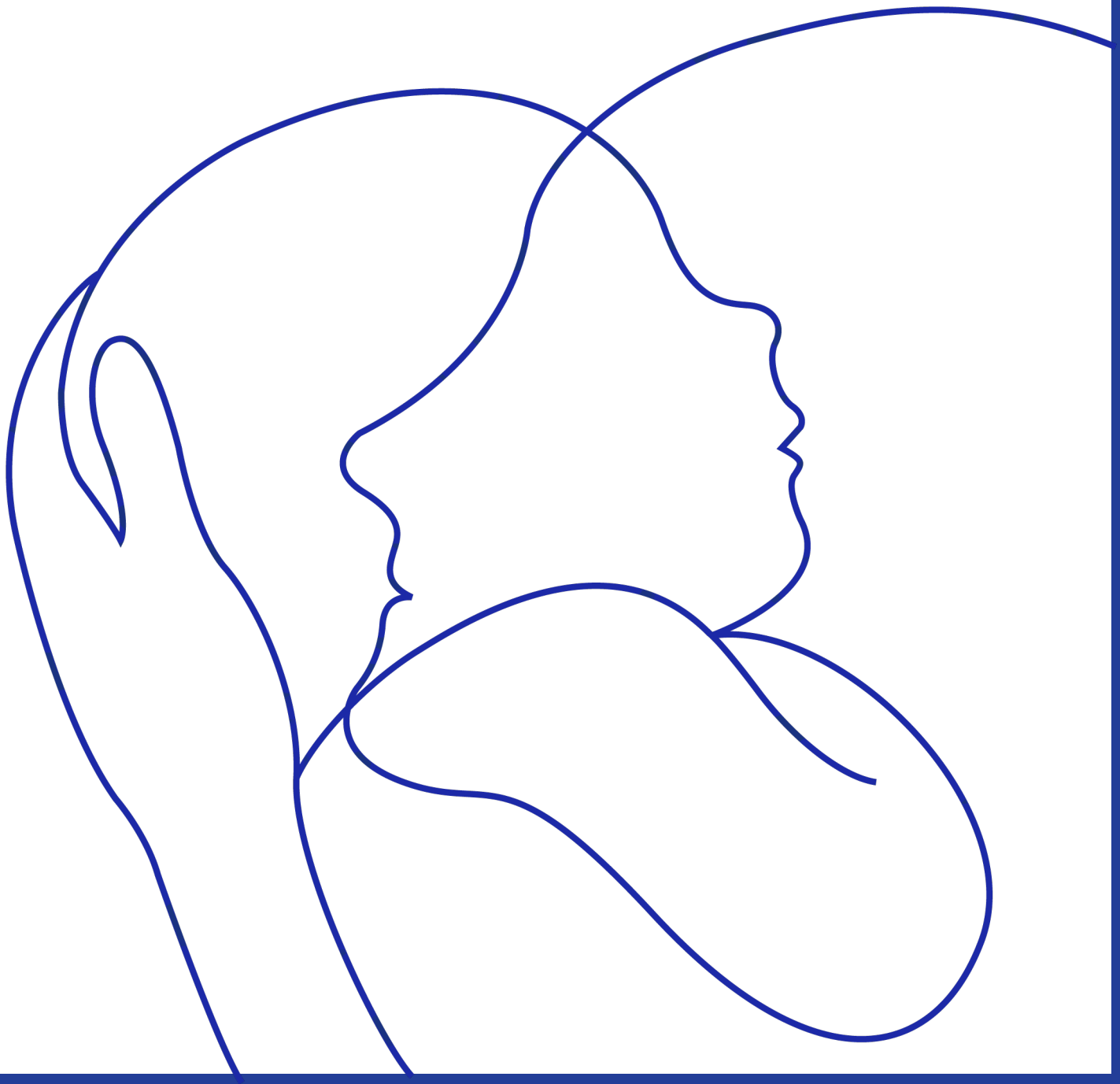
Life-Saving Skills

Manual for Midwives

4th Edition

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



Module 9. VE and Other Procedures Module 10. Postpartum

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:

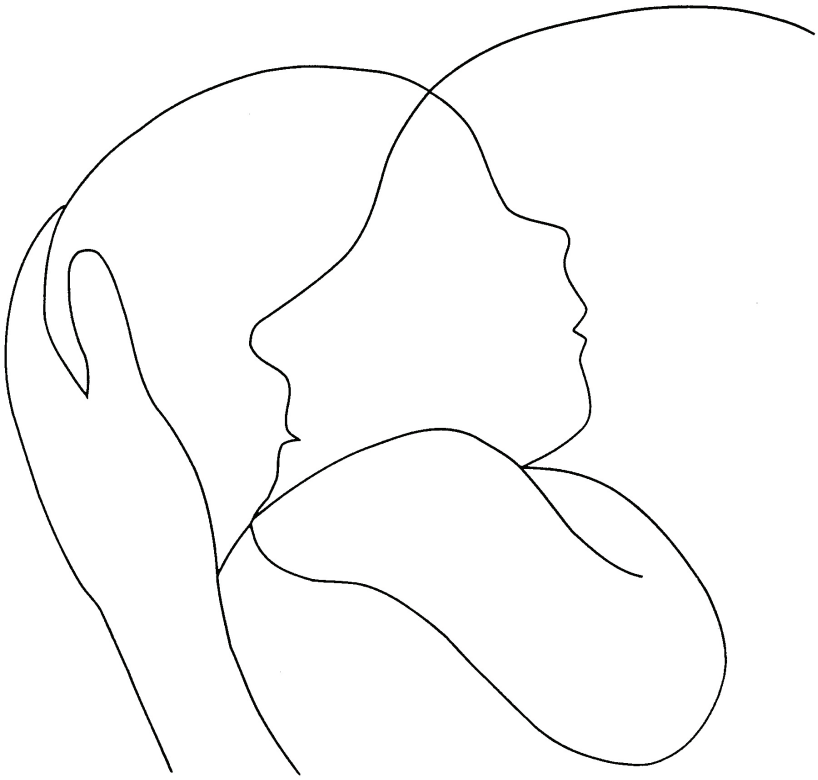
- A Ten Step Program Process includes experience and ideas from LSS programs in many countries.
- Trainers Section provides clinically active LSS learners opportunities to develop confidence and competence. The LSS trainer is not concerned as much about the **quantity** of times a particular skill is 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.

*** 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 9: Vacuum Extraction and Other Procedures



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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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Life-Saving Skills Manual for Midwives
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Vacuum Extraction and Other Procedures

MODULE 9

Table of Contents

Vacuum Extraction and Other Procedures

Overview

In *Life-Savings Skill Manual for Midwives*, Edition 3, this module was called Vacuum Extraction. As the *Manual* (LSS) was used, midwives identified additional topics which were needed in emergency situations. This made it necessary to add more procedures to this module.

This module explains methods that midwives in rural or urban settings can use to save womens' lives. The Problem Solving Method helps midwives to **IDENTIFY THE PROBLEM** and **TAKE APPROPRIATE ACTION**. The *Vacuum Extraction* procedure is an aid to the midwife so she can safely help a woman give birth. This procedure is included in the typical LSS training. Other procedures such as *Manual Vacuum Aspiration for Post Abortion Care* and *Symphysiotomy* may not be used often. If either of these skills is needed, you should take other training classes. During your LSS training, ask to be called when any of these procedures are performed in the clinical area. That way, you will have more time to learn through observing, assisting, and doing the procedures. The skills checklists and learning aids will guide you during training and when you return to your clinic or unit.

The *Vacuum Extraction* section builds on Module 3: **Labor.** It uses the Problem Solving Method to diagnose and care for a woman in prolong labor (crosses the action line). This section describes how the vacuum extractor works, when to use it and when not to use it, and how to do a vacuum extraction. You will also find learning aids on cups, pumps, and cleaning and care of vacuum extractors. The skill checklist for vacuum extraction is in the *Guide for Caregivers*.

The *Post Abortion Care* section builds on the early pregnancy loss (abortion) problems identified in Module 5: **Hemorrhage**, and Module 7: **Infections**. This section uses the Problem Solving Method to diagnose and care for incomplete abortion. It describes doing manual vacuum aspiration, post abortion follow-up and counseling, and family planning. You will also find learning aids on equipment, how to manage problems, and complications during manual vacuum aspiration (MVA). The skill checklist is **Learning Aid 10**.

The *Symphysiotomy* with skill checklist in **Learning 11** and *Other Learning Aids:* **Learning Aid 12** – *Measure the Size of the Pelvis,* **Learning Aid 13** – *Induction (augmentation) of Labor, and* **Learning Aid 14** – *First Assist at Cesarean Section*, describe life-saving skills that are not often needed. There are times or places where cesarean sections can not be done. There are times when a midwife is the only assistant for a cesarean section. The information in these sections was written from the experience of midwives and doctors who have worked in difficult conditions. Some of these skills were used during times when normal health services were not available (war, floods, storms). This information will be useful to those who may need it to save a woman or her newborn. Before you study this module, review Module 3: **Labor**.

VACUUM EXTRACTION

Goal

The midwife will review and update her knowledge and skills to perform vacuum extraction to help a woman deliver her baby using the problem solving method.

Objectives

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

1. **ASK and LISTEN.** Take labor history to identify conditions for using the vacuum extractor.
2. **LOOK and FEEL.** Perform physical examination during labor to confirm when to use the vacuum extractor.
3. **IDENTIFY PROBLEMS and NEEDS.** Describe indications, contraindications, and complications when using the vacuum extractor.
4. **TAKE APPROPRIATE ACTION.** Use the information from history and examination to perform the vacuum extraction procedure.
5. **EVALUATE / REPEAT THE PROCESS.** Decide with the woman / family the results of the vacuum extraction procedure. Repeat the problem solving steps to find out the healing progress of the woman and her baby.
6. Explain to woman and others need for vacuum extraction, possible complications, and what will be done if vacuum extraction does not work.
7. Describe the care for a baby who was delivered with a vacuum extractor.
8. Show how to clean and care for the vacuum extractor.

Introduction

Sometimes a woman is not able to deliver her baby vaginally on her own because she is too tired and can not push hard enough. The vacuum extractor helps her efforts. Sometimes a woman is close to vaginal delivery, but her baby becomes distressed and must be born quickly. These are the two main reasons why a midwife would help a woman to deliver her baby with a vacuum extractor. **Obstructed or prolonged labor causes nearly 7% of maternal deaths. Women with prolonged labor are more likely to die from hemorrhage.**

Using a vacuum extractor may prevent a woman from needing a cesarean section. It can save a baby that is in distress. Sometimes, using a vacuum extractor can cause severe injury or death of a baby. It is very important to use the vacuum extractor correctly to reduce chances of problems for woman and baby. In some cases, even when the midwife uses the vacuum extractor correctly, vaginal delivery may not be possible. The risk of injury

to a baby and to the woman is higher if forceps are used after the vacuum extractor was used without success. The risk of injury is higher if vacuum extractor is used after the forceps fail. **If vacuum extraction fails, the woman should have a cesarean section.**

In this module, you will learn how to correctly use the vacuum extractor to help a woman in delivering her baby. You will learn to prepare the equipment. You will learn how to care for the baby after being delivered by vacuum extraction. See Module 3: **Labor** and Module 6: **Resuscitation** for additional information. Use the *Guide for Caregivers – Skill Checklists* to review the procedure.

A Midwife's Experience...

A 20 year old very tired, primigravida non-attendant (at antenatal clinic) with established labor, came to my clinic at 1:45 AM. My village is 25 kilometers away from the referral hospital and we only travel by canoe on the lake. There was no way to travel to the referral hospital until day break. She was admitted. Findings included temperature 40 °C, blood pressure 110/70, pulse 86, edema nil, last normal menstrual period unknown. The uterus measured 38 weeks, hemoglobin 50% (7.5 gm), presentation cephalic, descent 1/5, os cervix 8 cm dilated, FHT 160, membranes ruptured. Uterine contractions were 4 in 10 minutes, lasting 20 to 40 seconds. Management: cool bath; tea with sugar, 2 tablets of paracetamol, 1000 mg chloroquine and 5 mg diazepam were given stat (right away).

Contractions became stronger, cervical dilatation 10 cm in 1½ hours time, FHT 150, descent 0/5. The mother was exhausted; I used the vacuum extraction to help the mother deliver. Mother and infant did well. She was kept for 5 days to complete her antibiotic course and to start treatment for her severe anemia.

LSS Midwife, Ghana

Common Medical Terms

Asynclitism – the sagittal suture of the baby's head is toward the woman's pubic bone or towards the sacral promontory instead of parallel to the axis of the pelvis.

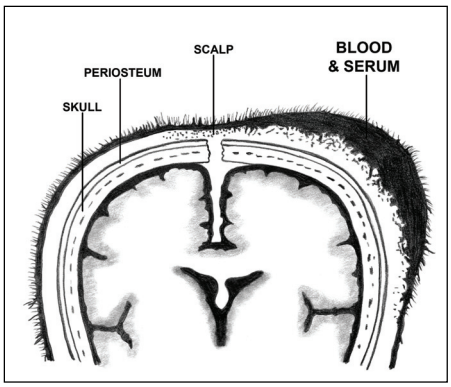


Figure 1. Caput succedaneum.

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, see Figure 1.

Cephalhematoma (subperiosteal hemorrhage) – bleeding between the periosteum and the outer edge of the fetal skull. A swelling is felt on the baby's head. The swelling is usually on one side and does not cross suture lines, see Figure 2.

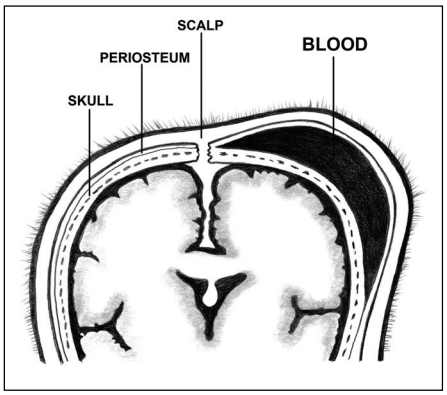


Figure 2. Cephalhematoma.

Cephalic – head.

Cranial Vault – the part of the fetal skull made up of the two frontal, two parietal, two temporal and one occipital bone.

Engagement of the fetal head – entry of the head into the pelvis. The biparietal diameter of the head (widest transverse diameter) has passed through the pelvic brim.

Flexion Point – the highest point on the vertex. When the fetal head is well flexed and normally molded, the highest point on the vertex is on the sagittal suture approximately 3 cms in front of the posterior fontanelle.

Intracranial Hemorrhage – bleeding inside the skull.

Pelvic Brim (Inlet) – the upper opening of the pelvic cavity. This is the rounded opening of the pelvis that 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 Cavity – the curved canal between the brim and the outlet.

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

Periosteum – a membrane covering bone.

Pubic Arch – the bony arch forming the anterior part of the pelvic outlet.

Sagittal Suture – the place where the parietal bones join.

Subgaleal Hemorrhage (subaponeurotic hemorrhage) – Bleeding into the space of loose connective tissue between the periosteum and fibrous tissue covering the cranial vault (epicranial aponeurosis). The bleeding usually crosses suture lines.

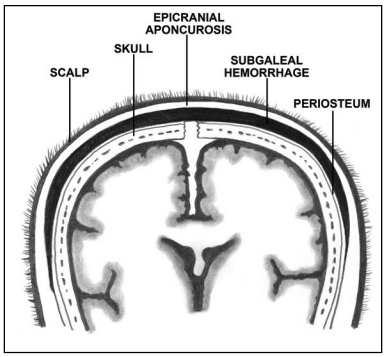


Figure 3. Subgaleal hemorrhage.

Transverse Arrest - the fetal head is stuck, not able to move, in the pelvic cavity with the sagittal suture in the horizontal position.

Vacuum - suction.

Vertex - the top of the head, the crown. The area of the head between the anterior and posterior fontanelle.

Equipment

Delivery set up as described in Module 3: **Labor**
Vacuum extractor
Appropriate cups for position of vertex, **Learning Aid 1**.

About The Vacuum Extractor

The vacuum extractor is used in many parts of the world to help in deliveries. The first modern vacuum extractor made by Malmstrom in 1953 had a mushroom shaped metal cup. The Malmstrom vacuum extractor is still in use today.

Comparing Vacuum Extraction and Forceps Delivery

Vacuum extraction is:

- Much less likely to cause major maternal perineal and vaginal trauma
- Much less likely to cause severe perineal pain after 24 hours
- No more likely to cause delivery by cesarean section
- Much more likely to cause cephalhematoma
- Much more likely to cause retinal hemorrhage

Source: Johanson 1999.

Since 1953, many other vacuum extractors and cups of metal, rubber, and plastic have been made. There are advantages and disadvantages to both metal and plastic cups. The metal cups stay on the baby's head better than the softer cups, but they cause more injuries to the baby's scalp such as bruising and lacerations. The soft cups made of plastic or rubber cause less injury to the baby's scalp, but they don't stay on the baby's head as well. Some cups are made to be thrown away after one use and some are made to be reusable. Cups come in different shapes and sizes.

The suction may come from a manual pump, a foot pump, a palm pump, or an electric pump. Some vacuum extractors can be thrown away after one use and include both the vacuum cup and pump. These units are easy to use, and a helper is not needed, but they are costly. See **Learning Aid 1 and 2** for descriptions of vacuum extractors.

How the Vacuum Extractor Works. A vacuum (suction) inside the vacuum extractor cup pulls the skin of the baby's scalp into the suction cup. This skin forms a swelling of fluid (caput succedaneum) which fills up the inside of the suction cup. The suction cup holds on to the caput. A handle is attached to the outside of the cup so the midwife can pull and guide the baby's head while the woman pushes, see Figure 4.

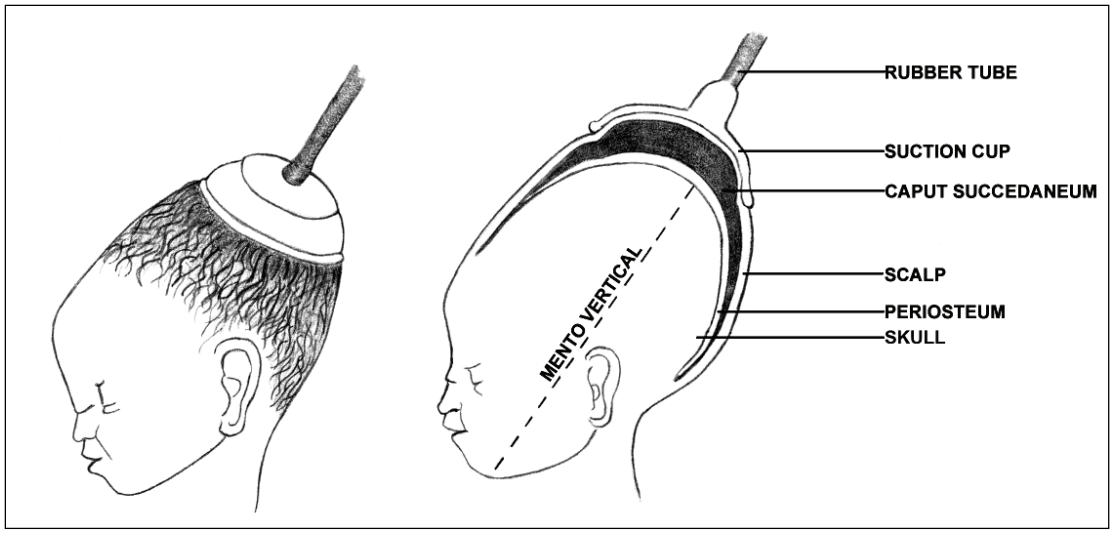


Figure 4. Effect of vacuum extractor cup.

SKILL: Vacuum Extraction Using the Problem Solving Method

The midwife should practice doing vacuum extraction in cases where it is indicated under the supervision of a midwife or doctor experienced in the use of the vacuum extractor. She should continue to practice under supervision until the supervisor and the practicing midwife are satisfied she is competent and confident to perform vacuum extraction without supervision. The midwife must be able to do a vacuum extraction correctly.

When deciding if a woman can be helped by using a vacuum extractor, the midwife must carefully use the problem solving method.

ASK and LISTEN

Take history to find out whether woman is awake and willing to push. For the vacuum extraction to be successful, the woman must be able to push when asked to do so.

LOOK and FEEL

Refer to Module 3: **Labor**, for abdominal and vaginal examination procedures.

1. **Abdominal Exam.** Conditions for using vacuum extraction:
   - Contractions are enough (3 contractions, lasting 50 seconds, in 10 minutes).
   - Baby is more than 36 weeks gestation.
   - Presentation of baby is cephalic (head).
   - Bladder is empty.
   - Level of head is 1/5 or 0/5 on abdominal palpation (McQuivey, 2004).

2. **Vaginal Exam.**
   - Membranes are ruptured.
   - Cervix is fully dilated.
   - Position of vertex is known.
   - No evidence of cephalopelvic disproportion (molding +2 or less, baby not too big, pelvis not too small.

IDENTIFY PROBLEMS

The midwife continues to monitor both the woman and the baby during the second stage of labor. There is not a time limit for second stage of labor if the woman and baby are doing well, and the woman is making progress. The safest delivery for mother and baby is a normal spontaneous vaginal delivery. Sometimes the woman needs help in delivering her baby.

1. **Indications to use a vacuum extractor.** The vacuum extractor can help a midwife when there is:
   - Maternal exhaustion. There are strong contractions but the baby is not moving down the birth canal because the woman is too tired to push. See Module 3: **Labor** for second stage pushing positions.
   - Fetal distress in the second stage of labor. The baby is alive but his heart rate is not normal (too slow, too fast, or irregular). The vacuum extractor can also be used when the baby has died recently and the tissues are not macerated.

2. **Contraindications. Do not try to do a vacuum extraction** when:
   - Contractions are not strong. See **Learning Aid 13** for augmentation of labor.
   - You find cephalopelvic disproportion/fetal pelvic disproportion (more than +2 molding, baby appears too big, pelvis feels too small).
   - Large amount of caput.
   - Non-vertex presentation (all types).
   - Cervix not fully dilated.
   - Position of vertex not known.
   - Gestational age less than 36 weeks.
   - Vertex not engaged
   - Medical conditions when the woman should not push, such as a heart problem.

TAKE APPROPRIATE ACTION.

1. Use a vacuum extractor. A safe, successful vacuum extraction procedure includes:
   - **Find the flexion point**. Feel just in front of the posterior fontanelle (3 cm). This is the highest point on the vertex. It is centered on the sagittal suture. This point is known as the flexion point. See Figure 5.

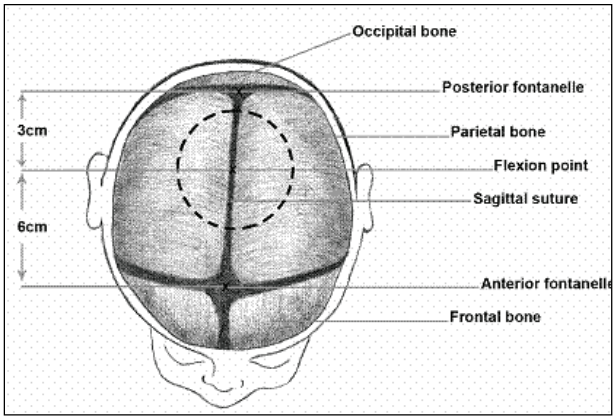


Figure 5. Flexion point.

- **Place cup over the flexion point**. Correct cup placement will help to keep the baby's head flexed. When the cup is placed correctly over the flexion point, the baby's head flexes as the midwife pulls the vacuum extractor cup. This makes sure the smallest diameter of the baby's head will go through the birth canal. It is easier for the baby's head to move through the pelvis.

  Note. When the cup is not placed over the flexion point, a larger diameter of the baby's head will present. This will make the vacuum extraction more difficult or impossible, and more force or power will be needed to deliver the baby. If more force is used, there is more risk of injury to the baby.

- **Correct pulling** with a vacuum extractor (traction).
  - Pull in the direction of the birth canal. Pull straight out from the cup. Do not turn or twist the cup. Do not bend the shaft of the extractor. Do not pull too hard.
  - Pull only when the woman has a contraction and pushes. Stop pulling between contractions. Stop pulling when the woman is not pushing.

- **Best vacuum pressure**. Pressure recording units differ. See **Learning Aid 3** for vacuum pressure information and look in the manufacturer's manual for the highest and best pressure for your vacuum extractor.

- **Prevent cup detachment (pop-off).** Most cup detachments are caused by pulling too hard in the wrong direction, or jerking the cup. Tube and vacuum leaks may also cause detachments. Vaginal or cervical tissue under the cup may cause detachments. Cup pop-offs increase the risk of serious fetal injury. Cup detachments with rigid plastic or metal cups and 600 mmHg (millimeters of mercury) pressure are uncommon. If you have three pop-offs with any of the cups, you should stop the vacuum extraction procedure.

2. **When to Stop Using the Vacuum Extractor.**

Each pull should show progress.

- Two pulls with contractions, but no movement – stop. If the baby's head has not moved downward through the pelvis at all after the midwife pulls during 2 contractions, stop using the vacuum extractor.
- Three pop-offs – stop. If the cup comes off the baby's head 3 times, stop using the vacuum extractor.
- Fetal scalp trauma is seen – stop. If the cup comes off the baby's head and the midwife sees an abrasion or laceration on the baby's head, it is time to stop.
- Pressure at highest for 10 minutes – stop. If the vacuum extractor cup has been on the baby's head at the highest pressure for 10 minutes, stop the procedure.
- Failure of efforts in 20 minutes – stop. If the midwife has been pulling during contractions for 20 minutes and baby has not delivered, stop using the vacuum extractor.

3. **Complications.**

Vacuum extraction is not needed often. It is a life-saving procedure to use when a woman needs help pushing out her baby. Vacuum assisted delivery causes less maternal genital tract trauma, less blood loss, and requires less analgesia compared to forceps deliveries. With experience and correct vacuum extractor skilled technique, many complications can be prevented.

Baby complications not life-threatening

- There may be scalp injuries: abrasions, lacerations, bruising and swelling. Cup detachment or twisting of the cup during a vacuum extraction may cause lacerations. If there is any scalp injury, an abrasion or laceration, stop using the vacuum extractor. Do not twist the cup to rotate the baby's head. Inspect the baby's head after delivery. If the baby has a caput from the cup, it will go away without treatment within a few days. If the baby has an abrasion or laceration of the scalp, treat with antibiotic ointment.

- Cephalhematoma (subperiosteal hemorrhage) is a firm swelling over one of the skull bones, usually a parietal bone. No treatment is needed. The swelling takes 4-6 weeks to go away. There may be jaundice that should be treated. In rare cases, the swelling may get hard (calcify) and cause a permanent, harmless lump on the head.

- Retinal hemorrhage. Retinal hemorrhage can only be seen with an ophthalmoscope. Bleeding into the retina of the eye is a common finding in the baby and happens more often after vacuum extraction than after other kinds of delivery. No treatment is needed. The condition goes away without any permanent damage to the eye.

Baby complications life-threatening

- Intracranial hemorrhage does not happen often. The baby may not show signs until several hours after delivery. There may be increased irritability, tiredness, a bulging fontanelle, poor feeding, breathing problems, or convulsions. REFER immediately to a doctor or hospital, because intracranial hemorrhage can cause brain damage or death).

- Subgaleal (subaponeurotic) hemorrhage is rare but possibly an under diagnosed life-threatening condition of the baby. It is the most serious complication that may be caused by vacuum extraction. The scalp feels swollen and the swelling increases in size from the time of birth. The swelling crosses suture lines. See illustration – Figure 3. About 23% of babies with subgaleal hemorrhage die. The baby needs to be watched for signs of shock, fast heartbeat, fast breathing, head circumference increasing in size, irritability or lethargy, seizures or bulging fontanelle. There may be signs at the time of delivery or signs several hours or even days later. REFER as soon as possible to a doctor or hospital. A blood transfusion may save the baby

Woman complications

- Injury to the woman can occur when the vacuum extractor is used. If the woman's vaginal tissue or cervix is caught under the cup, it can cause a hematoma or laceration. If the cup is put on the baby's head before complete dilation, the cervix can be torn and the woman can hemorrhage.

- After delivery, look carefully for lacerations of the perineum, vagina and cervix. Repair lacerations if necessary.

REMEMBER - TO AVOID COMPLICATIONS

- Place cup on flexion point.
- Pull in the direction of the birth canal.
- Pull only when the woman is pushing with contraction.
- Each pull should show progress.
- Two pulls without descent – stop.
- Three pop-offs – stop.
- Fetal scalp trauma seen – stop.
- Pressure at maximum for 10 minutes – stop.
- Failure of efforts in 20 minutes – stop.
- Prevent cup detachment (pop-off).

Preparation Before Using the Vacuum Extractor.

1. Decide if the woman can be helped by using a vacuum extractor. Check that conditions (indications) are right to do a vacuum extraction.

2. Talk with the back-up doctor (if at all possible depending on your situation) before you begin the procedure.

3. Tell the woman and her family that she needs assistance to deliver her baby and there may be possible problems. Explain if the vacuum extractor does not help the baby deliver, a cesarean section may be needed. (If you have no doctor back-up present at your clinic, ask the family to prepare transportation and money for referral so there is no delay if the procedure is not successful.)

4. Find helpers.
   - You should have one person to help with the vacuum extraction. If possible, this helper should be trained in how to use a vacuum extractor. Be prepared for shoulder dystocia.
   - You should have another person who will care for the baby immediately after birth. Be prepared for infant resuscitation.

5. Prepare equipment.
   - Use infection prevention actions, see Module 7: **Infections**.
   - Get the delivery and resuscitation equipment ready. See Module 3: **Labor**.
   - Prepare the vacuum extractor.
   - Use the correct cup, **Learning Aid 1**.
   - Connect the pump, tubing and cup.
   - Test the vacuum on the palm of your hand by asking the helper to increase the pressure to 100 mm HG (millimeters of mercury), see the vacuum conversion table in **Learning Aid 3**. Then release the vacuum.

6. Ask the woman to empty her bladder. If the woman is not able to urinate, catheterize her.

7. Position. The woman should lie on her back with her legs bent. If your clinic does not have a split delivery bed, help the woman to move her buttocks to the edge of the bed or table. Her feet should be supported by helpers or family.

8. Repeat the vaginal examination to be sure of the baby's position, descent and flexion point.

9. Lubricate the edge (rim) of the vacuum cup with liquid soap, KY jelly or water as available.

Procedure for Using a Vacuum Extractor.

10. How to put the cup on. Tell the woman what you are doing each time you are going to touch her.
    a. Hold the vacuum extractor cup. Compress vacuum cup if using soft cup. A rigid cup including Malmstrom is turned sideways for insertion.

    b. Separate the labia with your fingers.

    c. Gently pull down on the perineum to make a place for the cup.

    d. Put the cup in gently over the fourchette and into the vagina.

    e. Remember the position of the flexion point; press the cup downward and inward into the vagina until the cup touches the scalp.

    f. Move the cup into place over the flexion point (centered on the sagittal suture, just in front of the posterior fontanelle).

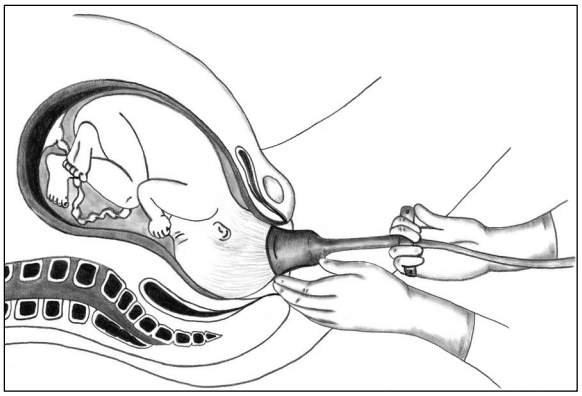


Figure 6. Hold the cup in position with one hand and pull with the other hand.

    g. Feel for tissue under the cup. Move your finger gently around the edge of the cup to be sure none of the woman's vaginal tissue or cervix has been caught under the cup.

11. Hold the cup in position with one hand with the thumb on the cup and your index finger on the baby's scalp. You will use the other hand to pull, see Figure 6. (**Note.** If you are using the Malmstrom vacuum extractor, refer to **Learning Aid 2** from this point in the procedure.)

12. Raise the pressure. See **Learning Aid 1** and vacuum extractor manual for specific instructions for vacuum extractor.
    a. At the beginning of a contraction, ask your helper to raise the pressure to 100 mm Hg or equivalent, see **Learning Aid 3**.

    b. Check again to make sure no maternal tissue is under the edge of the cup, because this will cause the cup to pull off and damage the woman's tissues.

    c. Wait for the next contraction.

    d. When the next contraction begins, raise the vacuum pressure to 500-600 mm Hg or equivalent. **Do not raise pressure above maximum pressure of 600 mm Hg.**

13. **With a contraction** and with the woman pushing, pull the fetal head **downward** toward your knees until the vertex clears the symphysis pubis.
    a. Ask the woman to push long and steadily with a contraction.

    b. As the woman pushes, **pull downward** on the handle firmly and straight, see Figure 7. The baby's head will rotate at the speed and direction of a normal delivery.

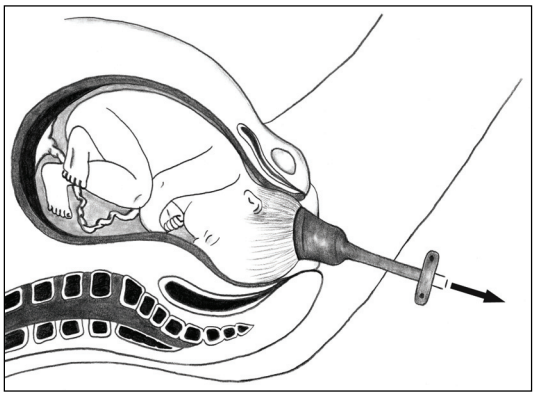


Figure 7. Pull downward.

14. **When a contraction stops:**
    a. Ask the helper to reduce the pressure to 100 mm Hg or equivalent. See **Learning Aid 2** for Malmstrom instructions.

    b. **Do not pull when the contraction stops.**

    c. Encourage the woman to breathe slowly and deeply to relax.

    d. Have a helper check the fetal heart rate between each contraction to review the baby's status.

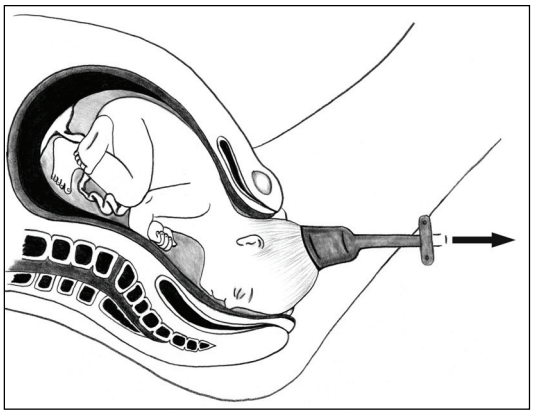


Figure 8. Pull straight out.

15. Repeat steps 12 and 13 until the head clears the symphysis pubis. **You must see progress with each contraction.**

16. When the head is clearing the symphysis pubis, guide the head **straight out,** see Figure 8.

17. Deliver the baby.
    a. If an episiotomy is needed to make room for the baby to deliver, refer to Module 4: **Episiotomy**.

    b. When the head crowns, **pull upward** at a 45 degree angle, **with the next contraction**, see Figure 9. Do not twist or turn the vacuum cup or handle. Do not use more pressure than 600 mm HG or equivalent.

    c. After the jaw has delivered, release the pressure and continue with the delivery.

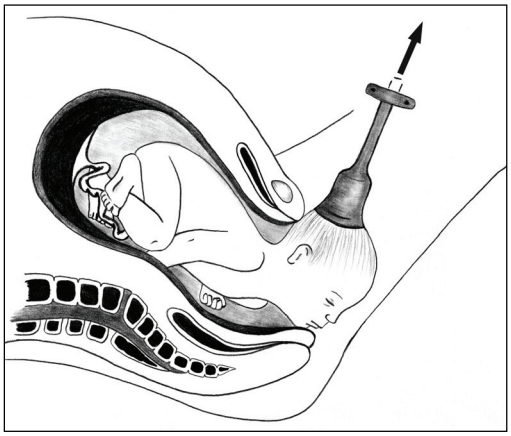


Figure 9. Pull upward.

18. After the delivery,
    - Care for the woman and baby. See Module 3: **Labor** and Module 10: **Postpartum**.
    - Look for signs of complications.
    - Care for the equipment. See **Learning Aid 4**; and Module 7: **Infections** for information on infection prevention procedures.

REMEMBER

A delivery with a vacuum extractor used by a skilled midwife
is much safer for both the woman and baby
than a long delay in the delivery or a long journey to the hospital.

Review Questions

What Did I Learn? Find out what you know and understand of this module by answering the following questions. When you are finished, look for the answers in the module on the pages shown in parentheses ( ).

1. What are the two indications for the midwife to use the vacuum extractor (page 9.8)?

2. List the conditions of the woman and baby necessary before using a vacuum extractor (page 9.7).

   ASK and LISTEN:

   LOOK and FEEL – abdominal exam

   LOOK and FEEL – vaginal exam

3. Describe the complications that may happen to woman and baby when using a vacuum extractor and how to avoid them (page 9.10).

4. Describe when you should stop a vacuum extraction (page 9.10).

5. Describe the steps for using the vacuum extractor to help a woman to deliver (See pages 9.12 – 9.15 and *Guide for Caregivers – Skill Checklist*).

Learning Aid 1 - Vacuum Extractor Equipment: Pumps, Cups

There are many cups and vacuum extractors being made. You will use the type that is in your clinic. In some places, you may have a choice of what to use. What is important for a **successful vacuum extraction procedure is correct cup placement (over flexion point), and the skill of the midwife.** The success of the procedure does not depend on whether the cup is metal or plastic. Most vacuum extractors can be used with success and little risk (Schwartz, 2002).

Vacuum Cups

Vacuum cups come in these shapes: bell (trumpet, funnel), or mushroom. Both types are made as reusable (made to use again) or disposable (one-use). The mushroom cup is rigid and is made in plastic and metal. You will see disposable cups in a package alone to be used with a reusable pump or as a one-use pump-and-cup unit.

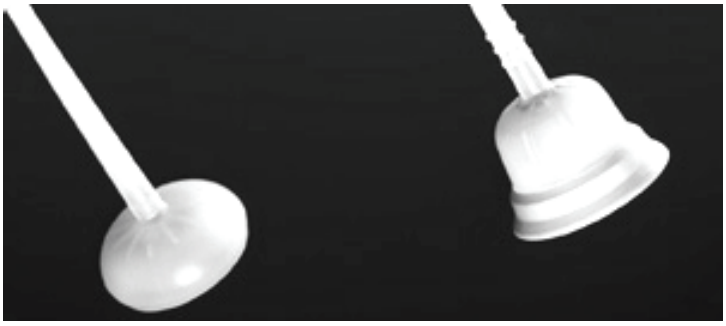


Figure 10. Cup shapes: mushroom and bell

Summary of Selected Cups and Pumps by Manufacturer / Distributor

Item	Mityvac (a)	CMI (b)	OB Scientific(c)	Clinical Innovations (d)	Menox AB (e)
Sterilizable cup	Reusable trumpet	Velvet touch bell	-	-	Malmstrom & Bird stainless steel anterior & posterior cups, Silc bell reusable
Bell-shaped disposable soft cup	Mitysoft Pearl edge	Tender touch Soft touch Secure	Gentle Vac	Kiwi Pro-Cup	Silc bell single use
Mushroom-shaped dis-posable plastic	M-select M-style Super M	Flex-Cup	-	Kiwi Omni Cup	-
Pumps	Hand pumps sterilize or autoclave	Hand pumps sterilize or autoclave	Electric pump with foot pedal	Hand pump	Hand reusable pump, bicycle style pump, electric pump

Sources: (a) Cooper Surgical 2007, (b) Utah Medical Products 2007, (c) OB Scientific, (d) Clinical Innovations, (e) Menox 2007.

Soft Cup Extractors

The soft cup extractors, see Figure 11, include a vacuum tubing (B) connecting the cup to the mucus trap. The other vacuum tubing (A) connects the mucus trap to the pump. To create a vacuum with the hand held pump, squeeze the pump handles together. To reduce vacuum pressure, pull the vacuum release trigger (D) toward you and hold until you get the pressure you need. Use the traction handle (E) to pull when the woman pushes with a contraction. See other samples on the next page.

