herbs. No one has put anything into her vagina during or after the delivery.

LOOK and FEEL

What examination will you do on Mrs. V. L.?

You find out that her blood pressure is 96/62 and pulse is 70. Her skin is warm and sweaty. There are no signs of shock now. The placenta and membranes are complete and not torn. The uterus is firm and contracted. The vagina and perineum have a median (midline) laceration with bright red bleeding. The cervix has no laceration.

IDENTIFY THE PROBLEM

IDENTIFY the cause of this emergency problem of bleeding. You know that continuous blood loss leads to shock, coma and death. You must decide what is causing the bleeding using the information from **ASK and LISTEN**, and **LOOK and FEEL**. Write the problem here.

Using the information from **ASK and LISTEN** (delivered a normal baby and placenta at the market, bleeding after the delivery) and **LOOK and FEEL** (placenta and membranes complete, uterus firm and contracted, no cervical tear, midline vaginal and perineal tear), you **IDENTIFY THE PROBLEM** that Mrs. V. L. has vaginal and perineal lacerations. She is not in shock.

TAKE APPROPRIATE ACTION

These lacerations can cause death. What **ACTION** will you take?

Take action now to stop or slow the bleeding and to prevent shock. To stop or slow the bleeding put pressure on the laceration as soon as you see it. This is done most quickly with a gloved hand while asking your assistant to get the suture pack to repair the vaginal and perineal laceration

Repair the laceration, ask your assistant to cover the woman and keep her warm, make sure her uterus is contracted, start an IV or give her fluids to drink, and check the blood pressure and pulse every 15 minutes to prevent blood loss from uterine atony and shock.

If the bleeding is not stopped, what do you do next?

Quickly try to find where the bleeding is coming from. Give care for shock, refer to Module 8.

Use the Problem Solving Method to **LOOK and FEEL** to make sure you repaired the laceration according to the procedure. **LOOK and FEEL** to see if the bleeding is coming from the vaginal laceration or from some other place. Check if the uterus is still contracted. Refer to *Guide for Caregivers – Emergency Treatment (*shock) and *Protocols (*postpartum bleeding) to **IDENTIFY THE PROBLEM** and **TAKE THE APPROPRIATE ACTION IMMEDIATELY!**

TAKE APPROPRIATE ACTION AFTER BLEEDING IS STOPPED

Mrs. V. L. had a very serious problem which had to be taken care of immediately. The bleeding is stopped, what do you do next for each of the following? Refer to Module 10.

Medical treatment

Education/counseling

Laboratory tests

Plans for follow up

Recording

You take her vital signs. If signs of infection, see *Guide for Caregivers – Protocols.* Teach her about care of her laceration, keeping her breasts clean, baby care, and prevention of tetanus. Talk with her about the need for postnatal care for mother and baby and family planning. Talk with her about how her family and the Traditional Birth Attendant (TBA) can support and help her. Check her hemoglobin / hematocrit and refer her if it is low or if she continues to bleed. See *Guide for Caregivers – Skill Checklist and Postpartum Counseling* for care, iron and Vitamin A routines.

You ask her to come to see you in 7-10 days or sooner if she has any danger signs. If she has a very large laceration, you may want to see her every day, or ask her to see her TBA every day until she is stronger. It all depends on Mrs. V.L.'s condition.

You write in the record that Mrs. V.L., a primipara delivered her baby and complete placenta and membranes at the market today. Write the approximate time of delivery. On arrival in a taxi, the baby was crying and the woman was lying in blood soaked clothes (estimated 400 cc blood). Record her blood pressure and pulse, that her skin was warm and sweaty, uterus firm and contracted, that she had median vaginal and perineal lacerations and that her cervix was intact. The lacerations were repaired and bleeding stopped. Mrs. V. L. is eating, drinking, and walking to the toilet.

EVALUATE AND REPEAT THE PROCESS

This is the fifth step of the Problem Solving Method. Follow-up visits are important to see if the laceration is healing, staying the same, or getting worse. Decide if the actions taken were effective at resolving the problem. The evaluation is immediate to see if the actions of repairing laceration stopped the bleeding

What do you do during a follow-up visit for a woman who had an emergency?

The follow-up evaluation is done at the next visit to check for healing, any infection, and other postnatal care. You will need to repeat the problem solving method. You check her hemoglobin / hematocrit to see whether the bleeding from the laceration has made a change in her hemoglobin / hematocrit numbers. See *Guide for Caregivers – Skill Checklist and Postpartum Counseling* for care, iron and Vitamin A routines.

