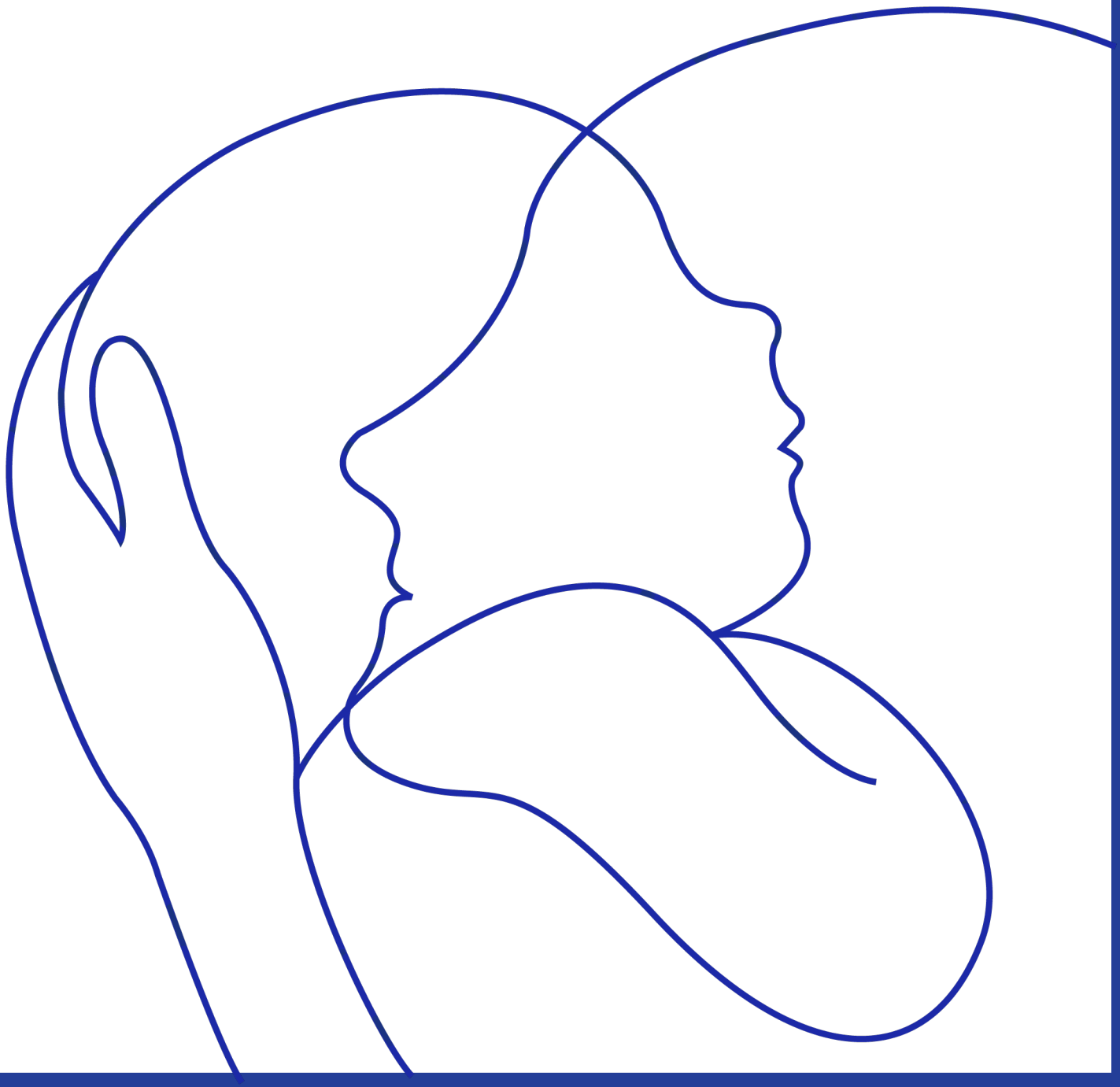
Life-Saving Skills

Manual for Midwives

4th Edition

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



Module 1. Introduction **Module 2. Antenatal**

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:

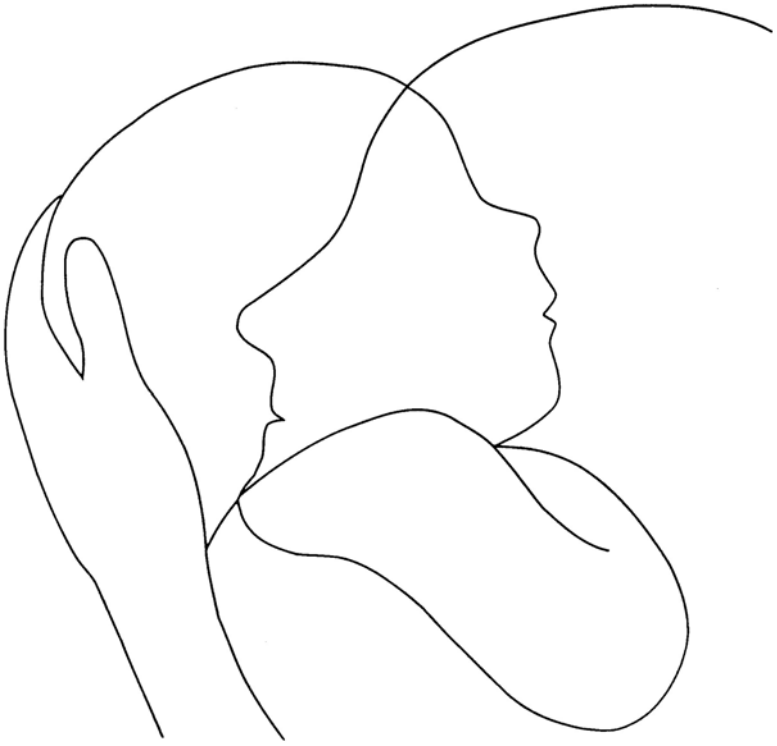
- A Ten Step Program Process includes experience and ideas from LSS programs in many countries.
- Trainers Section provides clinically active LSS learners opportunities to develop confidence and competence. The LSS trainer is not concerned as much about the **quantity** of times a particular skill is 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 1: Introduction



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The American College of Nurse-Midwives (ACNM), authors, technical editors and reviewers to the ***Life-Saving Skills Manual for Midwives***, 4th Edition do not assume liability for the use of information contained in this book.

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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The American College of Nurse-Midwives recognizes the need for local adaptations to the materials. Before beginning any translation or adaptation of this manual or its contents, please contact the ACNM for permission, suggestions, and updates on information to avoid duplication of efforts. Please send us a hard and soft copy of any materials in which you used text or illustrations from this manual.

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In Memory

Judy Carlson 2005, Mary Kroeger 2006, Tom Coles 2008

For the many footprints they leave behind.
They walked in kindness in the world
for women, babies, families,
and every living thing.

Acknowledgments – Fourth Edition

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We also acknowledge the time and effort for the external review by the LSS Trainers and Safe Motherhood Consultants representing over 10 countries, whose experienced comments broadened the scope of use for the *Manual* around the world. Pius Adoga, Veronica Anggriani, Josephine Ajegi, Yanne Annas, Hannah Tessema Beyene, Sharon Blake, Helen Varney Burst, Ramatu Daroda, Susheela Engelbrecht, Betty Farrell, Harmini Firdaus, Jane Ann Fontenot, Sitti Khadijah, Kidisty Habte, Justus Hofmeyr, Ellen Israel, Frances Ganges, Rebecca Kakooza, Solomon Kelifa, Esther King, Barbara Kwast, Phyllis Long, Teresa McInerney, Mary Lee Mantz, Nur Ainy Madjid, Maureen Mears, Suellen Miller, Jessica Morris, Asmah Mustafa, Wiwi Mutmainah, Pius Okong, Anne Otto, Abimbola Payne, Bill Powell, Lisani Ratih, Helena Rippey, Theresa Shaver, Mustika Sofyan, Judith Standley, Hayuni Suling, Letty Syamsu, Nurcahaya Syukri, Lelisse Tadesse, Joe Taylor, Mira Taylor, Noor Tinah, Ruth Tinka, Dora Wariansyah, Grace Were, Berhane Yohanne.

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Life-Saving Skills Manual for Midwives

MANUAL TABLE OF CONTENTS

INTRODUCTION
MODULE 1
Table of Contents

INTRODUCTION

Goal

Using the problem solving method, the midwife will review and update her knowledge and skills to prevent and care for problems that cause women and babies to die during pregnancy, childbirth and postpartum.

Objectives

The midwife caring for the woman and her newborn baby will be able to:

1. Explain the meaning of mortality, morbidity, and risk factors for a woman and baby.
2. List the major causes of maternal death worldwide.
3. List the major causes of stillbirth and neonatal deaths worldwide.
4. Describe how to prevent deaths of women and babies.
5. Describe the Problem Solving Method steps.
6. Describe caring behavior during labor and delivery.

Overview of the Problem

So many women have difficult lives. They cook, sweep, wash, plant, harvest, care for their families, work outside the home, and have babies. In delivering their babies they have a serious risk of death. It is estimated that over 530,000 women die every year from complications of pregnancy and childbirth. **"Every minute of every day, somewhere in the world, a woman dies as a result of problems arising during pregnancy and childbirth. The majority of these deaths are avoidable (WHO, 2005)."**

The loss of these women is a great tragedy. Adding to the tragedy, the majority of the deaths are preventable when low to moderate technology and education are available to prevent them. Pregnancy and childbirth are the leading causes of death, disease and disability among women of reproductive age, causing 15 to 20 million disabilities each year. These are not only personal and family tragedies. The economic costs to a country, where women are disabled in pregnancy and childbirth, is difficult to estimate. We know that when women are sick or not able to work, their children and families suffer from malnutrition and lack of education. The women are not able to provide for the daily needs of food and support for their families.