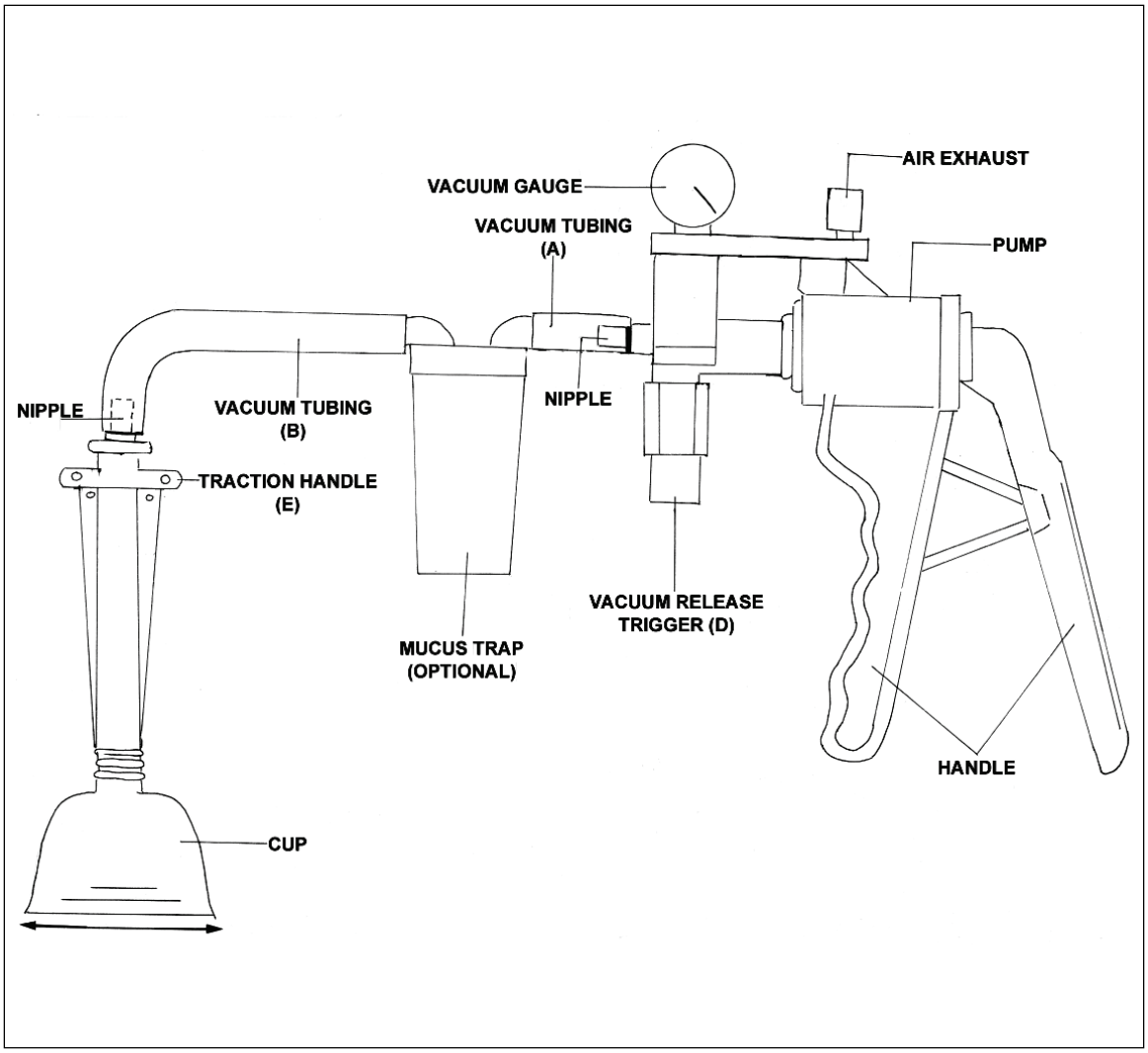


Figure 11. A soft cup hand pump vacuum extractor.

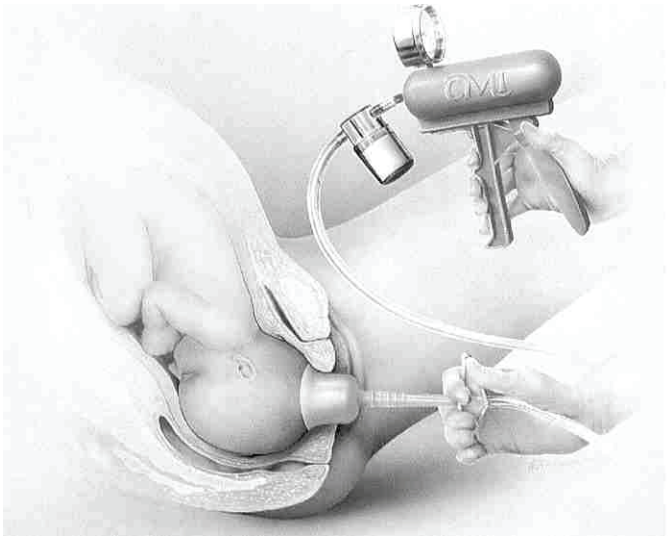


Figure 12. Hand held manual pump with disposable bell shaped plastic cup.
Source: CMI Surgical.

Figure 13. All in one disposable unit pump with mushroom or bell shaped cup.
Source: Cooper.

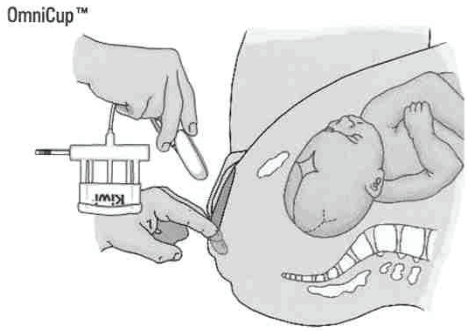


Figure 14. All in one disposable palm pump with mushroom cup for all positions of the vertex (position is posterior in this illustration). Source: Clinical Innovations.

Learning Aid 2 – Using the Metal Cup Extractor (Malmstrom)

(**NOTE:** Before starting this procedure for Malmstrom, you must use procedure steps 1 – 11 beginning on page 9.12.)

The Malmstrom vacuum extractor is used with **continuous pressure in the cup.** The midwife should **use the biggest cup** that she can get into position over the flexion point.

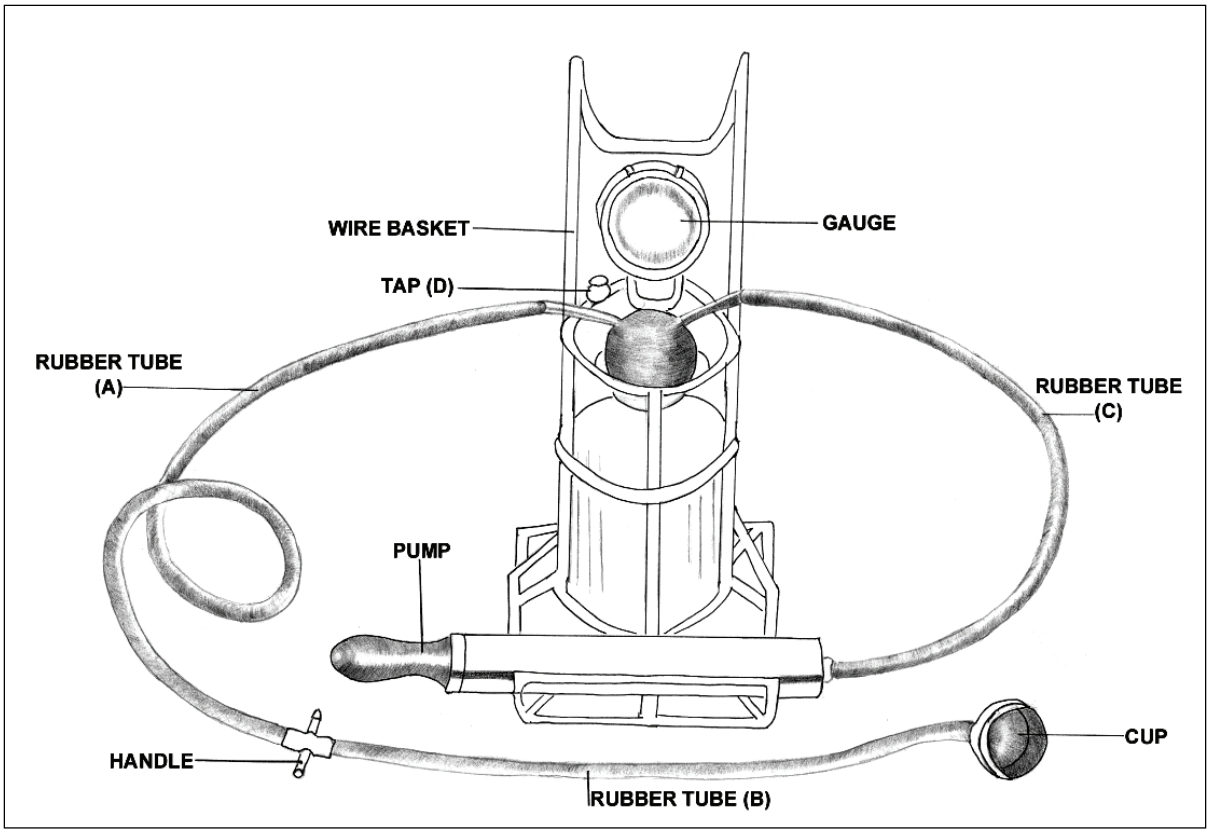


Figure 15. The Malmstrom Extractor.

The metal cup extractor includes a rubber tubing (B) containing a metal chain that ends in a handle connected to the cup. The rubber tubing (A) goes through the handle and into a glass container which is fitted with a pressure gauge and a hand pump, see Figure 15. The pump is attached to a short piece of rubber tubing (C) and glass container. A wire basket supports and protects the vacuum bottle. The pump pulls air from the glass bottle, creating a vacuum. The vacuum pressure is reduced by loosening the tap (D).

Procedure

1. Close the pressure release valve.

2. Ask your helper to pump the pressure and carefully watch the gauge.

3. Raise the pressure to 200 mm Hg or equivalent

4. Recheck to make sure no maternal tissue is caught under the cup.

5. Raise the pressure to 600 mm Hg or equivalent in one step. Then wait two minutes to allow a caput to form. Recheck to make sure no maternal tissue is caught under the cup.

6. **Never exceed the maximum pressure of 600 mm Hg.**

7. Bring the fetal head down with a contraction, as the woman pushes long and steadily. Hold the cup in position with one hand with the thumb on the top of the cup and the index finger on the baby's scalp. Pull on the handle firmly and straight with the other hand. Do not twist or turn the cup or handle for this will cause the cup to pop off. See Figures 7, 8, and 9 showing the correct direction of pull with a contraction.

ONLY PULL WITH A CONTRACTION AND WITH THE WOMAN PUSHING
a. First pull downward to move the head by flexion under the symphysis as in Figure 7.
b. Second pull downward, same as for first pull; progress must be seen.
c. Third pull straight out for the head to progress over the perineum as in Figure 8.
d. Fourth, pull up to help the woman push out the head of the baby as in Figure 9.

8. When the contraction stops, stop pulling; however, continue the pressure at 600 mm Hg or equivalent.

9. Help the woman breathe slowly and deeply, and relax between contractions.

10. Have a helper take the fetal heart rate.

11. Pull with contractions and woman pushing until the head begins to crown. **Do not keep the pressure at the highest levels (600 mm Hg) for more than 10 minutes.**

12. Deliver the baby, see Module 3: **Labor** for immediate care of the woman and her newborn. In addition, the baby's head should be carefully examined for any lacerations and re-examined during the fourth stage of labor for any swelling. See Module 10: **Postpartum** for continued care. In addition, on the day after delivery, the midwife should examine the baby and answer any questions the mother and family may have.

Learning Aid 3 - Pump Gauges and Measures

Some pump gauges show the safe pressure amount with different colors. **Red** means the pressure is too high and is dangerous - **Not Safe**. On this chart, the **maximum (highest) pressure** to use in a vacuum extraction is shaded. The best pressure for vacuum extraction is 600 mm HG or equivalent. Using less pressure when pulling may result in the cup popping off. Using more pressure can cause severe injury to the baby.

Look at this chart and circle the measures that are on your vacuum extractor.

VACUUM CONVERSION TABLE

Kg/cm_2	kPa	mmHg	cmHg	inches Hg	Cm H_20	lb/in^2	bar	
0.13	13	100	10	3.9	134	1.9	0.13	
0.27	27	200	20	7.9	268	3.9	0.26	
0.41	40	300	30	11.8	402	5.8	0.39	
0.54	53	400	40	15.7	536	7.7	0.53	
0.68	67	500	50	19.7	670	9.7	0.66	
0.82	**80**	**600**	**60**	**23.6**	**804**	**11.6**	**0.79**	**Maximum Pressure Line**
0.95	93	700	70	27.0	938	13.5	0.92	
1.03	101	760	80	29.9	1018	14.7	1.00	

Source: Vacca Handbook 2003.

Learning Aid 4 – Cleaning and Care of the Vacuum Extractor

- The vacuum extractor is a fragile instrument. Hold it carefully. Avoid dropping it on the table or floor. Store the vacuum extractor in a clean, dry, and covered area.

- After you finish a delivery using the vacuum extractor, decontaminate and clean it so that it is ready for the next time you will use it. Wipe the pump, tubes, and dial with a soft, clean cloth that has been dampened with decontamination solution.

- **Do not allow fluids to dry inside the manual pump.** Clean out any fluids that went into the pump during the delivery by pumping warm water through the pump. It is important to do this as soon as possible. If blood dries or clots in your pump, it will not work again.

- To dry the manual pump, pump air until the inside of the equipment is completely dry.

- If you are using a reusable cup or tubing, decontaminate it and then wash with soap and water. Rinse very well, drain tubing, and dry completely. Sterilize or high-level disinfect the cup and tubing before using them for a delivery.

- See Module 7: **Infections** for complete information on Infection Prevention.

- For electric pumps, follow manufacturer's instructions for cleaning and care.

Post Abortion Care

Source: Herrick Ipas 2004.

Goal

The midwife will review and update her knowledge and skills to perform manual vacuum aspiration for a woman with an incomplete abortion using the problem solving method.

Objectives

The midwife caring for a woman with incomplete abortion will be able to:

1. **ASK and LISTEN.** Take the medical history to identify possible problems, including incomplete abortion and hemorrhage.
2. **LOOK and FEEL.** Perform an examination including vaginal examination to identify possible problems, including incomplete abortion and hemorrhage.
3. **IDENTIFY PROBLEM/NEEDS.** Describe findings of a woman with complete abortion, incomplete abortion and hemorrhage.
4. **TAKE APPROPRIATE ACTION.** Use the information from the history and examination to give treatment and counseling including appropriate referral.
5. **EVALUATE / REPEAT THE PROCESS.** Decide with the woman the results of the care. Repeat the problem solving steps to give post abortion follow up care and family planning counseling.
6. Explain to the woman and her family the need for using Manual Vacuum Aspiration (MVA) including the dangers of hemorrhage and infection if MVA is not used.
7. Perform the step by step procedure and safely use MVA Plus® by Ipas.
8. Record vital signs during the MVA procedure, type and amount of fluids given, estimated blood loss, evidence of products of conception, and medication given.
9. Demonstrate infection prevention practices that reduce disease transmission to clients, family, midwives, and other health care staff, including cleaners according to Module 7: **Infections**.

Note: Before you begin this topic, review normal anatomy and physiology of the female reproductive system. In Module 5: **Hemorrhage** review the sections: Find the Cause of Bleeding, Digital Evacuation Skill, and Intra-abdominal Bleeding. In Module 7: **Infections**, review Infection Associated with Abortion and Infection Prevention.

Introduction

Recent estimates are that at least 15% of all pregnancies end in spontaneous abortion (miscarriage). The World Health Organization estimates that 1 in 8 pregnancy-related deaths are due to *unsafe abortion*. Every midwife and health worker must give **quality emergency care** to every woman who has lost (complete abortion) or is losing (incomplete abortion) her pregnancy. Emergency care will vary depending on the situation. This critical emergency care is life saving for any abortion. As a midwife, it is important to give life saving care and meet the woman's needs in a respectful, non-judgmental way.

In this section, you will use the Problem Solving Method to determine the problem. You will learn how to perform a manual vacuum aspiration and to care for the woman with an incomplete abortion.

The World Health Organization offers guidance for giving care by level of health care facility and staff, see **Learning Aid 5**. Guidelines should be established according to local conditions, availability of drugs, instruments, training, and national standards and regulations.

A Midwife's Experience...

I was called by friends of a young and scared woman. Her name was Stella. I followed them from my clinic across the road to a farm. In the grass we found Stella. She was lying on the ground in a pool of dark blood. Flies were all around. She was awake, very hot, and unable to stand.

We carried her to the clinic. An intravenous infusion was started; antibiotics given; and we tried to clean her and at the same time find out what had happened.

She was about 3 months pregnant and so ashamed. Her parents told her to leave. Her boyfriend said he did not believe that she was pregnant. All she could think to do was to remove the pregnancy. She had tried home medicines, douches, boiling baths, and finally used a coat hanger. Stella died.

LSS Co-author.

Common Medical Terms

Abortion – pregnancy loss; fetus is not viable (not able to live outside of the uterus).

Complete Abortion – all products of conception come out of the uterus.

Ectopic Pregnancy – a pregnancy in which implantation has happened outside the uterus, usually in the fallopian tube. It may rupture and can lead to injury or death of the woman.

Equal to Dates – when the size of the uterus on bimanual examination is the same as the weeks of amenorrhea or gestation (pregnancy) by history.

Incomplete Abortion – pregnancy loss; some or all products of conception remain in the uterus; may be result of spontaneous abortion or an attempt to terminate the pregnancy.

Induced Abortion – purposeful termination of pregnancy before fetal viability; can be safe or unsafe.

Inevitable Abortion – pregnancy will not continue and will soon terminate. Pregnancy loss is going to happen and can not be prevented.

Miscarriage – see spontaneous abortion.

Missed Abortion – fetus dies but remains in uterus.

Molar Pregnancy (hydatidiform mole) – pregnancy with abnormal growth of soft fleshy tissue (grape-like) without embryo development. A rare disease of pregnancy (1 in 2000 pregnancies), important cause of severe bleeding in pregnancy.

Spontaneous Abortion (miscarriage) – pregnancy loss; the fetus is not viable; products of conception are passed (come out of the uterus) without any assistance.

Threatened Abortion – pregnancy may continue or progress to loss of pregnancy.

Unsafe Abortion – termination of a pregnancy before fetus is viable by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both.

Stage of Abortion

Diagnosis	Bleeding	Cervix	Uterine Size	Other Signs
Threatened Abortion	Light to moderate	Not dilated (closed)	Equal to dates by last normal menstrual period (LNMP)	Positive pregnancy test, Cramping, Uterus soft.
Inevitable Abortion	Moderate to heavy	Dilated (open)	Smaller than or equal to dates by LNMP	Cramping, Uterus tender.
Incomplete Abortion	Light to heavy	Dilated (open)	Smaller than or equal to dates by LNMP	Cramping, Uterus tender, Partial expulsion of products of conception
Complete Abortion	Light or none	Closed	Smaller than dates by LNMP	Little/no cramping, Expulsion of all products of conception, Uterus firm.

Source: WHO 1994, Herrick Ipas 2004.

Equipment

Equipment: MVA Plus instrument kit, see **Learning Aid 7**.

SKILL: Manual Vacuum Aspiration Using the Problem Solving Method

ASK and LISTEN

Losing a pregnancy is something a woman will always remember. The woman may be afraid to answer questions. She may have become pregnant due to rape, failed contraception, or lack of contraception. She may be afraid you will turn her in to the police, tell her family or friends. She may be afraid of expulsion from family, marriage, or school. She may fear being beaten. Help her understand that you want to help her and that you are ready to listen to her. Gentle and kind attention from you before, during, and after the care helps the woman feel better.

When a woman comes to you and says she is bleeding, ASK:

- *Are you pregnant? When did the bleeding start? How much bleeding? Any clots?* If the condition of the woman is serious (example: shock, heavy bleeding), take action immediately.
- *When did you see your last menses? Was this last menses normal?* Determine weeks of gestation (pregnancy) by using the first day of the last normal menstrual period. Compare the weeks of gestation information with the size of the uterus when you are doing the examination, see Module 2: **Antenatal** for Menstrual History.
- *Do you use any family planning? What kind?*
- *Do you have any pain or cramping? Where is the pain?*
- *Do you have any fever, chills, foul smelling discharge?*
  Always think of incomplete abortion when any woman of childbearing age has a missed period with vaginal bleeding **OR** lower abdominal pain (cramping) **OR** passed clots or tissue. It is also possible the woman does not remember she has missed her period.

LOOK and FEEL

When you examine the woman, try to have a quiet and private area where others can not listen or see what you are doing. If you have only one room for examinations, ask others to wait outside. Use a cloth or sheet to cover the woman during the examination and procedure. Explain everything you are going to do, before you do it. Ask the woman to empty her bladder.

- Wash your hands.
- Take the blood pressure, pulse, and temperature.
- LOOK for signs of shock.

- FEEL the uterus
  - Size. Compare the actual size of the uterus with the date of the last normal menstrual period. At 12 weeks gestation, the uterus can just be palpated at the level of the symphysis pubis.
  - Tenderness. Is there low abdominal pain or rebound tenderness? FEEL for low abdominal tenderness. FEEL for rebound tenderness: press the abdomen with your hand. Quickly remove your hand, releasing pressure. If removing your hand causes pain or increases pain, there is rebound tenderness, a sign of infection.

- LOOK for vaginal bleeding, clots, lacerations or foul smelling discharge.

- LOOK using a vaginal speculum to confirm findings of clinical assessment, see Module 2: **Antenatal, Learning Aid 5**. Gently insert speculum and LOOK at the cervix for lacerations, tissue, clots, or discharge. Remove any tissue, membranes, or clots in the cervix or vagina, using a sponge forceps.

- FEEL the uterus (bimanual examination) to confirm size and compare to the weeks of gestation information from the history.
  - Insert lubricated index and middle fingers into the vagina until you feel the cervix.
  - Put your other hand on the abdomen; find the uterus between your fingers inside the vagina and your hand on the abdomen.
  - Gently move the uterus noting tenderness, size, position, and shape.

IDENTIFY THE PROBLEM and **TAKE APPROPRIATE ACTION**

See *Guide for Caregivers* for detailed management of these findings.

FINDINGS:	Shock
ACTION:	Refer to Module 8: **Stabilize and Refer**.
FINDINGS:	Abdominal swelling that is hard and tender; may have signs of shock. Think of ectopic pregnancy or injury to internal organs.
ACTION:	Refer to Module 5: **Hemorrhage**.
FINDINGS:	Severe abdominal pain with tender uterus or fever or offensive vaginal discharge. Think of ectopic pregnancy or septic abortion.
ACTION:	Refer to Module 7: **Infections** and Module 5: **Hemorrhage**.
FINDINGS:	Vaginal bleeding and no fever with clots or painful contractions or passed tissue. Think of incomplete abortion.
ACTION:	Perform manual vacuum aspiration or REFER.
FINDINGS:	Size of the uterus is greater than 12 weeks and vaginal bleeding.
ACTION:	Manage as a second trimester hemorrhage, see Module 5: **Hemorrhage** and REFER.
FINDINGS:	Vaginal bleeding that has stopped. Think of threatened abortion.
ACTION:	See *Guide for Caregivers – Complaint & Findings.* Treat with rest in bed for 24 to 48 hours. REFER if bleeding recurs; or fever; or offensive discharge; or severe abdominal pain.

Procedure for Manual Vacuum Aspiration

Incomplete or inevitable abortion is treated by removing the remaining products of conception from the uterus. The method used for emptying the uterus depends on the duration of pregnancy, the availability of equipment, supplies, and a skilled provider. You will find the WHO guidelines in **Learning Aid 5**.

Manual vacuum aspiration (MVA) is a safe and effective method for treatment of incomplete abortion up to 12 weeks uterine size. MVA is recommended by WHO as the preferred method for post abortion care treatment. Manual vacuum aspiration uses suction to remove the contents of the uterus. As soon as the remaining products of conception are removed, the uterus will contract and the bleeding will decrease. This is life saving for the woman with an incomplete abortion who is bleeding too much.

Precautions

As you **ASK and LISTEN**, **LOOK and FEEL**, you may **IDENTIFY** a **PROBLEM** that needs **ACTION** before beginning the MVA, or the need to use a different method to empty the uterus. Special care is necessary to make sure that the uterine size by fundal palpation and bimanual examination *is not more than 12 weeks.*

Considerations before the procedure:

1. **Infection Prevention**. Reduce chance of infection to women and health care staff, including cleaners, by giving infection prevention training. See Module 7: **Infections**. Ways of reducing the chance of infection include:
   - Wash hands with soap and water before and after each MVA procedure.
   - Use sterile or high-level disinfected instruments and gloves on both hands.
   - Clean the cervix and vagina before inserting any instrument through the cervix and into the uterus.
   - Use the no-touch technique for the MVA procedure.

2. **Management of pain** depends on the emotional state of the woman, the dilatation of the cervix, the time it takes to complete the MVA, and the skill of the provider.
   - Emotional state of the woman. Consider the woman's feelings as soon as you see her. Losing a pregnancy is something a woman will always remember. The woman coming to you for help may be afraid, anxious, depressed, sad and/or sick at this time. The woman may be afraid to answer questions. Help her understand that you want to help her and that you are ready to listen to her.

     Reassure her and tell her you are going to help her with her problem. Avoid verbal abuse. Helping the woman stay calm helps her remain more comfortable, and it helps the MVA procedure to be less painful. A caring midwife or other provider will show respect to all women who come to her. **Remember your actions are sometimes stronger than words.** Explain to her what you need to do and why you need to do it. Make sure she understands that you want to help her.

- Dilatation of the cervix. Cervical dilatation is required in some, but not in all cases of MVA. When the cervix allows a cannula of appropriate size to fit snugly through the opened os, dilatation is not needed. When the cervix is closed or not yet dilated enough, cervical dilatation must be done.

  When mechanical dilatation is required in an MVA procedure, it is recommended that providers give a paracervical block. If the cervix is already open, a paracervical block may not be necessary. However, the woman may still have pain when the cannula is passed through the cervix (causing friction along the nerves in the cervical canal) and when the cervix contracts after uterine evacuation.

  In all cases, selection of the proper size cannula will minimize (lessen) stimulation of the nerves around the cervix and reduce pain. To help the woman be prepared, explain each step of the procedure before doing it.

- The MVA procedure takes only a few minutes when it is done by a skilled, competent, and confident provider. Handle instruments gently and talk with the woman throughout the procedure. After performing each step, such as placing the sponge (ring) forceps or passing the cannula, wait a few seconds for the woman to prepare for the next step. Move slowly and use instruments with confidence.

  The skill of the midwife or doctor is very important. Remember that the woman will have lower abdominal pain with cramping and uterine contractions as the uterus is emptying. You can not prevent this pain, but you can prepare the woman and encourage her during the experience. The midwife must continue to monitor her staff and help them review procedures so that they are ready and able to assist her. The midwife must continue to update and improve her own skills so that she can competently manage an uncomplicated MVA and identify any complications.

- Gentle, supportive care of the woman and the use of a non-narcotic analgesic (ibuprofen or acetaminophen) are usually enough for the uncomplicated MVA procedure. Give these when waiting for the procedure to be done, during and after the procedure as needed.

- If additional dilation of the cervix is necessary, use of local anesthesia such as a paracervical block is the best overall option for effective MVA pain management. Refer to **Learning Aid 9**.

Performing Manual Vacuum Aspiration (MVA)

This procedure describes use of the Ipas MVA Plus® instrument. If you use other instruments, check to make sure you know how to prepare the vacuum as it may be not the same way as shown in this procedure. [1]

1. **Prepare Instruments**
   - Ensure that another MVA Plus aspirator is available in case it is needed.
   - Check the aspirator for vacuum retention before use.
   - Position the plunger all the way inside the cylinder.
   - Have collar stop in place with tabs in the cylinder holes.
   - Push valve buttons down and forward until they lock (see number 1 in Figure 16).
   - Pull plunger back until arms snap outward and catch on cylinder base. This position keeps the plunger in place so that it will not slip back into the cylinder (see number 2 in Figure 16).

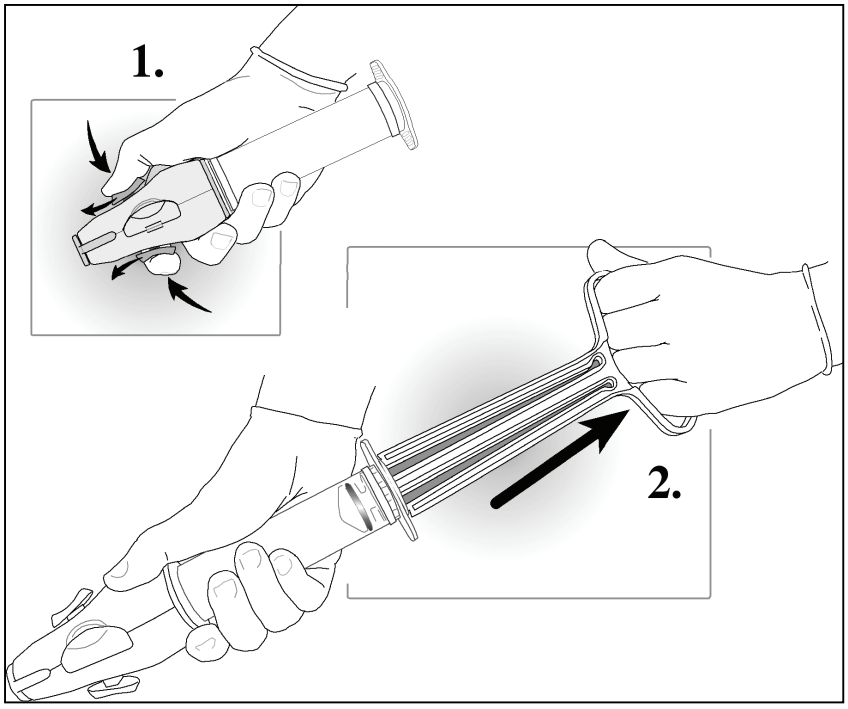


Figure 16. Prepare and check vacuum of MVA Plus Aspirator.

[1] The illustrations shown in Figure 16 through Figure 23 are from Herrick Ipas 2004, and are used with permission.

2. **Prepare the Woman**
   - Explain once again what you are going to do.
   - Ask the woman about allergic reactions, such as to iodine, before selecting an antiseptic.
   - Ask the woman to empty her bladder.
   - Clean the woman's genitals.
   - Wash your hands and put high-level disinfected or sterile gloves on both hands.
   - Conduct a bimanual exam to confirm uterine size and position.
   - Insert speculum gently and confirm findings. If IUD strings are visible in the cervix, remove the IUD gently with a forceps.

Bimanual and Speculum Examination Confirms the Following:

- Uterus size: the uterus must FEEL no larger than 12 weeks. If there is any doubt, REFER.
- Position of the uterus: the midwife must confirm uterine position to insert the cannula according to the uterine position - preventing perforation of the uterus.
- Condition of the vagina and cervix: any tears (lacerations), perforation, or pus is serious, REFER and give broad spectrum antibiotic; see Module 7: **Infections**.
- Contents (products of conception) in the vagina: tissue or clots seen should be removed from the vagina before starting the MVA.

3. **Perform Cervical Antiseptic Prep**
   - Follow no-touch technique – no instrument that enters the uterus can contact contaminated surfaces before insertion through the cervix.
   - Use antiseptic-soaked sponge to clean cervical os.
   - Start at os and spiral outward without retracing areas.
   - Continue until os has been completely covered by antiseptic
   - If desired, the vaginal walls may also be swabbed (do not clean the cervix with the same gauze used for cleaning the vagina).

4. **Perform Paracervical Block**
   - Recommended when mechanical dilatation is required with MVA.
   - Using local protocols, administer paracervical block and place tenaculum or sponge forceps. See Module 4: Episiotomy on placing sponge forceps.
   - Use lowest anesthetic dose possible to avoid toxicity. See **Learning Aid 9** - How to Administer Paracervical Block.

5. **Dilate Cervix**
   - Cervical dilation is usually not necessary with incomplete abortion. If the cervix is not dilated enough, use mechanical dilators or progressively larger cannulae to dilate.
   - Dilate cervix to be able to insert a cannula similar to the size of the uterus to fit through the cervical os.
   - Take care not to use any force, as you may tear the cervix or perforate the uterus.

Uterine Size	Cannulae Size
4 – 6 weeks LMP	4 – 7 mm
7 – 9 weeks LMP	5 – 10 mm
9 – 12 weeks LMP	8 – 12 mm

   - Cervical dilation must be performed by experienced and skilled staff. REFER if necessary.
   - Have ready several sizes of cannulae based on the uterine size:

6. **Insert Cannula**
   - While applying traction to the tenaculum (to hold the cervix so that it does not move), gently insert the cannula through the cervix, just past the os and into the uterine cavity or until it touches the fundus, and then pull it out slightly, see Figures 17 and 18.
   - Do not insert the cannula forcefully.
   - You may need to rotate the cannula while gently applying pressure to get the tip of the cannula to pass through the cervical canal.

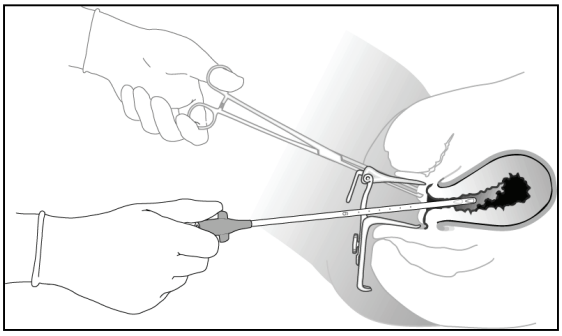


Figure 17. Insert cannula.

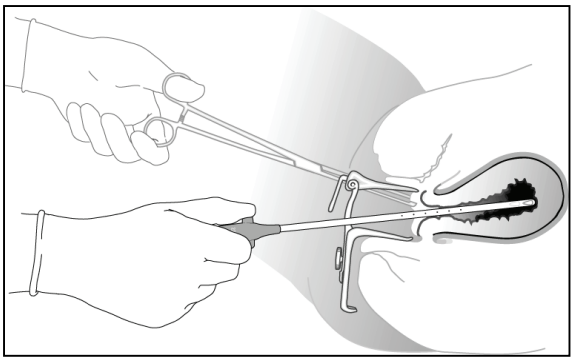


Figure 18. Cannula touches fundus.

7. **Suction Uterine Contents**
   - Attach the prepared aspirator to the cannula by holding the forceps and the end of the cannula in one hand and the aspirator in the other, see Figure 19. **Note: Make sure that the cannula does not move forward** into the uterus as you attach the aspirator.

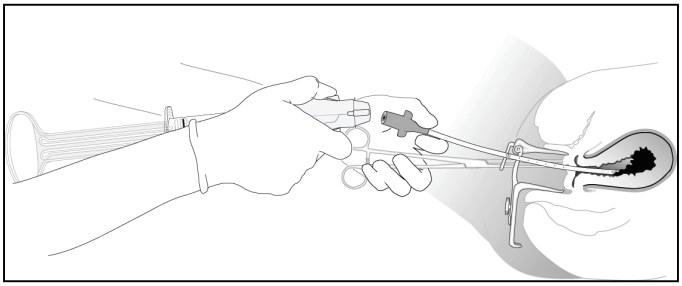


Figure 19. Attach aspirator.

- Release the valve by pressing the buttons in, see Figure 20. Suction begins immediately as bloody tissue and bubbles begin to flow through the cannula into the syringe.

- Evacuate the contents of the uterus by gently and slowly rotating the cannula 180° in each direction, using an *in and out motion,* see Figure 21.

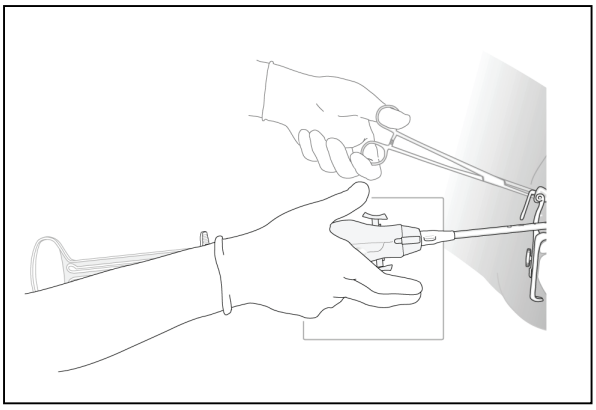


Figure 20. Release valve.

Note: It is important not to pull the opening(s) of the cannula outside of the cervical os until you are finished. This will cause the vacuum to be lost. If this happens or if the aspirator is full, leave the cannula in place in the uterus and re-create the vacuum. If the cannula is withdrawn and touches the vagina or other nonsterile surface, it is contaminated. Do not reinsert it. Use another sterile or high-level disinfected cannula.

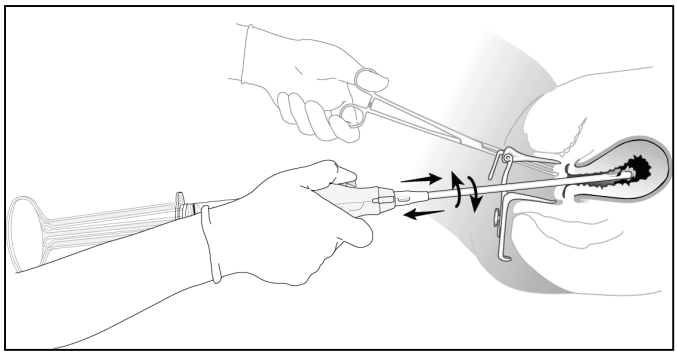


Figure 21. Evacuate uterine contents.

Note: While the vacuum is sucking and the cannula is in the uterus, always hold the aspirator by the barrel; **never hold the aspirator by the plunger arms.** Doing this may cause the plunger arms to become unlocked, accidentally allowing the plunger to slip back into the aspirator, pushing material back into the uterus.

- When finished, depress the buttons, detach cannula or withdraw, see Figure 22. Then place the cannula in the decontamination solution.

- With valve open, empty the contents of the MVA syringe into a strainer (gauze or cloth spread over a container) by pushing on the plunger.

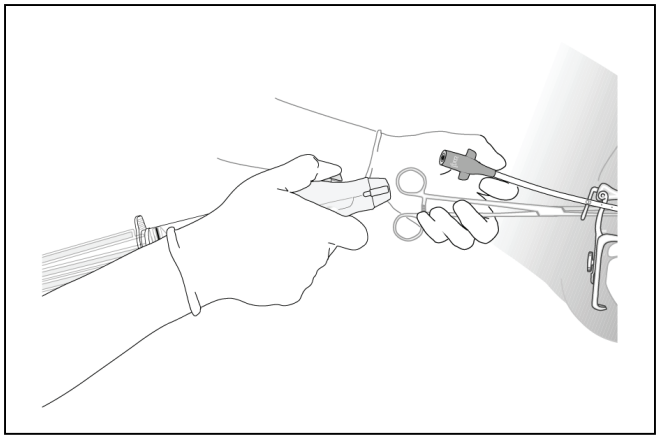


Figure 22. Detach cannula from aspirator.

Note: Do not put the empty aspirator in the decontamination solution until you are certain the procedure is completely finished. Keep the aspirator on the tray until you have inspected the tissue in case you find that the uterus may not be empty. You may need to use the MVA instruments to remove more tissue.

8. **Check for signs of completion** - **Signs that indicate the uterus is empty**:
   - Red or pink foam without tissue is seen passing through the cannula.
   - A gritty (rough) sensation is felt as the cannula passes over the surface of the empty uterus.
   - The uterus contracts around or grips the cannula.
   - The woman complains of cramping or pain (from contracting uterus).

9. **Inspect Tissue**, see Figure 23.
   - Empty the contents of the aspirator into a clear container.
   - Inspect tissue for products of conception, complete evacuation and molar pregnancy
   - If you are not sure about the results, strain material, float in water or vinegar and view with a light from beneath.

Figure 23. Tissue inspection.

Notes on Tissue Inspection: Tissue which may be seen in treatment of incomplete abortion include villi, fetal membranes, endometrial tissue (decidua) and, after 9 weeks from the last menstrual period, fetal parts. Tissue specimens may be sent to the laboratory if you suspect a molar pregnancy or other problem. Follow the recommended infection prevention practices for handling specimens, see Module 7: **Infections**.