You may have to develop a new plan for treating her. She may need to have information or advice repeated to be sure she understands. She may need a different medication or treatment. She may need to be referred to a hospital or doctor.

Repeat Postpartum Visits. Repeat postpartum visits are just as important for the woman and the baby. A woman or baby can develop a problem at any time. The **ASK and LISTEN** questions you discuss with the woman during her follow-up visits can help you find problems early while you are showing her that you are interested in her, see Module 10: **Postpartum.**

Case Study 3 - What Is the Problem?

(Answers are on the next page.)

The new midwifery student working in your maternity has just completed evening postpartum rounds. She tells you the woman who delivered at 4 AM today seems to be bleeding too much. You try to have the student solve the problem.

You ask the midwifery student: What could be the **PROBLEM**?

What **ACTIONS** will you and the student take?

Case Study 4 - What Is the Problem?

(Answers are on the next page.)

A woman with a large perineal laceration was sutured with coat thread by a person in her family. The woman comes to you 6 days later complaining of pain and pus coming from her wounds.

What could be the **PROBLEM**?

What **ACTIONS** will you take?

ANSWERS – Case Study 3

*You ask the midwifery student: What could be the **PROBLEM**?*

- *Uterine atony with or without retained products of conception, or*
- *Missed seeing a laceration of the cervix, vagina, or perineum, or*
- *Normal postpartum lochia (the new student is not yet aware of the amount of normal postpartum blood loss)*

*What **ACTIONS** will you and the student take? Refer to Guide for Caregivers – Protocols.*

- ***Identify the Problem** while **Taking Action***
- *Actions include: Massage the uterus. Express clots. If uterus not contracted, give oxytoxic. If uterus contracted, inspect the vagina, cervix and perineum. Suture any lacerations found to be bleeding or oozing. Estimate the blood loss. Start an IV if necessary. When the bleeding is controlled monitor for vaginal bleeding, contracted uterus, full bladder, and vital signs every 15 minutes for 2 hours and every 30 minutes for 2 hours and then 3 times a day for 3 days to make sure the bleeding stops. Teach the woman to check her own uterus. Decide if referral is needed.*

ANSWERS – Case Study 4

*What could be the **PROBLEM**?*

- *Infected laceration repair*

*What **ACTIONS** will you take? Refer to Guide for Caregivers – Protocols and Module 7.*

- *Inspect the area under good light.*
- *If the area is infected, remove the coat thread.*
- *Wash the wound with an antiseptic or soap and water.*
- *Take the temperature, blood pressure and pulse.*
- *Teach the woman how to check her own uterus, clean herself and change pads often.*
- *Give antibiotics according to your protocol.*
- *Check how she is healing each day for 2 or 3 days.*
- *If the infection is very bad or the wound is not closing, refer.*

Learning Aid 1 - Choosing a Suture and Using Suture Equipment

Choosing a Suture. Suture comes in two types - absorbable and non-absorbable.

- Absorbable suture is better for repairing episiotomies and lacerations. It bends easily, is strong and it lasts long enough for healing of the wound. It does not have to be removed as it is dissolved (absorbed) by body tissues or body fluids. There is very little tissue reaction. A synthetic suture called polyglycolic acid (polyglactin) has long lasting strength. It is absorbed in 60-90 days. Another suture is chromic catgut. It is strong and absorbs in 14 to 21 days.

- Non-absorbable suture does not dissolve and has to be removed when healing is completed in 7 to 10 days. It may be made from cotton, silk, plant tissue, metal, or man-made fibers. They may cause some tissue reactions like inflammation with swelling or redness. If you can not get absorbable suture, use non-absorbable suture or common (coat) thread while doing interrupted sutures and the one layer method. See Module 7: **Infections** for sterilization process for common thread. Remember, a large or bleeding unrepaired laceration can lead to infection, hemorrhage, anemia, and even death.

- Size. Suture material is graded by size. The more zeros in the size the smaller the width of the thread. Therefore, both 00 (2-0) or 000 (3-0) are very strong and good for repairing lacerations and episiotomies. Periurethral lacerations are best repaired with 4-0. Use 6-0 for repairing wounds on the face. Use 9-0 for surgery of the eye.