If no products of conception are seen:
- All of the products of conception may have been passed before the MVA was performed (complete abortion). No further action is needed.
- The uterine cavity may appear to be empty but may not have been completely emptied. Repeat bimanual and speculum examination. If findings indicate retained products of conception, repeat the aspiration to remove remaining tissue.
- The vaginal bleeding may have been due to a cause other than incomplete abortion, such as break through bleeding from contraceptives, uterine fibroid or ectopic pregnancy (a life-threatening emergency, REFER). See Module 5: Hemorrhage.
- The uterus may be abnormal. For example, the cannula may have been in the nonpregnant side of a double uterus, REFER.
- With the absence of products of conception in a woman with symptoms of pregnancy, think of ectopic pregnancy. This is an emergency, REFER.

10. **Perform Any Other Procedures.** When procedure is complete, proceed with contraception or other procedures, such as IUD insertion or cervical tear repair.

11. **Process Instruments.** When procedure is complete, immediately process or discard all instruments, including the aspirator and cannulae, according to local protocols, see **Learning Aid 7** and Module 7: **Infections** for waste disposal, glove and equipment care.

12. **Care of the Woman after the MVA**

    - Wash hands thoroughly with soap and water.

    - Comfort the woman and her family. Make the woman comfortable and explain your findings to her and her family. Talk with the woman and her family; reassure and encourage them.

    - Record findings including: vital signs, fluids given, appearance of products of conception, estimated blood loss, and time, type, dose of medications given, advice and information given including danger signs and family planning.

EVALUATION AND REPEAT PROCESS

This is the fifth step of the Problem Solving Method. Monitoring the Woman's Recovery is immediate evaluation to see that the woman's condition is improving.

Monitor the Woman's Recovery

1. Take and record vital signs as soon as the MVA is completed.

2. Allow the woman to rest comfortably in a place where her recovery can be observed and monitored.

3. Check for anemia and give iron tablets according to findings. See *Guide for Caregivers - Formulary* and Module 2: **Antenatal Care**, for anemia protocols. If the woman is Rh negative, give Rh(D) immune globulin before discharge, if available.

4. If treatment for complications was started, continue treatment and monitor or REFER as needed.

5. **For uncomplicated MVA,** check bleeding at least once before discharge. Recheck vital signs. Check to see that cramping has decreased. Prolonged cramping is not normal. The woman may go home as soon as she is feels like it, can walk without assistance, and has received follow up information. Follow up information for the woman and her family, see below and in the *Guide for Caregivers – Post Abortion Counseling.*

Signs of a normal recovery are:

- Some mild uterine cramping over the next few days, which may be relieved by mild analgesics like ibuprofen or panadol.
- Some spotting or bleeding which should not be more than a normal menstrual period.
- A normal menstrual period should occur within 4 to 8 weeks.

Advice about medications, follow up, and fertility: Give the woman advice for any medications she may need, give date of her follow up visit and she should know that:

- She should not have sexual intercourse or put anything into the vagina (no douching, no tampons) until after the bleeding stops in 5 to 7 days.
- Her fertility can return in less than 2 weeks after the MVA procedure, give contraceptive counseling, offer family planning method another pregnancy not wanted.
- Explain to the woman and her family the warning signs and symptoms of problems, what to do, and where to go for emergency care.

REMEMBER WARNING SIGNS AND SYMPTOMS

- Prolonged cramping, more than a few days.
- Prolonged bleeding, more than 2 weeks.
- Bleeding more than normal menstrual bleeding.
- Severe or increased pain.
- Fever, chills, or malaise (tired all the time).
- Fainting or weakness.

.

Follow Up care gives you time to see if the woman is healing or having other problems. You may need to repeat the problem solving method and develop a new plan of care if other problems. Repeat information or advice to be sure she understands. She may need reproductive health services or to be referred to a hospital or doctor for a problem.

Follow Up for Family Planning gives the woman information to make decisions. A woman's **fertility returns** almost immediately after an abortion (miscarriage). If the pregnancy was less than 12 weeks, it can be **as early as 10 days after the abortion**. She will need to decide whether or not she wants to become pregnant. Contraceptive counseling must be appropriate for the woman's emotional and physical condition. Encourage her to wait 6 months for another pregnancy to reduce the chances of low birth weight, premature birth, and maternal anemia.

This may not be the best time for her to make decisions that are permanent or long term. Give her complete information for her choices in the selection of available contraceptive methods including intrauterine devices (IUDs), injectables, implants, and voluntary sterilization. Most contraceptive methods may be used and can be started immediately unless there are major post abortion complications. If a woman wishes to prevent pregnancy, give her the contraceptive method of her choice before she leaves the facility or tell her where to get her desired method at a follow-up appointment. See **Learning Aid 6** - Contraceptive Method Use After Abortion: Presented in Order of Effectiveness.

Review Questions

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

1. Losing a pregnancy is something a woman will always remember. Describe what you will ask (**ASK and LISTEN**) a woman who comes to you because she is bleeding. Her last menstrual period was 8 weeks ago (page 9.28).

2. A woman comes to you with vaginal bleeding. She has 2 pads and some clots/tissue wrapped in a cloth. Her last menstrual period was 10 weeks ago. She is having painful contractions. What will you **LOOK** at and **FEEL** (page 9.28)?

3. You have just identified that a woman has a threatened abortion. What will you do (page 9.29)?

4. Why is manual vacuum aspiration done (pages 9.30)?

5. Describe the different components and approaches of pain management for the MVA procedure (pages 9.30 - 31).

6. Why is the size of the uterus measured before performing a MVA (page 9.29)?

7. After a manual vacuum aspiration is finished, the contents removed from the uterus must be inspected. Why must this be done (page 9.36)?

8. List and explain the infection prevention steps (Learning Aid 7 and *Guide for Caregivers – Skill Checklist*).

9. Why is infection prevention important for the woman who needs a manual vacuum aspiration (page 9.30)?

10. During the recovery period from the manual vacuum aspiration procedure, what warning signs and symptoms must the woman and her family know (page 9.38)?

12. A woman's fertility returns almost immediately after an incomplete abortion. She must decide whether or not she wants to become pregnant soon. What family planning information will you give her (page 9.38)?

Learning Aid 5 – Post Abortion Care Given By Different Levels of Health Care Facility and Staff

Post Abortion Care Given by Different Levels of Health Care Facility and Staff			
Level	**Staff May Include**	**Emergency Post Abortion Care Provided**	**Post Abortion Family Planning**
Community	• Community residents with basic health training • Traditional birth attendants • Traditional healers	Recognize signs and symptoms of abortion and serious post abortion complications Referral to facilities where treatment is available	Provide pills, condoms, diaphragms, and spermicides (avoid spermicines if risk of HIV) Referral and follow up for these and other methods
Primary (Primary health clinics, family planning clinics or polyclinics)	• Midwives • Health workers • Nurses • General practitioners	**All primary care facilities. ABOVE CARE, PLUS:** Diagnosis based on medical history and physical and pelvic examination Resuscitation, preparation for treatment or transfer Hematocrit, hemoglobin testing Referral, if needed **If trained staff and appropriate equipment are available. ABOVE CARE, PLUS:** Begin emergency treatments • antibiotic therapy • intravenous fluid replacement • oxytocin or another uterotonic Uterine evacuation during first trimester for uncomplicated cases of incomplete abortion Pain control: • simple analgesia and sedation • local anesthesia (paracervical block)	Provide above methods plus IUDs, injectables and Norplant® implants Referral for voluntary sterilization
First Referral Level (District hospital)	• Midwives • Nurses • General practitioners • Ob/Gyn specialists	**ABOVE CARE, PLUS:** Emergency uterine evacuation through second trimester Treatment of most post abortion complications Local and general anesthesia Diagnosis and referral for severe complications (septicemia, peritonitis, renal failure) Laparotomy and indicated surgery (including for ectopic pregnancy) Blood crossmatch and transfusion	Provide above methods plus voluntary sterilization Follow up including anemia
Secondary and Tertiary Level (Regional or Referral Hospital)	• Midwives • Nurses • General practitioners • Ob/Gyn specialists	**ABOVE CARE, PLUS:** Uterine evacuation as indicated for all incomplete abortions Treatment of severe complications (including bowel injury, severe sepsis, renal failure) Treatment of bleeding/clotting disorders	All above care

Source: Adapted from Complications of Abortion. WHO 1994.

Learning Aid 6 – Contraceptive Method Use After Abortion

Presented in Order of Effectiveness

WOMAN'S CLINICAL SITUATION	CONTRACEPTIVE METHOD ISSUES
NO COMPLICATIONS	**Do not delay** starting method use within 10 days following uncomplicated abortion. Most methods can be given immediately, see *Guide for Caregivers – Post Abortion Counseling & Family Planning Counseling.* **Wait** until a normal menstrual pattern returns before using natural family planning (rhythm, periodic abstinence).
INFECTION (confirmed or presumptive diagnosis) ○ signs of unsafe or unclean induced abortion, or ○ signs or symptoms of sepsis or infection, or ○ unable to rule out infection	Delay female sterilization or IUD insertion until infection is either ruled out or fully resolved. Provide a short-term method and make a follow-up appointment or referral. Consider any other method**.**
TRAUMA to genital tract ○ uterine perforation ○ serious vaginal or cervical trauma ○ chemical burns	Delay female sterilization until trauma is healed. If abdominal surgery must be done to repair trauma and if no additional risk is involved, sterilization may be done at the same time. Delay IUD insertion until uterine perforation or other serious trauma has healed. Provide a short-term method and make a follow up appointment or referral. Injuries that affect the vagina or cervix may limit the use of female barriers and spermicides. Consider any other method.
HEMORRHAGE AND SEVERE ANEMIA Hemorrhage must be resolved before family planning can be considered.	Delay female sterilization because of the risk of further blood loss. Provide a short term method and make a follow up appointment or referral. The increased blood loss that can occur with use of copper IUDs may be a factor for women who are severely anemic. Consider any other method.

Source: Ipas, 2004, adapted for LSS, 2008.

Learning Aid 7 – MVA Equipment: Description, Care, Sterilization

Incomplete abortion is treated by removing the remaining products of conception from the uterus. In the first trimester, MVA may be used if equipment, supplies, and skilled staff are available. This learning aid describes the basic equipment, supplies and care of the equipment necessary for MVA.

1. **Suggested Equipment and Supplies Needed for MVA**
   - Personal protective barriers such as gloves, face protection
   - Examination table with stirrups
   - Strong light
   - Ipas MVA Plus aspirator and selection of Ipas EasyGrip® cannulae (see next page)
   - Lubricant for aspirator
   - Vaginal Speculum
   - Tenaculum
   - Small cup with sponge clamp and gauze
   - Tapered mechanical dilators (Pratt or Denniston)
   - 10cc syringe with 23 gauge spinal or hypodermic needle
   - Sponge stick with gauze
   - Medium basin
   - Sponge forceps
   - Strainer
   - Clear basin
   - Betadine® or other non-alcohol based antiseptic
   - Pain medications
   - Xylocaine 0.5% without epinephrine (for paracervical block)

2. **Furniture for the treatment room**
   Before beginning the MVA procedure, make sure the following are in the treatment room and are clean and in working order:
   - Examination table with stirrups
   - Plastic buckets for decontamination soak
   - Puncture proof container for disposal of needles
   - Leak proof container for disposal of waste
   - Strong light
   - Seat or stool
   - Privacy screen
   - Hand washing sink or basin

3. **Antiseptics**
   Antiseptics do not reliably destroy bacteria and viruses, nor do they destroy bacterial endospores. Antiseptics are adequate for cleaning skin before an injection or surgical procedure, but they are not appropriate for disinfecting surgical instruments and gloves, see Module 7: **Infections**, Infection Prevention.

THE IPAS MVA PLUS

Ipas MVA Plus Aspirator

The Ipas MVA Plus aspirator provides a vacuum of between 24–26 inches, or 609.6–660.4mm, of mercury. It is composed of the following parts:

- a valve with a cap, a removable liner and a pair of buttons that control the vacuum
- a plunger with a plunger handle and O-ring
- a 60cc cylinder for holding evacuated uterine contents, with a retaining clip for the collar stop

Ipas EasyGrip Cannulae

Ipas EasyGrip cannulae have the same dimensions and apertures (openings) as the flexible Karman cannulae. However, Ipas EasyGrip cannulae are slightly more rigid and have a permanently attached base with a wing design. This attached base allows the cannula to be connected directly to the Ipas MVA Plus aspirator without requiring a separate adapter.

Uterine Size	Cannulae Size
4 – 6 weeks LMP	4 – 7 mm
7 – 9 weeks LMP	5 – 10 mm
9 – 12 weeks LMP	8 – 12 mm

Ipas EasyGrip cannulae are available in sizes 4, 5, 6, 7, 8, 9, 10 and 12 mm. The smaller cannulae (4, 5, 6, 7 and 8 mm) have two opposing apertures. The larger cannulae (9, 10 and 12 mm) have a larger single scoop aperture to allow for removal of thicker tissue. There are dots imprinted on the cannulae at 1 cm intervals.

Caution: Use a cannula size appropriate to the size of the uterus and amount of cervical dilatation present. Using a cannula that is too small may result in retained tissue or loss of suction. The size of the cannula to use is related to the size of the uterus since the last menstrual period (LMP). See chart.

Care of Equipment

Processing of Ipas MVA Plus and Ipas EasyGrip Instruments follows the steps of **decontamination, cleaning, high-level disinfection or sterilization, and storage**.

Step 1 – Decontamination. Following the procedure, all instruments that will be reused should be kept wet until they can be cleaned. A disinfectant such as 0.5% chlorine solution can be used. Soaking instruments after use removes some material and makes the instruments easier to clean by preventing material from drying on them. **Caution: After soaking, items are not safe to handle with bare hands until cleaned**. **Wear gloves and face protection!** Different buckets of 0.5% chlorine solution should be used for soaking, high-level disinfecting and general cleaning.

Step 2 – Cleaning. Cleaning with warm water and detergent is the most effective way to reduce the number of germs on soiled instruments. Liquid or powdered detergent is better than bar soap which may leave a residue (coating) which is sometimes difficult to remove. Wear gloves (utility gloves are good), and use a soft brush for the instruments. If dried blood or tissue is trapped inside the cannulae, flush water repeatedly through the cannula or remove the material with a cotton-tipped probe or soft cloth. Make sure to take apart all instruments, including the MVA Plus aspirator and injection syringes.

To disassemble the Ipas MVA Plus:

1. Remove the cannula from the valve by twisting the cannula base and pulling it out of the valve. The wings on the cannula can be gripped to aid in this task. **Do not attempt to remove the base from the cannula;** it is permanently attached.

2. Pull the cylinder out of the valve.

3. Press down the cap-release tabs to remove the cap. Then open the hinged valve by pulling open the clasp, and remove the valve liner.

4. Disengage the collar stop by sliding it sideways under the retaining clip or removing it completely from the cylinder. Pull the plunger completely out of the cylinder.

5. Displace the plunger O-ring by squeezing its sides and rolling it down into the groove below. It is not necessary to completely remove it.

6. Clean the crevices and interior of the cylinder, valve parts, and plunger using a soft bristle brush, taking care not to splash. Clean each item until no tissue or blood is visible upon careful inspection. After cleaning, rinse inside and outside of aspirator, syringes, gloves, and all other instruments with clean water. Allow items to dry.

   Caution: Do not use any pointed or sharp objects to clean the valve or to move the O-ring. This can damage the valve liner and the O-ring and prevent the device from maintaining vacuum.

Step 3 – High-level Disinfection or Sterilization. Sterilization is the safest and most effective method for processing instruments (such as the Ipas MVA Plus aspirator, Ipas EasyGrip cannulae, ring forceps, speculum, dilators) that come in contact with the blood, tissue under the skin, or tissues. When sterilization is not available, high-level disinfection is the only other acceptable method. Disinfectants destroy all bacteria, viruses, and some endospores if used in the correct dilution and method.

- The Ipas MVA Plus aspirator is a multiple-use device that requires high-level disinfection or sterilization before first use and after each procedure to remove contaminants. Aspirators do not have to remain high-level disinfected or sterile for the next use.
- Ipas EasyGrip cannulae require high-level disinfection (HLD) or sterilization before re-use and must be HLD or sterile when inserted into the uterus.
- Ipas Karman cannulae and double-valve aspirators are now single-use devices and should be discarded as infectious waste after use.

The following charts describe appropriate disinfectants and methods for high-level disinfection and sterilization of Ipas MVA Plus aspirators and Ipas EasyGrip cannulae and other instruments.

Please note: The Ipas MVA Plus aspirator and Ipas EasyGrip cannulae can be processed in the same way as other gynecological instruments by steam autoclave (not to exceed 121ºC/250ºF), boiling, or by methods of chemical processing. This will make instrument processing easier, since all instruments can be processed by the same method. However, Ipas MVA Plus aspirators and Ipas EasyGrip cannulae can not be sterilized by dry heat. Using autoclave temperatures greater than 121ºC (250ºF) or dry heat can damage the instruments.

Caution: The Ipas MVA Plus aspirator and Ipas EasyGrip cannulae can be steam autoclaved at 121ºC (250ºF) or boiled. The Ipas Double-Valve and Single-Valve aspirators can not be boiled, steam autoclaved or dry-heat sterilized. The Ipas flexible Karman cannulae can not be steam autoclaved or processed with dry heat. Never boil or steam autoclave the plungers from the Ipas Double-Valve and Single- Valve aspirators as they will release formaldehyde.

High-Level Disinfection of Ipas MVA Plus aspirators^, Ipas EasyGrip cannulae^ and metal instruments

Agent	Time	Precautions	Steps
Chlorine* Dilute to 0.5%	20 minutes	Discard solution daily or sooner if solution becomes cloudy. Items must be fully immersed and disassembled.	1. Completely immerse both Ipas EasyGrip cannulae and Ipas MVA Plus aspirator parts so that solution fills them. Use a plastic (non-metal) container. 2. Soak in a 0.5% chlorine solution for 20 minutes. 3. Remove from solution using HLD or sterile gloves or forceps. 4. Rinse all parts with sterile or boiled water. 5. Dry with a sterile cloth, if possible.
Boiling water DO NOT BOIL THE IPAS SINGLE-VALVE or DOUBLE-VALVE ASPIRATORS	20 minutes	Disassembled parts and other items do not need to be completely immersed. Cannulae may discolor without affecting function. Grasping hot cannulae may cause flattening. Bring instruments to room temperature before use.	1. Place Ipas EasyGrip cannulae and Ipas MVA Plus aspirator parts in water at a rolling boil, cover pot. Items do not need to be fully immersed. 2. Boil cannulae and aspirator parts for 20 minutes. 3. Remove using HLD or sterile gloves or forceps. 4. Dry with a sterile cloth, if possible. 5. Let water cool before removing items, and handle the cannulae by their base ends when removing.
2%Glutaraldehyde (Cidex®)* Follow manufacturer's instructions for mixing.	20 minutes or follow manufacturer's instructions	Items must be fully immersed and disassembled. Discard solution 14 days after mixing or sooner if the solution becomes cloudy. Do not use below 77° F (25° C).	1. Completely immerse both Ipas EasyGrip cannulae and Ipas MVA Plus aspirator parts so that solution fills them. 2. Soak in glutaraldehyde solution for the amount of time recommended by manufacturer (20 minutes for Cidex). 3. Remove from solution using HLD or sterile gloves or forceps. 4. Rinse all parts with sterile or boiled water. 5. Dry with a sterile cloth, if possible.
Glutaraldehyde * (other solutions) Follow manufacturer's instructions for mixing.	Follow manufacturer's instructions	Items must be fully immersed and disassembled. Usually discard solution 14 days after mixing or sooner if the solution becomes cloudy. Do not use below 77° F (25° C).	1. Completely immerse both Ipas EasyGrip cannulae and Ipas MVA Plus aspirator parts so that solution fills them. 2. Soak in glutaraldehyde solution for the amount of time recommended by manufacturer 3. Remove from solution using HLD or sterile gloves or forceps. 4. Rinse all parts with sterile or boiled water. 5. Dry with a sterile cloth, if possible.
STERRAD® 100s	55 minutes	DO NOT STERRAD THE IPAS SINGLE-VALVE OR DOUBLE-VALVE ASPIRATORS	Place the disassembled instruments along with a chemical indicator strip in an approved tray or peel pack. Time according to directions.

^ Ipas MVA Plus aspirators and Ipas EasyGrip cannulae must be HIGH-LEVEL DISINFECTED OR STERILIZED BETWEEN USES.

 # Caution: Never steam autoclave or boil the plungers from the Ipas single-valve or double-valve aspirators as they will emit formaldehyde.

* Glutaraldehyde and chlorine are hazardous substances. When processing instruments, take necessary precautions, such as using personal protective equipment. Refer to the manufacturer's safety instructions to establish safe use.

Step 4 – Storage and Reassembly. Although there is often no efficient way to dry items that have been processed by wet methods, storing them wet encourages microbial growth. Contamination can also happen from opening storage containers often. Instruments that have been processed by wet methods, such as soaking in glutaraldehyde or chlorine or boiling in water, should be reprocessed daily.

Storage of cannulae: Once Ipas EasyGrip cannulae have been processed they should be kept in dry, sterile or high-level disinfected containers with tight-fitting lids and protected from dust and other contaminants. Remove instruments from containers with sterile or high-level disinfected forceps by holding the end of the cannula that connects to the aspirator. It is best to store a few cannulae in each container.

Storage of aspirators: Ipas MVA Plus aspirators should also be kept in dry, covered containers with tight-fitting lids, protected from dust and other contaminants. They should be stored assembled, lubricated and ready for use.

Assemble the Ipas MVA Plus Aspirators, see Figure 24. Place the valve liner in position inside the valve by aligning the internal ridges. Close the valve until it snaps in place. Snap the cap onto the end of the valve. Push the cylinder straight into the base of the valve without twisting.

Note: When reassembling the aspirator, ensure that the plunger is inserted straight into the cylinder and not put in at an angle.

Place the plunger O-ring in the groove at the end of the plunger and lubricate it by spreading one drop of lubricant around the O-ring with a fingertip. Silicone or another non-petroleum-based lubricant can be used. Squeeze the plunger arms and insert the plunger fully into the cylinder. Move the plunger in and out to lubricate the cylinder.

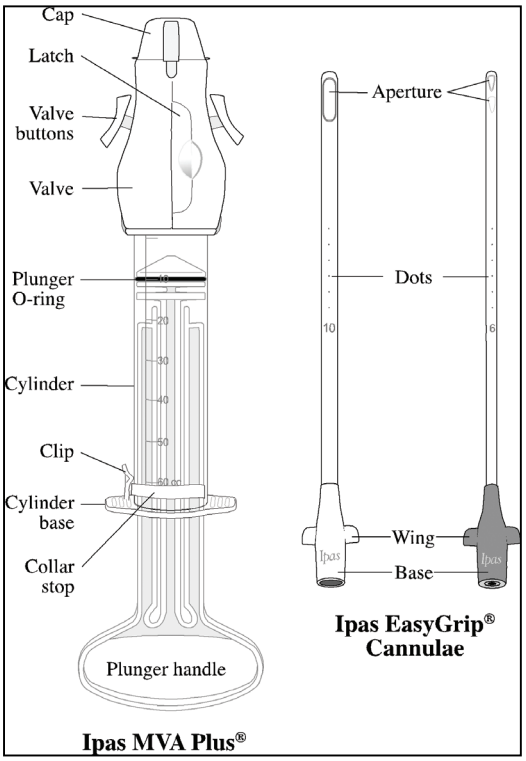


Figure 24. MVA.

Checking the Vacuum. Insert the tabs of the collar stop into the holes in the cylinder so that the plunger can not be pulled out of the cylinder. Check the vacuum by pushing the valve buttons down and forward until they lock and pulling the plunger until the arms lock. Leave in this position for two to three minutes, then release the buttons. A rush of air indicates that the aspirator maintained the vacuum.

If no rush of air is heard, remove the plunger. Check the plunger O-ring and instrument for foreign particles and cracks. If the aspirator still loses vacuum, it should be discarded.

Always check that the aspirator retains a vacuum before using it. If the aspirator does not retain a vacuum, check that it is properly assembled and inspect the O-ring for foreign particles and proper lubrication. Do not put too much lubricant on the O-ring. If the aspirator fails to hold a vacuum, it can not be used.

Reuse of Ipas MVA Plus aspirators. The number of times the aspirator can be used again varies according to use and maintenance. If any of the following have occurred, the aspirator should be discarded and replaced:

- the cylinder has become brittle or cracked
- mineral deposits inhibit the plunger movement
- the valve parts have become cracked, bent or broken
- the buttons have broken
- the plunger arms no longer lock
- the aspirator no longer holds a vacuum

Reuse of Ipas EasyGrip cannulae. The number of reuses varies according to use and maintenance. If any of the following have occurred, the cannula should be discarded and replaced:

- the cannula has become brittle
- the cannula has become cracked, twisted or bent, particularly around the opening
- tissue can not be removed during the cleaning process

Learning Aid 8 - Management of MVA Problems and Complications

There are some problems that can happen during and after completing an MVA procedure. Most are not serious and if recognized immediately and corrected, the client's recovery will not be affected.

Technical Problems. In most MVA procedures, the vacuum remains constant until the aspirator is about 80% or 50 ml full. However, a decrease in vacuum may happen before the procedure is complete if the aspirator is full, the cannula is withdrawn too early (prematurely), or the cannula becomes clogged.

- **Aspirator Full** - If the aspirator is full:

1. Depress the buttons.

2. Disconnect the aspirator from the cannula, leaving the cannula in place inside the uterus. Do not push the plunger when disconnecting the aspirator.

3. Empty the aspirator into a container for inspection by pressing the buttons and pushing the plunger into the cylinder. Be careful not to splash the contents of the aspirator.

4. Re-create a vacuum in the aspirator; reconnect it to the cannula and continue the aspiration. You can keep a second prepared aspirator in case one aspirator gets full.

- **Cannula Withdrawn Prematurely into Vaginal Canal** - To correct this:

1. Remove cannula, taking care not to contaminate it through contact with the vaginal walls or other non-sterile surfaces.

2. Detach the aspirator from the cannula, empty the aspirator, then re-establish vacuum.

3. Reinsert the cannula if it has not been contaminated. If contamination has occurred, insert another sterile or HLD cannula using no-touch technique.

4. Reconnect the aspirator; release the valve buttons, and continue aspiration.

- **Cannula Clogged** - If no tissue or bubbles are flowing into the aspirator, the cannula may be clogged:

1. Ease the cannula back toward, but not through, the cervical os (this movement will often unclog the cannula).

2. If this does not unclog the cannula, depress the buttons and disconnect the cannula from the aspirator before removing from the uterus, or withdraw the cannula without depressing the buttons.

3. Remove tissue from the opening in the cannula using sterile/HLD forceps, taking care not to contaminate the cannula. **Note:** Never try to unclog the cannula by pushing the plunger back into the barrel while the cannula tip is still in the uterus.

4. Reinsert the cannula using no-touch technique.

5. Reattach the aspirator and continue the procedure.

- **Aspirator Does Not Hold Vacuum**

1. Remove the collar stop, withdraw the plunger and check that the o-ring is free of damage or foreign material.

2. Make sure that the o-ring is properly lubricated and properly positioned in the groove on the plunger head.

3. Make sure the cylinder is firmly placed in the valve.

4. Make sure that the buttons are locked into place before pulling the plunger back.

5. If the aspirator still loses vacuum, it should discarded.

Learning Aid 9 – How to Administer Paracervical Block

Local anesthesia, most commonly provided by a *paracervical block* with lidocaine (without epinephrine) is used to ease cervical pain *if additional cervical dilation* is necessary. It reduces cervical pain from stretching, dilatation, or movement of the cannula in the cervix. It will **not** reach the nerves of the uterus.

In order to use local anesthesia, emergency drugs and equipment for suction and resuscitation should be available. In most cases, 10 ml of one percent lidocaine (without epinephrine) is adequate. In no case should the total dose exceed 20 ml. Remember to prevent injecting directly into a vein, *aspirate* (pull back on the plunger of the syringe) before injecting the medication.

Procedure
At each injection site, insert the needle; then *aspirate* to check that the needle is not in a blood vessel. If any blood is visible in the syringe, do **not** inject. Pull the needle out and insert it in a different injection site.

1. If the woman does not know of any allergies to anesthetics, fill a 10 to 20 ml syringe with 1% lidocaine without epinephrine.

2. Use a 2.5 - 3.8 cm (1 - 1½ inch), 22 or 25 gauge needle to inject the local anesthetic. If a sponge or ring forceps is to be used to hold the cervix, first inject 1 ml of local anesthetic into the anterior or posterior lip of the cervix which has been exposed by the speculum. Refer to Module 4: **Episiotomy**, for seeing and holding the cervix.

3. With the forceps on the cervix, use slight traction and movement to help identify the area between the smooth cervix and the vaginal tissue. This is the site for insertion of the needle around the cervix, see **Figure 25.**

4. Insert the needle just under the cervix and aspirate slightly to make certain the needle is not in a blood vessel.

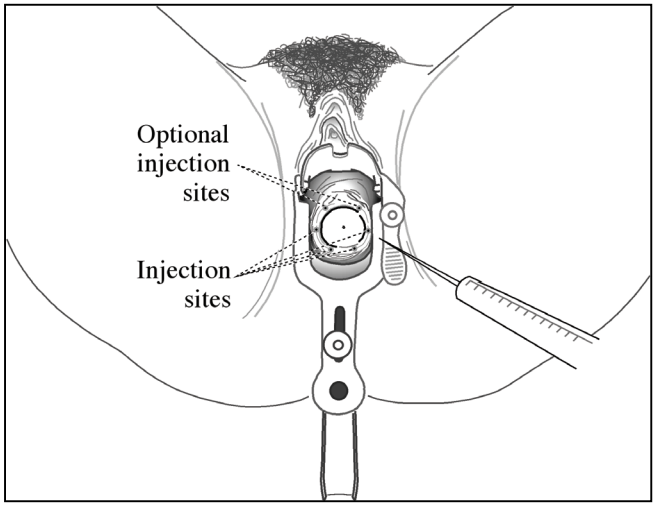


Figure 25. Paracervical block injection sites.

5. Inject about 2 ml of the local anesthetic just under the cervix, not deeper than 2 to 3 millimeters (mm) at 3, 5, 7, and 9 o'clock. When the anesthetic is correctly placed, a swelling and blanching of the tissue can be seen.

6. When you have finished the injections, wait at least to 2 to 4 minutes for the anesthetic to take effect.

Learning Aid 10 – Manual Vacuum Aspiration Skill Checklist

SKILL CHECKLIST: MANUAL VACUUM ASPIRATION	DATE				
PROBLEM SOLVING STEPS	**RATING**				
General Skills: MAKE THE WOMAN COMFORTABLE					
1. Provide privacy					
2. Listen carefully to her					
3. Answer her questions					
4. Show her respect					
5. Explain procedure					
6. Be supportive to woman and family					
Prior to the Procedure: ASK AND LISTEN					
1. Are you pregnant? How many weeks or months?					
2. When did the bleeding start? If signs of shock, treat shock immediately.					
3. When was the first day of your last menstrual period?					
4. Do you use family planning? What kind?					
5. Do you have any pain or cramping? Where is the pain?					
6. Do you have any fever, chills, foul smelling discharge?					
LOOK AND FEEL					
1. Ask the woman to empty her bladder.					
2. Explain everything you are going to do, before you do it.					
3. Wash your hands.					
4. Take the blood pressure, pulse and temperature.					
5. LOOK for signs of shock.					
6. FEEL the uterus to confirm that uterus not higher than the level of the symphysis pubis..					
• Compare actual size of uterus with the LNMP.					
• Is there low abdominal pain or rebound tenderness?					
7. LOOK for vaginal bleeding, clots, or foul smelling discharge.					
8. Use vaginal speculum to look for and remove any products of conception or clots in the vaginal canal or cervix.					
9. LOOK for lacerations, trauma or discharge.					

SKILL CHECKLIST: MANUAL VACUUM ASPIRATION	DATE				
PROBLEM SOLVING STEPS	**RATING**				
10. Do bimanual examination to confirm size and compare to LNMP and that ***uterine size is no larger than 12 weeks***.					
a. Insert lubricated index and middle fingers into the vagina until you can feel the cervix.					
b. Put your other hand on the abdomen, find the uterus between your fingers inside the vagina and your hand on the abdomen.					
c. Gently move the uterus noting tenderness, size, position, and shape.					
IDENTIFY PROBLEMS/ NEEDS – incomplete abortion with bleeding.					
1. Prepare room, MVA equipment, medications, and follow infection prevention procedures.					
2. Manage pain.					
· Care for the emotional state of the woman.					
· Give analgesic according to dilatation of the cervix. Gentle supportive care and the use of a non-narcotic analgesic often are enough for the uncomplicated MVA procedure.					
TAKE APPROPRIATE ACTION – perform MVA Procedure					
1. Prepare and check vacuum of MVA Plus Aspirator.					
2. Prepare the woman: explain, empty bladder as needed, clean genitals.					
· Wash hands and put on gloves.					
· Do bimanual examination to confirm uterine size and position.					
· Insert vaginal speculum and confirm findings of clinical examination.					
3. Perform cervical antiseptic prep.					
4. Perform paracervical block. When mechanical dilatation is required.					
5. Dilate cervix – usually not needed in incomplete abortion.					
6. Gently insert cannula while holding the cervix with a tenaculum.					
7. Suction the uterine contents.					
· Attach the aspirator to the cannula and prevent forward moving of the cannula.					
· Release the valve by pressing the buttons to begin the suction.					
· Evacuate the contents of the uterus by gently and slowly rotating the cannula 180° in each direction.					
· **Do not** pull the cannula outside of the cervix until you are finished.					

SKILL CHECKLIST: MANUAL VACUUM ASPIRATION	DATE				
PROBLEM SOLVING STEPS	**RATING**				
· Always hold the aspirator by the barrel, **never** hold the aspirator by the plunger arms.					
· When finished, depress the buttons, detach cannula and withdraw. Place cannula in decontamination solution.					
· Empty contents of the MVA syringe into a strainer or cloth.					
· **Do not put the empty aspirator in decontamination solution** until you are certain the procedure is completely finished.					
8. Check for signs that the uterus is empty.					
9. Inspect tissue for products of conception.					
10. When you are sure the procedure is finished, remove equipment.					
· Make the woman comfortable.					
· Explain your findings to her and her family.					
11. Dispose of wastes and process all instruments after procedure.					
12. Wash hands with soap and water.					
13. Record findings including vital signs, fluids given, appearance of products of conception, estimated blood loss, and time, type and dose of medications given.					
MONITOR THE WOMAN'S RECOVERY					
1. Take and record vital signs.					
2. Allow the woman to rest during recovery where she can be observed for bleeding and general condition.					
3. Check the woman for anemia, treat as needed, give Rh(D) before discharge if Rh negative.					
4. If there is treatment for complications, continue treatment and monitor or REFER as needed.					
5. For uncomplicated MVA, check bleeding at least once before discharge. Recheck vital signs, cramping, and general well being.					
6. Give follow up information:					
· Some uterine cramping over next few days, may take analgesic.					
· Some spotting or bleeding, not more than normal menstrual period.					
· Normal menstrual period should occur within 4 to 8 weeks.					
7. Tell the woman, her **fertility can return in less than 2 *weeks*** after the MVA procedure.					
· She needs to choose family planning method immediately if another pregnancy is not wanted.					

SKILL CHECKLIST: MANUAL VACUUM ASPIRATION	DATE				
PROBLEM SOLVING STEPS	**RATING**				
· She should have no sexual intercourse or anything in the vagina until 5 to 7 days after bleeding has stopped.					
· Tell the woman the date for follow up visit					
8. Explain these WARNING SIGNS AND SYMPTOMS. The woman should report back to you if she has:					
· Prolonged cramping, more than 5 days.					
· Prolonged bleeding, more than 2 weeks.					
· Bleeding more than normal menstrual bleeding.					
· Severe or increased pain.					
· Fever, chills, or malaise (tired all of the time).					
· Fainting or weakness.					
9. Explain to the woman about post abortion family planning.					
· She can get pregnant as soon as 10 days after MVA procedure.					
· There are safe, modern family planning methods that can help her avoid becoming pregnant.					
· Where and how she can get these methods if you can not help her with the method of choice.					

Comments:

Symphysiotomy

Goal

Using the problem solving method, the midwife will review and update her knowledge and skills to perform symphysiotomy to help a woman deliver her baby.

Objectives

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

1. **ASK and LISTEN.** Take the history in a way that allows her to identify the conditions for doing a symphysiotomy.
2. **LOOK and FEEL.** Perform an examination in a way to confirm when to do a symphysiotomy.
3. **IDENTIFY PROBLEMS / NEEDS.** Describe indications, contraindications, and complications for doing a symphysiotomy.
4. **TAKE APPROPRIATE ACTION.** Use the information from the history and examination to perform the symphysiotomy procedure.
5. **EVALUATE / REPEAT THE PROCESS.** Decide with the woman the results of the healing. Repeat the problem solving steps to watch for problems and give postpartum follow up care after symphysiotomy.
6. Explain to the woman and others the need for the symphysiotomy, the possible complications, and what will be done if the symphysiotomy does not help.
7. Show how to position the woman for a symphysiotomy.

Introduction

Sometimes a woman is not able to deliver her baby vaginally because the baby can not move through the birth canal. The baby may be too big or the birth canal may be too small. One of the main causes of maternal mortality is obstructed labor. **Obstructed or prolonged labor causes nearly 7% of maternal deaths.** You can make the birth canal a little larger by cutting the joint at the front of her pelvis (symphysis pubis). The most common indication for symphysiotomy is cephalopelvic disproportion (CPD) with vertex presentation. When cesarean section is not available or unsafe, symphysiotomy may be life saving for both woman and baby.

The symphysiotomy is a cut which allows the pubic bones to separate, making more space in the pelvis for the birth of the baby. The fibrous (stretchy) tissue heals at the joint. This tissue relaxes (softens or stretches) to let a baby deliver in later births. In 229 deliveries in women who had a symphysiotomy before: 167 (73%) had spontaneous vertex delivery, 32 (14%) had an episiotomy, 25 (11%) had a cesarean section, and 5 (2%) had repeat

symphysiotomy (Van Roosmalen 1987). In some births, the symphysis separates by itself. This operation does something which happens naturally in some births.

There are good reasons for using symphysiotomy to help women in obstructed labor. This procedure leaves no uterine scar and the risk of a ruptured uterus in future labors is not increased. Complications of the procedure have been lessened by better techniques and postoperative care (Hofmeyr 2005). A symphysiotomy should be done only by a midwife or doctor who knows the indications and contraindications and is skilled in the procedure.

Review Module 2: **Antenatal Care** and Module 3: **Labor** for information on prolonged or obstructed labor. See **Learning Aid 12** – Measure the Size of the Pelvis. It is very important that the midwife identifies problems early and gets help from the doctor with cesarean section facilities as soon as possible. When you are late in identifying or referring a problem, the outcome may be an injured baby, an injured woman (including fistula), or even the death of a woman and/or baby.

There will be times when a woman in obstructed labor comes to the midwife. The midwife may need to do a symphysiotomy to save the life of the woman or baby. Taking too long at home to REFER a woman with problems, may cause damage to the woman or baby. The midwife must teach birth preparedness and timely decision making with community members and in the antenatal clinic. The midwife must teach the importance of referral when a woman has trouble during pregnancy, labor, and delivery. See Module 1: **Introduction**, Module 2: **Antenatal Care**, and Module 8: **Stabilize and Refer.**

A Midwife's Experience...

A 19 year old woman was carried to my clinic. The woman looked tired, worried and had been pushing since the sun went down (about 3 hours). The fetal heart rate was 100 but strong; baby "felt" about 3 kg; head was only 2/5 above the pelvic brim; contractions were strong (lasting more than 40 seconds) and 4 in 10 minutes. The baby's head was visible at the vulva; caput about 4 cm was covered with blood and dung. On vaginal examination the vulva was a little swollen; vagina was hot and dry. The cervix could not be felt and molding was ++ (overlapped sutures can be separated). I asked the woman to push with a contraction but the head did not move.

I asked the family to quickly find the lorry driver. I started an intravenous infusion; gave an antibiotic; and cleaned the woman. I knew that it would take over 1 hour by lorry to get to the maternity center with a doctor on site. The family could not agree. The family did not want to go any place and the family asked that I help now. The mother was in much pain and I feared for both her life (ruptured uterus) and that of her baby. I explained all to the mother and her family.

I performed a symphysiotomy with the grandmother and auntie holding the woman's legs. The woman was so strong. She was able to deliver her baby boy successfully. The family was so excited.

LSS Co-author.

Common Medical Terms

Abduction - moving an arm or leg away from the body.

Adduction - moving an arm or leg toward the body.

Cephalopelvic Disproportion (CPD) - the baby's head is too large or the birth canal (pelvic opening) is too small to let the baby deliver. Compare this meaning to normal cephalopelvic proportion.

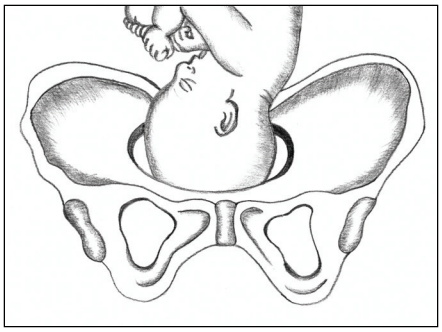


Figure 26. Normal cephalopelvic proportion.

Diagonal Conjugate - the internal (inside) measurement of the pelvis from the lower border (edge) of the symphysis to the promontory of the sacrum, see **Learning Aid – 12** for Measuring the Pelvic Size.

Normal Cephalopelvic Proportion - the baby's head goes through the birth canal (pelvic opening), see Figure 26.

Normal Female Pelvis - the side and front of the pelvis are formed by the two hip bones (innominate bones), and the back by the sacrum and the coccyx (tail bone or bottom of the spine). On vaginal examination the sacrum should feel curved. The subpubic arch should admit 2 fingers and the ischial spines can be felt but are not prominent, sharp, or pointed. Look at Figure 27 to find the position and different parts of these bones.

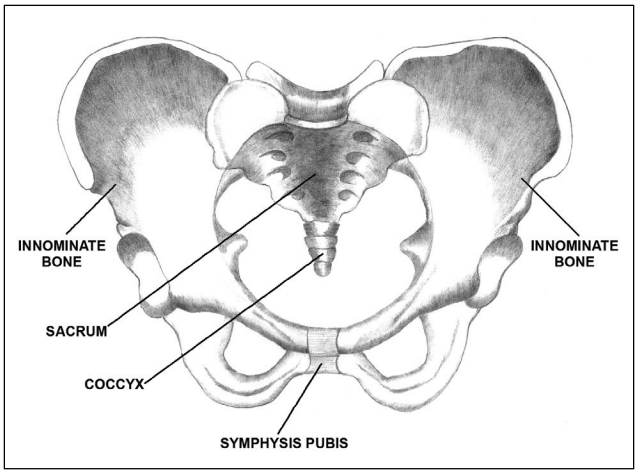


Figure 27. Normal female pelvis.

Oxytocic - any one of a number of drugs that stimulate the smooth muscle of the uterus to contract.

Symphysiotomy - the separation (dividing) of the symphysis pubis cartilage with a scalpel, separating the pubic bones by 2 cm or less, and making the pelvic opening larger. A surgical procedure resulting in a larger pelvic diameter.

Symphysis Pubis - the slightly movable joint of the pelvis, made up of a pad of cartilage joining together two pubic bones. This joint softens and becomes more mobile during the later months of pregnancy.

Equipment (Add these to delivery, episiotomy, and vacuum extraction equipment):

Sterile items:
Scalpel: fixed-blade scalpel or handle and Number 20 blade or disposable scalpel with large, curved blade
Catheter: firm Jacques No. 6, or indwelling catheter (Foley), or any catheter
Gloves
Local anesthesia set

Assistants, helpers: two to help you, two to support woman's legs
Resuscitation equipment
Good light source
Strapping: elastic or bandage
Soap
Water

About Cephalopelvic Disproportion

ASK and LISTEN, **LOOK and FEEL.**

During antenatal clinic or the first time you see a pregnant woman find the following. Note. Screening before labor is not 100% reliable; CPD is identified during labor (Philpott 1978).

Primigravida:
- Height below normal for her ethnic group (Shirima 2005, King 2003)
- Diagonal conjugate less than 12 cm (4 ¾ inches), see **Learning Aid 12.**

Multipara:
- History of stillbirth or neonatal death
- History of cesarean section, vacuum extraction, symphysiotomy.

During labor when there is good progress, the cervix will dilate as the head decends without molding. When there is not good progress, identify CPD and refer if possible.

- **FEEL abdominal descent.** The fetal head is engaged. See Module 3: **Labor** for measuring descent. Descent is measured in "fifths" of head palpable above the pelvic brim. If the head is too high (above 2/5) symphysiotomy will fail because of severe CPD. It the head is too low (below 1/5), a vacuum extraction may be used.

- **FEEL caput and molding (vaginal exam).** How far the baby's skull bones (*not caput*) have moved into the pelvis. Compare this finding to your abdominal palpation of descent of the baby's head. **Note. The baby's head with caput can be at the vulva, while 4/5 of the head is palpable abdominally.** Feel the suture lines for separation.
  - Borderline CPD: The degree of overlap (molding) of the fetal head will be mild (+) to moderate (++).
  - CPD: Severe molding (+++) is a sign of serious fetal distress. It is a sign that the head will not fit through the pelvis of the woman.

- **FEEL cervical dilatation.** The cervix may fall loosely over the vertex (7 cm or more) as the head is not descending and is not able to fully dilate the cervix.

IDENTIFY PROBLEMS

The midwife continues to monitor both the woman and the baby during the second stage of labor. There is not a time limit for second stage of labor if the woman and baby are doing well, and the woman is making progress. The safest delivery for woman and baby is a normal spontaneous vaginal delivery. Sometimes the woman needs help in delivering her baby. See Module 3: **Labor**, Care When Labor is Not Normal.

Indications for using a symphysiotomy.

The biggest problem is to know when you have a borderline CPD. *Borderline CPD will usually be found late in the first stage or during the second stage of labor*. Referral to a doctor with cesarean section facilities is the best management of CPD in all women to prevent rupture of the uterus and maternal or fetal death.

	Borderline CPD	CPD
Descent	Engaged head 2/5 or less abdominal	Head not engaged More than 3/5 abdominal
Molding	mild (+) to moderate (++)	severe (+++)
Cervical Dilatation	complete 10 cm	usually less than 7 cm
Contractions	at least 3 in 10 minutes lasting 20 to 40 seconds or more	variable, could be very irregular or almost constant

Contraindications of symphysiotomy.

Symphysiotomy is not used for these conditions, see Module 3: **Labor**:

- Severe cephalopelvic disproportion.
- On obese (heavy) women. The weight of the thighs might pull the symphysis pubis too far apart.
- In women who have had a previous cesarean section. Opening the symphysis pubis might cause too much pull on the uterine scar.
- When there are slow or weak uterine contractions because symphysiotomy would not increase uterine contractions and would not solve the problem.
- When the estimated weight of the baby is less than 2.7 kg (6 lb) or more than 3.6 kg (8 lb). The small baby must have some other problem, for it is so small that CPD can not be the problem. The large baby may pull the symphysis pubis too far apart, and healing will not take place.
- When the presentation is not vertex or when the baby has died.

TAKE APPROPRIATION ACTION

Do a symphysiotomy to help in borderline (less severe) cephalopelvic disproportion in a primigravida with vertex presentation. **Symphysiotomy is only done with borderline CPD, when the fetal head is 2/5 or less on abdominal palpation.**

SKILL: Symphysiotomy

A symphysiotomy is an emergency life saving procedure when done by a midwife or doctor with skill and experience. A symphysiotomy is always done just before delivery. Prepare for a distressed baby. An episiotomy is done to reduce the amount of pressure on the symphysis pubis and to protect the bladder and urethra. Refer to Module 4: **Episiotomy**. A vacuum extraction may be done to help the woman deliver her baby. See Vacuum Extraction section in this module**.** You must have two helpers, and two other people to support the woman's legs. Symphysiotomy is a sterile procedure. See Module 7: **Infections**.

When you do a symphysiotomy, the pelvis gets bigger. The growth is greatest in the outlet, but the brim and mid-cavity also get larger. There is more room for the baby. The baby may deliver very quickly after you do the symphysiotomy.

Procedure for Symphysiotomy

1. Collect all of your equipment.

2. Explain carefully to your assistants what you want them to do.

    - One assistant should watch the woman and monitor the baby.
    - The second assistant should be gloved to assist in the symphysiotomy.
    - The two other persons should be given the very important job of holding the woman's legs, see Figure 29 for symphysiotomy positioning.
    - Explain to the woman and family what you are going to do, possible complications, and what will happen if the procedure does not help. Offer emotional support and encouragement. Make sure the woman understands how important her actions are. If she moves very much during or after the incision there could be a big separation in the symphysis pubis. This may cause severe pain and a long recovery.

3. Ask the assistant to wash the lower abdomen and genital area with soap and water.

4. Ask the two other persons to help the woman get comfortable on her back.

5. Scrub your hands. Put on sterile gloves.

6. FEEL the middle (fibrocartilage) of the symphysis pubis, see Figure 28.

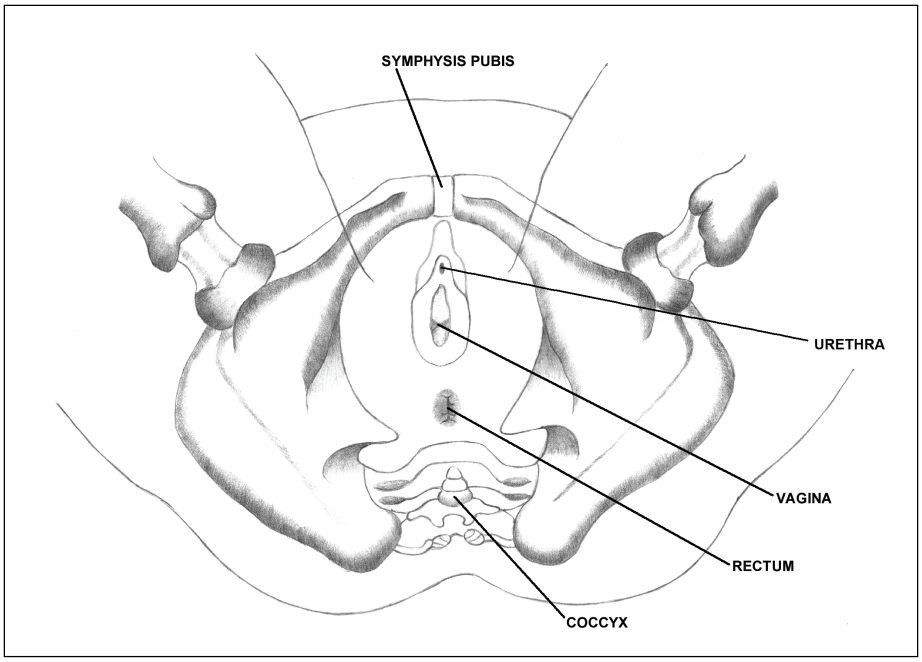


Figure 28. Symphysis pubis and related anatomy.

7. Inject 10 ml of 0.5 to 1.0% lidocaine hydrochloride solution over and around the symphysis pubis area using the same technique as for injecting local anesthetic into the perineum. Aspirate before injecting to make sure the needle is not in a blood vessel. Refer to Module 4: **Episiotomy**.

8. Inject the perineum with 10 ml of lidocaine hydrochloride solution.

9. Pass a catheter into the urethra and bladder. If the baby's head is too low, you may need to push the head up a little to get the catheter in the urethra. Look at the urine. It will probably be concentrated. If you see blood there may be bladder trauma from obstructed labor. Tape the catheter to the woman's leg to keep it from coming out.

10. Position the woman. The position and cooperation of the woman are important to the success of the symphysiotomy. See Figure 29. Ask the two assistants to encourage and help the woman listen to the midwife so that she can cooperate. The assistants will also support the woman's legs with her thighs and knees bent. They should:

    a. Stand close to the woman's leg.

    b. Ask the woman to rest her feet on the edge of the table.

    c. Spread the woman's thighs no more 90 degrees from each other (abduct).

    d. Hold the leg firmly against their body so the leg does not move.

    e. Hold the leg with one hand.

    f. The other hand should support the ankle.

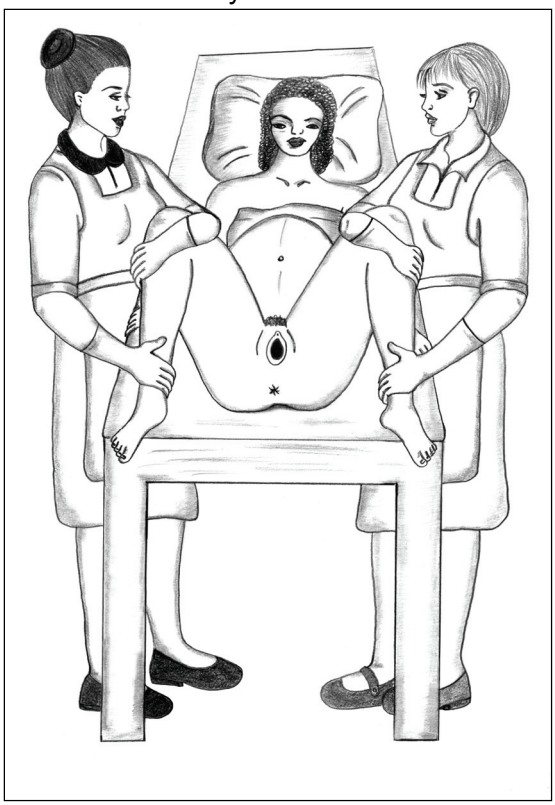


Figure 29. Position the woman for symphysiotomy.

11. Check to make sure the anesthesia is working. Touch the area with a sharp needle or pinch with tissue forceps. The woman should feel a dull (not painful) touch. Put antiseptic solution on the incision site.

12. Insert two fingers in the vagina. Find the catheter and push the catheter and urethra to one side with your vaginal fingers. Keep the catheter running along the side of your finger and pushed to one side with one of the vaginal fingers. Keep one finger in this position until the cut is made, Figure 30.

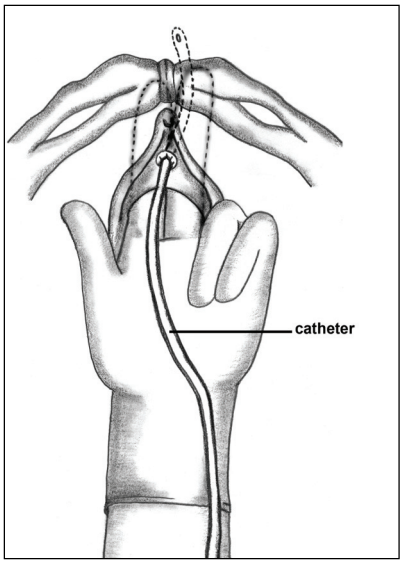


Figure 30. Push urethra to one side after inserting catheter.

13. Find the symphysis pubis in the midline with the other vaginal finger. Use this finger to guide the depth of the incision. Make sure the knife does not come through to your fingers. If the woman's HIV status is positive or unknown, Hofmeyr (2005) advises "that the internal fingers keep the catheter and urethra even further to the side and that the depth of the incision be controlled by judgment."

14. With your abdominal hand, feel for the symphysis pubis cartilage just under the mons (fatty pad).

15. Hold the scalpel at right angles to the skin and the symphysis pubis with the cutting edge pointing towards you. **Be sure to cut in the midline.** Cartilage is in the midline. It is soft and cuts easily. Look at the position of the clitoris to help you be sure you are in the midline. Push the knife firmly and smoothly down in the mons to divide the two pelvic bones. See Figure 31. The fibrocartilage is cut completely, from the top to the bottom. You will feel the knife more easily with the vaginal finger as the cartilage is cut.

    Think carefully about what you are feeling with your vaginal fingers. You should always feel tissue between your vaginal fingers and the knife.

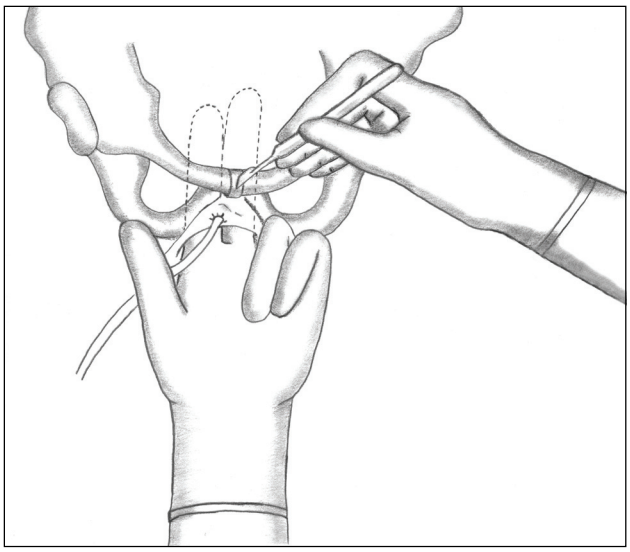


Figure 31. Feel tissue between your vaginal fingers and the scalpel blade.

a. First cut downwards towards yourself (division of lower cartilage), see Figure 32.

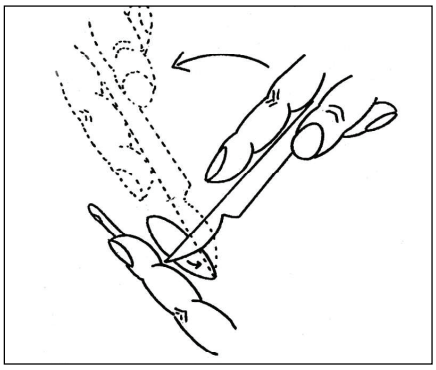


Figure 32. Cut towards yourself.
Source: Gebbie 1974

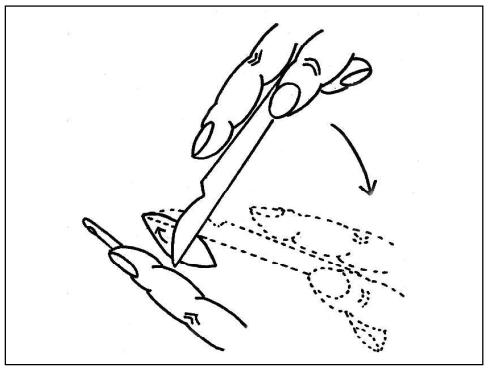


Figure 33. Cut upwards.
Source: Gebbie 1974

b. Then turn the blade180 degrees and cut upwards towards woman's abdomen (division of upper cartilage), see Figure 33.

c. Move your thumb into the cut to make sure the cartilage is cut and there is a separation of the bones.

d. The baby's head may now come down with or without a contraction.

e. Let the fetal head decide the amount of separation of the symphysis pubis. Descent of the baby's head causes the symphysis to separate about 1 - 2.5 cm (the width of a thumb).

16. Remove the catheter to have less urethral trauma.

17. Perform an episiotomy so that the head can be delivered with as little pressure as possible on the bladder and urethra.

18. Deliver the baby. Let the woman push the baby out. Control the delivery over the perineum, not up over her abdomen to stop injury to the soft tissues under her pubis.

    If the woman can not push the baby out on her own, use the vacuum extraction guiding the head away from the symphysis pubis. (Co-authors experiences are when episiotomy is done there is no need for a vacuum extraction). Note: Do not use forceps as they may cause the symphysis to separate too much and injure the woman seriously.

After delivery: Give immediate care to the baby and woman to prevent problems. See Module 3: **Labor.** Ask the two helpers to keep the woman's hips flexed, bring her knees together, and hold them there while you deliver the placenta and repair the episiotomy.

19. Give the woman analgesia again if needed.

20. Gently inspect the vagina and cervix for trauma. Repair the episiotomy. See Module 4: Episiotomy.

21. Catheterize with indwelling (Foley) catheter. Do not suture the symphysiotomy incision unless there is bleeding.

22. Show and tell the persons holding the woman's legs to carefully bring the woman's legs together (adduction) at the same time.

23. Place a soft cloth between the woman's legs. Wrap elastic strapping around the pelvis from one iliac crest to the other. That will hold the pelvis together and reduce pain. Wrap the knees loosely together using a wide roller bandage or cloth to prevent movement of the thighs.

24. Ask one of the helpers to watch for bleeding of the cut and to feel the uterus and rub it to keep the uterus contracted.

25. Bathe the woman as needed, and make her comfortable.

26. Explain to the woman and her family what you did. Tell them that her legs must be wrapped together for at least 2 days so that the cut will heal. Ask the family to prepare the woman's favorite food and drink. Explain that she has worked hard and needs to eat and drink to get her energy and strength back.

27. Help the woman lie on her side.

28. REFER to a doctor or hospital.

Care of the Woman After Symphysiotomy

The woman will need care in the hospital for 10 to 15 days depending on her condition and recovery. Place the woman on her side to help keep the thighs together and promote healing of the cartilage.

- Her knees and ankles must be wrapped together for at least two days.
- She needs perineal care, turning often, and positioning on her sides.
- The catheter should be in for 5 days or more to reduce the pain from using a bedpan. If the urine is bloodstained or she had a long obstructed labor, keep the catheter in 7 days or until there is no bloodstained urine. She is in danger of a fistula.
- The pain is similar to the pain with a Cesarean Section. Relieve her pain with narcotic such as pethedine injection every 4 to 6 hours for the first 2 days.
- If there are signs of infection give her a combination of broad spectrum antibiotics such as ampicillin and gentamicin and metronidazole. See *Guide for Caregivers - Formulary.*
- She needs good food and fluids to heal her body and to establish a milk supply for her baby.
- She needs more care than a woman with a normal birth. She needs much support and encouragement.
- She needs help to move (ambulate) on the second to the fifth day with crutches (canes or sticks or walker or helpers). Wrap elastic bandage around both ankles (together) to keep her legs and feet together. She must swing both feet forward at the same time using the crutches for support.
- Walking will be painful when she begins, and she will feel insecure and unstable. Encourage and help her. **She must not try to walk until the fifth day** moving one foot forward at a time. If there is discomfort in the pubic region she should wait another day (usually after 5-6 days the discomfort is almost gone). By the tenth day, she should be able to walk without help and without discomfort.

Complications After Symphysiotomy

Complications are usually few in well managed cases with experienced and skilled staff. Bleeding is controlled by pressure.

Pain after the symphysiotomy can be helped with analgesics. Difficulty walking and pain usually finish by the time she leaves the hospital. There may be some pain over the incision and backache. These will lessen as the woman recovers. If there are long-term walking difficulties and pain (2% of cases), treat with physical therapy (WHO, 2003). Pain may come again with another pregnancy at the time when the symphysis and sacroiliac joints relax (Sunday-Adeoye 2004, Ezegwui 2004).

Urinary tract infection and stress incontinence are usually prevented by a large episiotomy to keep the head from pushing on the anterior vaginal wall. Infection is treated with antibiotics.

Keep up Postpartum Examinations

Try to see the woman every 2 weeks for 2 months to encourage her and make sure she is free of problems and complications.

- Advise her and her family that she should not walk far or carry a heavy weight for at least one month.

- Give her counsel on the next pregnancy and place of delivery. Ask her to deliver in the hospital with the next baby. Her pelvis will now be larger, but if her next baby is also larger, her labor may obstruct.

- She should know what happened so that she can tell the midwife next time she is pregnant. See Module 10: **Postpartum Care** for care, counsel including family planning options.

Review Questions

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

1. Describe the indications of cephalopelvic disproportion and explain how a midwife decides that she must do a symphysiotomy (page 9.61).

2. Describe and demonstrate how to position a woman for a symphysiotomy (page 9.64).

3. Describe postpartum care for a woman after symphysiotomy (page 9.68).

4. List the steps of a symphysiotomy (pages 9.62-67).

   You may need to review the skills checklist and add or delete from your list a few times. It is very important to learn these steps and to help a doctor do a symphysiotomy. Then you will get the experience you need to safely do the procedure in an emergency.

Learning Aid 11 - Skill Checklist: Symphysiotomy

SKILL CHECKLIST: SYMPHYSIOTOMY	DATE				
PROBLEM SOLVING STEPS	**RATING**				
1. Collect all of your equipment					
2. Explain to the woman and family:					
• What you are going to do.					
• Cooperation of the woman is very important (not to move).					
• Possible complications.					
• What will happen if the procedure does not help.					
3. Explain to your assistants what to do:					
• One assistant watch the woman and monitor the baby.					
• The second assistant should be gloved to assist you.					
• The two other persons hold the woman's legs					
4. Ask the assistant to wash the lower abdomen and genital area with soap and water.					
5. Ask the two other persons to help the woman get comfortable on her back.					
6. Scrub and glove.					
7. FEEL the middle of the symphysis pubis.					
8. Inject 10 ml 0.5 – 1.0 % lidocaine hydrochloride into the skin over and around the symphysis pubis.					
9. Inject the perineum with 10 ml of lidocaine.					
10. Insert catheter and tape to woman's leg.					
11. Position the woman. Ask the two other persons to:					
• Each stand close to one the woman's legs.					
• Ask the woman to rest her feet on the edge of the table.					
• Spread the woman's thighs no more than 90 degrees from each other (abduct).					
• Hold the leg firmly against their body so the leg does not move.					
• Hold the leg and thigh with one hand.					
• One hand should support the ankle.					
12. Check to make sure the anesthesia is working.					

SKILL CHECKLIST: SYMPHYSIOTOMY	DATE				
PROBLEM SOLVING STEPS	**RATING**				
• Touch sharp needle to the area.					
• Put antiseptic on the incision site.					
13. Put two fingers into the vagina.					
14. Find the catheter and push the catheter to one side with your vaginal fingers. Hold in this position with one finger to protect the urethra.					
15. Find the symphysis pubis with the other finger.					
16. Feel the symphysis pubis cartilage abdominally.					
17. Push scalpel firmly and smoothly down in the mons over symphysis pubis at right angle to the skin.					
• Keep catheter pushed to one side with vaginal finger.					
• Place the other vaginal finger at the back of the symphysis pubis cartilage to feel knife blade.					
• You will feel the blade more easily with vaginal finger as cartilage is cut.					
• You should always feel tissue between vaginal fingers and knife blade.					
• Cut the symphysis pubis downwards towards yourself.					
• Turn the blade 180 degrees and cut upwards towards woman's abdomen.					
• Gently move your thumb into the cut to confirm the cartilage is cut.					
18. Remove catheter to decrease urethral trauma during delivery.					
19. Do an episiotomy so that the head delivers with little pressure on the urethra.					
20. Deliver the baby as the woman pushes. Use vacuum extractor if needed. DO NOT USE forceps.					
21. Give immediate care to the baby and woman to prevent problems, see Module 3: Labor, Module 6: Resuscitation.					
22. Give the woman analgesia, as needed.					
23. Repair episiotomy, see Module 4: Episiotomy.					
24. Catheterize with indwelling catheter.					
25. Do not suture symphysiotomy incision unless there is bleeding.					
26. Ask helpers holding the legs, to carefully bring the woman's legs together (adduction) at the same time.					
27. Place soft cloth between woman's knees and legs.					

SKILL CHECKLIST: SYMPHYSIOTOMY	DATE				
PROBLEM SOLVING STEPS	**RATING**				
• Wrap elastic strapping around pelvis to hold the pelvis together and prevent too much pain.					
• Wrap knees to prevent movement of thighs.					
28. Ask an assistant to watch for bleeding of the cut and to keep the uterus contracted.					
29. Bathe the woman as needed, and make her comfortable.					
30. Explain to the woman and her family what you did.					
• Tell them that her legs must be wrapped together for at least 5 days so that the cut will heal.					
• Ask the family to prepare food and drink.					
31. Help the woman lie on her side.					
32. REFER to doctor / hospital.					

Comments:

Learning Aid 12 – Measuring the Size of the Pelvis

Although most women have enough room in their pelvis for an average-sized baby to pass, the midwife must be looking for signs of a woman who might have a pelvis that is too small. When a disproportion is identified, the midwife REFERS the woman to the hospital or doctor. In addition to pelvic measurements, the strength of uterine contractions, the descent of the baby, the size of the baby, and the amount of molding, all help to identify possible disproportion signs for REFERRAL.

The diagonal conjugate measurement is the distance between the pubic bone and the promontory of the sacrum. *It is good practice for a midwife to know the place on her hand which is 12 cm (4¾ inches) from the tip of the middle finger. The normal diagonal conjugate is this measurement.* This measurement helps the midwife estimate the obstetric (true) conjugate, which is about 1.5 to 2 cm (½ inch) smaller than the diagonal conjugate.

The **diagonal conjugate** is measured from the lower border of the symphysis pubis to the promontory of the sacrum. If it is less than 12 cm (if you can touch the sacral promontory), her pelvis is usually too small for a normal size baby. **This internal measurement of the pelvis may be done when labor is not progressing.** This measurement may be taken when the midwife thinks there is a possible problem.

Procedure

1. Ask the woman to empty her bladder.

2. Ask the woman to lie on her back with knees drawn up.

3. Explain what you are going to do.

4. Wash your hands, put on gloves, and clean the woman's genital area.

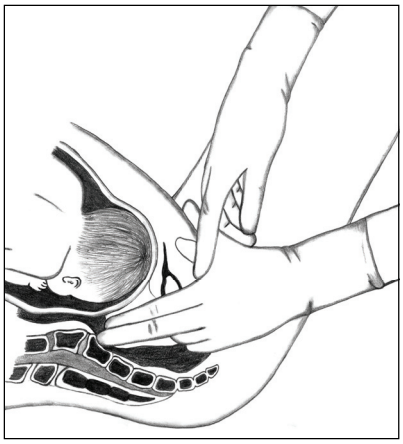


Figure 34. Measuring diagonal conjugate.

5. Insert your fingers into the vagina.
   - Try to reach in to the part of the spine which is coming forward (the promontory of the sacrum). The promontory of the sacrum should be out of reach and measure more than 12 cm.

   - When you reach as far as you can reach, place the other index finger on the part of the hand which is touching the pubic bone, see Figure 33. If you can touch the promontory of the sacrum, the pelvis may be too small for vaginal delivery, REFER.

- Move your fingers along the side of the pelvis to feel the ischial spines on both sides (*not protruding, not sharp);* measure the sciatic notch (*two fingers should fit)*; feel the sacral curve (*rounded curve)* and the pubic arch (*two fingers should fit - angle 90° or more)*.

6. Remove your fingers.

7. Measure the outlet. Ask the woman to lie on her side with her knees pulled up. Place your fist between the ischial tuberosities (*fist should fit - about 8 cm or 3 inches)*.

8. Remove your gloves. Help the woman get comfortable. Explain to her your findings.

9. Record your findings of the evaluation for diagonal conjugate and pelvic size; think about the size of the baby and the measurements you felt of the pelvic cavity.

Most of the time, a woman's pelvis is big enough in size to give birth to a normal-sized baby. Is this what you found from your evaluation? Another good way to learn if this baby will come through this woman's pelvis is by remembering every woman and baby you deliver. Your experience will be your best resource and teacher.

Learning Aid 13 – Induction (augmentation) of Labor, with Doctor's Supervision

If labor does not start when it should, the doctor may ask you to start it (induce labor). If labor is slow because the woman's uterus is not contracting enough, sometimes the midwife can help labor speed up (augment labor). You can do a membrane sweep only without rupturing her membranes (ARM), ripen her cervix with prostaglandins if necessary, or give her an oxytocin drip. Ruptured membranes increase risk of mother to child HIV transmission (MTCT). Transmission rates increase about 2% for every 24 hours the bag of waters is ruptured. Leave the membranes intact for as long as possible to reduce MTCT (WHO, 2003).

These procedures have risks. The midwife must only use oxytocin infusion with the doctor's supervision. The midwife must have written protocols in order to use oxytocin infusion to speed up or start labor. The doctor may decide to use oxytocin infusion during labor when there is pregnancy-induced hypertension, prolonged gestation, maternal diabetes, premature or prolonged rupture of membranes. The midwife is responsible for managing the oxytocin infusion and for monitoring the woman and baby.

The doctor supervising the midwife is responsible for giving her guidelines for using an oxytocin infusion during emergencies. Oxytocin infusion should only be used during labor in *facilities* where cesarean section is available. **There is always the danger of a ruptured uterus and fetal distress when using an oxytocin infusion. For this reason, all midwives and doctors must use caution when making the decision to use an oxytocin infusion.**

The hormone oxytocin stimulates contraction of the uterine smooth muscles and causes cervical dilatation. Oxytocin is also related to vasopressin (antidiuretic hormone). Low dose oxytocin infusions with prolonged use can cause water retention. High dose oxytocin infusions with prolonged use have caused water intoxication such as confusion, convulsions, coma, congestive heart failure, or some times an elevation in blood pressure. There is decreased chance of vaginal delivery with high dose oxytocin infusions (Williams, 2005). Oxytocin must be given in a way that allows for very close control of the dosage.

The oxytocin dosage depends on the response of the uterus to the oxytocin. Hyperstimulation (too strong or too frequent contractions) of the uterus must be prevented during labor as it may cause fetal distress or ruptured uterus with death of the woman and baby. Oxytocin should not be given into the uterine muscle or under the tongue because you can not control how fast the body absorbs it. You could cause the uterus to rupture. Oxytocin must **always be given intravenously (IV) in a solution to induce or strengthen labor contractions.** Review Module 8: **Stabilize and Refer**, Starting an Intravenous Infusion in a Peripheral Vein.

Use the partograph to identify slow progress in labor. **Early identification of problems will allow the midwife to get the woman to the hospital or doctor.**

Oxytocin infusion is not used when you identify placenta previa, fetal distress, or moderate or severe cephalopelvic disproportion. Oxytocin infusion should be used very carefully in a woman with an over distended (too large) uterus, grand multiparity, or history of cervical or uterine

surgery. Discuss the guidelines suggested on the following pages with your supervising doctor, and make changes accordingly. **Women receiving oxytocin infusion should never be left alone.**

Equipment

Intravenous fluid (normal saline) is used to give an oxytocin infusion. In addition to the equipment for starting an intravenous infusion you will need oxytocin (such as Pitocin).

Preparation of equipment. Prepare the intravenous infusion**. Put 2.5 units of oxytocin in 500 milliliter (ml) of normal saline.** If you only have 1000 ml infusion containers, put in five units of oxytocin. Put a piece of tape on the bottle. Write the date, time, name, and amount of oxytocin on the tape. Record the amount of oxytocin on the labor record. Attach the tubing and needle to the bottle, see Module 8: **Stabilize and Refer** for intravenous procedure.

Procedure

1. Explain to the woman and her family what you are going to do. Wash your hands. Help the woman get comfortable on her left side. Do not let her lie flat on her back (supine). The pressure from the pregnant uterus may cause low blood pressure (hypotension) in the woman and reduce blood circulation to the uterus and the baby.

2. **LISTEN** and record the fetal heart rate. Feel, time, and record the uterine contractions. This gives you a baseline on the woman and baby before you start. Remember to **continue all routine monitoring of labor progress according to the partograph**. Never leave the woman alone once you start the oxytocin infusion.

3. When you are ready to begin the oxytocin, start the IV and regulate the drops. Start the drops at 10 drops per minute.
   - Increase 10 drops every 30 minutes until good labor is established (**3 contractions of 40 to 50 seconds duration in 10 minutes)**.
   - When good labor is established, keep this rate until delivery. The uterus should relax between contractions.
   - Every 30 minutes, monitor the woman's pulse, blood pressure and contractions along with the fetal heart rate, always immediately after a contraction.
   - If the fetal heart rate is less than 100 beats in a minute, stop the infusion.
   - If any contraction lasts longer than 60 seconds, stop the infusion.
   - If there are more than four contractions in 10 minutes, stop the infusion.

4. If there are not three contractions in 10 minutes (each lasting more than 40 seconds) with the infusion rate at 60 drops per minute (with 2.5 units in 500 ml), increase the concentration to 5 units in 500 ml. Adjust the infusion rate to 30 drops in a minute.
   - Increase the infusion rate by 10 drops in a minute every 30 minutes until good labor is established (**3 contractions of 40 to 50 seconds' duration in 10 minutes), or** the maximum rate of 60 drops in a minute is reached, notify the doctor as induction has failed and caesarean section may be needed.

Time Since Induction (hours)	Oxytocin Concentration in normal saline or Ringers Lactate solution	Drops per Minute	Approximate Dose (mIU/ minute)	Volume Infused in 30 Minutes	Total Volume Infused
0.00	2.5 units in 500 mL (5mIU/mL)	10	3	0	0
0.30	Same	20	5	15	15
1.00	Same	30	8	30	45
1.30	Same	40	10	45	90
2.00	Same	50	13	60	150
2.30	Same	60	15	75	225
3.00	5 units in 500 mL (10 mIU/mL)	30	15	90	315
3.30	Same	40	20	45	360
4.00	Same	50	25	60	420
4.30	Same	60	30	75	495
5.00	10 units in 500 mL (20 mIU/mL)	30	30	90	585
5.30	Same	40	40	45	630
6.00	Same	50	50	60	690
6.30	Same	60	60	75	765
7.00	Same	60	60	90	855

Oxytocin infusion rates for induction of labor (1 mL = approximately 20 drops)
Source: World Health Organization 2001, Table P – 7, adapted for LSS 2008.

REMEMBER

- Oxytocin infusions can cause almost continuous contractions preventing relaxation of the uterus between contractions (titanic contractions).
- Continuous contractions can cause fetal distress, abruptio placenta, and rupture of the uterus.
- Avoid prolonged high dosage of oxytocin infusion to prevent water retention and water intoxication.
- There is an increased risk of postpartum hemorrhage after an oxytocin infusion for augmentation or induction.

Learning Aid 14 – First Assist at Cesarean Section

Introduction

Cesarean section is an operation (surgery) in which the baby, placenta, and membranes are delivered from the woman's uterus when a vaginal delivery is not possible. Incisions are made in the walls of the abdomen and uterus. The incision is usually made through the lower uterine segment.

Reasons for Cesarean Section

Contracted pelvis	Dysfunctional uterine action
Cephalopelvic disproportion	Severe pre-eclampsia
Placenta previa	Abruptio placenta
Diabetes mellitus	Prolapsed cord
Failed induction	Fetal distress
Maternal distress	Ruptured uterus

Preparation

1. Explain the problem to the woman and her family and what to expect. She should not have food or drink for 6 hours before the operation. Get the woman's consent for the operation. Be sure jewelry and false teeth are removed before you begin.

2. If you have time and equipment, check the hemoglobin and cross match blood in case there is a need for transfusion. Ask blood donors to be in the hospital.

3. If an IV infusion is not already running, start it now. See Module 8: **Stabilize and Refer.**

4. Do a surgical shave and cleansing of the abdomen.

5. Insert a catheter in the bladder and tape the catheter to the woman's thigh. An indwelling catheter (Foley) is best.

6. The doctor may order atropine 0.6 mg intramuscularly to dry secretions in the mouth and throat to prevent choking. Sometimes an antacid is ordered within 30 minutes of general anesthesia to prevent nausea after surgery. A narcotic is not usually given because it will affect the baby. Epidural anesthesia may be used.

Preparation of Equipment in Operating Room (Theater) [2]

1. Check suction and oxygen.

2. Look to see if you have the drugs and supplies that may be needed. These could be: oxytocics (oxytocin), heart stimulants (digoxin), narcotic antagonists (nikethamide), hydrocortisone, intravenous solutions, tubing, needles, and syringes. Scrub or surgical clothing, including footwear and goggles, should be available.