Using Suture

- Suture (thread) may be on a needle, or you may have to put it on the needle.
- Use a needle that is curved and round to prevent damage to the tissue.
- When suturing, hold the extra thread in the palm of your hand that is holding the needle holder, to prevent it becoming contaminated.
- Never put a clamp or needle holder where the needle and suture join together, or on the ‘eye’ of the needle or on the suture itself.

Holding and Using a Needle

Using a needle holder prevents pricking your finger or making tiny tears in your gloves. This reduces your risk of getting an infection like HIV or hepatitis B which passes from blood.

- Clamp needle holder on the needle close to the suture or ‘eye’ of the needle.
- Clamp the needle with the tip of the needle holder.
- Clamp the needle so the curve is at a 90 degree angle to the needle holder as in Figure 7.
- Hand position with needle holder ready to suture, (a) Thumb holes are in the palm of your hand. (b) Thumb and index finger are on each side of the shaft.

- Passing the needle through tissue:
  - Push the needle through the tissue to the middle of the cut or tear so you can see the point of the needle.
  - Put the needle into the other side of the cut or tear in about the same location as the first side and push it through.
  - Hold the needle point with the tissue forceps.
  - Unclamp the needle holder.
  - Clamp needle holder near the point of the needle and pull the needle through the tissue following the curve of the needle.
  - Hold the needle with the tissue forceps.
  - Put the needle in the needle holder to continue with the next stitch.

Using a Curved Needle

Learn to move your wrist after you put the needle point straight down into the tissue. Remember the needle is curved, so move your wrist in a half circle as you push and then pull the needle through the tissue.

- Start suturing with the curved part of the needle up (the point will be down) so that you go into the tissue with the point of the needle.
- As the needle point goes through the tissue, move your hand in a half circle (180 degrees) so the needle follows the curve until the point comes out.
- Always follow the curve of the needle when you are moving the needle through the tissue. When you pull the needle out with the needle holder you will follow the same curve. Take care not to prick the woman.

REMEMBER

Never hold or touch the needle with your fingers!
Never clamp needle holder on eye of needle or where the needle and suture join – the needle may break or the suture may break.

Learning Aid 2 - Principles of Knot Tying

Knot Tying

There are many knot tying methods for tying suture. All have the purpose of making a secure, square knot. A **completed square knot** lies flat, takes up little space, and holds together firmly, see Figure 20. You may use two hands, one hand, or an instrument to tie a square knot. It is important the knot is strong and will not untie.

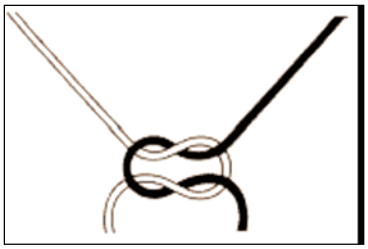

Figure 20. Square knot.

About Knots

1. The knot, when complete, must be firmly tied so it can not slip.

2. The knot is as small as possible to prevent reaction of the tissue (like an inflammation). The ends of the knot are cut to about 1 cm (½ inch) long.

3. When you tie any knot, do not rub the two threads together. This can weaken the suture and cause it to break.

4. Handle the suture carefully to prevent damage. If you clamp onto it with the needle holder or forceps, you can weaken or break the thread.

5. When pulling tissue together with your suture, do not pull too hard. This can cut off circulation to the tissue or cause the suture to break.

Hand tying is good because you are able to feel the location of the suture and knot. When learning to tie square knots, practice again and again until your fingers tie the knots easily. When you are learning to tie knots, do every step slowly and carefully.

Watch a demonstration. Practice each step. When you can do each step, do all of the steps together. Practice again and again until you do not think about each step. (Learning to suture and tie square knots takes practice to make safe and firm knots. Use foam from a chair seat or a piece of meat to practice sewing and tying knots.)

Tie a Square Knot

To learn how to tie a square knot use a white and black string. In Figure 21 one side of the suture is black and one side of the suture is white so the parts of the knot will be easier to see. The needle is shown with the black side of the suture.

Figure 21. Black & white suture.
Source: adapted Klein 2004, page 364

FIRST LAYER (half knot)	SECOND LAYER (half knot)	REPEAT (half knot)
1. Lay the needle end of the suture **over** the other end.	4. Lay the needle end of the suture **over** the other end.	7. Repeat laying the needle end of the suture **over** the other end.
2. Wrap the needle end **under** the suture.	5. Wrap the needle end **under** the suture.	8. Wrap the needle end **under** the suture.
3. Pull both ends to tighten.	6. Pull both ends to tighten.	9. Pull both ends to tighten.

Figure 22. Tying a square knot.
Source: adapted Klein 2004, page 364.

10. Pull horizontally and firmly to secure the square knot.

11. Cut the end(s) about 1 cm (½ inch) long.

Learning Aid 3 – Circumcision (female genital cutting) Care

In some cultures, girls are circumcised (female genital cutting or FGC). Circumcision is done for many reasons. Mothers and grandmothers may believe the practice is an important part of being a woman. Some believe that their daughters must be circumcised so their society will accept them. If a woman is going to have a baby, we use the information in this learning aid, to give respectful care to comfort and nurture women with circumcision.

Sometimes the circumcision is small and may not be seen on examination. The most severe from of FGC is when the clitoris and the labia minora (inner lips) of the vagina are removed and the labia majora (larger lips) are cut and sewn together. This makes the vaginal opening smaller by sewing it partly closed. This genital cutting is harmful to the girls who are cut. Genital cutting can cause genital and urinary tract infection and problems during delivery. Scarred tissue may not stretch for the delivery. If there is much cutting, there are more risks to the girl. If her genitals were sewn partly closed, the scar must be cut open before a baby is born.

Cut the Scar Open for Delivery

1. When the presenting part is seen pushing against the scarred tissue, wash your hands and put on gloves.
2. Put 2 fingers into the vagina and under the scar tissue.
3. Inject local anesthetic on each side of the center line where you will cut.
4. Place your scissors in the vagina towards the urethra. Cut up through the scar until you can see the urethra. Stop there. These cuts can cause heavy bleeding, so be careful and cut only what is needed. The vagina may now stretch enough to let the baby deliver.
5. Be ready to cut an episiotomy.

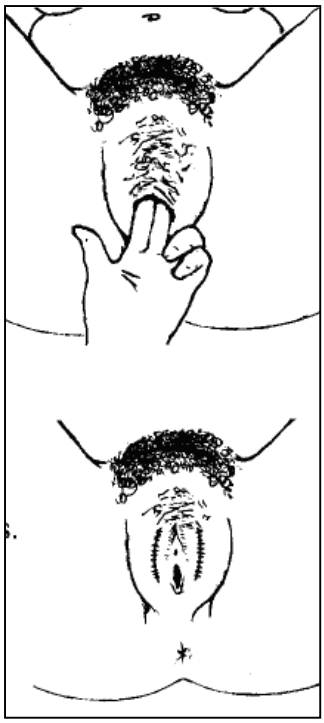

Figure 23. Female genital scar and repair.
Source: Klein 2004, pp 367.

Repair the Cut

1. **LOOK** at the cut edges for bleeding.
2. Explain to the woman, she will be safer for the next birth, if her vagina is not sewn partly closed again. Tell her if she is sewn closed again, the next time there will be more scar tissue and more bleeding will happen. Agree with the woman how you will repair the cut.
3. If the vagina is not sewn back together, the edges of the cut may be stitched apart as in Figure 23. Repair the laceration and episiotomy.
4. As you are giving her care after the repair, take time to talk with the woman. Make a follow-up visit date to EVALUATE her healing.

Learning Aid 4 – Median Episiotomy Repair

See the section on Preparation for Repair in the Mediolateral Episiotomy Repair section, to review your preparation for suturing.

1. Do the first suture: FEEL along the cut with your fingers. LOOK and FEEL for the beginning of the wound (cut). Put your first suture about 1 cm (½ inch) above the beginning of the wound in the vagina. Hold the tissue forceps in your other hand. Use the tissue forceps to steady the needle. Pull the needle through the tissue with the needle holder as in Learning Aid 1. **Never use your fingers.** Tie a square knot and trim the short thread to about 1 cm (½ inch). See **Learning Aid 2** for knot tying.