3. Check resuscitation equipment for woman and baby. See Module 6: **Resuscitation**.

4. Prepare the instrument table. A sample of instruments:

Sponge holding forceps (4)	Towel clips (4)
Scalpel with blades No. 4, No. 23	Mayo straight scissors (1)
Mayo curved scissors (1)	Artery forceps (12)
Sponge holding forceps (6)	Allis tissue forceps (4)
Small artery forceps (2)	Kocher forceps (1)
Abdominal retractor (1)	Obstetric forceps (1)
Suction nozzle and tubing (1)	Packing forceps (1)
Toothed dissecting forceps (1)	Plain dissecting forceps (1)
Mayo needle holders (2)	Clip inserting forceps (1)
Surgical needle; see Figure 35	Suture; see Figure 35

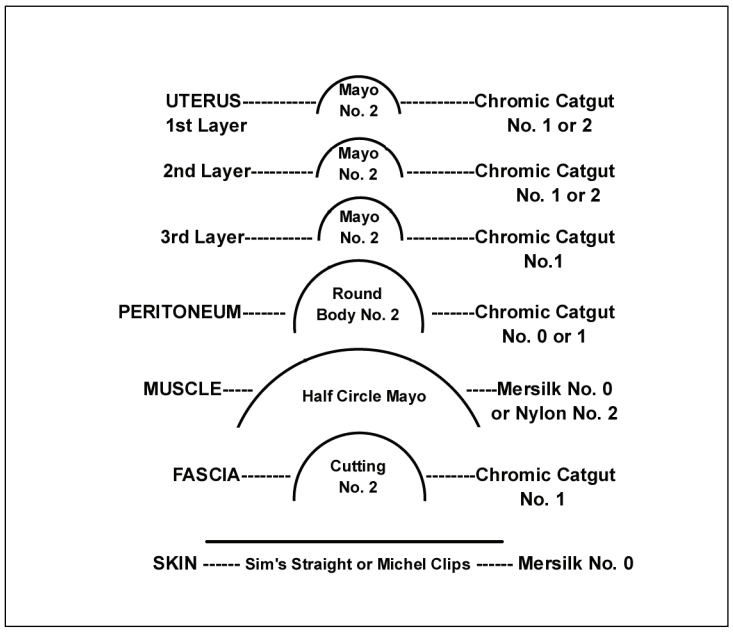


Figure 35. Surgical needles.

[2] Source for this section including, Figure 34, is primarily from *Textbook for Midwives*. 8th edition (1975) by Margaret Myles, pages 575-580.

5. A sample of sterile packs used:

   Linen and dressing pack: one laparotomy sheet, 2 draping sheets, 2 dressing towels, 5 packs of 5 abdominal swabs (surgical sponges or mops with a tape and/or metal identifier) each, one perineal pad, 2 small basins for antiseptic solution, one kidney basin for soiled scalpel, one tray for sutures, one folded towel for sutures, waste container.

   Baby pack: 3 baby blankets, one cap, one towel, 5 gauze squares (swabs), bulb syringe, DeLee mucus extractor, cord ties, one artery forceps, one 10 ml syringe, and nasogastric tube size 14 (very small).

   Gown pack: 4 sets of surgical gowns (operating room aprons), caps, masks, hand towels.

   Bowl packs: 2 large basins and one basin for antiseptic solution.

   Extra packs: Syringes, needles, catheters, gloves.

Procedure – Assist at Cesarean Section

The midwife who "scrubs" is responsible for counting abdominal swabs with a helper who does not scrub for the operation. The "scrubbed" midwife lays out all of the equipment in order of use and puts it in easy reach. Used instruments are put in a basin. Additional instruments are added to the instrument table before each step of the operation. The "scrubbed" midwife must know the cesarean section procedure step by step so she will be prepared (Moes, 2001).

The helper welcomes the woman for cesarean section, listens to the fetal heart, makes the woman comfortable, checks the catheter, and explains to the woman what is happening. The woman may be placed on her left side, using a pillow, to prevent her lying flat on her back.

The "scrubbed" midwife:

1. Gives the doctor a sponge holding forceps with a swab (sponge) soaked in antiseptic.

2. Puts a surgical sheet over the woman's thighs; gives 4 towel clips and drapes to place around the incision area; helps put the laparotomy sheet in place.

3. Puts on the instrument table, in order of need for the **skin incision**: scalpel, abdominal swabs, kidney basin, dissecting forceps, scissors, artery forceps, and towel with short lengths of catgut 2/0.

4. Places instrument table over thighs; gives scalpel and abdominal swab; has kidney basin ready for scalpel; gives catgut to tie vessels if diathermy is not being used.

5. For the **peritoneal incision,** gives artery forceps, tissue forceps, clean scalpel and scissors as needed; gives dry abdominal swabs (sometimes used to hold back intestines); gives abdominal retractor.

6. For the **uterine incision,** puts clean scalpel, dissecting forceps, and curved scissors on table; mops wound with dry abdominal swab; has obstetric forceps ready; holds suction nozzle as membranes of the fetal sac are being punctured.

7. For **delivery of the baby,** has a place prepared to put the baby when delivered. Holds the baby with the head a little lower than the body and wipes the mouth and nose. She dries and covers the baby including the head, and clamps the cord with Mayo forceps and cuts the cord; hands the baby to the helper. See Module 6: **Resuscitation** for immediate care of baby.

   The anesthetist or helper gives ergometrine or other oxytocic to the woman as the baby is being removed. If the woman is pre eclamptic, Syntocinon is given intramuscularly (IM). Time of birth is noted.

8. Gives basin for placenta and Mayo forceps to remove (detach) membranes. Gives six forceps to pick up edges of wound.

   Suturing of the cesarean section wound is different with each doctor. The following information is given to help the midwife understand the difficult and needed repair. Ask the doctor to tell you the suture and needles he or she uses. Refer to Figure 34 for suggested needles and sutures.

9. For the **suture of the uterus,** places clean towel on instrument table with needle holders and dissecting (tissue) forceps; gives suture and needle on needle holder; gives abdominal swab to dry uterine wound; counts and checks abdominal swabs (surgical sponges) with the "non-scrubbed" midwife. The count must be correct before the uterine wound is closed.

   For the **suture of the peritoneum,** gives 4 Allis forceps, suture and needle on needle holder; again wipes the wound dry.

   For the **suture of the fascia,** gives suture and needle on needle holder.

   For the **suture of fat** (subcutaneous tissue), gives suture and needle on needle holder.

   For **closure of the skin,** gives 4 Allis forceps, and clips, holder and inserter, or suture and needle on needle holder (the doctor's choice); wipes the wound dry after closure; puts on abdominal dressing, removes drapes.

10. Pushes out clots from the uterus; checks to see that the uterus is contracting, removes catheter, washes the genital area, and put pad on woman.

11. Positions the woman on her side, with a pillow behind her until she is fully awake.

12. Continues postsurgical postpartum observation every 15 minutes for 3 hours. Watches for signs of bleeding in the abdominal wound or vagina, and checks pulse, and blood pressure.

13. Cares for instruments, linen, and equipment according to the Infection Prevention routine of decontamination, cleaning, and sterilizing. See Module 7: **Infections**.

Postoperative Care on the Postpartum Unit

1. Take the temperature, pulse, and blood pressure every 2 hours for 2 days. Check for bleeding of the abdominal wound or vaginal bleeding. If these are within normal limits, then take every 4 hours for 24 hours.

   If the woman is getting a blood transfusion or has signs of shock or other abnormal findings, take vital signs every 30 minutes until she is better and then continue as above.

2. Six to 8 hours after vital signs are within normal limits, give the woman a wash (sponge bath) in bed. Do genital cleansing and change the pad every 2 hours for the first 24 hours. Give light food and drinks once the woman is awake. If no catheter is inserted, the woman should urinate within 6-8 hours after delivery. If she is not able to pass urine by 24 hours after surgery, a catheter must be passed. Pain medication is important so that she can rest comfortably. Encourage and help the woman to turn at least every 2 hours.

3. The baby should be given warmth and comfort of being with mother as soon as she is willing. Encourage the baby to nurse. Help the mother to find a comfortable position.

4. The first day after surgery, the mother should get out of bed. She will need help with bathing, voiding, genital cleansing and with walking. Pain medicine is usually given every 6 hours. Take vital signs every 6 hours.

5. The second day after surgery, give the mother help as she needs it. A shower may be allowed. Pain medication is not needed as often. A laxative may be needed if her bowels do not move. Take vital signs twice a day and monitor the uterus for hardness. The dressing may be changed by the midwife or the doctor as the doctor chooses.

6. Skin clips or sutures are usually removed on the sixth and eighth days. If her home situation is good, the woman may go home when she is ready. Follow up depends on the woman's condition, but is usually done like a normal delivery.

REFERENCES FOR 4TH EDITION

Experience and the following references provided information for this module.

Vacuum Extraction

American College of Nurse-Midwives. (2002). *Vacuum assisted birth in midwifery practice.* Washington, DC: Author.

Amar, A. P., Aryan, H. E., Meltzer, H. S., & Levy, M. L. (2003*)*. Neonatal subgaleal hematoma causing brain compression: Report of two cases and review of the literature. *Neurosurgery, 52*(6), 1470-1474.

Berkus, M. D., Ranamurthy, R. S., O'Connor, P. S., Brown, K., & Hayashi, R. H. (1985). Cohort study of silastic obstetric vacuum cup deliveries: Part I. Safety of the instrument. *Obstetrics and Gynecology, 66,* 503-509.

Bofill, J., Rust, O., Devidas, M., et al. (1997). Neonatal cephalohematoma from vacuum extraction. *Journal of Reproductive Medicine*, *42*, 565-569.

Castro, M. A., Hoey, S. C., & Towner, D. (2003, February). Controversies in the use of the vacuum extractor. *Seminars in Perinatology, 27*(1), 46-53.

Cavolvich, F. E. (1995). Subgaleal hemorrhage in the neonate. *Journal of Gynecology, 24*(5), 397-404.

Dell, D. L., Sightler, S. E., & Plauche, W.C. (1985). Soft cup vacuum extraction; a comparison of outlet delivery. *Obstetrics and Gynecology, 329*, 24-29.

Demissie, K., Rhoads, G. G., Smulian, J. C., et al. (2004, July 3). Operative vaginal delivery and neonatal and infant adverse outcomes: Population based retrospective analysis. *British Medical Journal, 329*(7456), 24-29*.*

Egge, K., Lyng, G., & Maltau, J. M. (1981). Effect of instrumental delivery on the frequency and severity of retinal hemorrhages in the newborn. *Acta Obstetrics and Gynecology of Scandanavia, 60,* 153-155.

Gardella, C., Taylor, M., & Benedetti, T., et al. (2001). The effect of sequential use of vacuum and forceps for assisted vaginal delivery on neonatal and maternal outcomes. *American Journal of Obstetrics and Gynecology, 185*, 896-902.

Gebermariam, A. (1999). Subgaleal haemorrhage: Risk factors and neurological and developmental outcome in survivors. *Annals of Tropical Paediatrics, 19,* 45-50.

Johanson, R. B., & Menon, V. (1999). Vacuum extraction versus forceps for assisted vaginal delivery (Cochrane Review). *The Cochrane Database of Systematic Reviews, 2.*

Johanson, R., & Menon, V. (2000). Soft versus rigid vacuum extractor cups for assisted vaginal delivery (Cochrane Review). *The Cochrane Database of Systematic Reviews, 2.* CD000446 200.

Lucas, M. (1994). The role of vacuum extraction in modern obstetrics. *Clinical Obstetrics and Gynecology*, *37*(4), 794-805.

MacDonald, P. C., Leveno, K. J., Gilstrap, L. C., et al. (2005). *Williams's obstetrics* (22nd edition). New York: McGraw-Hill Medical Publishing Division. ISBN 0-07-141315-4.

McQuivey, R. (2004). Vacuum-assisted delivery: A review. *Journal of Maternal-Fetal and Neonatal Medicine, 16,* 171-179.

Miksovsky, P., & Watson, W. (2001). Obstetric vacuum extraction: State of the art in the new millennium. *Obstetrical and Gynecological Survey*, *56(11)*, 736-751.

Modanlou, H. D. (2005). Neonatal subgaleal hemorrhage following vacuum extraction delivery. *The Internet Journal of Pediatrics and Neonatology, 5*(2). Accessed 7/11/2006 http://www.ispub.com/ostia/index.php?xmlPrinter-true&xmlFilePath-journals/ijpn/vol5n2

Mola, G. D. L., Amoa, A. B., & Edilyong, J. (2002). Factors associated with success or failure in trials of vacuum extraction. *Australian & New Zealand Journal of Obstetrics and Gynaecology, 42*(1)*,* 35-39.

Myles, M. F. (1993). *Textbook for midwives*. Edinburgh, United Kingdom: Churchill Livingstone.

Paluska, S. (1997). Vacuum-assisted delivery. *American Family Physician*, *55(6),* 2197-2202

Plauche, W. C. (1979). Fetal cranial injuries related to delivery with the Malmstrom vacuum extractor. *Obstetrics and Gynecology, 53,* 750-757.

Schwartz, M. L., & O'Grady, J. P. (2002, May). The obstetric vacuum extractor; recent innovations and best practices. *Contemporary OB/GYN*. 1-10.

Teng, F., & Sayre, J. (1997). Vacuum extraction: Does duration predict scalp injury? *Obstetrics and Gynecology, 89,* 281-285.

Towner, D., Castro, M. A., Eby-Wilkens, E., & Gilbert, W. M. (1999). Effect of mode of delivery in nulliparous women on neonatal intracranial injury. *New England Journal of Medicine, 341,* 1709-1714.

Vacca, A. (2001). Operative vaginal delivery: Clinical appraisal of a new vacuum extraction device. *Australian & New Zealand Journal of Obstetrics and Gynaecology, 41*(2), 156-160.

Vacca, A. (2003). *Handbook of vacuum delivery in obstetric practice* (3rd ed.). Brisbane, Australia: Vacca Research.

Vacca, A. (2004, February). Vacuum-assisted delivery - practical techniques to improve patient outcomes. *OBGYN Management Supplement*.

World Health Organization. (1997). Care in normal birth – A practical guide. Accessed January 22, 2007. www.who.int/reproductive-health/ publications/MSM_96_24/MSM_96_24_chapter4.en.html

Manual Vacuum Aspiration – Post Abortion Care

This section, Postabortion Care, was updated by Ipas staff: Bill Powell, Teresa McInerney, and Ramatu Daroda. It is with appreciation they are gratefully acknowledged.

Herrick, J., Turner, K., McInerney, T., & Castleman, L. (2004). *Woman-centered postabortion care: Reference manual.* Chapel Hill, NC: Ipas.

World Health Organization. (1992). *The prevention and management of unsafe abortion*. Report of a technical working group. Geneva, Switzerland: Author.

World Health Organization. (1997). *Post-abortion family planning: A practical guide for programme managers*. Geneva, Switzerland: Author.

World Health Organization. (2003). *Safe abortion: Technical and policy guidance for health systems.* Geneva, Switzerland: Author.

World Health Organization. (2004). *Medical eligibility criteria for contraceptive use*. Geneva, Switzerland: Author. Available online: www.who.int/reproductive-health

Symphysiotomy

Alderson, P., Green. S., & Higgins, J. P. T. (Eds.). (2004). *Cochrane Reviewers' Handbook 4.2.2* [updated Dec 2003]. In: The Cochrane Library, Issue 1. Chichester, United Kingdom: John Wiley & Sons, Ltd.

Bjorklund, K. (2002, March). Minimally invasive surgery for obstructed labour: A review of symphysiotomy during the twentieth century (including 5000 cases). *British Journal of Obstetrics and Gynaecology, 109,* 236-48.

Ezegwui, H. U., Olomu, O. O., & Twomey, E. D. (2004). Symphysiotomy in a Nigerian hospital. *International Journal of Gynecology & Obstetrics, 85,* 272-273.

Gaym, A. (2002). Obstructed labor at a district hospital. *Ethiopian Medical Journal, 40,* 11-18.

Hofmeyr, G. J., & Shweni, P. M. (2005). Symphysiotomy for feto-pelvic disproportion (Cochrane Review). (Protocol). *Cochrane Database of Systemic Reviews, 2*.

Liljestrand, J. (2002). The value of symphysiotomy. *British Journal of Obstetrics and Gynaecology, 109,* 225-226.

Maharaj, D., & Moodley, J. (2002). Symphysiotomy and fetal destructive operations. Best practice and research. *Clinical Obstetrics and Gynaecology, 16,* 117-131.

Onah, H. E., & Ugona, M. C. (2004). Preferences for cesarean section or symphysiotomy for obstructed labor among Nigerian women. *International Journal of Gynecology & Obstetrics, 84,* 79-81.

Payne, G. (2001). Ireland orders inquiry into 'barbaric' obstetric practices. *British Medical Journal, 322*(7296), 1200.

Sunday-Adeoye, I. M., Okonta, P., & Twomey, D. (2004). Symphysiotomy at the Mater Misericordiae Hospital, Afikpo, Ebonyi State of Nigeria (1982-1999): A review of 1013 cases. *Journal of Obstetrics and Gynaecology, 24,* 525-529.

Verkuyl, D. A. A. (2001). Symphysiotomies are an important option in the developing world. *British Medical Journal, 323,* 809.

Verkuyl, D. A. A. (2007). Think globally act locally: The case for symphysiotomy. *PLoS Medicine 4*(3), 0401-0406. e71.doi:10.1371/journal.pmed.0040071. www.plosmedicine.org

WHO, UNFPA, UNICEF, & World Bank. (2001). *Managing complications in pregnancy and childbirth. A guide for midwives and doctors* (p. 53). Geneva, Switzerland: Author.

World Health Organization. (2003). *Managing complications in pregnancy and childbirth - A guide for midwives and doctors, section 3.* Geneva, Switzerland: Author. Accessed 2007. who.int/reproductive-health/impact/Procedures/Symphysiotomy_P53_P56.html

Wykes, C. B., Johnston, T. A., Paterson-Brown, S., & Johanson, R. B. (2003). Symphysiotomy: A lifesaving procedure. *British Journal of Obstetrics and Gynaecology, 110,* 219-221.

Induction and Augmentation of Labor – 4th Edition

Cunningham, F. G., Leveno, K.J., Bloom, S.L., Hauth, J.C., Gilstrap, L., Wenstrom, K.D. (2005). *Williams obstetrics 22nd edition.* New York: McGraw-Hill Medical Publishing Division. ISBN 0-07-141315-4.

WHO, UNFPA, UNICEF, & World Bank. (2001). *Managing complications in pregnancy and childbirth. A guide for midwives and doctors.* Geneva, Switzerland: Author.

First Assist at Cesarean Section – All Editions

Actual clinical experiences, talking with those who assist or work in difficult situations and the following references provided information for the topic discussed.

Adams, M. (2003). *Bailliere's midwives' dictionary* (10th ed., pp. 240-252). London: Bailiere Tindall.

Berkow, R., Fletcher, A. J., et al. (1987). *The Merck manual of diagnosis and therapy* (p. 1787). Rahway, NJ: Merck Sharp and Dohme Research Laboratories.

Hoverd, C., & Brown, R. (1986). *Obstetrics, tropical health concise notes* (pp. 172-181). London: Macmillan Publishers.

Moes, C. B., & Thatcher, F. (2001, September/October). The midwife as first assistant for cesarean section. *Journal of Midwifery & Women's Health, 46*(5).

Myles, M. F. (1975). *Textbook for midwives* (pp. 575-582). London: The English Language Book Society and Churchill Livingstone.

REFERENCES FOR PREVIOUS EDITIONS

Vacuum Extraction

CMI vacuum delivery system instruction booklet. (1989, 1994). Bend, OR: Columbia Medical and Surgical Inc.

Donald, I. (1989). *Practical obstetric problems* (pp. 667-679). Singapore: Lloyd-Luke.

Epperly, T. D., & Breitinger, E. R. (1988, September). Vacuum extraction. *American Family Physician, 38*(3), 205-210.

Hillier, C. E. M., & Johanson, R. B., (1994). Worldwide survey of assisted vaginal delivery. *International Journal of Gynecology & Obstetrics, 47,* 109-114.

Malmstrom, T., & Jansson, I. (1965). Use of the vacuum extractor. *Clinical OB/GYN*, *8,* 895-913.

Myles, M. F. (1981). *Textbook for midwives* (p. 644). Edinburgh, United Kingdom: Churchill Livingstone.

Nurse clinician training manual. (1984). Maternal and child health series, 81. Maseru, Lesotho: Ministry of Health.

Philpott, R. H., Sapire, K. E., & Axton, J. H. M. (1978). *Obstetrics, family planning and paediatrics* (pp. 9, 104). Pietermaritzburg, South Africa: University of Natal Press.

Ross, M. G. (1994, June). Vacuum delivery by soft cup extraction. *Contemporary OB/GYN*. 48-53.

Sennett, E. S., & Fallis, G. B. (1983). Vacuum extraction: Use in small rural hospital. *Canadian Medical Association Journal, 129,* 575-578.

Witer, F. R. (1986). Soft-cup vacuum extractors safely assist normal deliveries. *Contemporary OB/GYN* (Special Issue Technology), 109-117.

Manual Vacuum Aspiration – Postabortion Care

This section, Postabortion Care, was written with the encouragement and support of the Postabortion Care Consortium as they gave permission to adapt, adopt, and use their manual to provide life-saving abortion care information through this *Life-Saving Skills Manual for Midwives*, 3rd edition. It is with appreciation they are gratefully acknowledged.

Greenslade, F. C., et al. (1993). *Manual vacuum aspiration: A summary of clinical and programmatic experience worldwide*. Carrboro, NC: IPAS.

Leonard, A. H. & Yordy, L. (1994). Protocol for revising IPAS manual vacuum aspiration instruments. *Advances in Abortion Care, 2,* 1.

Tietjen, L., et al. (1995). *Infection prevention for family planning service programs* (2nd ed.). Baltimore, MD: JHPIEGO.

Winkler, J., Oliveras, E., & McIntosh, N. (1995). *Postabortion care: A reference manual for improving quality of care*. Carrboro, NC: Postabortion Care Consortium (AVSC International, IPAS, IPPF, JHU/CCP, JHPIEGO, Pathfinder International).

World Health Organization. (1994). *Clinical management of abortion complications: A practical guide*. Geneva, Switzerland: Author.

World Health Organization. (1994). *Complications of abortion: Technical and management guidelines for prevention and treatment*. Geneva, Switzerland: Author.

Yordy L., Leonard A. H., & Winkler J. (1993). *Manual vacuum aspiration: Guide for clinicians*. Carrboro, NC: IPAS.

Symphysiotomy

Crichton, D., & Seedat E. K. (1963). The technique of symphysiotomy. *South African Medical Journal, 37,* 227.

Donald, I. (1979). *Practical obstetric problems* (5th ed., pp. 662-667). London: Lloyd-Luke.

Duale S., et al. (1990, March). *A follow-up study of pregnancy outcome in women with symphysiotomy versus cesarean section in Zaire*. Washington, DC: International Center for Research on Women.

Gebbie, D. A. M. (1974). Symphysiotomy. *Tropical Doctor, 4,* 69.

Hartfield, V. J. (1973, June). A comparison of the early and late effects of subcutaneous symphysiotomy and of lower segment cesarean section. *Journal of Obstetrics and Gynaecology of the British Commonwealth, 80,* 508-514.

McMahon, M. J., et al. (1996). Comparison of a trial of labor with an elective second cesarean section. *New England Journal of Medicine, 335,*(10), 689-695.

Menticoglou, S. M. (1990, February). Symphysiotomy for the trapped after coming parts of the breech: A review of the literature and a plea for its use. *Australian & New Zealand Journal of Obstetrics and Gynaecology, 30*(1), 1-9.

Myles, M. F. (1981, 1989). *Textbook for midwives* (pp. 658 & 434). Edinburgh, United Kingdom: Churchill Livingstone.

Norman, R. J. (1978). Six years of experience of symphysiotomies in a teaching hospital. *South African Medical Journal, 54,* 1121.

Nurse Clinician Training Modules. (1984). Maternal and child health series*, 5,* 72. Maseru, Lesotho: Ministry of Health.

Paul, R. H. (1996). Toward fewer cesarean sections - the role of trial labor. *New England Journal of Medicine, 335*(10), 735-736.

Philpott, R. H., et al. (1978). *Obstetrics, family planning and pediatrics* (p. 107). Pietermaritzburg, South Africa: University of Natal Press.

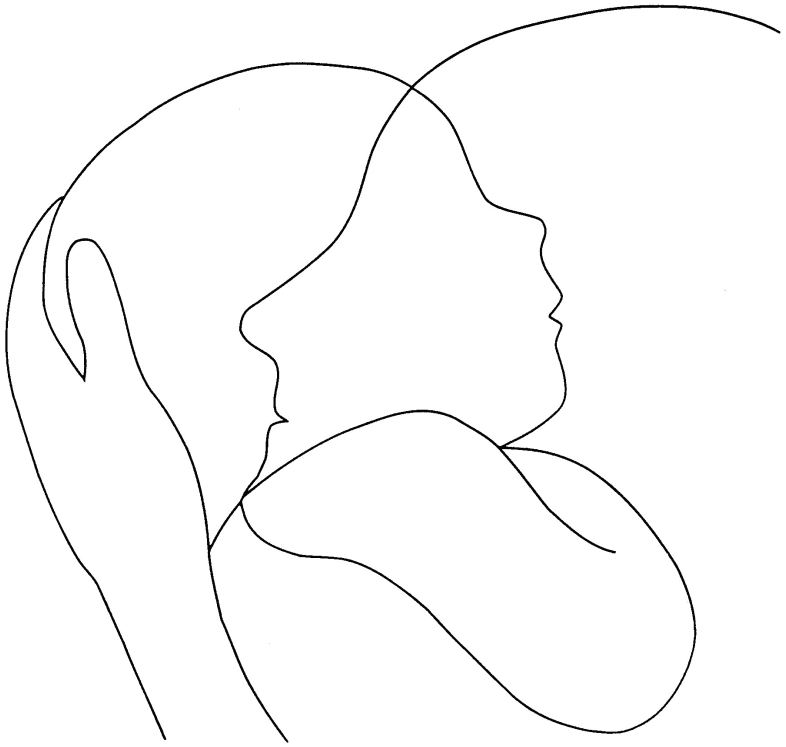
Van Roosmalen, J. (1987). Symphysiotomy as an alternate to cesarean section. *International Journal of Gynecology & Obstetrics, 25,* 451-458.

Notes

Life-Saving Skills
Manual for Midwives

Fourth Edition

Module 10: Postpartum Care



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Life-Saving Skills Manual for Midwives

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POSTPARTUM CARE

MODULE 10

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POSTPARTUM CARE

Goal

The midwife will review and update her knowledge and skills to provide postpartum care for women and newborns using the problem solving method.

Objectives

The midwife caring for a woman and baby during the postpartum period will be able to:

1. **ASK and LISTEN.** Take the postpartum history to identify problems in the woman and in the baby.
2. **LOOK and FEEL.** Do a postpartum physical examination for woman and baby to identify possible problems.
3. **IDENTIFY PROBLEMS/NEEDS.** Use the information from history and examination to decide normal findings, common changes, and changes that are not normal or are life threatening.
4. **TAKE APPROPRIATE ACTION.** Use the information from the history and physical examination to give postpartum care, treat the problems and needs identified.
5. **EVALUATE / REPEAT THE PROCESS.** Decide with the woman / family the results of the care. Repeat the problem solving steps to find out whether there is a change in the problem.
6. Counsel and educate to prevent mother to child transmission of HIV/AIDS.
7. Record the history, examination, problems and needs identified and the plan of care for a postpartum woman and her baby.

Introduction

Both the woman and her newborn are in danger during the postpartum period (the six weeks following delivery). The time of highest risk of death for mothers and for newborns is after birth. **An estimated 65% of all maternal deaths occur after delivery**, and almost 50% of these postpartum deaths occur within the first 24 hours after delivery. The first 24 hours in a baby's life is also critical. **Two thirds of infant deaths occur within the first week after birth.** More than 50% of all infant deaths happen in the first 24 hours after birth (Sines 2007, Lawn 2006, Ronsman & Graham 2006). Care at critical times during the postpartum period may prevent some of these deaths.

This module describes life saving care at critical times for a woman and her newborn to prevent and manage any complications. See *Guide for Caregivers – Skill Checklists* for the following care.

Immediate postpartum care is given by the midwife at birth, see Module 3: **Labor**. After the baby is born, the uterus is contracting and closing off the blood vessels of the placental site. This time is very important to prevent too much bleeding in women. Life saving care can prevent a life threatening problem. If the midwife did not attend the birth, a visit at home in the first 6 hours after delivery or as soon as possible within 24 hours is critical. For a healthy start, the midwife will do the first examination of the baby, give breast feeding support, and provide the mother and family with advice on the baby's needs. See *Guide for Caregivers – HIV Counseling* as needed. Teach mothers and their families about danger signs for the mother and baby and where to find care.

Within two to three days after delivery, examine the mother and baby. Make sure the mother's recovery has begun normally and that she is resting enough. Look for signs of infection and too much bleeding in the mother, and that she understands danger signs and how to care for herself. Check baby for good breast feeding, warmth, infection, and cord care. Infants that die from infection often die within the first week of life. Make sure the mother and her family understand they should get help as soon as they see a danger sign.

At the seven to ten day visit, check the mother for signs of infection and amount of lochia. Observe her mood and interaction with her baby. Examine the baby for signs of infection, condition of the cord, and observe breast feeding. Check that the mother understands what to watch for (danger signs), how to care for herself, and that she continues to take iron and folate pills for 40 days. Begin asking the woman or couple about sexual practices and family planning needs.

During the four to six weeks visit, examine the woman to confirm that her uterus is contracted to a nonpregnant size, laceration or episiotomy is healed and there are no signs of infection or anemia. Examine the baby to confirm weight, growth, and adequate breast feeding. Identify any problems and give immunizations. Discuss family planning options, breast feeding, and continuing care for the baby, see *Guide for Caregivers – Counseling.*

At six months, the midwife evaluates the general health of the woman including any sicknesses, discusses family planning options as she changes from LAM, and offers advice on general care of the woman and baby. This is a time to assess the development of the baby and discuss weaning or continued breast feeding as appropriate.

This module has information on feeding and caring for the baby, about the changes that occur in the woman's body after delivery and how the newborn gets used to the new environment. You will learn skills needed to care for women and newborns and ways to help women and their families learn what they need to know and do in the postpartum period.

This module also provides information about the Lactational Amenorrhea Method (LAM) and other family planning methods so that women and men can make informed child spacing choices. Referral can be made to the appropriate family planning clinic. A separate course is needed to prepare the midwife to provide specific family planning counseling, method initiation, management of side effects and general family planning follow up.

A Midwife's Experience…

The woman was a 25 year old gravida one. She delivered with a 2nd degree laceration repaired at my clinic. Her baby girl took the breast quickly. She was discharged the next day. I visited her at home on day 4 after birth. The woman was complaining of fever and bad smelling vaginal discharge. Her pulse was 100, BP 110/70, her skin felt hot to touch and the repaired tear was swollen with a little foul smelling discharge; her uterus was hard and not tender. I gave perineal care, changed her bed sheets and gown, gave her antipyretic and ampicillin. I gave her advice on perineal care, taking plenty of fluids, taking her medicines and resting. I examined the baby and watched her latch and suck the breast. I reminded the woman and her family about danger signs for the woman and the baby. I returned to see her again in 3 days. At that time she was feeling better. I advised her on hygiene, exclusive breast feeding, family planning, nutrition and asked her to call for me if she had any problem. I asked her to come to the clinic at 6 weeks for family planning counseling and baby immunizations. I felt very competent to manage this case.

LSS Midwife, Eritrea

Common Medical Terms

Areola – circle of dark skin around the nipple. Under the areola are the milk (lactiferous) sinuses.

Colostrum – the first milk secreted from the mother's breast. It is yellow in color, contains nutrients and calories, vitamin A and antibodies to protect the baby from infection. It is secreted in a small amount – enough for a normal baby.

Cyanosis – blueness of the skin and mucous membranes due to a deficiency of oxygen.

Dual Protection – ways for women and men to protect themselves from pregnancy and sexually transmitted illnesses (STIs), including HIV. One way to protect against pregnancy and STIs is to use a condom correctly with every act of sex.

Exclusive Breast Feeding – feeding the baby only breast milk without any additional food or drink (not even water). Exclusive breast feeding for the first 6 months is recommended throughout the world. Exclusive breast feeding mothers can reduce HIV transmission.

Jaundice – yellow color of the skin and eyes.

Lactation – the secretion of milk by the breasts.

Lactational Amenorrhea Method (LAM) – a contraceptive method for postpartum women. When a woman is exclusively breast feeding, has not resumed her period, and is less than six months postpartum, she is 98% protected against becoming pregnant.

Lethargy – condition of tiredness.

Lochia – natural discharge from the uterus of blood and mucus during postpartum.

Menses, Menstrual Period, Monthly Period. See monthly bleeding.

Monthly bleeding – flow of bloody fluid from the uterus through the vagina in adult women, which takes place between first menses and menopause. Pregnancy, severe malnutrition, or anemia can stop this monthly flow of bloody fluid. The 'monthly' time may happen every 24 to 35 days and last 3-6 days.

Nursing – breast feeding.

Pallor – lack of color, paleness.

Postnatal – after the birth of the baby through 28 days after the birth.

Postpartum – after the birth of the baby through 6 weeks (42 days) after the birth.

Serostatus – the presence or absence of antibodies in a person's blood serum. As it relates to HIV, a person can be HIV seropositive (HIV is present) or HIV seronegative (HIV is not present).

Vernix – a whitish cream that covers the fetus in the womb to protect the skin. After birth the vernix is seen mostly in body creases (folds). It is absorbed gradually and does not need to be washed off.

Equipment

- Blood pressure cuff and stethoscope
- Baby scale
- Measuring tape
- Gloves
- Thermometer
- Cord tie and scissors
- Soap and water
- Towel
- Oxytocic / uterotonic and syringe
- Medications (antibiotics, analgesics, iron)
- Records (Postpartum Record, Referral Note)

Changes in a Woman After the Baby is Born

A woman's body changes after she has delivered a child. Her uterus contracts and becomes smaller, her cervix closes, her vagina returns to normal size and her breasts begin producing milk.

The postpartum period lasts approximately six weeks. During that time, the woman's body returns to a nonpregnant state. By studying the postpartum changes, you will be able to understand the progress of a woman's postpartum recovery and identify when it is not progressing normally.

Change in the size of the uterus. The woman's uterus begins to contract and gets smaller immediately after the placenta is delivered. The uterus usually is 1-2 finger breadths below the woman's umbilicus at this time. In the first 24 hours, the uterus may get a little bigger so that it reaches the umbilicus. Each day thereafter, the uterus becomes smaller and firmer. By the end of the second week after birth, it has almost returned to a nonpregnant size. A woman who has had children usually has a little larger uterus than a woman who has not had her first baby.

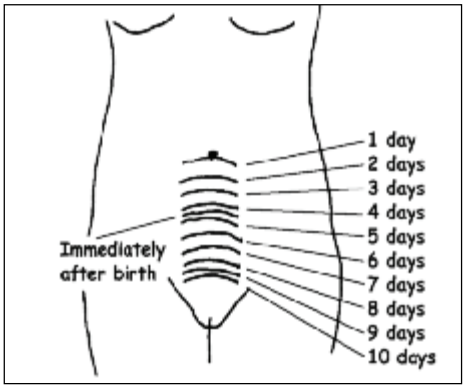

Figure 1. Uterus size.

Lactation is established. During the pregnancy, a woman's breasts prepare to provide nourishment to the baby. Her breasts become larger and fuller. Colostrum, the first baby food from the breasts, contains all the needed nutrients and will protect the baby from infection**. It is important to give the baby ALL the colostrum a mother's breasts make. Do not throw any away.** Colostrum is the best food for the newborn baby. It is important to put the baby to breast as soon as possible after delivery and to let the baby breast feed as much as possible, even during the night. The baby's sucking at the breast is very important to help the mother produce enough milk and helps her uterus contract.

A woman's breasts produce colostrum until about the second or third day when milk starts to come. The breasts become harder, fuller, and heavier as the first milk comes in. The mother may feel some discomfort for a day or two. After the milk begins to flow and the baby nurses regularly, the breasts become softer and more comfortable.

Breast milk is the perfect food for a newborn because it has all the nutrients the baby needs, is easy for the baby to digest, and gives the baby important protection from infection. Breast milk is always fresh, clean and ready to drink.

Breast feeding is good for the mother and her family too. It helps the mother's body produce oxytocin, making the uterus contract and the milk come out of the breast when the baby sucks. Breast feeding can help prevent the mother from getting pregnant again too soon and costs nothing.

Change in the vaginal discharge. As the uterus contracts, the cervix and vagina also return to their normal shape. As the uterus contracts, it pushes out the blood from the place where the placenta was attached to the wall of the uterus. This produces a bloody discharge called **lochia.**

Immediately after delivery, the lochia is red like a monthly bleeding. It remains red for about three days. The lochia gradually changes color (lighter) and becomes less in amount. Four to seven days after delivery the discharge becomes light red. Eight to ten days after the delivery the discharge is a mix of pink, yellow and white. Many times, a woman will see a little brownish discharge for as long as 4-5 weeks postpartum. If the mother breast feeds her baby, her normal menstruation may not resume for several months or up to the time that she stops breast feeding. The time when a woman returns to monthly bleeding and fertility is different from woman to woman.

> If the mother starts her normal work too soon, her lochia may increase and become red again. If this happens, the mother should rest more. If the red lochia continues with rest, the mother should contact her midwife.

Changes a Newborn Must Make

The newborn baby begins to make changes at birth. The baby no longer depends completely on the mother's body for oxygen, warmth, and nourishment. This module will discuss the changes that a baby must make to meet the needs of oxygen, warmth, and food. It will also discuss ways that the midwife, the mother, and the family can help the baby make these changes.

Air. The first and most obvious change happens when the baby takes the first breath of air. The birth process pushes mucus from the baby's airways into the nose and mouth. It causes changes that tell the baby's brain to begin to breathe on his own.

Warmth. The second change for the baby is coming from the warmth inside of the mother out into the air. The baby is wet and begins to cool immediately, even if the outside temperature is very warm. The baby depends on the mother and the family and any glucose (sugar) stored in his body to keep warm.

Nourishment. The third change happens when the baby begins to suck from the mother's breast to get nourishment instead of getting it from the mother through the umbilical cord. The baby needs this nourishment for energy to keep warm, to breathe, and to grow.

These three changes affect one another. For example, a baby who gets cold (hypothermic) quickly uses all his energy to try to keep warm. When this energy is used up, the baby begins to have trouble breathing and gets even colder. If the baby is not fed and warmed, he can die. From birth the midwife, mother, and family can help the baby breathe, breast feed, and can keep the baby warm.

Breast Feeding

Breast milk is the perfect food for a newborn. Giving other milks, formulas, teas and porridge can make a young baby very sick. Help the mother understand this danger and the importance of giving the baby only breast milk (*exclusive breast feeding*) for the first 6 months. Help the mother and baby prevent MTCT. See *Guide for Caregivers – HIV.* See feeding low birth weight babies in **Learning Aid 7**.

Get Breast Feeding Off To A Good Start !! These are some ways that the midwife, the family, and others can help the mother breast feed successfully:

- Put newborn baby together with mother after birth for the first hour. Bathe and weigh the baby later. Only the eye prophylaxis must be done within one hour after delivery. Keep the baby warm by laying him skin to skin on the mother, covering both. The first hour after birth is the most important time for bonding.

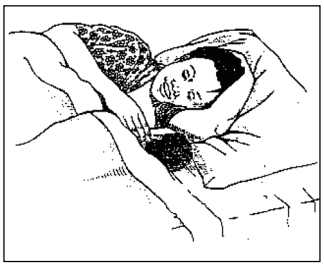

Figure 2. Mother and baby together.

- Help the mother with the first breast feeding. The baby takes the breast at his own speed. “The average time for a baby to attach spontaneously to the breast is 30 – 60 minutes.” (Kroeger, 2004) Evidence based practices do not hurry the newborn to the breast and give healthy newborns uninterrupted full skin to skin contact with the mother. Watch to make sure the baby is well attached and has plenty of the dark part of the mother’s breast (areola) in his mouth. The mother's arms need to be well supported, Figure 3.

Figure 3. Baby has a good mouthful of breast.
Source: Beck 2004

- Baby should sleep next to the mother on the same bed or mat. In endemic malaria areas, treated bed nets are used where recommended, see Module 7: **Infections.**

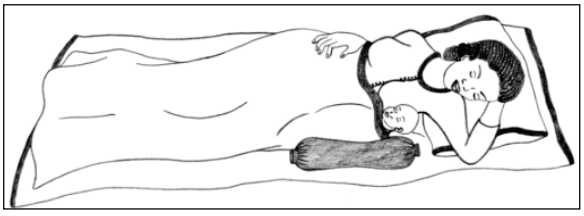

Figure 4. Baby sleeps next to mother.

- Feed the baby OFTEN. Usually newborns want to feed every 2-3 hours (at least 10-12 times in 24 hours). If the baby is not demanding to feed (by crying, becoming alert and active), tell the mother to offer the breast to the baby.

- Give ONLY colostrum and breast milk. Other food, including water, can make the baby sick. If other food or water is given, the baby will not feel hungry and will not suck. That will decrease the mother's milk supply because her breasts produce milk according to how much the baby sucks. **Avoid bottles and pacifiers.** They confuse the newborn and may cause the baby to refuse the mother's own nipple or to attach poorly.