2. Suture the vaginal mucosa: Use a continuous stitch, sewing down to behind the hymenal ring. See Figures 24 and 25.

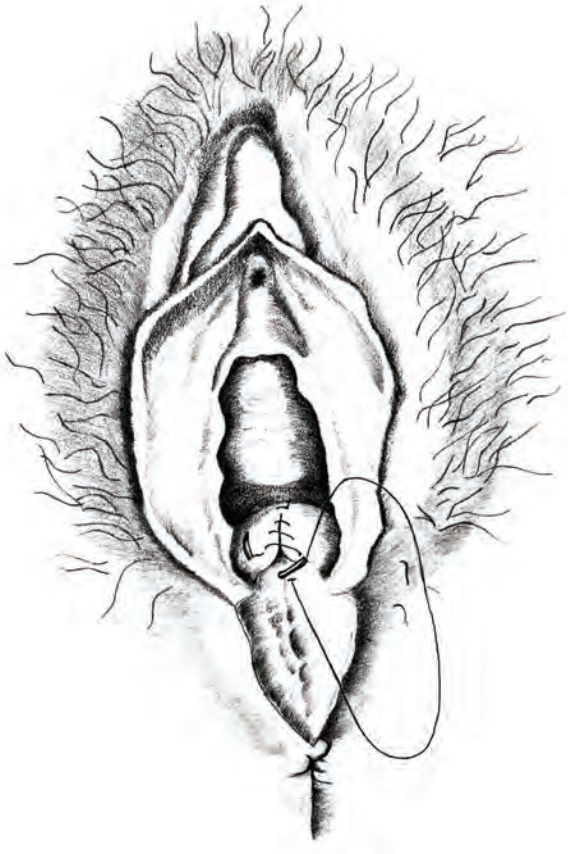

Figure 24. Sewing vaginal mucosa.

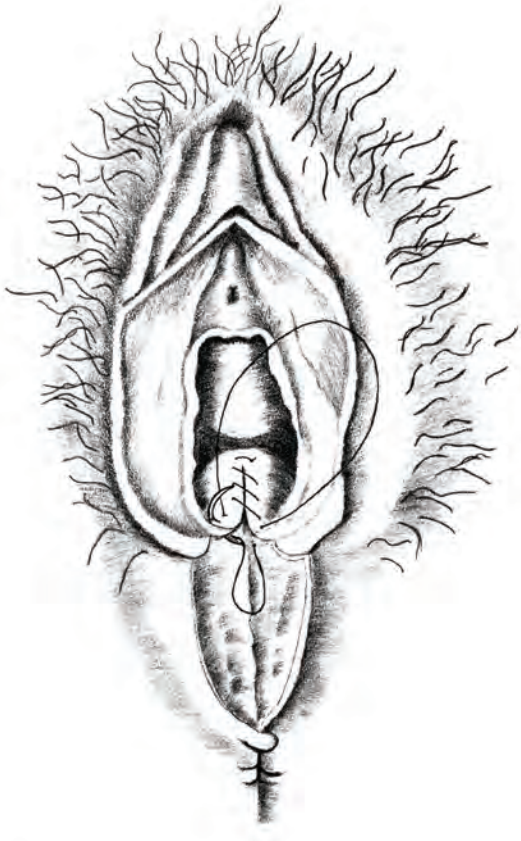

Figure 25. Continuous suturing to hymenal ring.

3. Go from the vagina to the perineum: Put the needle through the vaginal mucosa, **behind the hymenal ring.** Pull it out on the wound of the perineum. See how close to the top of the wound the needle is, look at Figure 26.

4. Suture the perineal muscle layer: Use the suture sparing continuous method to suture the muscles all the way to the bottom of the wound. Make sure that the stitch taken on each side is the same size. You have now closed the deep muscle layer.

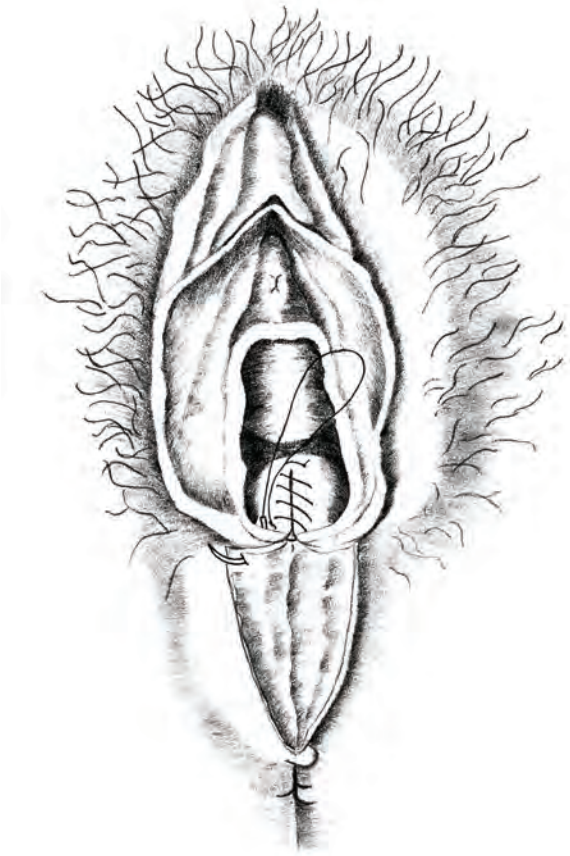

Figure 26. Suture moved to perineum.

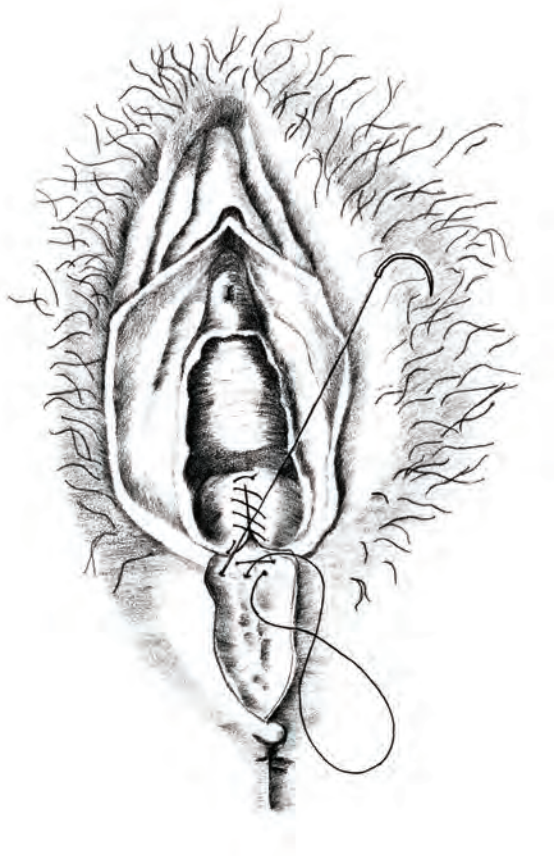

Figure 27. Continuous suturing continues.

5. Suture the subcuticular layer: When you have stitched to the end of the cut just above the rectum, Figure 28, turn your needle over and start to sew up towards the vagina. Use continuous stitches to close the subcuticular tissue, see Figure 29. You are now making a second layer of stitches in the same area. Notice the angle of the needle in Figures 28 and 29. This second layer of suture will leave the wound open about 0.5 cm (1/4 inch). It will close by itself as it heals.

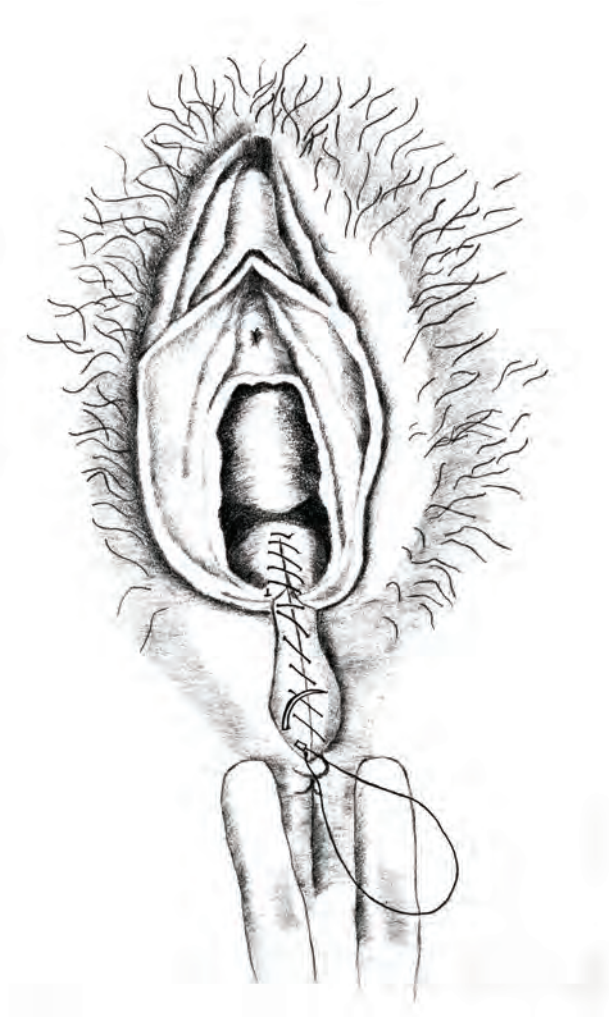

Figure 28. Sew to very bottom.