Figure 5. Husband support.

- Mother and her family need to know that colostrum:
  - Boosts the baby's health and immunity to disease (like a first immunization).
  - Helps the baby clear out meconium.
  - Helps decrease jaundice, if it is present.
  - Is the special food the baby needs before the breast milk comes in.

- Signs a baby has latched on the breast in a good position, see **Learning Aid 2**.
  - Whole body is close and turned toward the mother.
  - Mouth and chin are close to the breast.
  - Mouth is wide open.
  - Can not see much areola.
  - Can see baby taking slow deep sucks.
  - Can hear the baby swallow.
  - Baby is relaxed and happy.
  - Mother does not feel nipple pain.

Figure 6. Chest to chest, chin to breast.

Breast Feeding Problems. Helping the mother to solve minor problems with breast feeding can prevent bigger problems later. Discourage mothers from giving other feeds to the baby such as sugar water, cereal, powdered milk even if they are encouraged by others to do so. Below are some common breast feeding problems with suggestions to help the mother:

- **Delay in breast feeding.** If the baby does not begin sucking the breast well within 6 hours after delivery, make sure you visit the next day to check that the baby is breast feeding and to help the mother with any breast feeding problems. If the baby can not latch and breast feed by the 2nd day, evaluate the baby and refer.

- **Sore or cracked nipples.** If a mother has sore nipples, sit with her and watch the baby attach and feed**.** The biggest reason for sore nipples is the baby is not in a good breast feeding position and the attachment is poor. Cracked nipples increase the risk of MTCT. Untreated cracked nipples may cause breast infection (mastitis), see Module 7**: Infections.** Help the woman with sore nipples, teach her how to:
  - Hold the baby in the correct breast feeding position.
  - Help the baby attach well to the breast.
  - Use other positions, see Figure 7.
  - **Do not stop breast feeding.** Only in **very difficult** cases can the mother "rest" the problem nipple for 24 hours. It is important to continue to empty the breast that is being "rested" by expressing milk, and give that milk to the baby. Show the mother how to express milk and cup feed it to the baby, **Learning Aid 4**.
  - See the mother every day until you are certain the nipples are healing. You may ask the attendant or the helper in the home to visit daily and help the woman come to the clinic or send you a message if the nipples are not healing.
  - Keep nipples clean and dry. Do not use soap when cleaning nipples.
  - Rub colostrum or breast milk all over each nipple after each feeding and air dry.
  - Start a feed with the breast that is not sore or is least sore.
  - Use Paracetemol for pain (one 500 mg tablet every four to six hours).

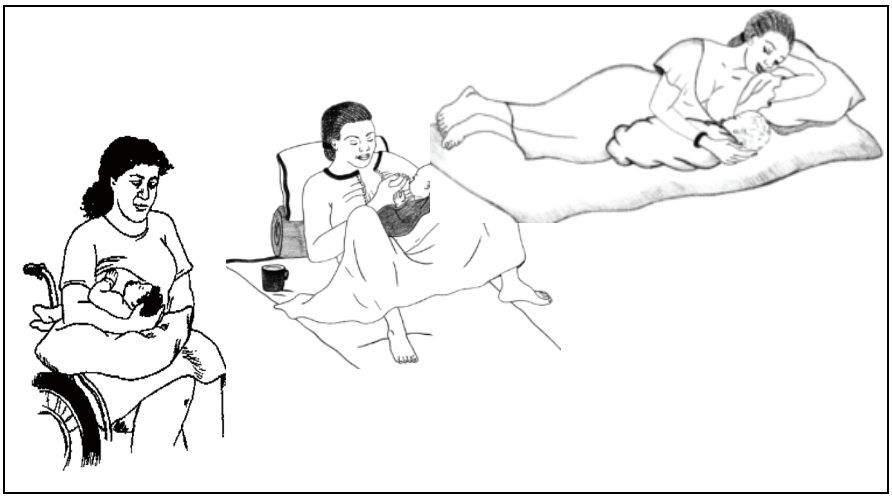

Figure 7. Some other breast feeding positions.

- **Engorged breasts.** Many mothers have very full and mildly painful breasts when their milk "comes in". If the baby nurses at least every two to three hours, the breasts will become softer. When the breasts are very full, shiny, and painful, the baby may have trouble attaching and these actions may help:
  - Prepare the very full breast before feeding by placing hot wet cloths on the breast for five minutes.
  - Massage the breasts from outside towards the nipple before starting and during feeding.
  - Express some breast milk by hand so the areola is softer before feeding. SHOW the mother how to do this, see **Learning Aid 4**.
  - Put cool cloths on breasts or follow other local customs to cool and make breasts more comfortable after feeding.
  - Encourage the mother to breast feed often, at least every two to three hours. If the baby is sick or unable to suck, express the milk every two to three hours and cup feed the breast milk to the baby. Engorged breasts that are not emptied can become infected and an abscess can develop.
  - See the mother every day until the breasts are no longer engorged and the baby is breast feeding well. You may ask someone in the home to help the woman come to the clinic or send you a message if the breasts are engorged and the baby is not able to breast feed.

- **Not enough breast milk.** Most mothers can produce enough breast milk for their babies. Mother and baby problems could be the reason for not enough breast milk. If the mother is exhausted, is not drinking or eating enough, or not nursing frequently enough, she may not produce enough breast milk. If the baby is allowed to sleep for more than three to four hours at a time, if other feeds are given, or if the breasts are not emptied well at each feeding, then the hormonal "message" to the mother's brain will be "make less breast milk." When this happens, a negative cycle is set up. The baby breast feeds less and the mother makes less breast milk. It is important to explain how the mother's body works to the mother and her family. It is called "supply and demand."

  To increase breast milk supply, for mother:
  - Nurse frequently.
  - Rest more, eat well, and drink more fluids especially water and juice.
  - Reassure mother that she can produce more milk. Express milk so the mother can see that she is making milk.
  - Sit and watch mother breast feed her baby and correct any attachment or positioning problems.

To increase breast milk supply, for baby, mother should:

- Feed the baby every two hours, day and night, while trying to increase milk supply (nursing 10 -15 minutes per breast).
- Wake a sleepy baby when it is time to feed.
- Make sure baby is correctly attached and listen for active swallowing.
- Feed baby in a quiet, comfortable place.
- Sleep with the baby next to her in bed.
- Give **only** breast milk, not other feedings.
- See the mother every day or ask a helper to visit until you are sure the mother feels she has enough milk. It will take two to four days to increase the breast milk, but it will increase.

A Baby Is Getting Enough Breast Milk When:

- Baby wets at least six times in 24 hours, urine is clear to pale yellow in color.
- Baby has frequent yellow 'seedy' stools.
- Baby seems contented, with hungry times, quiet awake times, and sleepy times. It is NOT a good sign if a baby is sleeping all the time.
- Baby feeds at least 10 times in 24 hours.
- Mother's breasts feel soft or empty after a feeding.
- Mother can feel the tingling "let-down" sensation when baby first feeds.
- Mother can hear the quiet little swallowing sounds as baby eats.
- Baby is gaining weight.

Prevent Mother to Child Transmission of HIV

Most women living with HIV have no symptoms and will be untested. If they know they have HIV they may not want to talk about it. Postpartum is part of the pregnancy cycle. Actions and decisions made during pregnancy and labor make a difference during the postpartum time. Universal precautions and infection prevention used during pregnancy and labor may reduce the possibility of HIV exposure to the baby. When the pregnant woman is offered (or takes) antiretroviral drugs (ARVs), she needs follow up postpartum.

Postpartum care for women infected with HIV is similar to that for women without the virus. They do not need separate nursing facilities because the virus does not easily spread from woman to woman. A womanr with HIV:

- May not take care of herself if she must care for other children and family members as well as her baby.
- Is more likely to get postpartum infection.
- May have problems managing ARV treatment for her baby and herself.
- May be at increased risk for postpartum depression.

The midwife should:

- Counsel the woman and her family about the special care needed to prevent infection, including perineal and bladder care.
- Advise her that her lochia can cause infection in other people: she should burn or bury blood stained pads and cloths or wash them herself.
- Connect the woman with medical and supportive care services, including HIV specialty care, postpartum care, family planning, and mental health or substance abuse treatment services, if indicated.
- Help her get assistance with food, housing, transportation, and advocacy, if needed.
- Be aware of the need for continued support and attention.

The infant exposed to HIV should be followed in the first months of life and given appropriate care, see Module 7: **Infections** and your local guidelines for HIV. The risk of HIV transmission through breast feeding can be reduced if the risk factors are understood.

Risk Factors for Postnatal Transmission of HIV

Mother	Infant
▪ Low immune/health status ▪ High viral load in blood ▪ HIV in breast milk ▪ Breast inflammation (mastitis, abscess, nipple lesions) ▪ New HIV infection ▪ Type of HIV	▪ Breast feeding duration ▪ Non-exclusive breast feeding ▪ Age (first months) ▪ Lesions in mouth, intestine ▪ Diarrhea ▪ Prematurity ▪ Poor infant immune response

Source: Linkages 2004.

The mother can keep herself healthy, follow feeding guidelines, and seek out treatment as soon as her baby shows any sign of sickness. The midwife should counsel her using the following guidelines.

Feeding. If the woman with HIV chooses to breast feed (or where there is no other choice), counsel and assist her to exclusively breast feed (breast milk only, without any additional solids or liquids) for up to 6 months, followed by rapid weaning. Exclusive breast feeding may help reduce the risk of transmission among women with HIV who choose to breast feed. Exclusive breast feeding for up to six months showed a decreased risk of transmission of HIV compared to non-exclusive breast feeding in three large studies (WHO, 2006). Breast feeding mothers should be taught correct breast feeding technique, including prevention, recognition, and prompt management of breast problems (e.g., cracked nipples, mastitis, abscess, see Module 7: **Infections, Learning Aid 6**), oral thrush or other oral lesions in the infant.

Replacement feeding poses no risk of HIV transmission for a woman with HIV. Replacement feeding is recommended for the first 6 months if and only if the replacement feeding is acceptable, feasible, affordable, sustainable, and safe. If the mother chooses not to breast feed, she may need a private room and counseling on reducing the stigma of not breast feeding. She will need assistance to make sure the replacement feeding is possible, safe, not too costly, and can be continued. This is a challenge in many places.

Exclusive breast feeding mothers can reduce HIV transmission by breast feeding if they:

- Prevent breast problems (correct breast feeding position and attachment).
- Identify breast problems and get treatment immediately.
- Do exclusive breast feeding for up to 6 months.
- Use a replacement diet for baby following exclusive breast feeding.
- Use antiretroviral treatment and prevention. ARV treatment to keep the mother with HIV healthy is one of the ways of preventing HIV transmission to the baby, see Module 7: Infections and your country protocols for ARV treatment.

Primary Prevention. Uninfected mothers can protect themselves and their breast feeding babies from infection by practicing safer sex. The risk of transmission through breast feeding is higher if the mother is newly infected when breast feeding. For both the mother with HIV and the mother without HIV who choose not to breast feed, two types of protection (dual method use) must be used. Dual method means using condoms and another family planning method. When a mother does not breast feed, she loses the contraceptive protection from LAM.

Support and Encouragement. The mother with HIV may have many concerns. She may fear being abused in the community, by relatives, and neglected by health workers. Worrying about her new baby may be a constant concern. The smallest illness in the baby can give the mother a feeling of guilt that she may be responsible for infecting her baby. Listen to her fears and concerns. Help her think about her situation and decide the best option for her, her baby and her partner. Support her choice. Help her find places and people for support. Work with women and families to find and develop support groups, home care, and money making activities to support such groups in the community.

SKILL: Give Woman Postpartum Care Within First 24 hours

Immediately after a normal birth, the mother is usually alert and interested in her baby. Her uterus stays hard and the discharge (lochia) is no heavier than monthly bleeding. She is able to urinate, and can take food and drink. The uterus is contracting and closing off the blood vessels at the placental site. This time is critical to identify women who are bleeding too much so that you can start care before a problem becomes life threatening.

> "**Hemorrhage in the first four hours after delivery accounts for the single largest number of maternal deaths.** The major causes of hemorrhage in the first hours after birth are uterine atony and retained products of conception. **All women and neonates should receive active care in the first six hours after delivery**."

Source: Report of the MotherCare Task Force for Postpartum and Neonate Care 1994.

Hemorrhage, eclampsia, and infections are major causes of maternal mortality. Urinary tract and breast problems, perineal and vulva pain, and postpartum sadness are sometimes experienced. **Infant survival is closely linked with maternal health. It is vital that mothers are cared for to prevent illness, disability and death.** If the midwife did not attend the delivery, she should see or ask about the mother and baby as soon as she hears of the birth.

ASK and LISTEN – Take Postpartum History

This is the first step of the Problem Solving Method that is done when giving care to a postpartum woman. You can learn how she is feeling and identify any concerns or problems from the history. **ASK** the following questions and **LISTEN** carefully to the woman's answers. Use these problem solving questions each time you provide care for her and her baby. Write the information on the postpartum record so you can use it the next time you see her. For identified care and problems, refer to the *Guide for Caregivers – Postpartum Counseling* for the action needed. At each visit, review the written record first. Since some of her answers might change from the previous visit, you will need to ask her about some things at every visit.

1. **How Does The Mother Feel?** Ask her: *How are you feeling? Have you had any pain, headache, fever or bleeding since delivery? Do you have any problem with passing urine? How do your breasts feel? Do you have any other concerns?*

2. **Birth Information.** This information can be found in the delivery record. If there is no delivery record, ask the woman or the family the following questions. *When and where did you deliver? Who was with you at the birth (if you, the midwife, were not at the birth)? Did you or the baby have any problems? Did the placenta (afterbirth) come out? Did you bleed? Do you have any tears or sore places in the birth canal? Are you taking any medicines?*

3. **Emergency Referral Plan.** Make sure the family has a plan in case of a problem or emergency. This may mean reviewing the plan they made during the pregnancy.

4. **Family Planning.** ASK: *Have you and your family heard about spacing your pregnancies? Have you heard that a woman's health is better if her pregnancies are not too close together? Have you discussed about waiting like 2 years before another pregnancy? When do you want to have your next baby? Have you decided on any contraception? What methods of family planning do you know about? Do you have any questions or concerns about family planning or any method?*

LOOK and FEEL – Do Physical Examination

This is the second step of the Problem Solving Method that is done when seeing the postpartum woman. A physical examination is another way you find out if the woman and baby are healthy. It is a way to see any changes in the condition of the woman and baby from one visit to the next. At each postpartum visit, you LOOK and FEEL to see if the woman and baby are healthy. The list of equipment that is helpful in giving postpartum care is found at the beginning of this module. The equipment may be different in some places where you work. If some of the equipment is not available, you can still find out many things and help the woman. Make sure everything you use is clean and ready.

As you examine the woman, you can also provide care and explain to her what she should do until the next visit. Before you begin, explain to her what you are going to do. Wash your hands.

1. **General Health**
   - LOOK for signs of general good health. Look at her energy level. Does she look weak? Is there any paleness? Does she have signs of anemia? Does she look happy?
   - LOOK for signs of infection. Look at her skin. Is it free from sores? When the immune system is weakened by HIV, there are secondary infections such as diarrhea, tuberculosis, candidiasis, and herpes. When a person with HIV has any of these infections, HIV weakens the body and makes the infection worse. The deadly combination of HIV and malaria causes a higher risk of illness and anemia.

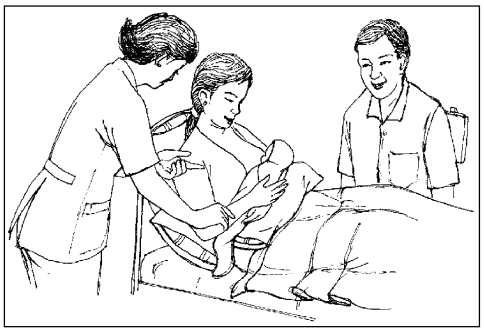

Figure 8. Look for signs of general good health.

2. **Blood Pressure, Pulse and Temperature**
   - Take her blood pressure, pulse and temperature. Tell her what you have found. If she had (pre)eclampsia during this pregnancy, she may need continued treatment for high blood pressure. She may be at risk for high blood pressure in another pregnancy. An abnormal pulse and temperature may be signs of infection or dehydration.

3. **Lochia and Uterus Examination**

- LOOK at the woman's pads. Look at the amount and color of the lochia. Is there any abnormal odor? The amount of lochia may be as much as one pad per hour for the first 6 hours. The lochia will become less in amount and light red in color. In another week, it will look pink, yellow and white. It should not have a bad smell. **Explain** *to her that you are looking at the amount and smelling the odor of the bleeding (lochia) when you look at her pad. Tell her that red or bad smelling bleeding is a sign of a problem and she must tell you. Tell her to change her perineal pad or cloth at least two times a day. She can use the cloths again if they are washed thoroughly and dried in the sun. She needs to keep her body very clean, to prevent infection.*

- FEEL the uterus. As soon as the placenta is delivered, you feel the uterus to see that it is contracted, see Module 3: **Labor**. When the uterus is round and hard, it is contracting. Feel the uterus each time you see the postpartum woman. **Explain** *that during the next six weeks, the uterus will get smaller until it is very difficult to feel through the abdomen. It is normal for the woman to bleed for a few days after the birth but the uterus should stay firm and contracted.* When the uterus does not stay firmly contracted, bleeding is not normal, she passes large fist-sized clots, the uterus feels hard but is getting larger, or the woman is getting weak, the woman may be hemorrhaging. See *Guide for Caregivers – Complaint & Findings, Protocols* and Module 5: **Hemorrhage**.

Figure 9. Show how to feel the contracted uterus.

- **Teach the woman and her helpers.** Tell and show how to feel the uterus to make sure it is hard, and how to rub the uterus to keep it hard. If her uterus gets soft, there might be too much bleeding. **Explain** *that it is important for her to watch how much she is bleeding now and in the next days to be sure there is no problem. The blood may come out in little amounts or small gushes when the woman coughs, pushes, moves or stands up. She might have as much as a heavy monthly bleeding. If she bleeds more than this, or if she sees any large blood clots, has fever, a bad smell or too much pain, she must tell the midwife. These are signs of problems and must be taken care of quickly.*

REMEMBER

Bright red bleeding or continuous bleeding,
even a continuing small flow of blood (constant little trickle),
or clots about the size of your fist,
or bad odor are dangerous!

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4. **Genital Examination**
   - LOOK for tears, fresh bleeding, blood clots, swelling, pus and pain. Wash hands and put on sterile gloves. Gently look around the vaginal opening, the perineum and anus. **Explain** *that you are looking for any cuts or tears that might have happened as the baby was born. You are checking because tears can also cause too much bleeding. Tell the woman what you have found, after you check.*

   - Wash the genital area. Help the woman use a mild soap and clean water to wash her genital area. **Explain** *to the woman. If there is no soap, use a little salt dissolved in the water. Wash from front to back. The anus should be the last part washed. Be careful not to bring anything up from the anus towards the vagina. After washing yourself, wash your hands.* Rinse your gloves in decontamination solution and dispose of your gloves in contaminated waste container or soak in decontamination solution for 10 minutes if reusing. Wash your hands.

5. **Bladder**
   - Make sure the woman urinates. The woman usually urinates after the delivery. A full bladder can prevent the uterus from contracting well. If she has difficulty urinating and her bladder is full, pour warm water over her perineum while she is trying to urinate, or put her hand into warm water. If you feel the uterus is not well contracted with a full bladder and the mother can not urinate you should catheterize her. **Explain** *to the mother that she should urinate often, because if her bladder is full, it can keep her uterus from getting hard and she can bleed more.*

6. **Complete the Examination**
   - Ask the woman to feel her uterus. When you finish the examination, ASK *the woman to feel her uterus again and tell you if it feels hard.* Watch her, then feel the uterus yourself to be sure that she has understood.

   - After you have finished the examination and the woman has dressed, encourage her to ask questions and talk about any other concerns she may have.

IDENTIFY PROBLEMS / NEEDS

This is the third step of the Problem Solving Method. Use your knowledge, experience and information in this manual and the *Guide for Caregivers – Complaint and Findings* to compare information and identify the problems and needs.

1. **Discuss and explain.** After you have finished the examination and the woman has dressed, encourage her to ask questions and talk about any other concerns she may have. Tell her about your findings.

2. **Decide the woman's problems and needs.** Use the information from the first two steps: ASK and LISTEN (history), LOOK and FEEL (examination).

    - Complications. If you find she is not well, try to decide the problem and manage the complication. For example: If signs of infection are identified, remember infection is one of the major complications during pregnancy and postpartum and you need to TAKE APPROPRIATE ACTION. Or if you see signs of hemorrhage, TAKE APPROPRIATE ACTION to stop the postpartum hemorrhage. Use the index to find more information about complications in the *LSS Manual* and use the *Guide for Caregivers – Protocols*.

    - No Complications. If you find the woman is feeling well, her uterus is well contracted and hard, her blood pressure, pulse and temperature are normal, and she has no complaints, plan her care with her. She may have concerns and/or needs. See TAKE APPROPRIATE ACTION in the section below for treating other postpartum problems, giving drugs and immunizations, client education and counseling, and planning repeat postpartum visits.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. You must give care. Decide what should be done to solve each problem or meet each need. The following actions should be considered and you must decide which to do first, second, and so on. Sometimes medical treatment will be needed first. You may then give her more treatment, education, counseling, laboratory tests, make plans for follow-up or refer her.

1. **Manage Complications.** When you first see a postpartum woman who says she is not well, or her family says she is not well, use the problem solving method. LOOK at the woman for breathing, shock and hemorrhage. While you are looking, ASK: *Did you just deliver? If yes, is the placenta out?* **Do not waste time:** you do not know how long the woman has been sick before you see her. She may be close to death.

- **Hemorrhage causes over 31% of all maternal deaths.** Postpartum hemorrhage is the most common cause of maternal death. Hemorrhage in the first four hours after delivery causes the largest number of maternal deaths. The major causes of hemorrhage in those first hours after birth are uterine atony or a retained piece of placenta or membranes. Prevent death from hemorrhage – use active management of third stage of labor and treat anemia during pregnancy. Teach women to rub their uterus and keep it hard after the baby is born.

- **Infection**. **Over 11% of maternal deaths come from infections.** Exposure to germs while in labor and after delivery may cause infection after the baby is born. There may be infection of the uterus (chorioamnionitis, puerperal sepsis), infection of the urinary tract (cystitis, pyelonephritis), infection of the breast (mastitis, abscess), and infection of the blood (sepsis). Some infections can be prevented. Infections can be treated. Fluids will lower the fever. Surgery may be needed to empty the uterus or drain abscesses. Even with treatment, infections may cause serious problems and lead to death, see Module 7: **Infections** and *Guide for Caregivers – Protocols.*

- **Convulsions. Eclampsia caused convulsions are one possible complication of pregnancy induced hypertension (PIH) resulting in 10% of all maternal deaths.** There is no known cause for PIH. The blood pressure may become normal soon after delivery, or it may not become normal for several weeks. Some women have eclampsia during the first 48 hours after delivery. Eclampsia may cause no symptoms until the woman has a convulsion, but often there are warning signs such as severe headache, high blood pressure, vision problems or epigastric pain. Convulsions usually stop when the woman delivers. Sometimes the woman will need to remain on blood pressure medicine for a long time. Convulsions may also be caused by serious infection, high blood pressure, and tetanus.

2. **Treat Other Postpartum Problem(s).** Plan the care using the *Guide for Caregivers – Protocols and Counseling.* This plan may include education and counseling, laboratory tests, medical treatment, referral and plans for follow up.

Other Problems for Postpartum Women

- General: thrush, skin lesions, weight loss, persistent cough, painful hemorrhoids
- Breast: painful and swollen, cracks on nipples, tender and red, soft and yellow area, no or little milk
- Perineum: pain, swelling, bleeding
- Discharge red
- Incontinence: leaking urine or feces (fistula)
- Woman not interested in her baby, is sad or depressed, abused
- Baby died

3. **Drugs and Immunizations.** Give medicines including a 40 days supply of iron and folate. If the woman complains of nausea, constipation, or diarrhea from the iron-folate tablets, tell her to take the pills with meals. She should not take iron pills with milk, tea or coffee. See Module 2: **Antenatal, Learning Aid 10.** Give any treatment or prophylaxis due, such as tetanus immunization. If she has not had the full course, see *Guide for Caregivers – Formulary.*

4. **Client Education and Counseling.** Client education is teaching about good health habits that relate to the beliefs, values and customs of the people with whom you are working. The best time to give information about ways to stay healthy during the postpartum period is when it is needed. The *Guide for Caregivers – Counseling* has a summary of health information and advice for postpartum women. **Do not try to give the woman all the information at one time.** If you think you may only see her at this visit (within six hours of delivery), choose the most important information to give her, based on her condition and situation.

   - **Danger signs.** You can talk with her about what to do and where to go for referral if a danger sign develops.

Danger Signs for Postpartum Women

IMMEDIATE ATTENTION NEEDED

- Too much bleeding
- Fever
- Abdominal pain
- Foul smelling lochia
- Convulsions

When any danger sign is seen, the woman, family, and birth attendant must take action and refer to hospital or doctor.

   - **Give additional advice, information and counseling** that is needed, to the woman, her family, and the traditional birth attendant. Answer any questions about postpartum, the new baby, and family planning. Talk with the woman about how to stay healthy. It is important for her to have information about postpartum care, hygiene and nutrition. Advise on LAM and family planning, breast feeding, and where there is malaria discuss malaria prevention for woman and baby, see *Guide for Caregivers – Counseling, Protocols.*

   - **Make or review the referral plan**. Talk with the woman about the referral (emergency) plan she and her family made during her antenatal care. If she did not attend antenatal clinic, then talk with her about the following information. It is important to be ready in case there is a problem with the woman or the baby.

Referral Plan

- Who will decide there is a problem?
- Who will decide to get help?
- Where will you go?
- How will you get there?
- How much will it cost for transportation? To see a midwife? To see a doctor?
- Who will you ask to help give you care on the way?
- Who will be available to give blood if it is needed?
- Who will care for other children when you are gone?

5. **Schedule Repeat Postpartum Follow Up Visit.** If it is not possible for the midwife to see all postpartum women as often as needed, a helper (health worker, attendant or family member) may be asked to visit. Find out who will check the woman and baby at home. At these visits observations are made and care given for the woman and newborn. Give reminders about danger signs and the actions that must be taken if the signs occur. Discuss the importance of checking on the woman and baby at 2 - 3 days, 6 -10 days, 4 - 6 weeks, and 6 months. Plan for at least one of these visits to be at home. The 4 - 6 week visit is best at the clinic or health center.

6. **Documentation and Recording.** Postpartum records differ from one place to another.. The information on the record will help you identify any problems and give care to prevent complications. If you already have a postpartum form, you should continue to use it when you return to your place of work. In this module, look at the forms in **Learning Aids 5 and 6**. As you read them, think about the information you are learning and recording on your own form. Is any information missing from your form? Is there something you normally ask or do for postpartum care that is not mentioned? You may wish to adapt these forms or parts of these forms to add to the record you use when giving postpartum care.

EVALUATION AND REPEAT PROCESS

This is the fifth step of the Problem Solving Method. Follow-up visits are important to see if a previous problem is solved, staying the same, or getting worse. Decide if the actions taken were effective at resolving the problem. The follow-up visits may need to be scheduled at other than the regular schedule for postpartum visits to evaluate a problem. The evaluation may be needed for a problem such as anemia, breast feeding problems, and so forth. You will need to repeat the problem solving method. 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.

SKILL: Give Baby Care Within First 24 hours After Birth

For nine months the baby has lived in a warm, clean, and protected place where all needs, including nourishment, were met. Now the baby must be kept warm, clean, and protected by the mother and the family. The baby must suck well to receive the needed nourishment. The baby must be healthy and strong in order to do all of this. Wear gloves when caring for a newborn that has not been bathed.

The baby is alert and usually begins to breast feed in the hour after birth. The baby continues to have good color, breathing, reflexes, muscle tone and heartbeat, see Module 3: **Labor**. The baby urinates and has a bowel movement within a few hours.

ASK and LISTEN – Take History

You can learn how the baby is adjusting to her new environment and identify any concerns or problems from the history. **ASK** the following questions and **LISTEN** carefully to the mother's answers. Use this information each time you provide care to her and her baby. Write the information on the postpartum record so you can use it the next time you see her. For identified care and problems, refer to the *Guide for Caregivers – Postpartum Counseling, Protocols* for the action needed. At each visit, review the written record first. Since some of her answers might change from the previous visit, ask her about some things each time you see her.

1. **How Is the Baby?** Ask the mother, family, or attendant how the baby is doing. *Is she trying to suck the breast? How often does she suck? Does she have any problem passing urine or stool? How does her skin feel (too hot or too cold)? Is she crying? Do you have any other concerns?* If you were not at the delivery, find out if there were any problems at birth or immediately after.

2. **Birth Information.** *How much does the baby weigh?* Information can be found on the delivery record - if there is no delivery record - ask the woman or her family. If the woman does not know, check the weight. This is very important to the family and for the care of the baby.

LOOK and FEEL – Do Physical Examination

Immediately after delivery, the baby is dried and wrapped with the head covered, to keep her warm. A hat may be used, if available. The baby's condition is checked for 6 hours during the fourth stage of labor monitoring and any immediate care given, see Module 3: **Labor**.

A physical examination is another way you find out if the baby is healthy. It is a way to see any changes in the baby's condition from one visit to the next. At each visit, you see if the baby is healthy and gaining weight. Have the postpartum record form available and use the *Guide for Caregiver – Skill Checklists* so you do not miss anything. If the baby has not been bathed, wear gloves while doing the examination and giving care. When the baby is breast feeding, watch to

make sure the baby is well attached and has plenty of the mother's areola in his mouth. The mother's arms should be well supported, see **Learning Aid 2** for LATCH Assessment of Breast Feeding if there is any problem.

Make a clean place to put the baby as you examine her. You might examine the baby on the end of the mother's bed or in the mother's arms so that the mother and family can watch. Prevent heat loss during the examination by only uncovering the part of the baby you need to examine and keeping other parts of the baby covered. Explain to the mother and family everything you are doing.

1. **General Appearance**
   - LOOK and LISTEN to everything. The way a baby looks and sounds can tell you about her health. Is the baby small or large? Fat or thin? Do her arms, legs, feet, hands, body and head seem to be the right size? Is the baby tense or relaxed, active or still? Are the baby's body and mouth blue or pink?
   - LISTEN to the baby's cry. Every cry is a little different, but a strange, high, piercing cry can be a sign of illness.

Figure 10. Keep baby warm.

2. **Breathing, Heart Rate and Temperature**
   - Breathing should be without difficulty, although it may be faster at first, then slower as the baby gets used to breathing. The normal rate is 30 - 60 breaths per minute.
   - Heart rate should be 120 to160 in a minute. Feel the heart rate by placing two fingers over the baby's heart and counting for one minute, or you may use a stethoscope to listen.
   - Temperature is usually between 36.5 -37^0 C (97.5 -98.6 ^{0}F) when taken under the arm. A temperature below 36.5 C is a sign of hypothermia. If you do not have a thermometer, FEEL the baby's skin on her chest or back. It should feel warm, not cold. The baby's tongue and lips should be pink. Hands and feet may stay blue for a few hours, or even a few days, especially if the baby is not warm enough.
   - **Explain** to the mother and others: *keep the baby warm in the first days after birth, while the baby's body is adjusting to being in our world. The baby can not keep herself warm yet. She should be kept covered, especially her head. She should not be bathed for 12-24 hours after birth. It is good to keep her next to the mother's skin, to share her warmth. She should be encouraged to suck the breast. This will also help her keep warm.*

Figure 11. Keep baby close to mother.

3. **Weigh and Measure**

- **Weight** should be checked if you have a scale. A baby usually weighs between 2.5 and 4 kilograms (5.5 and 8.8 pounds). Very small babies who are less than 2.5 kilograms have a higher risk of infection and breathing problems. They need more care to keep them warm. **Tell** *the mother and family how much the baby weighs.*

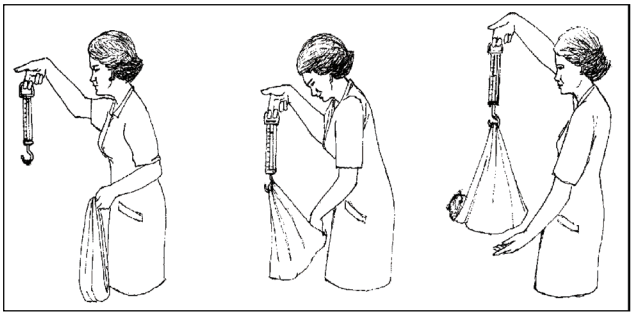


Figure 12. Weigh the baby.

- **Measure** the baby from the top of the head to the bottom of the feet with legs straight to check the full length if you have a tape measure. Most babies measure between 45 and 53 cm (18 to 21 inches). **Tell** *the mother and family how long the baby measures.*

4. **The Baby's Body - LOOK at and FEEL the whole body of the baby.** Examine the baby's body parts in the same order each time, so that nothing is missed. Wash hands before and after procedures and use gloves if there is any discharge or bleeding.

- Head. LOOK and FEEL the fontanelles (soft spots), sutures, molding and any swelling or depressions. A bulging fontanelle is a sign of sickness. A depressed fontanelle is a sign of dehydration.

Figure 13. Sutures and soft spots.

- Eyes. LOOK for swelling and discharge. A mother can have an infection in her vagina that she does not know about. When the baby is born, the infection can get in her eyes and cause blindness. Every baby should receive eye prophylaxis within one hour of birth. Clean the eyes and put eye medicine in each eye. Advise the mother: *if the baby's eyes are swollen and sticky with discharge she should see you or a doctor right away*, see Module 7**: Infections**.

- Nose and mouth. LOOK at the lips and palate (top part or "roof" inside the mouth). LOOK for the sucking reflex when the baby is breast feeding. LOOK for breathing from the nose. **Advise** the mother: *give the baby only her breast milk and let her suck often. Explain that before her milk comes in, the yellow liquid in her breast is the only thing the baby needs. This liquid is very special. It protects the baby from illness, like an immunization. She should encourage the baby to suck the breast often.*

- Spine. LOOK and FEEL for swellings, depressions, or openings.

- Limbs. LOOK and FEEL the hips, legs and feet to see that they move, are not broken, and that both legs are the same length.

- Reflexes are the body's natural reactions and a sign that the brain and nerves are working well. LOOK for the Moro or "Startle" Reflex. The arms and hands usually open wide if the baby is moved suddenly or hears a loud noise (like clapping hands), see Figure 14.

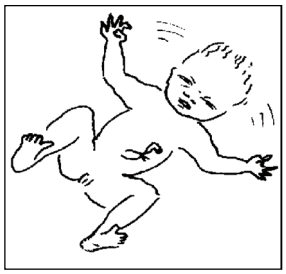


Figure 14. Arms open wide - Moro Reflex.

- Skin. LOOK at the color, any growths or birthmarks (stains). A slight yellowing of the skin is normal around the third or fourth day (physiological jaundice). It disappears within a week. It should not be confused with the more serious form of jaundice, which starts on the first or second day and may be seen in the eyes, bottom of the feet, and the palms of the hands. The baby with serious jaundice must be taken to a doctor right away. Jaundice is often an early sign of sepsis or blood incompatibility. At birth there may be a sticky, white cream called vernix over the skin. It may be removed very gently with a little oil on the second day. It may also be left to come off gradually during bathing. **Explain** to the mother and family: *the skin should be kept clean, but it is better to wait 24 hours after birth before bathing the baby. Make sure the baby does not get chilled.*

- Cord. LOOK to make sure there is no oozing (leaking) of blood. Retie the cord if you see fresh blood. Check for any discharge or foul smell. If chlorhexidine is available, use daily on the umbilical cord stump to reduce the risk of infection of the cord stump (omphalitis). If there is no chlorhexidine and there is a custom of putting "medicine" on the cord, teach the woman to clean the cord stump with soap and water. Use soap and water, not local "medicine" such as cow dung or other mixtures which may cause infection, see Module 7: **Infections**. **Explain:** *clean the cord every day (or keep clean and dry) until it falls off, normally in five to seven days. It can be covered or left uncovered depending on the practice in your area. Put the baby in water to bathe only after the cord falls off.*

- Genitalia. For a boy, FEEL both testicles in the scrotum and LOOK for normal appearance of the penis. For a girl, LOOK for normal appearance.

- Anus and urethra. LOOK to be sure there are openings. Check for normal bowel movements and urination. Ask the mother to tell you when there is a bowel movement or urine is passed. The first stools the baby passes are called meconium. They are blackish in color. **Explain**: *this color is normal at first. The stool will change to yellow within three to five days. If the stools become watery, dark green, contain mucus or are explosive (gas), the baby is very sick and should go to the hospital or doctor right away.* Refer to Module 8: **Stabilize and Refer**, for care while traveling to the doctor.

Wash your hands after examining the baby.

IDENTIFY PROBLEMS AND NEEDS

Use your knowledge, experience and information in this manual and the *Guide for Caregivers – Complaint & Findings, Protocols, Counseling* to compare information and decide what the baby's problems and needs are.

1. **Discuss and explain.** After you have finished the examination and the woman has the baby comfortable, encourage her to ask questions and talk about any other concerns she may have. **Explain** your findings to the mother, family and any helpers. Advise them: *if you feel something is not right with the baby look at the list of danger signs. Bring the baby to me or send me a message. Keep the baby close to the mother on the bed or mat or skin to skin to keep the baby warm and to offer the breast often. If there are problems with breast feeding, tell me.*

2. **Decide the baby's problems and needs.** Use the information from the first two steps: ASK and LISTEN (history), LOOK and FEEL (examination).

   - Complications. If you find the baby is not well, try to decide the problem and manage the complication. For example: If signs of low birth weight are identified, remember low birth weight is one of the major complications for a baby and you need to TAKE APPROPRIATE ACTION. Or if you see that the cord is bleeding, TAKE APPROPRIATE ACTION to prevent losing more blood. Use the index to find more information about complications in the *LSS Manual* and use the *Guide for Caregivers – Complaint & Findings, Protocols* to make these decisions.

   - No Complications. If you find the baby has a normal cry, is active when awake, sucks well at the breast, is warm to the touch, has no difficulty with breathing and the weight is within normal range, you can plan with the mother for her baby. There may be other problems or needs. See TAKE APPROPRIATE ACTION in the section below for treating other problems, giving immunization, client education and counseling, and planning repeat postpartum (or well baby) visit.

TAKE APPROPRIATE ACTION

You must give care. Decide should be done to solve each problem or meet each need. The following actions should be considered and you must decide which to do first, second, and so on. Sometimes medical treatment will be needed first. You may then give the baby more treatment, education, counseling, laboratory tests, make plans for follow-up or refer her.

1. **Manage Complications.** When you first see a mother who says her baby is not well, or her family says the baby is not sucking, use the problem solving method. LOOK at the baby for breathing and shock. While you are looking, ASK: *When was the baby born? Did the baby cry at birth?* **Do not waste time.** When the baby is not in good condition there may be an infection, trauma at birth, drugs in his blood from the mother, or other problems. If the

midwife attended the birth, some of this information may be in the birth records. Refer to the *Guide for Caregivers – Protocols* for the following:

- **Breathing problems.** Asphyxia is a condition when a baby does not breathe at birth. It is estimated to cause 23% of the 4 million neonatal deaths that happen every year.

  ASK: *Were there any problems when the baby was born? Did the baby cry immediately? When did the baby begin to have trouble breathing? Is there anything else wrong with the baby?*
  LOOK: The baby may be breathing faster than 60 or less than 30 beats in a minute. Breathing is irregular with indrawing of the chest and flaring of the nostrils. The tongue, lips or skin color is dark or blue. See Module 6: **Resuscitation** and Module 7: **Infections**.

- **Not able to suck.** This is the most common warning sign of sickness for a baby.

  ASK: *Were there any problems when the baby was born? When did the baby stop sucking? How long did the baby suck well? Is the baby fussy? Is there anything else wrong with the baby? Are your nipples sore or painful when the baby tries to suck?*
  LOOK**:**
  - There may be problems attaching on the breast, see **Learning Aid 2.**
  - The baby may not be able to open his mouth. There may be tetany or stiffness (tetanus).
  - There may be white patches on the mucous membranes or tongue. They look like milk curds and when you wipe them there is bleeding. The mother's nipples may be red and tender (thrush).
  - There may be other signs of infection, see Module 7: **Infections**.