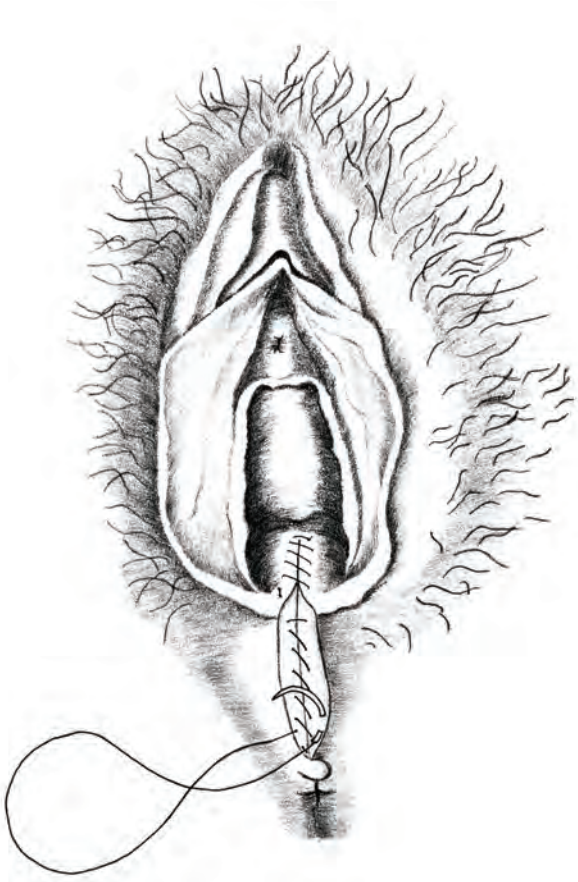

Figure 29. Subcuticular layer starts.

REMEMBER

Always steady the needle with your tissue forceps. Pull the suture through using your needle holder. Do not use your fingertip to feel for the tip of the needle.

6. Go from the perineum to the vagina: Move the suture from the perineal part of the wound back into the vagina to be secured, tied off, and cut. Look at Figures 30 and 31 to see how the suture comes out behind the hymenal ring.

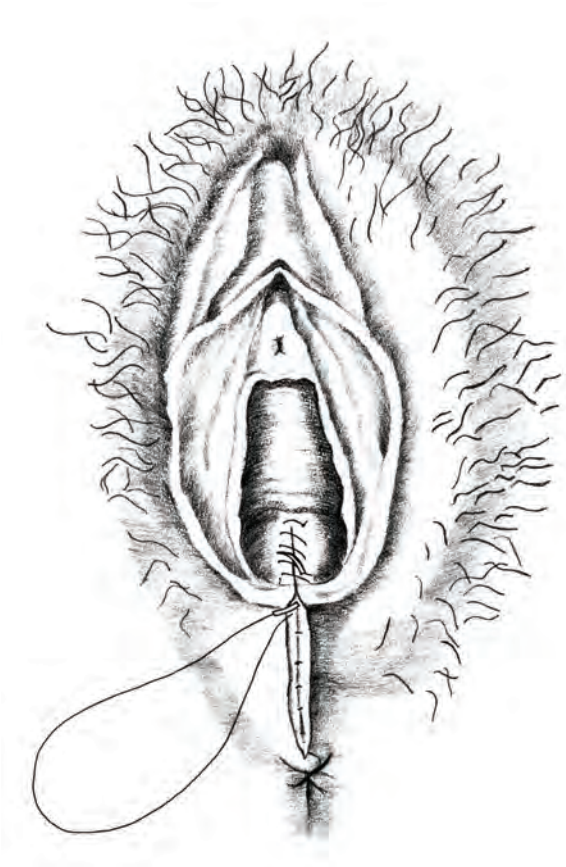

Figure 30. Move needle back into vagina.