- **Temperature not normal.** Infections are most common after the second day through the first month of life and happen in about 36% of neonatal deaths.

  ASK: *Were there any problems when the baby was born? Was the mother sick with fever during labor? Did her membranes rupture early? Is the baby restless or sleeps all of the time or feels very hot to touch?*
  LOOK and FEEL: The skin usually feels hot when the axillary temperature is above 37.5° C (99.5° F), a possible sign of bacteria infection. The baby may be breathing fast (over 60 breaths per minutes). The heart rate is fast (over 160 beats per minute). The baby may be dehydrated (skin test: pinch the skin up and it slowly goes down). See Module 7: **Infections** for other signs of infection. If the baby is too cold, axillary temperature below 36.5° may be a sign of infection or the baby needs to be warmed.

- **Low birth weight.** It is estimated that low birth weight babies (preterm, small for gestational age, or both) account for 60-80% of neonatal deaths.

  ASK: *Were there any problems during the pregnancy? How long did the pregnancy last? Were there any problems when the baby was born? Is there anything else wrong with your baby?*
  LOOK: A baby born too small is one who weighs less than 2500 grams (2.5 kilograms or 5.5 pounds) at birth. These babies are more likely to die than a baby weighing more than 2500 grams at birth. The skin may be very thin and look red. There may be fine hair all over the baby's body. The head looks big in proportion to the body. Creases may be seen in only part of the sole of the feet and not all over the sole as in a term newborn. These small babies need extra care to have a better chance to live. Keeping the baby warm by using the skin to skin method and feeding with expressed breast milk in a cup when the baby can not suck at the breast, are ways to help the baby have a better chance to live, see **Learning Aid 4**.

2. **Treat Other Problems for Baby,** plan the care using the *Guide for Caregivers – Counseling, Protocols.* This plan may include education and counseling, laboratory tests, medical treatment, referral and plans for follow up.

Other Problems for Baby

- Bleeding: cord stump, circumcision
- Dehydration: tenting skin
- Mother Died
- Not able to move one arm or leg
- Scalp: swelling, depressed or bulging fontanelles
- Skin: jaundice, color blue or pale

3. **Give Immuniations or Medicines.** Give any treatment or prophylaxis such as immunizations, see *Guide for Caregivers – Counseling, Formulary.*

4. **Education and Counseling.** The best time to give information about caring for the baby is when the woman asks. It is important for the woman to have information about hygiene and nutrition for her newborn. The *Guide for Caregivers – Postpartum Counseling* has a summary of health information and advice for newborn care. **Do not try to give the woman all the information at one time.** If you think you may only see her at this visit (within six hours of delivery), choose the most important information, based on the baby's condition and situation. Answer any questions and talk with the woman about caring for her baby.

5. **Danger Signs.** You can talk with the mother and family about danger signs and where to go for referral. When any sign of danger is seen, the mother, family, and attendant must take action quickly. The baby is in great danger. The baby can be helped at the hospital or by a doctor.

Danger Signs for Baby

IMMEDIATE ATTENTION NEEDED

- Breathing too slow or too fast, or having trouble breathing
- Weight: low birth weight, too small
- Feeding problems: not able to suck, not feeding well
- Temperature: feels too hot or too cold
- Signs of infection: any redness or pus discharge in eyes or umbilicus, pustules
- Stools and vomiting: watery stools, no stool by third day, projectile vomiting
- Unusual cry, rolling eyes, tetany, convulsions, irritable, lethargy, limp

6. **Schedule Repeat Follow Up Visit.** If it is not possible for the midwife to see all newborns as often as needed, a helper (health worker, attendant or family member) may be asked to visit. Find out who will check the woman and baby at home. Discuss the importance of checking on the woman and baby at 2 - 3 days, 6 -10 days, 4 - 6 weeks, and 6 months. Plan for at least one of these visits to be at home. The 4 - 6 week visit is best at the clinic or health center.

7. **Documentation and Recording.** Under-five weight card differs from one place to another.. The information on the record will help you monitor the growth of the baby, identify any problems, and give care to prevent complications. If you already have a weight card, you should continue to use it. In this module, look at the sample in **Learning Aid 8.**

EVALUATION AND REPEAT PROCESS

This is the fifth step of the Problem Solving Method. Follow up visits are important to see if a previous problem is solved, staying the same, or getting worse. Decide if the actions taken were effective at resolving the problem. The follow-up visits may need to be scheduled at other than the regular schedule to evaluate a problem. The evaluation may be needed for a problem such as baby not sucking the breast. You will need to repeat the problem solving method. You may have to develop a new plan. The mother and her family may need to have information or advice repeated to be sure they understand. A different medication or treatment may be needed. Referral may be needed to a hospital or doctor.

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. P.G delivered her baby five hours ago. You have come to see her and the baby. Describe the care that you will give P.G. at this time (pages 10.14 – 10.20 and *Guide for Caregivers – Skill Checklists*).

2. How will you show P.G. how to prevent hypothermia in her baby (page 10.23 and *Guide for Caregivers – Protocols*)?

3. What advice will you give P.G. about breast feeding (page 10.7 to 10.11 and *Guide for Caregivers – Breast Feeding Counseling*)?

4. What will you ask her about the Emergency Referral Plan (page 10.20 and *Guide for Caregivers – Referral Plans*)?

5. List the focus or reason of the postpartum visit at 7-10 days for P.G. and for her baby (page 10.2).

6. P.G. is complaining that she does not have enough breast milk. How will you decide if P.G. has enough milk (page 10.11)?

7. What advice will you give P.G. to help her produce more milk (page 10.10 -10.11)?

Family Planning

Family planning is deciding if and when to have another pregnancy. It is starting and using family planning methods to prevent pregnancy. Postpartum family planning is starting and using family planning methods during the first year after delivery. Postpartum family planning:

- Provides family planning to women who want to use it.
- Promotes good health through exclusive breast feeding during the first six months of life. This is called the Lactational Amenorrhea Method (LAM).
- Counsels on return to sexuality.
- Counsels on return to fertility and risk of an unplanned pregnancy.
- Improves contraceptive choice.
- Encourages healthy spacing of pregnancy.

Provide Family Planning to Women Who Want It

Although over 90 percent of postpartum women do not want to get pregnant for at least two years after delivery, almost 65 percent of these women do not use family planning in the first year postpartum. Women say they want to have more time between their pregnancies, yet one out of three women become pregnant within 15 months after their last pregnancy. Women want family planning information during the immediate postpartum period (within the first week). To reach them, give postpartum family planning help during antenatal care, immediate postpartum care, and at any other time postpartum, such as when the infant is immunized.

Promote Breast Feeding and Lactational Amenorrhea Method

All women should be encouraged to start breast feeding immediately within the first hour after birth and to breast feed exclusively. Women with HIV/AIDS should be offered the choice to use replacement feeding ONLY if the replacement feeding is acceptable, feasible, affordable, safe and sustainable. Women who are HIV positive and exclusively breast feed their babies are more likely to have healthier babies than those who mix feeds or are unable to continue replacement feedings.

When newborns are offered colostrum and continue with breast feeding, the Lactational Amenorrhea Method (LAM) is started. LAM is more than 98% effective in preventing pregnancy during the first 6 months postpartum. In one study women using LAM at 6 months were over 40% more likely to be using another modern method at 12 months. However, only 13% of women using any method at 6 months were using a modern method at 12 months. LAM can introduce the woman to family planning. It is a temporary method.

All of the following must be true for LAM to work:

- Baby is less than six months old.
- Mother fully breast feeding: gives only breast milk, not even water whenever baby is hungry, with at least one feed during the night.
- Mother has not yet started her monthly bleeding.

Counsel on Return to Sexuality

The woman should not have sex (intercourse) until all signs of vaginal bleeding spotting or brown staining have stopped, to give enough time for the vagina, perineum, and uterus (placental site) to heal. It is better to have complete healing before having sex. The woman and her husband should know that she could become pregnant again, if she is not exclusively breast feeding or using another family planning method.

Advise About Return to Fertility and Chance of Unintended Pregnancy.

A postpartum woman ovulates and can become pregnant before her first monthly bleeding. Women who do not breast feed ovulate on average 45 days after delivery and some as early as 28 days. The return to fertility for breast feeding women is less predictable. For women who are not having monthly bleeding (menses) while exclusively breast feeding, conception is less than 2% during the first 6 months postpartum. When the baby sucks less from the breast and starts other foods, the woman's fertility returns. The less the baby breast feeds the more likely the woman will ovulate and become pregnant again if she is not using contraception. Advise women that their return to fertility may happen before their monthly bleeding. Talk with the woman or couple so they fully understand the risks of unintended or poorly timed pregnancies to themselves and their baby. Talk with them about methods of contraception

Encourage Healthy Timing and Spacing of Pregnancy.

When the time between the birth of a baby and the next pregnancy is less than 24 months, there is a higher risk the baby will have problems. Studies have shown a higher risk of neonatal and perinatal mortality, low birth weight, small baby for gestational age and preterm delivery if less than 18 months between birth and the next pregnancy. **The World Health Organization recommends that there should be at least 24 months from the last birth to next conception**. This lowers the risk of woman or infant sickness or death and supports the recommendation of breast feeding for at least two years. The recommended time to try to become pregnant after a miscarriage or abortion is at least 6 months, to reduce the risk of maternal or infant sickness or death.

When Pregnancies are Too Close Together

Less than 24 months from the last live birth to the next pregnancy:

- Newborns can be born too soon, too small, or with a low birth weight.
- Infants and children may not grow well and are more likely to die before the age of five.

Less than six months from the last live birth to the next pregnancy:

- All the above PLUS, mothers may die in childbirth.

Source: Extending Service Delivery Project – Healthy Timing and Spacing 2007.

Using family planning can help prevent many of these problems by putting more time between births. A woman ovulates and can become pregnant before her first monthly bleeding after delivery. To help the woman and the couple prevent getting pregnant too soon after the baby is born, talk about these ideas.

- It is better the woman be completely healed before having sex. If it is not possible to wait, a couple should use protection with a condom to prevent an unintended pregnancy and STI/HIV.
- It is best a couple wait at least 2 years after the delivery of their last child before the woman becomes pregnant again.
- Every couple must decide for themselves how they want to plan their family. They need accurate information about family planning methods. No one can decide for them.
- Midwives can help couples make good, healthy choices as they plan their families by teaching them about ways to prevent unintended pregnancies. Most family planning methods can be started two weeks after delivery.

The risk of serious illness or death from pregnancy is much greater than the risk of using a family planning method. Using a family planning method correctly to prevent pregnancy is much safer than pregnancy and childbirth. It is reported in some countries that unsafe abortion is the most common cause of death in women. Family planning can stop 90% of deaths associated with unsafe abortion.

Dual Protection

Talk with women about how they can protect themselves from STIs (including HIV) and pregnancy. This is called dual protection. Dual protection may include:

- Using a male or female condom correctly with every act of sex. Condoms help protect against pregnancy and STIs including HIV.
- Using condoms always and correctly PLUS another family planning method. This adds extra protection from pregnancy in case a condom is not used or is used incorrectly.

Effectiveness of Methods

In the box below is information on the effectiveness of different methods and how to make the method most effective.

<table>
<tr><th colspan="6">Comparing Effectiveness of Methods</th></tr>
<tr><th colspan="5">Methods</th><th>How to Make the Method Most Effective</th></tr>
<tr><td>More Effective
Less than 1 pregnancy per 100 women in one year</td><td>Implants</td><td>Vasectomy</td><td>Female Sterilization</td><td>IUD</td><td>After procedure, little or nothing to do or remember
Vasectomy: Use another method for first 3 months</td></tr>
<tr><td rowspan="2">↑</td><td colspan="2">Injectables</td><td>LAM</td><td>Pills</td><td>Injections: Get repeat injections on time
LAM: Breast feed often, day and night for 6 months
Pills: Take a pill each day</td></tr>
<tr><td>Male Condoms</td><td>Female Condoms</td><td>Diaphragm</td><td>Ferility-Awareness Based Methods</td><td>Condoms, diaphragm: Use correctly every time you have sex
Fertility-awareness based methods: Abstain (no sex), or use condoms when fertile.</td></tr>
<tr><td>Less Effective
About 30 pregnancies per 100 women in one year</td><td colspan="2">Withdrawal</td><td colspan="2">Spermicide</td><td>Withdrawal, spermicide: Use correctly every time you have sex</td></tr>
</table>

Family Planning Choices

You may have already talked with the woman about her family planning history and needs during the antenatal visits. Now you must talk with the woman or couple to help them make a decision about family planning. Tell them all of the benefits of healthy spacing of pregnancy.

The first step is to find out what methods the woman or couple knows and likes, what they have heard about family planning or what they have heard about specific family planning methods. ASK if the woman is exclusively breast feeding, if her menses returned and is her baby less than 6 months old. Talk about the methods that are available in your area. Use the charts on Effectiveness of Methods on the previous page, Earliest Time a Woman Can Start a Family Planning Method below, and **Learning Aid 1** – Family Planning Methods Chart, when helping a woman or family decide what method to use.

Earliest Time a Woman Can Start a Family Planning Method After the Baby Is Born

Method	Begin if Breast Feeding	Begin if Not Breast Feeding
Lactional Amenorrhea Method (LAM)	Immediately for 6 months only	Not applicable
Progestin-only Methods (pills, Injectables, implants)	6 weeks after baby is born	Immediately or within first few days
Combined Oral Contraception, Monthly Injections, Patch and Ring all have estrogen and progestin hormones	6 months after the baby is born	3 weeks after the baby is born
Vasectomy	Immediately and any time. Couple will need to use another method for 3 months after vasectomy	
Male or Female Condoms	Immediately Spermicides not recommended if at risk for HIV	
Spermicides		
Copper-bearing IUD	Within 48 hours, otherwise wait 4 weeks	
Female Sterilization	Within 7 days, otherwise wait 6 weeks	
Levonorgestrel IUD	4 weeks after baby is born	
Diaphragm	6 weeks after baby is born	
Fertility Awareness-based Methods	Start when normal secretions have returned or the woman has had 3 regular menses. This will be later for breast feeding women than for women who are not breast feeding.	

Source: USAID Reproline 2006, WHO & CCP 2007.

SKILL: Give Postpartum Follow Up Care

In the first few days and weeks after the baby is born, the woman's body will return to her before pregnancy condition. The uterus gets smaller and bleeding will stop. The breasts fill with milk and the baby learns to breast feed and starts to gain weight.

The woman and baby need your help and advice. If it is at all possible, see them at 2-3 days and 7-10 days after the baby is born, then again at 4-6 weeks and at 6 months. You will continue to check the mother and baby for problems. Watch the relationship between the mother and her baby to make sure the mother is relating to her child and caring for her. Talk about prevention of pregnancy and sexually transmitted infections with the woman and her husband. Encourage the mother to exclusively breast feed for 6 months and to take the baby for growth monitoring and immunizations. If you see signs of problems, ask to see them more often.

Talk with the mother, asking questions, to learn how she is doing. Remind her about advice you gave her during your first visit after delivery. Encourage her to ask you questions. Examine her to be sure that her uterus is getting smaller, breast feeding is going well, and to identify any problems she might have. The examination of the mother during a follow up visit is similar to the exam done within six hours of birth. Use the *Guide for Caregivers – Skill Checklists.*

ASK and LISTEN

You can learn how the postpartum woman is feeling and identify any concerns or problems from the history. Before you begin, read the information on the postpartum record from the last visit. ***ASK*** the following questions and ***LISTEN*** carefully to the woman's answers. For identified care and problems, refer to the *Guide for Caregivers – Protocols, Postpartum Counseling* for the action needed. Since some of her answers might change from the previous visit, you will need to ask her about some things each time you see her.

How Does The Mother Feel? How Is the Baby?

Area	Questions
General	• How are you feeling? • Have you been able to rest and sleep? If not, why not? • Do you have any other concerns?
Diet and fluids	• What have you eaten today (or yesterday if you see her in the morning)? • Are you drinking fluids every time you breast feed and eat?
Temperature	• Have you felt chilled or very hot?
Bowel and bladder action	• When was the last time you urinated? Do you feel like you have to urinate often? Do you have any leakage of urine or stool? Do you feel pain or burning when you urinate? **Tell** *her about the squeezing exercise: squeeze the muscles around your vagina for five seconds (squeeze like you are stopping the flow of urine), relax the muscles for three seconds, then squeeze again. Begin with 10 squeezes three times a day. Increase until you are doing about 50 squeezes each day. Tell her this will help so she can hold her urine better.* • When was the last time you had a stool? Are your bowel movements normal?
Pain	• Have you felt any pain in your uterus, lower abdomen or perineal area? • About the pain: When did it start? Can you describe the pain (how strong, constant or comes and goes)? Does anything make it go away or get better? • Can you show me where you feel the pain?
Lochia / discharge	• How often do you need to change your perineal pad or cloth? What color is the discharge? Does it smell bad?

Area	Questions
Breast feeding Watch position, attachment, suck. See **Learning Aid 2** for LATCH Assessment Tool.	• Is the baby attaching? Is he sucking well? Do you have any pain or discomfort in your breasts?
	• How often does the baby feed? *He should feed whenever he is hungry, about every 2 - 4 hours, even at night. A baby should not go more than 6 hours between feeds.* • How often does he wet? *If he is feeding enough, he should wet six to eight times a day.* • Is the baby taking anything besides breast milk? *He should take only breast milk, no water, no other drinks, no pacifier.*
Baby sleep	• How much does the baby sleep at night and during the day?
Baby stool	• What color is the stool? How often does the baby pass stool?
Feelings about baby	• How do you feel about caring for the baby? Do you have any problems or questions?
Understands baby care	• Do you feel comfortable holding, bathing, feeding the baby, and toilet (urine and stool) care?
Signs of depression	• Do you feel sad or worried about anything?
Taking medications	• Did you take your vitamin A capsule (if appropriate)? • Are you taking iron and folate? *Remind her she must continue iron folate for 40 days, see Guide for Caregivers – Formulary.*
Family planning needs	• What family planning methods do you know about and what have you heard about family planning? • What family planning method have you used before? • Were you happy with the method? If not, why? • How many more children would you like to have? If you want to have another child, how long do you want to wait to become pregnant? *Remind her that spacing 2 – 3 years between pregnancies helps to keep her, her new baby and her next baby as healthy as possible.*
Immunizations	• Woman – tetanus toxoid if needed • Baby – BCG, oral polio, Hepatitis B and date for the next immunizations

LOOK and FEEL – WOMAN.

Explain to the mother what you are going to do. Wash your hands and use gloves. As you examine her, explain what you find. Give appropriate advice and information, see *Guide for Caregivers – Complaint & Findings* if there are problems. **Normal findings include:**

Area	Normal Findings – Postpartum Woman	
	2-3 Days, 7-10 Days	**4-6 Weeks**
Relationship with baby	The mother appears to enjoy physical contact with her baby. She uses her full hand when she touches the baby (not just the fingertips). When feeding or holding the baby, she and the baby are turned toward each other. She makes eye contact with her baby. She stimulates the baby with talking and singing to the baby.	
Vital signs	Temperature, pulse, and blood pressure are normal. **Tell** *the mother what you have found. Remind her to let you know if she has a fever because it could be a sign of infection.*	
Breasts	Soft and full, nipples not cracked or sore. *Remind the mother to encourage the baby to suck and empty her breasts of milk at least every two to four hours. Soon her breasts will adjust to the baby's needs.*	Lactation well established.
Uterus	Firm and getting smaller, not tender. Ask if she has checked her uterus today, and if it has remained hard since her last visit. **Tell** *her what you found and explain that her uterus will continue to get smaller during the next weeks until it is almost as small as before she became pregnant.*	Uterus to nonpregnant size.
Lochia	Red, but decreasing in amount, and no foul smell. **Explain** *that as the uterus gets smaller, it is squeezing any remaining blood out. This is the discharge she has. In the coming days, it should change color, becoming light red or pink. In another week, it is likely to look pink, yellow and white. It should never have a bad smell. If her discharge remains red, or if it smells bad, she must tell you. This information is important for her family to understand, too.*	No discharge and no foul smell.
Perineal area	Clean, a little swelling and discomfort. **Remind** *her that each time she passes urine or stool, to wash with soap and clean water, from front to back, and to wash her hands before and after this. She must change her perineal pad/cloth at least twice a day. When possible, she should lie with her legs apart, so air can get to the area to help it heal.*	Clean and healed.

Remove gloves and **wash your hands** when finished with the examination. Write your findings on the postpartum record. Ask the mother if she has any questions.
LOOK and FEEL – BABY.

Explain to the mother that you are now going to examine her baby. Ask the mother questions about the baby. She will notice if something does not seem right with the baby. Ask about how the baby is breast feeding. A sick baby will not breast feed well. The midwife also needs to examine the baby and pay particular attention to any concerns that the mother may have. As you examine the baby, you can also provide care and explain to the mother what she needs to do and watch for until the next visit. Before you begin, wash your hands. Normal findings should include:

Area	Normal Findings – Baby
General appearance	Active when awake
Breathing	Breathes easily
Temperature	Skin warm to touch, temperature normal
Weight	**2-3 Day, 7-10 Day Visit:** About at birth weight. *Explain that weight gain tells us the baby is getting enough breast milk.*
	4-6 Week Visit: Baby will gain about 1 – 2 Kg by 6 weeks of age. Baby will double the birth weight by 3 – 4 months. If weight gain is not adequate, counsel on breast feeding, look for other problems.
Head	Fontanelles not depressed and not bulging
Eyes	No discharge
Mouth	Check the sucking by watching how the baby breast feeds, mucous membranes are moist
Skin	Not yellow (jaundice), not blue (cyanosis), not dry, no lesions, no rashes
Cord	Dried by 6 days and off by 2 weeks after birth; no redness, no discharge, no bad odor

IDENTIFY PROBLEMS / NEEDS

As you **ASK and LISTEN**, **LOOK and FEEL** and talk with the mother, watch for signs of problems. The mother should not be too tired. She should be caring for herself and the baby. The mother should not have excessive bleeding or signs of infection. If there are problems, see *Guide for Caregivers – Complaint & Findings, Protocols.*

The baby may be sleeping, but should be breathing easily, have a pink body, and be warm to the touch. When awake, the baby should suck well and have a strong cry. He should be gaining weight and not have any danger signs.

TAKE APPROPRIATE ACTION

If you have identified any complications for the woman or baby that need immediate attention, plan the action that is needed using the *Guide for Caregivers – Protocols.* You can talk with the woman and family about where to go for referral.

If you have identified any other problems for the woman or baby, plan the care using the *Guide for Caregivers – Postpartum Counseling, Protocols.* This plan may include education and counseling, laboratory tests, medical treatment, referral and plans for follow up.

Give additional advice, information and counseling to the mother and her family based on the baby's and mother's conditions. Answer any questions and talk with the mother about how to stay healthy. It is important for her to have information about care for herself and for her newborn, including hygiene and nutrition.

Arrange for a private conversation with the mother and her husband, if possible. The mother needs support and cooperation from the husband. He should be aware of this advice and understand the reasons for it.

- Explain how she may return to a healthy nonpregnant state most quickly. Stress the mother's need for adequate rest, and healthful food at least four times in a day. Promote urinary continence and talk more about the squeezing exercise.

- Explain why she should continue to take iron and folate pills for 40 days. If this is used in your area, tell her why you are giving her a single dose of vitamin A (for breast feeding mothers during the first month after delivery).

- Explain ways to prevent pregnancy and reproductive tract infections, see Family Planning in **Learning Aid 1**, and in *Guide for Caregivers – Family Planning Counseling.*

- Plan to see the mother and family before the six weeks' visit if you think the mother is having any problems or seems uncertain about the information you gave her.

- Talk with the woman about the Emergency Referral Plan that she and her family made during her antenatal care and talked about just after delivery. If she did not attend antenatal clinic or this is the first time of seeing her, then talk with her about being ready incase of an emergency. It is very important to be ready in case there is a problem with the mother or the baby.

- Remind the mother and her family to continue to watch for danger signs, and to tell you immediately if she sees:

DANGER SIGNS
Any of these signs should be referred immediately

Postpartum Woman	Baby
• Too much vaginal bleeding • Fever • Abdominal pain • Foul smelling lochia • Convulsions: tetanus, malaria, eclampsia	• Feeding problems • Trouble breathing • Too hot or too cold • Any pus discharge, pustules • Born too small • Anything unusual: cry, fits, irritable, lethargic, limp, jaundice

Give medicines. Give any treatment or prophylaxis such as immunizations, see *Guide for Caregivers – Formulary.* Discuss importance of immunizations.

Schedule next visit for the woman's follow up and an under-five clinic visit for baby. Encourage attendance at under-five clinic for growth monitoring and immunizations. The baby should get the first DPT at 2 months, the second DPT 1-2 months later, and measles at 9 months.

Documentation and Record Keeping

All findings and plans of care should be written in a report that becomes part of the woman's and baby's record. This record may be kept by the woman or the facility. This information will help you and others give quality care. You may use a form, ledger or any paper. The information used includes:

- Mother's **antenatal card** with labor and delivery information. This information may also be available in the facility records, see Module 2: **Antenatal Care**.

- **Partograph and back of partograph** form, see Module 3: **Labor.** This document usually stays at the facility.

- **Newborn birth information.** This information may be added on the back of the partograph, on a birth certificate, and on the under-five immunization and weight card.

- **Under-five weight card and immunization record**. The mother usually has this card, see **Learning Aid 8**. It is used in maternal and child health clinics to follow the weight and immunizations of children. The average weights of children at a given age will vary. This standard chart helps you watch the growth of a child under the age of five. Growth of the child is more important than the position on the weight chart. **A child is in danger if he is not growing, if his growth curve is not moving up.**

- **Postpartum report** may be a facility record or a take home care or both, see **Learning Aids 5 and 6.** Postpartum information includes family planning method given or referral for family planning method. When doing the postpartum visits, you may add information as you are taking the history and then again when you are finished with the physical examination. When you are finished with the woman and baby, write your findings and the care and advice given. Make sure that your information is complete. In addition to the date and time of the visit the report should include: me.
  - History findings
  - Physical examination and laboratory results
  - Problems and needs for the woman and baby
  - Plan of care for each problem including: counseling and education given, treatments done, medicines given, other laboratory tests to be done, referral made
  - Follow up date for the next visit

- **Notification of birth** is required by most local authorities. In some areas it is the responsibility of the midwife only, in others the father or the family notifies authorities. The midwife should find out what the practice is in her area and act accordingly. If there is no requirement for birth registration, the midwife may use a ledger and record the information for births in her area (including those she does not attend but is told about). Each community may have a birth register and record all births in their community. The information usually required is:
  - Mother's name
  - Father's name
  - Address
  - Date and time of delivery
  - Sex of the baby
  - Midwife's name

EVALUATION AND REPEAT PROCESS

Follow up visits are important to see if a previous problem is solved, staying the same, or getting worse. The follow up visits may need to be scheduled at other than the regular schedule to evaluate a problem. You will need to repeat the problem solving method. You may have to develop a new plan. The mother and her family may need to have information or advice repeated to be sure they understand. A different medication or treatment may be needed. Referral may be needed to a hospital or doctor.

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. P.G. has never used family planning before. What family planning counseling and advice will you give her during the postpartum 7-10 day visit (pages 10.32 – 10.34)?

2. You examine P.G. during her postpartum 7-10 day visit. What things will you explain to her as you **LOOK and FEEL** (pages 10.40)?

   a. Relationship with her baby

   b. Vital signs

   c. Breasts

   d. Uterus

   e. Lochia

   f. Perineal area

3. When you examine P.G.'s baby during the 7-10 day visit, what will you examine and what are the normal findings (page 10.38)?

4. What will you say when you counsel P.G. about mother and baby danger signs (page 10.43)?

Case Study 1 - What Is the Problem?

Read the **ASK and LISTEN** and the **LOOK and FEEL** sections in this case study. Decide what you think the **PROBLEM** is and what **ACTION** should be taken to help the woman. Remember that action may include treatment, education, counseling, more laboratory tests, referral, and follow up. Use the *Guide for Caregivers – Protocols, Counseling* for your answers.

When you finish, look on the next page for suggested answers.

ASK and LISTEN: A 32 year old woman, gravida 7, para 7, comes for her 6 week postpartum visit. She says her baby boy is sucking at the breast at least 10 or 12 times in a day. His urine and stools are regular. She has not seen any discharge or bleeding. She complains of feeling very tired.

LOOK and FEEL: At today's visit you find BP 112/66, pulse 78 beats in a minute, uterus involution is complete to nonpregnant state, conjunctiva pale, nail beds pale, plus one (mild) ankle edema, hemoglobin 9 gm. Her baby latches and sucks well. He is gaining weight. He appears happy and his mother plays with him.

What is the **PROBLEM**?

What are the **ACTIONS**?

ANSWERS – Case Study 1

What is the **PROBLEM?** *Postpartum 6 weeks, with anemia.*

What are the **ACTIONS?**

Treatment

- *Find out why she is so anemic. Think about malaria, other parasites, poor diet with closely spaced pregnancies, bleeding, chronic illness.*
- *Malaria – Give malaria treatment according to local protocols*
- *Poor Diet/Malnutrition – Take a diet history:*
  - *Do you get enough food? Do you have any worries about getting enough food?*
  - *What did you eat yesterday for each meal? How much?*
  - *Did you have any snacks? What type? How often?*
  - *What did you drink? How much?*
  - *Is something interfering with your food intake (sore teeth or gums, nausea, or eating of ashes, starch, clay, ice?*
  - *What foods can you afford to buy?*
- *Bleeding – Check bleeding. For care see Guide for Caregivers – Protocols.*

Education

- *Poor Diet/Malnutrition – Educate her to eat foods high in iron (red meats, red organ meats, poultry, fish, beans, lentils, peas, some dark green leafy vegetables and whole grains), folic acid (green leafy vegetables, fruits, dried beans, peas and nuts)and Vitamin C (oranges, lemons, tomatoes, peppers, pumpkin and other fruits)*
- *Closely spaced pregnancies – Review LAM criteria, tell her about other FP methods*

Counseling

- *Explain to her and her family about the problem and what you recommend.*
- *Poor Diet/Malnutrition – Some women have constipation, diarrhea, and nausea when they take the iron pills. These are not serious and usually go away in a few days. If the problem does not go away, tell the midwife. Drink less or stop drinking tea, coffee and soft drinks. They reduce absorption of iron. Take the iron pills with juice, fruit or water.*
- *Malaria – Use indoor residual spraying, insecticide treated bed nets, and cover arms and legs during the time of the day/night that mosquitoes are biting.*
- *Closely spaced pregnancies – Getting pregnant so soon after the last child was hard on your body. Plan at least 3 years between pregnancies.*

Lab tests

- *If suspect malaria from symptoms, do a malaria smear*
- *Test for parasites*
- *If suspect HIV, do HIV test*
- *If suspect TB, do TB test*

Referral

- *Refer as needed*

Plan Evaluation and Repeat the Process

- *Return for another visit in one month. Your baby has an appointment at the Under-Five Clinic for immunizations and to be weighed. We will talk with you to see if you are feeling better, staying the same, or getting worse and if anything else must be done.*

Case Study 2 - What Is the Problem?

Read the **ASK and LISTEN** and the **LOOK and FEEL** sections in this case study (below). Then decide what you think the **PROBLEM** is, and what **ACTION** needs to be taken to help the woman. Remember that action may include treatment, education, counseling, more laboratory tests, referral, and follow up.

When you finish, look on the next page for suggested answers.

ASK and LISTEN: Mrs. I.D.'s family asked you to come to her house. She delivered 5 days ago. This morning she feels very hot and does not feel like bathing or eating.

You find out that Mrs. I.D. received antenatal care at the hospital and this is her second delivery. The baby girl is sucking, moving around and looks healthy. The labor was about 1/2 day, her perineum is intact, and the placenta and membranes were complete.

LOOK and FEEL: You find that she is very hot to the touch, her pulse is 108 beats in a minute, she is flushed, looks sick, and has foul smelling, blood-tinged, purulent (pus) vaginal discharge. The uterus is firm, contracted, and very tender.

What is the **PROBLEM**?

What are the **ACTIONS**?

ANSWERS – Case Study 2

What is the **PROBLEM?**

Infection of the uterus. Untreated postpartum infection can move from the uterus into the abdomen and become sepsis.

What are the **ACTIONS?**

Treatment

- *Give broad spectrum antibiotics. See Guide for Caregivers – Protocols, Formulary.*
- *While waiting for transport, help her rest in a semi-seated position.*
- *Lower her fever and hydrate her. Give at least one glass (8 ounces, 250 ml) of water or other liquid at least every one hour. If she is very sick, feed her the liquid with a spoon. If she begins to vomit, wait a little while and begin giving her liquids again. Also think about starting an IV. If an IV is not available, think about giving fluids through her rectum.*

Counseling

- *Explain to her and her family about the problem and what you recommend.*
- *A semi-seated position helps to keep the pelvis low to help drain discharge from the uterus and vagina.*
- *Reassure and explain that fluids will help her get better, so it is important to drink.*

Lab tests

- *May be done at the hospital.*

Referral

- *Refer the woman immediately with her baby*
- *Ask the family if they have an plan for an emergency and have decided:*
  - *How to get to the hospital?*
  - *Is there money to pay the cost for the transportation and hospital?*
  - *Who will go to help give care on the way?*
  - *Who will go to help with other things?*
  - *Who will care for the home and children?*

Plan Evaluation and Repeat the Process

Plan to see the woman when she returns from the hospital. This visit will be to see if she is feeling better, staying the same, or getting worse and if anything else must be done.

Case Study 3 - What Is the Problem?

Read the **ASK and LISTEN** and the **LOOK and FEEL** sections in this case study (below). Then decide what you think is the **PROBLEM** and what **ACTION** needs to be taken to help the woman. Remember that action may include treatment, education, counseling, more laboratory tests, referral, and follow up.

When you finish, look on the next page for suggested answers.

ASK and LISTEN: The mother says her baby has been vomiting since morning. The baby was healthy until about three days ago when the mother noticed he was not interested in breast feeding. Last night, the baby had a fit which lasted about five minutes. He has vomited twice already today.

The baby had a full term delivery 2 weeks ago.

LOOK and FEEL: You find the baby looks very ill and listless. His anterior fontanelle bulges a little. His mucous membranes are pink and the tongue looks like it has a white colored covering. The breathing is normal. His abdomen is distended (the mother says his urine and stools are normal). A pus-like discharge comes from the umbilicus. The umbilical stump is wet and red. His temperature is 39°C, pulse is 150 beats in a minute, and his weight is 2.97 kg.

What is the **PROBLEM**?

What are the **ACTIONS**?

ANSWERS – Case Study 3

What is the **PROBLEM?**

The baby boy has an umbilical infection and probably septicemia.

What are the **ACTIONS?**

Treatment

- *Give broad spectrum antibiotics. See Guide for Caregivers – Protocols, Formulary.*
- *While waiting for transport, ask the woman to hold the baby and keep a light cover on him.*
- *The baby must eat. If he can not suck, help the woman express breast milk and feed the baby with a cup (about 50 ml every three hours). If the baby can not take from the cup, insert a nasogastric tube and feed him the expressed breast milk.*

Counseling

- *Explain to the mother and family the baby is very sick and must get to the hospital as soon as possible.*
- *Explain the importance of continuing to feed the baby on the way to the hospital.*
- *Reassure the family the baby will get help when reaching the hospital.*

Lab tests

- *May be done at the hospital.*

Referral

- *Refer the baby immediately with the mother*
- *Ask the family if they have an plan for an emergency and have decided:*
  - *How to get to the hospital?*
  - *Is there money to pay the cost for the transportation and hospital?*
  - *Who will go to help give care on the way?*
  - *Who will go to help with other things?*
  - *Who will care for the home and children?*

Plan Evaluation and Repeat the Process

Plan to see the baby when he returns from the hospital. This visit will be to see if he is feeling better, staying the same, or getting worse and if anything else must be done.

Learning Aid 1 – Family Planning Methods Chart

The following chart lists family planning methods. Use the information to give the woman or couple to help them make a decision about a family planning method. The smiley face "☺" means it is OK for a breast feeding woman to use the method.

Method / Effectiveness	Advantages / Disadvantages	Usage	Limitations	Side Effects	The Truth About Misconceptions
Lactation Amenorrhea Method (LAM) 98% effective ☺	• Free and easy for women who are exclusively breast feeding • Universally available and very effective • Improves breast feeding and weaning patterns	3 conditions: • Give *only* breast milk to the baby whenever baby is hungry, at least 10 times during 24 hours with at least one feed during the night, feeds are not further apart than six hours. • Monthly bleeding not returned • Baby is less than six months old.	• If mother is HIV + and replacement feeding IS NOT acceptable, feasible, affordable, safe or sustainable THEN • EXCLUSIVE breast feeding is safer than mixed feeding during first 6 months	None	• LAM is very effective
Condoms (male or female) 85 - 98% effective ☺	• Protects against pregnancy AND STIs, including HIV/AIDS • Must be used correctly every time to be highly effective • Is a responsible way to show concern for your own and your partner's health.	Must be used every time ejaculation occurs near or in the vagina	In HIV high risk area use condoms **without** nonoxynl-9	Occasionally causes skin rash	• Smart couples use condoms to prevent pregnancy and STIs • Condoms are not only for sex outside marriage. Many married couples use them. • Most people who use condoms do not have HIV and are healthy. • Proposing condom use does not mean a person is infected with HIV or that you do not trust your partner. It means the person is responsible and caring. • Condoms are high-quality and do not have holes. • Condoms do not contain or spread HIV. • Most men can use male condoms, regardless of penis size. • Using condoms may change the sensation of sex, but sex is still enjoyable. Some couples find sex even more enjoyable with condoms.