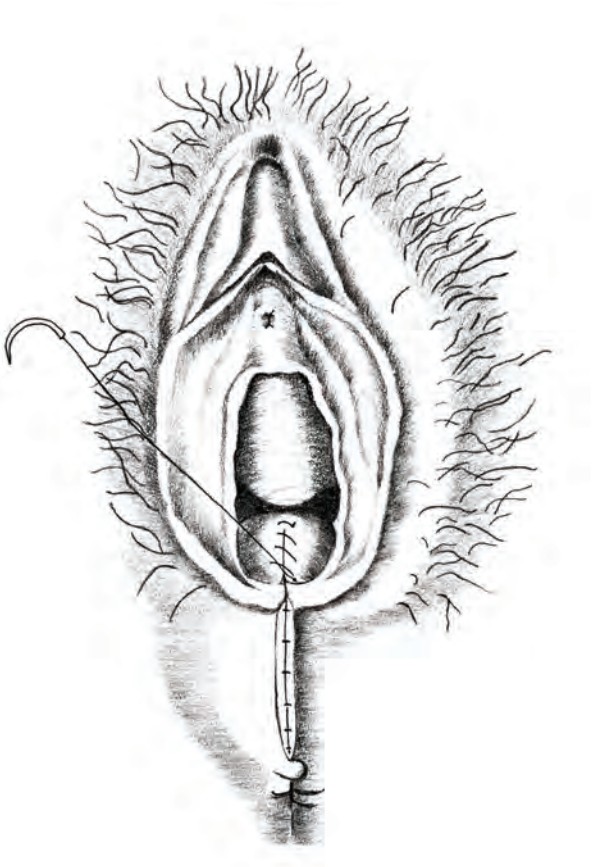

Figure 31. Tie off in vagina.

7. Tie off the suture. Make a final stitch behind the hymenal ring for the purpose of having ties for a knot. Do not pull the suture all the way through the tissue. Leave a loop of suture to tie with. Remove the needle off the other end of the suture for the second tie. To make a very secure last knot, do a one and a half square knot. See **Learning Aid 2** for knot tying. Tie your knot to allow for some swelling during the healing of the wound. Cut the two ends of suture off, leaving about 1 cm (½ inch). If you cut the ends too short, the stitch may pull apart. If this happens, the whole episiotomy will be loose or may pull apart.

8. Look again to be sure you did not leave any gauze, sanitary pads, or instruments in the woman's vagina that may cause infection.

9. Put your finger into the rectum. Feel the top of the rectal wall for suture. If you feel suture, make certain to repeat the rectal exam 6 weeks postpartum. If it is not fully healed after 6 weeks there may be a fistula, refer the woman to the doctor.

10. Wash her genitals with soapy water. Dry her and make her comfortable.

Notes

Notes

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Notes

Notes

Index

The numbers listed in this index indicate the module number. Look in the module table of contents for page numbers.

The Life-Saving Skills Manual for Midwives and its pocket-sized clinical reference book is used for day-to-day duties and as a part of a training course. It is written and reviewed by experienced midwives for use in settings around the world including health centers, clinics, and smaller hospitals with only the most basic resources. The manual was first developed in 1990 and has been used by NGO and governmental organizations in Africa, Asia, the Americas, and the Caribbean. This 4th edition has been revised and expanded with the participation of many LSS midwives, trainers and Safe Motherhood Workers from more than 10 countries. The writing is easy to translate.

The user-friendly format of the **Life-Saving Skills Manual for Midwives** features skills, knowledge and references related to:

- The major killers of women and babies
- Focused antenatal care
- Labor progress monitoring
- Active management of third stage labor
- Active fourth stage care, focused postpartum care, breast feeding, and LAM
- Updated best practices
- Expanded HIV information
- Care for women and families with dignity and respect

Praise for the Life-Saving Skills Manual for Midwives

"Life Saving Skills focuses on skills to reduce the high maternal mortality and global burden of pregnancy related illnesses and death in the developing world. The nation thrives when mothers survive; we need to keep them alive."

- **Liberian President Ellen Johnson Sirleaf**

"LSS is a clearly written and illustrated training manual, our best tool for reaching the MDG 5." **- LSS Trainer in Ghana, Dr. Joe Taylor**

"The LSS midwife spent so much time with me when I was pregnant, explaining so many things. I delivered in her clinic. When I started bleeding one day after my baby was born she came to my house and helped me. She went with me and my husband to the hospital."

- Indonesian mother

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ISBN: 978-0-615-23322-2