Method / Effectiveness	Advantages / Disadvantages	Usage	Limitations	Side Effects	The Truth About Misconceptions
Intrauterine Device (IUD) 99.2 - 99.4% effective ☺	• Highly effective without doing anything • Available at health center level but requires sterile technique • Good option for HIV positive women • Quick return to fertility after removal	• Insert in health center, good for 12 – 13 years with copper T • May insert during first 48 hours postpartum by trained providers	• Should not be inserted if purulent cervicitis, chlamydia, gonorrhea, or PID present.	• NOT associated with higher PID or infertility rates • May cause heavier monthly bleeding	• IUDs do NOT cause infertility, travel inside the body, and they do NOT cause abortions • IUDs do not increase a woman's chances of getting HIV or of her passing HIV to her sex partner. • If a woman does not already have and STI, especially gonorrhea or Chlamydia, she can not get pelvic inflammatory disease just from having an IUD inserted.
Progestin-only pill (POP) 92 - 99.3% effective ☺	• Used while breast feeding after 6 weeks post partum, or by women who should not use estrogen • Can distribute at community level • Can be used with most medical conditions • Take at the same time every day to prevent irregular bleeding and pregnancy	• Take daily – **must *be taken at the same time every day*** or will not protect as effectively	• Breast cancer, liver tumors, • Less effective if on certain drugs (Rimfampin)	• Irregular monthly bleeding, • Vaginal spotting, or • Amenorrhea	• POP's are very effective
Progestin-only injectables (DMPA, Noristerate) 97 - 99.7% effective ☺	• Effective • Doesn't need to be remembered daily • Discreet • Usually only available in facilities	• Injection every 3 months for DMPA • Every 2 months for Noristerate • Can start after 6 wks post partum • Available subcutaneous with lower dose and same effect as DMPA	DMPA is ok for women taking Rimfampin	Include changes in monthly bleeding (spotting or prolonged monthly bleeding then changes and amenorrhea), weight gain, headaches, and dizziness – but symptoms decrease within 4-6 months so counseling essential • Delay in return to fertility • Temporary loss of bone density	• Will NOT have negative effects on breast feeding, or if pregnant, the development of baby. • Do not give to a woman if early pregnancy can not be ruled out. "The effects of DMPA use and its effects on the fetus remain unclear" (WHO MEC 2004)
Implants (Jadelle, Implanon) 99.95% effective ☺	• Highly effective • Can be withdrawn early with quick return to fertility • Safe during breast feeding, • Nursing mothers can start implants 6 weeks after childbirth • Can be difficult to insert or remove	• Norplant: 6 rods remain in 7yrs no longer available 2008 • Jadelle: 2 rods/5yrs • Implanon:1 rod/3yrs • Implanon is easier to insert and remove	Implants not recommended for women taking Rimfampin	• Irregular monthly bleeding • Vaginal spotting or amenorrhea	

Method / Effectiveness	Advantages / Disadvantages	Usage	Limitations	Side Effects	The Truth About Misconceptions
Combined oral contraceptives (COC) 92 - 99.3% effective	• Reliable, • Can distribute at community level, • Protects against certain cancers, anemias and other conditions • Quick return to fertility	• 1 pill taken daily • Can start any time assuming woman is not pregnant • No known adverse outcome reported when taken inadvertently during pregnancy	• If postpartum and breast feeding, start after 6 months after delivery • Smoking • History of venous thrombosis, • Hypertension systolic >160 or diastolic >100	Estrogen related side effects	• These are NOT contraindications: varicose veins, previous depression, benign ovarian tumors, STIs, HIV positive, thyroid disorders, simple migraines headaches and iron deficiency
Combined injectable contraceptives 97 - 99.3% effective	• Doesn't need to be remembered daily • Discreet • More regular bleeding cycles	Monthly injection			
Vasectomy / Tubal Ligation >99% effective ☺	• Very safe, effective, and cost-effective • People often lack adequate information to overcome rumors	• Surgery one time for permanent protection • Can be done with C-Section • Not difficult, but often not taught in medical school	Vasectomy does not provide immediate sterility, must use another method for 3 months after surgery	No-scapel technique (male) with less pain and bleeding.	• Vasectomy does NOT affect sexual function • It is not associated with prostate cancer, heart disease or testicular cancer. • Women still get their monthly bleeding after a tubal ligation
Spermicides ☺	Easily available	Must be used every time	Not very effective by themselves	Can cause vaginal itching	Current spermicides do NOT protect from HIV or any STI. They may enhance transmission of HIV.
Natural methods – withdrawal, calendar-based and observation –based (Basal Body Temperature, Cervical Mucous [Billings] Standard Days Method, Rhythm, Sympto-thermal)	• Acceptable, free and no side effects • Depend on couple negotiation, commitment • Depends on couple's ability to identify fertile days and abstain or use other protection • High failure rates • Difficult to practice in lactating women	• Requires daily monitoring of fertility status • Depends on cycles	• If both members of the couple are not committed • Breast feeding women need to wait until they have resumed normal monthly bleeding	None	None
Emergency contraceptive pills (ECPs)	Can prevent pregnancy after unprotected intercourse has occurred.	• Use 1.5 mg of progestin-only (levonorgestrel) • Use COC of 100 of estrogen and 0.50 of progestin followed by the same dose 12 hours later • Take pills up to 120 hours after unprotected sex, but more effective if taken in first 72 hours	• No medical contraindications except do not use during pregnancy. • Emergency contraception pills (ECPs) are not thought to be harmful but they are not as effective as routine contraception • They are not effective for on going family planning protection.	May have nausea and vomiting especially with COCs due to higher dosage	The ECPs do NOT interrupt an established pregnancy (they act before implantation)

Learning Aid 2 – LATCH Assessment of Breast Feeding

Good attachment (good LATCH) helps mother and baby. Mother's nipples do not get sore and baby is able to get enough milk. Good attachment is important to help the baby suck well, remove milk efficiently, and stimulate the breasts to produce enough milk. Poor attachment may not remove enough milk and can lead to sore nipples, inflammation of the breast, and mastitis.

Review the breast feeding section in this module to help the mother get in a good position and to hold the baby in a good position.

Figure 15. Good attachment and position.
Source: Linkages accessed 2007.

Good Latch and Sucking Signs

- You see the pink of baby's lips.
- There is a tight seal between the baby's mouth and the areola. Baby has a mouthful of breast.
- Much of the areola (at least one-inch or 2 cm) is inside baby's mouth. As the baby sucks you do not see the base of the nipple, but only the outer part of the areola.
- Baby's tongue is between the lower gum and the breast. If you pull down gently on baby's lower lip, you should be able to see the tongue. With a good latch, baby's tongue goes out over the lower gum cushioning the nipple from jaw pressure. Baby's chin touches the breast.
- Baby's ears are wiggling. During active sucking and swallowing the muscles in front of baby's ears move, indicating a strong and efficient suck that uses all of the lower jaw.
- You hear baby swallowing. During the first few days after birth, baby may suck 5 to 10 times before you hear a swallow. That's because colostrum comes in small amounts. You may have to listen carefully to notice swallows. **Tell the mother:** *after your milk has "come in," you will hear swallowing easily. After the baby's initial sucking has triggered the milk release reflex, you should hear a swallow after every suck or two. Baby takes slow deep sucks, sometimes pausing before sucking again. This active sucking and swallowing should continue for five to ten minutes on each breast.*
- Milk does not leak much from the corners of baby's mouth. Baby swallows the milk instead.
- Breast feeding is comfortable and pain free. The mother will learn the baby is latched properly and sucking efficiently by the way it feels.

Not Latched-on and Poor Sucking Signs

- Mother is not comfortable or is having pain
- Clicking sounds usually mean that baby does not have his tongue positioned correctly
- You may see dimpling (the middle of baby's cheeks sunk in) during sucking
- Baby has a poor seal on the breast and is breaking suction as he moves his gum and tongue.

LATCH Breast Feeding Evaluation Tool

Source: Jensen 1994

Score Value		0 Points	1 Point	2 Points	Results 0	1	2
L	**L**ATCH	Too sleepy or reluctant, No attachment achieved	Repeated attempts, Hold nipple in mouth, Stimulate to suck	Grasps nipple & areola, Tongue down, Wide open mouth, Lips flanged, Rhythmic sucking			
A	**A**UDIBLE SWALLOWING	None	A few with stimulation	Spontaneous and intermittent <24 hrs old			
				Spontaneous and frequent >24 hrs old			
T	**T**YPE OF NIPPLE	Inverted	Flat	Everted			
C	**C**OMFORT (Breast/nipple)	Engorged, Cracked, Bleeding, Severe discomfort	Filling, Reddened, Moderate discomfort	Soft, Non-tender, not red, Mild or no discomfort			
H	**H**OLD (Positioning)	Uncomfortable with position, Full Assist (Staff holds)	Needs some assistance, Teach one side, Mother does other	Mother able to position/hold baby			
				TOTAL SCORE			
				MIDWIFE INITIALS			

Directions. Watch and evaluate the mother/baby pair for each of the five LATCH steps. Give a score of 0 to 2 points for each step, write score in appropriate column. Add the total.

- **Score 8 – 10:** the mother does not need more help with breast feeding.
- **Score 5 – 7:** the mother needs more help with breast feeding. Help her the next time she puts the baby to breast. Re-evaluate with the LATCH tool and encourage her.
- **Score 0 – 4:** the mother needs a lot more help with breast feeding. Ask mother to call for help every time she wants to put the baby to breast until her LATCH score is 8 or higher.

Be patient when helping a mother learn to breast feed her baby.
It may take a week or two for first mothers to become skilled at breast feeding.

Learning Aid 3 – Ten Steps to Successful Breast Feeding

Source: UNICEF WHO Statement 1989.

Every facility providing maternity services and care for newborn infants should:

1. Have a written breast feeding policy that is reviewed often with all health care staff.

2. Train all health care staff in skills needed to make this policy work.

3. Advise all pregnant women about the benefits and management of breast feeding.

4. Help mothers begin breast feeding within a half-hour of birth.

5. Show mothers how to breast feed and how to express milk if they are separated from their infants, so lactation does not decrease.

6. Give newborn infants no food or drink other than breast milk, unless **for a medical reason.**

7. Practice rooming-in, allowing mothers and infants to remain together 24 hours a day.

8. Encourage breast feeding on demand.

9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast feeding infants.

10. Encourage women to start breast feeding support groups and refer mothers to them when they leave the hospital or clinic.

Learning Aid 4 – Express Breast Milk and Cup Feed

Source: Linkages 2006 Facts for Feeding Low Birth Weight Babies.

All mothers should learn to express their breast milk. They can start to learn during pregnancy and practice soon after delivery. Removing breast milk by hand is useful for (a) low birth weight or sick baby, (b) relieving engorgement, (c) keeping up a mother's milk supply when she is sick, and (d) leaving milk for her baby when she goes out.

Expressing breast milk is easy when the breasts are soft. It is a little more difficult when the breasts are engorged and tender. A mother should remove milk from her own breasts, because she knows when it is painful. If you are teaching her, show her on your own body if you can, or guide her fingers on her own breast with your hand. If you touch her breasts, be very gentle, wash your hands before and after touching her and explain to her what you are doing. Wear gloves if you think you will have contact with her breast milk. Explain to her this may take 20 – 30 minutes, especially in the first days when only a little milk may come. She should not try to hurry.

Figure 16. Put container in place.

Teach mother how to remove breast milk by hand

1. Find a private place where the mother can relax near to her baby.
2. Wash your hands with soap and water. Dry with a clean cloth or air dry. Ask the mother to do the same.
3. Ask the mother to sit comfortably.
4. Put on gloves, if needed. The mother does not need gloves.
5. Put warm wet cloths on the breasts for 5 minutes to help open the milk ducts, if needed.
6. Have a cup or container with a wide opening that was boiled.
7. Help the woman gently massage her breasts from outside towards the nipple to bring the milk down to the nipple.
8. Hold the breast in a "C-hold". Position thumb on the upper edge of the areola and the first two fingers on the underside of the breast behind the areola, Figure 17.

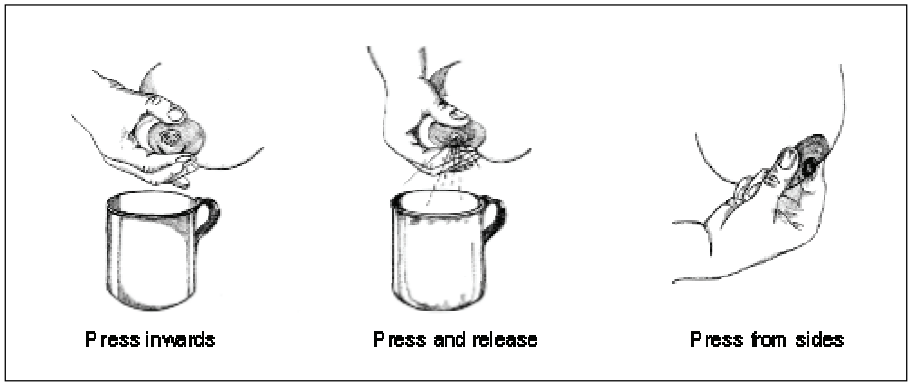


Figure 17. Finger positions for expressing breast milk.

9. Express milk out, see Figure 17.
   - Lean forward so the milk will go into the container
   - Press thumb and other fingers in toward the body
   - Squeeze thumb and other fingers together
   - Move them toward the areola, so the milk in the collecting areas behind the areola comes out.
   - Repeat actions to express milk until milk flow slows
   - Be patient, even if no milk comes in the beginning
   - Move hands around the breast so milk is removed from all areas of the breast
   - It does not make any difference what hand is used, or use both hands, see Figure 16.

10. Express one breast for 3 - 5 minutes until the flow stops, then express the other breast, then back to first side; continue alternating breasts.
    - Do not squeeze the breast, or pull out the nipple and breast, or slide the finger along the skin
    - Some mothers find that pressing in towards the chest wall at the same time as compressing helps the milk to flow. Use the following rhythm: position, push, press; position, push, press.

11. Explain expressing milk can take 20 to 30 minutes or more.

Guidelines for cup feeding

To feed expressed breast milk by cup, the mother should:

- Swaddle the baby to prevent the baby's hands from hitting the cup and hold the baby closely.
- Support the baby's head and sit the baby upright or semi upright in her lap.
- Hold the small cup to the baby's lips. The baby might make sucking motions.
- Hold the rim of the cup to the baby's upper lip and tip it slightly so the milk just reaches the baby's mouth. The baby may lick the milk with the tongue or suck the edge of the cup to take the milk.
- Tip the cup so that the milk just reaches the baby's lips and allows the baby to take the milk.
- Keep the cup tilted so that the milk just reaches the baby's mouth; let the baby control how fast he takes the milk.
- Try to estimate the amount of milk that has been spilt (e.g., trickling down the baby's chin or cheek) and give the baby that much more.

Remember: Pouring milk into a baby's mouth can cause the baby to choke.

Learning Aid 5 – Sample Postpartum Record

Write or circle information

MOTHER NAME	**G/P/AB**	**EPISIOTOMY, LACERATION, PROBLEMS**
BIRTH DATE / TIME	**BABY NAME / WEIGHT**	**APGAR / PROBLEMS**

AREAS TO CHECK			VISIT# 1 (6 - 24 HOURS)	VISIT # 2 (2 - 3 DAYS)	VISIT # 3 (7 - 10 DAYS)	VISIT # 4 (4 - 6 WEEKS)
DATE + TIME						
MOTHER: Ask and Listen	General / pain					
	Eating / Drinking					
	Bleeding					
	Bladder					
	Other					
MOTHER: Look and Feel	T, P, BP					
	Breasts					
	Uterus					
	Lochia					
	Perineum					
	Problems?					
BABY: Ask and Listen	General					
	Breast Feeding					
	Other					
BABY: Look and Feel	General					
	T, Breathing					
	Eyes					
	Observe Feeding					
	Cord					
	Urine / Stool					
	Problems?					
Identify Problems and Needs						
Take Action	Counseling and Treatment (circle topics when done at visit)	MOTHER	Danger Signs Breast Feeding Colostrum Hygiene Nutrition Emergency Referral Plan Treatment Other:	Danger Signs Breast Feeding Hygiene Sleep / Rest Mother Meds: Iron, Vit A Other:	Danger Signs Breast Feeding Hygiene Rest Family Planning Anemia Other:	General Health Family Planning Problems Other: Follow Up at Six Months: Family Planning, Other.
		BABY	Danger Signs Warmth Cord Care Eye Care Delay Bathing Treatment Other:	Danger Signs Warmth Latching Infection Cord Care Other:	Jaundice Cord Care Immunizations Growth Monitoring Other:	Immunizations Problems Growth Monitoring Other:

Learning Aid 6 – Focused Postpartum Care

<table>
<tr><th>FIRST CHECK</th><th>SECOND CHECK</th><th>THIRD CHECK</th><th>FOURTH CHECK</th><th>FIFTH CHECK</th><th>SIXTH CHECK</th></tr>
<tr><td>Immediate at birth for 6 hours</td><td>Within first 24 hours after birth or if not attended by midwife as soon as possible</td><td>2 – 3 days after birth</td><td>7 – 10 days after birth</td><td>4 – 6 weeks after birth</td><td>6 months after birth</td></tr>
<tr><td colspan="6">WOMAN</td></tr>
<tr><td rowspan="2">See Module 3</td><td rowspan="2">Blood Loss
Pain
Blood Pressure
Danger Signs
Give Treatment
Advice:
o Nutrition
o Hygiene
o Rest
o LAM
o Emergency Referral Plan
o Postpartum visits</td><td colspan="2">Breast Care
Temperature
Infection
Lochia
Mood
Danger Signs
Give Treatment</td><td>Recovery
Anemia
Family Planning</td><td rowspan="2">General Health
Family Planning
Problems
Advice</td></tr>
<tr><td colspan="3">Advice:
o Nutrition & breast feeding
o Hygiene
o Breast care
o Rest
o Exercise
o LAM
o Review Emergency Referral Plan
o Postpartum visits</td></tr>
<tr><td colspan="6">BABY</td></tr>
<tr><td>See Module 3</td><td>Breathing
Warmth
Feeding: latch, colostrum
Cord
Immunizations
Danger Signs</td><td colspan="2">Feeding
Infection
Danger Signs
Warmth
Stimulation: talking, singing to baby</td><td>Weight
Growing
Feeding
Immunizations
Stimulation: talking, singing</td><td>Development
Weaning and/or encourage continued breast feeding</td></tr>
</table>

Source: WHO 2003 page 5 – table 3, adapted for LSS 4th 2008.

Learning Aid 7 – Care of Low Birth Weight Baby

Low birth weight babies are about 27% of the 4 million neonatal deaths each year. Babies that are small at birth weigh less than 2500 grams (2.5 kg). These babies may be term and just too small. These babies may also be preterm and have problems with breathing and sucking. The low birth weight baby has little body fat to protect him from the cold. He needs special attention. The mother and family need extra counseling and support.

During Pregnancy and Birth

Before the delivery, the mother takes care of all the needs of her unborn baby for oxygen, nutrients, warmth, and protection. When the baby is born, the baby has the same needs. Life saving care is needed without delay. This is his only chance to live. Kangaroo Mother Care (KMC) is a way to help the low birth weight baby. There are three main parts: continuous skin to skin contact with the mother, exclusive breast feeding, and support to the mother. The baby's breathing and temperature become stabilized, immunity is improved, infections are reduced, and breast feeding is better with faster weight gain. The mother becomes more attached to her baby and gains confidence in caring for her small baby.

Breathing

Babies born too small may have trouble breathing because their lungs are not mature. The midwife should dry and warm the baby and **LOOK** for respirations, see Module 3: **Labor**. Resuscitation should be done if needed, see Module 6: **Resuscitation**. Once the baby is breathing, make sure he is warm and dry. Small babies sometimes forget to breathe. The mother should continue to stimulate (rub the back) her baby from time to time until the baby is breathing well.

Warmth

Once the low birth weight baby is stable, place in skin to skin contact between the mother's breasts (or another family member or friend). Skin to skin contact begins at birth and is continued until the baby will no longer tolerate it. The baby usually wears a nappy (diaper) and the head is covered with a cloth or a cap. The baby is put next to the mother's bare skin with the baby's head and chest between the mother's breasts. A cloth is wrapped around the mother and baby to keep the baby in position. Both mother and baby should be covered with a blouse, cloth or blanket. Keeping babies warm in this way gives them the best chance of getting used to life outside the womb.

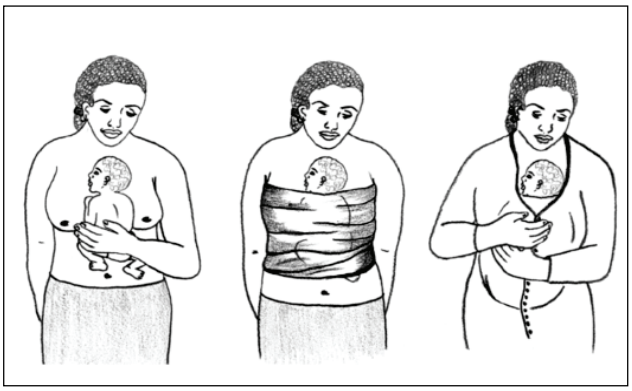


Figure 18. Skin to skin.

Source: Buffington 2004, Home Based Life Saving Skills, Community Meeting 11.

Feeding

Feeding is the heart of care for the low birth weight newborn. The midwife should help the mother decide the feeding options appropriate for her circumstances. The mother's options will depend on the level of prematurity of the baby and the severity of medical problems. The following chart shows how breast feeding behavior differs according to a baby's gestational age. Use this to help the mother decide how to feed her baby.

Gestational age	At the breast the baby can:
Less than 30 weeks	• Open the mouth and stick out the tongue • Lick milk from the mother's nipple • Take some breast tissue into the mouth • Make a few weak sucks
30-32 weeks *as above and:*	• Attach to the breast • Might make some (weak to strong) sucks with long pauses in between
33-35 weeks *as above and:*	• Might root (turn head and make sucking movements in response to the cheek being touched) • Have organized sucking bursts with long pauses • Take part of a feed from the breast or take one to all complete feeds from the breast
36 weeks and longer *as above and:*	• Usually breast feed in a well-coordinated manner

Source: Linkages 2006. Facts for Feeding Low Birth Weight Babies - derived from Sandra Lang, 2002.

- **If the baby is able to suck and swallow,** exclusive and unlimited breast feeding is available for the baby. Sometimes the small baby gets tired sucking, sleeps a little, and then again looks for the breast. Expressing breast milk and feed baby with cup is less tiring for the baby. If the baby is getting enough milk, you should see him start to gain weight by the end of the first week. If the baby does not gain weight, refer baby and mother to the hospital or doctor, see *Guide for Caregivers – Protocols.*

- **If the baby can not suck or take feed,** refer the baby and mother to the hospital or doctor. Low birth weight babies are at risk for not getting enough food. While waiting for referral and during referral, help the mother express breast milk and feed her baby using a cup.

- **If the baby has signs of low blood sugar** (lethargy, jitteriness), and
  - Is able to suck and swallow, give breast milk and glucose solution.
  - Is not able to suck and swallow, give glucose by nasogastric feeding tube, see Module 8: **Stabilize and Refer**.
  - If unable to insert a feeding tube, and the baby can not swallow, or if the baby is severely dehydrated, it is very important to give fluid into his vein – intravenous infusion.

Making Glucose Solution

Mix 4 heaped teaspoons of glucose (sugar if no glucose), in a cupful of water to make a 5 -10 per cent solution.

Give 25 ml/kg by cup, dropper or feeding tube.

Glucose will stop the low blood sugar signs in 15 minutes.

Continue to feed the baby every two hours for three days with expressed breast milk and glucose solution.

Monitor weight gain and feeding practices. The amount of breast milk needed by the low birth weight newborn in the first week depends on the baby's birth weight.

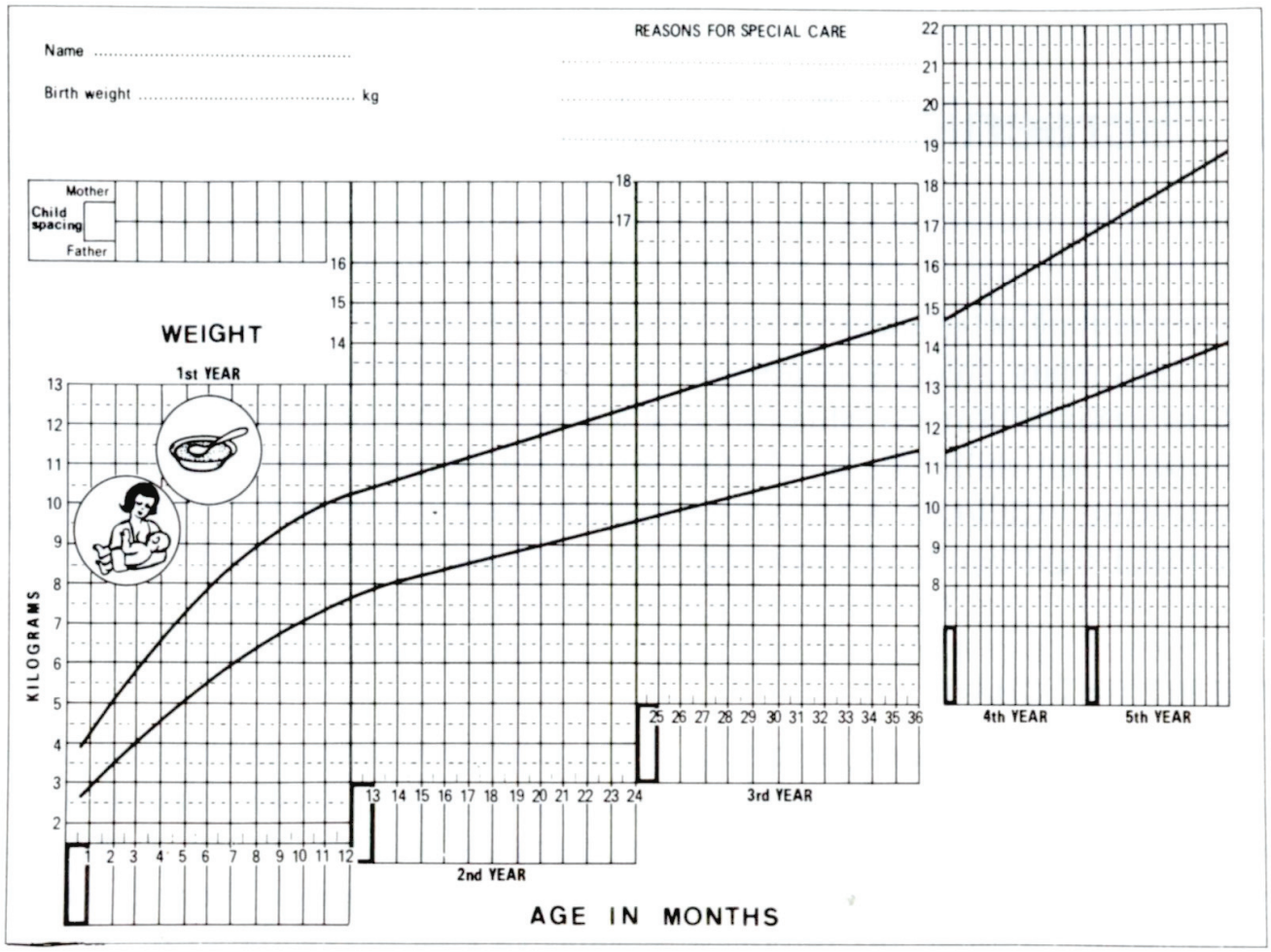
- Start with 60 ml of breast milk per kg (2.2 pounds) birth weight.
- Increase the amount of breast milk by 20 ml per kg birth weight per day.
- At the eighth day onwards, the baby needs 200 ml of breast milk per kg body weight per day until the baby weighs 2000 g (2 kg or 4.4 pounds).

Small babies should ideally be weighed daily. At first the weight is recorded to decide fluid intake and later to check growth. For the first few days of life, babies lose weight (sometimes this weight loss reaches about 10 percent of the birth weight). With enough intake, a baby should regain birth weight by the 7th to 14th day of life. For some low birth weight preterm babies, it may take longer. The daily weight gain should be at least 10 to 15 grams per kilogram of body weight per day. Accurate and precise weighing scales are needed to find daily weight changes. Spring balance scales are usually not adequate; but if they are the only type of scale available, it is better to weigh the infant only once a week.

Support to the Mother. The mother can continue to do what she normally does while providing kangaroo mother care. She will need a lot of help to maintain this continuous contact with her baby. In a health facility the staff can help. At home the family may help by keeping the baby skin to skin for short periods while the mother rests or takes care of other duties.

Learning Aid 8 – Under Five Weight Card (Road to Health)

Source: King 1978, Road to Health Chart.



REMEMBER

Healthy children have rising growth curves.
Growth is more important than position on the weight chart.
A child ***anywhere*** on the chart is in danger if he is not growing,
if his growth curve is not moving up.

REFERENCES 4th Edition

Experience and the following references were used to develop this module.

Allen, L. H. (2000). Anemia and iron deficiency: Effects on pregnancy outcome. *American Journal of Clinical Nutrition, 71*(suppl), 1280S -1284S.

Azaïs-Braesco, V., & Pascal, G. (2000). Vitamin A in pregnancy: Requirements and safety limits. *American Journal of Clinical Nutrition, 71* (suppl), 1325S -1333S.

Beard, J. L. (2000). Effectiveness and strategies of iron supplementation during pregnancy. *American Journal of Clinical Nutrition, 71* (suppl), 1288S -1294S.

Beck, D., Ganges, F., Goldman, S., & Long, P. (2004). *Care of the newborn reference manual.* Washington DC: Saving Newborn Lives - Save the Children. (Note: Figure 3.1 on page 62 used with permission.)

Bhutta, Z. A., Darmstadt, G. L., Hasan, B. S., & Haws, R. A. (2005). Community-based interventions for improving perinatal and neonatal health outcomes in developing countries: A review of the evidence. *Pediatrics, 115*(2), 519 - 617.

Bolam, A. (1998). The effects of postnatal education for mothers on infant care and family planning practices in Nepal: A randomised controlled study. *British Medical Journal, 316*, 805-811.

Bongiovanni, A. (2005). *Promoting the lactational amenorrhea method (LAM) in Jordan increases modern contraception use in the extended postpartum period.* Linkages' Final Report of its LAM research in Jordan. www.linkagesproject.org/publications/index.php

Brown, G. F., Elias, C. J, et al. (1994). *Reproductive health approach to family planning*. New York: The Population Council.

Buffington, S. T., Sibley, L. M., Beck, D. R., & Armbruster, D. A. (2004). *Home based life saving skills – Community meeting 4: Referral.* Silver Spring, MD: American College of Nurse-Midwives.

Chiarelli, P., & Cockburn, J. (2002). Promoting urinary continence in women after delivery: A randomised controlled trial. *British Medical Journal, 324,*1241 - 1247.

Conde-Agudelo, A., Diaz-Rossello, J., & Belizan, J. M. (2003). Kangaroo mother care to reduce morbidity and mortality in low birthweight infants (Cochrane Review). *The Cochrane Database of Systematic Reviews 2003, Issue 2.*

Coutsoudis, A., Pillay, K., Kuhn, L., Spooner, E., Tsai, W. Y., & Coovadia, H. M. (2001). Method of feeding and transmission of HIV-1 from mothers to children by 15 months of age: Prospective cohort study from Durban, South Africa. *AIDS, 15,* 379 - 387.

Dissanayake, V. H. W., Samarasinghe, H. D., Morgan, L., Jayasekara, R. W., Seneviratne, H. R., & Pipkin, F. B. (2007). Morbidity and mortality associated with pre-eclampsia at two tertiary care hospitals in Sri Lanka. *Journal of Obstetrics and Gynaecology, 33*(1), 56 -62.

Extending Service Delivery Project. (2007). *Healthy timing and spacing of pregnancies, a pocket guide for health practitioners, program managers and community leaders*. Accessed April, 2007. www.esdprog.org

Galadanci, H. S., Ejembi, C. L., Iliyasu, Z., Alagh, B., & Umare, U. S. (2007). Maternal health in Northern Nigeria – A far cry from ideal. *British Journal of Obstetrics and Gynaecology, 114,* 448 - 452.

Gozum, S., & Kilic, D. (2005). Health problems related to early discharge of Turkish women. *Midwifery, 21*, 371 - 378.

Gray, R. H., & Campbell, O. M. (1993, July). Characteristics and determinants of postpartum ovarian function in women in the United Sates. *American Journal of Obstetrics and Gynecology, 169*(1), 55 - 60.

Jensen, D., Wallace, S., Kelsay, P. (1994). A new breast feeding assessment tool. *Journal of Human Lactation, 10,* 9 -10.

Hatcher, R. A. (2004). *Contraceptive technology (18th Revised)*. New York: Ardent Media.

Hobcraft, J. (1994). *The health rationale for family planning: Timing of births and child survival.* New York: United Nations. ST/ESA/SER.A/141.

Idindili, B., Masanja, H., Urassa, H., Bunini, W., van Jaarsveld, P., Aponte, J. J., et al. (2007). Randomized controlled safety and efficacy trial of 2 vitamin A schedules in Tanzanian infants 1-3. *American Journal of Clinical Nutrition, 85,* 1312 - 1319.

Israel, E., & Kroeger, M. (2003, January). Integrating prevention of mother-to-child HIV transmission into existing maternal, child, and reproductive health programs. *Technical Guidance Series Number 3.* Pathfinder International. www.pathfind.org

Kapyepye, H., Klopper, H., & Bodkin, C. (2006). Haemorrhage in pregnancy: Information given to women in Chiradzulu (Malawi). *Curationis, 29*(2), 48 - 55.

King, M., King, F., & Martodipoero, S. (1978). *Primary child care: A manual for health workers.* Oxford: Oxford University Press.

King, J. (2000). Determinants of maternal zinc status during pregnancy. *American Journal of Clinical Nutrition, 71*(suppl), 1334S - 1343S.

Klein, S., Miller, S., & Thomson, F. (2004). *A book for midwives: Care for pregnancy, birth and women's health.* Berkeley, CA: The Hesperian Foundation.

Koblinsky, M. A. (2005). *Community-based postpartum care: An urgent unmet need*. Draft. CATALYST Consortium.

Kroeger, M., & Smith, L. (2004). *Impact of birthing practices on breastfeeding: Protecting the mother and baby continuum*. Boston: Jones and Bartlett.

Lawn, J. E. (2006). Analysis based on 38 DHS datasets (2000-2004) with 9,022 neonatal deaths, using MEASURE DHS STAT compiler (www.measuredhs.com). Used in Save the Children-U.S. *State of the world's mothers 2006*. Washington, DC: Save the Children-U.S.

Latch On. Accessed July 6, 2007. www.Breastfeeding.com

Li, X.F., et al. (1996). The postpartum period: The key to maternal mortality. *International Journal of Gynecology and Obstetrics. 54*: pp.1 -10.

Linkages. (2002). *LAM advocacy presentation.* Washington, DC: Academy for Educational Development and CORE.

Linkages. (2003). *Recommended feeding and dietary practices to improve infant and maternal health.* Washington, DC: Academy for Educational Development.

Linkages. (2004). *Breastfeeding and HIV/AIDS. Frequently asked questions (FAQ).* Washington, DC: Academy for Educational Development.

Linkages. (2004). *Infant feeding options in the context of HIV*. Washington, DC: Academy for Educational Development.

Linkages, CORE. (2004). *Maternal nutrition during pregnancy and lactation*. Washington, DC: Academy for Educational Development. www.linkagesproject.org/publications/index.php

Linkages. (2004). *Spotlight on PMTCT: Reducing mother-to-child transmission of HIV among women who breastfeed.* Washington, DC: Academy for Educational Development.

Linkages. (2004). *Spotlight on replacement feeding*: *Transition to replacement feeding by HIV-positive women who breastfeed.* Washington, DC: Academy for Educational Development.

Linkages. (2005). *Facts for feeding: Meeting the iron requirements of infants and young children*. Washington, DC: Academy for Educational Development.

Linkages. (2005). *Spotlight on LAM users: Transition to other modern methods of contraception after six months postpartum.* Washington, DC: Academy for Educational Development.

Linkages. Breastfeeding Attachment and Position. Accessed August 6, 2007. www.linkagesproject.org/tools/ccards/bf_positioning.php

Linkages. (2006). *Facts for feeding: Feeding low birthweight babies*. Washington, DC: Academy for Educational Development.

Linkages, CORE. (2006). *Maternal nutrition during pregnancy and lactation: Dietary guide*. Washington, DC: Academy for Educational Development.

Mason, L. (2001). Guidelines on the teaching of pelvic floor exercises. *British Journal of Medicine, 9*(10), 608 - 611.

McKaig, C., & Deller, B. (2006). *After the fact: Family planning for the postpartum period.* Powerpoint presentation.

McNeilly, A. S. (2001). Neuroendocrine changes and fertility in breast-feeding women. *Progress in Brain Research, 133,* 207 - 214.

Merkle, R., & Bodiang, C. K. (2006). Reproductive health update 2004. Swiss Tropical Institute at the Swiss Center for International Health. *Cleland Lancet Series 11*.

MotherCare Task Force. (1994). *Postpartum and neonate care.* Unpublished document. Author. Washington, D.C.

Mullany, L. C., Darmstadt, G. L., Khatry, S. K., Katz, J., LeClerq, S. C., & Shrestha, S. (2006). Topical applications of chlorhexidine to the umbilical cord for prevention of omphalitis and neonatal mortality in southern Nepal: A community-based, cluster-randomised trial. *Lancet, 367,* 910 - 918.

Mullany, L. C., Darmstadt, G. L., Khatry, S. K., LeClerq, S. C., & Tielsch, J. M. (2006). Safety of neonatal skin cleansing in rural Nepal. *Indian Pediatrics, 43*(2)*,* 117 - 123.

National Heart, Lung, and Blood Institute. (2000). Report of the National High Blood Pressure Education Program Working Group on high blood pressure in pregnancy. *American Journal of Obstetrics and Gynecology.* Bethesda, MD: Author.

Norton, M. (2005). Birth spacing: 2004 Evidence supports 3+ Years. *Global Health Technical Briefs.* Washington, DC: USAID. www.maqweb.org

Piwoz, E. (2004). *Nutrition and HIV/AIDS: Evidence, gaps, and priority actions*. Washington, DC: USAID.

Pocket Guide for family planning service providers: *Postpartum contraception.* Retrieved July 11, 2007. http://www.reprolinejhu.edu/english/6read/6multi/pg/ppc1.htm#figure%201

Quasem, I., Slowan, N. L., Chowdhury, A., Ahmed, S., Winikoff, B., & Chowdhury, A. M. R. (2003). Adaptation of kangaroo mother care for community-based application. *Journal of Perinatology, 23*, 646 - 651.

Rioux, F., Savoie, N., & Allard, J. (2006). Is there a link between postpartum anemia and discontinuation of breastfeeding? *Canadian Journal of Dietetic Practice and Research, 67,* 2.

Ronsman, C., & Graham, W. J. (2006). Maternal mortality: Who, when, where, and why? Maternal survival. *The Lancet Maternal Survival Series,* 13 -23.

Ross, J. A., & Winfrey, W. L. (2001). Contraceptive use, intention to use and unmet need during the extended postpartum period. *International Family Planning Perspectives, 27*(1), 20 -27.

Sakala, C. (2004, September/October). Resources for evidence-based practice. *Journal of Midwifery & Women's Health, 49*(5), 454 - 456.

Scholl, T. O., & Johnson, W. G. (2000). Folic acid: Influence on the outcome of pregnancy. *American Journal of Clinical Nutrition, 71*(suppl), 1295S -1303S.

Setty, V. (2006, March). Better breastfeeding, healthier lives. *Population Reports. Issues in World Health, Series L, Number 14.* Baltimore MD: JHBSPH, The INFO Project. www.populationreports.org

Sines, E., Syed, U., Wall, S., & Worley, H. (2007, January). *Postnatal Care: A critical opportunity to save mothers and newborns.* Policy Perspectives on Newborn Health - Population Reference Bureau. Washington DC: Saving Newborn Lives - Save the Children.

Stephenson, P., & MacDonald, P. (2005). *Family Planning for Postpartum Women: Seizing a Missed Opportunity.* Baltimore, MD: The INFO Project.

Trussell, J. (2007). *Contraceptive efficacy.* In R. A. Hatcher, J. Trussell, A. L. Nelson, W. Cates, F. H. Stewart, & D. Kowal (Eds.). *Contraceptive technology* (19th Rev. ed.). New York: Ardent Media.

USAID. (2006). *Family planning and reproductive health*. Child Survival and Health Grants Program (p. 6). Washington, DC: Author.

USAID's A2Z Micronutrient and Child Blindness Project, ACCESS Program, and Food and Nutrition Technical Assistance (FANTA) Project. (2006). *Maternal anemia: A preventable killer*. Washington, DC: Author.

Walker, M. (2006). *Breastfeeding management for the clinician using the evidence* (p. 265). Boston: Jones and Bartlet.

World Health Organization. (1998). *Basic newborn resuscitation: A practical guide.* Geneva, Switzerland: Author.

World Health Organization. (1998). *Postpartum care of the mother and newborn: A practical guide.* Report of a Technical Working Group. Geneva, Switzerland: Author.

World Health Organization. (1998). *Safe vitamin A dosage during pregnancy and lactation.* Recommendations and report from a consultation. Micronutrient series. Geneva, Switzerland: Author

World Health Organization. (2003). *Kangaroo mother care: A practical guide*. Geneva, Switzerland: Author.

World Health Organization Department of Making Pregnancy Safer (MPS) & Department of Reproductive Health and Research (RHR). (2005, 13-15 June). *Report of a WHO Technical Consultation on Birth Spacing.* Geneva, Switzerland.

World Health Organization. (2006). *Pregnancy childbirth postpartum and newborn care: A guide for essential practice.* Geneva, Switzerland: Author.

World Health Organization. (2006). *Anitretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings.* Geneva, Switzerland: Author.

World Health Organization. (2006). *Child growth standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development.* Coordinating team: De Onis, Mercedes, et al. Geneva, Switzerland: Author.

World Health Organization. (2006, 25-27 October). *HIV and infant feeding technical consultation.* On behalf of the inter-agency task team (IATT) on prevention of HIV infections in pregnant women, mothers and their infants. Geneva, Switzerland: Author.

World Health Organization. (2006). *Reproductive choices and family planning for people living with HIV.* Geneva, Switzerland: Author.

World Health Organization. *Micronutrient deficiencies*. Accessed July 13, 2007. www.who.int/nutrition/topics/vad/en/print.html

World Health Organization Department of Reproductive Health and Research and Johns Hopkins Bloomberg School of Public Health / Center for Communication Programs, INFO Project. (2007). *Family planning: A global handbook for providers.* Baltimore, MD and Geneva, Switzerland: Author.

Zeck, W., Kelters, I., Lang, U., & Petru, E. (2006). Lessons learned from maternal deaths at an East African health center. *Journal of Perinatal Medicine, 34,* 459 - 461.

Zupan, J., & Garner, P. (2002). Topical umbilical cord care at birth (Cochrane Review). *The Cochrane Library, Issue 4.* Oxford: Software Update.

Notes

Index

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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.

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