It is estimated that each year 4 million babies die in the first four weeks of life, 99% of these babies die in developing countries. In addition, 4 million babies are stillborn. When a woman dies in childbirth, there is a significant chance that her newborn baby will die in the first week. These numbers may not tell us 'why' these women and babies are dying. For example, a woman dying from hemorrhage may not recognize (understand) that she is bleeding too much. Her family may not have money for, or access to transport. She may go for care where the staff has no training in hemorrhage management. She may be treated at a facility without access to blood transfusion.

The ***Life-Saving Skills Manual for Midwives*** *(LSS)* will help you learn how to prevent many problems, manage the complications you do not expect or that can not be prevented, and save the lives of women and babies. Most of these deaths are preventable when midwives are skilled in the use of antibiotics (Module 7), oxytocics (Module 5), pre-eclamptic medications (Module 2), manual removal of products of conception (Module 5 and Module 9), and assisted delivery with vacuum extraction (Module 9) during pregnancy and childbirth. Prevention also includes family and community based care: family prepared for referral when needed (see Pathways to Survival and to Death, Table 2, page 1.9), a functioning referral hospital with rapid and safe blood services, caring behavior, family planning, access to safe abortion and post abortion care, improved nutrition, good transportation and communication, improved female education, and improved status of women within the culture. **LSS is part of the solution to reach the Millennium Development Goal (MDG) 5: to reduce the maternal mortality ratio by 75% between 1990 and 2015.**

A Midwife's Experience...

A young girl of 16 years came to me with labor pains. She has not attended antenatal clinic. She has no husband. I admitted her in labor; vital signs, hemoglobin and urine were normal. Abdominal palpation found descent at 1/5. Contractions 2 in 10 minutes, last more than 40 seconds. Fetal heart was 130 beats per minute. She did not allow me to do the vaginal exam. I talked for a long time but she did not allow me to do the vaginal exam. After some minutes she told me that this morning she was sent to a certain man in the village who says he is a doctor. The doctor did a vaginal examination. She is afraid and feels pain too. That is why she is afraid of the vaginal exam. I was very worried so I told the relatives to take the girl to the nearest hospital. The girl refused to go and refused to allow me to do the vaginal examination.

She started pushing much. The lower lip of the fetus appeared at the vulva. This was a face presentation. This procedure was very difficult for me. I gave an episiotomy. She pushed nicely and a severely asphyxiated female baby was delivered. I clamped the cord and cut it. There was no heartbeat, no respiration. I wrapped the baby and put her on the resuscitation table. I tilted the head back, cleared the airway, and rubbed her back. I did full CPR. This time I did not put cold water on the baby. (I learned during LSS that this is a harmful practice.) She responded slowly to resuscitation. The baby had abrasions on the nose and the eyelids. The episiotomy was repaired using the new suture sparing method. Estimated blood loss 600 cc. I cleaned the woman and put her and her baby in a warm bed. A few hours later the baby was crying. I examined the baby and painted the abrasions with gentian violet. I gave her to the mother to keep warm and suck the breast.

LSS Midwife, Ghana

Important Terms

Abortion – pregnancy loss (spontaneous or induced), the fetus is not viable (not able to live outside of the uterus), usually less than 24 weeks gestation (definition varies from 16 to 28 weeks in various parts of the world – use accepted local definition), less than 0.5 kg weight, products of conception come out of the uterus**.**

Maternal Mortality – the death of a woman while pregnant or within 42 days of the end of pregnancy. It may be from any cause related to or made worse by the pregnancy or its management. Maternal mortality includes direct and indirect maternal deaths.

> **Direct Maternal Deaths** – deaths resulting from obstetric complications of pregnancy, labor, and postpartum, and from interventions or any after effects of these events. For example, death from postpartum hemorrhage is a direct maternal death.
>
> **Indirect Maternal Deaths** – deaths resulting from existing conditions getting worse during pregnancy or delivery. For example, deaths from malaria, hepatitis, diabetes, or HIV/AIDS during pregnancy, or within 42 days after childbirth, are indirect maternal deaths.

Maternal Mortality Ratio – the number of maternal deaths per 100,000 live births.

Maternal Morbidity – any condition resulting from or made worse by pregnancy. Pregnancy and birth account for 15-20 million maternal disabilities each year including fistulas, genital prolapse, incontinence, severe anemia, and pelvic inflammatory disease.

Neonatal Mortality – the death of a baby in the first 28 days of life.

Neonatal Mortality Ratio – the number of neonatal deaths per 1,000 live births.

Perinatal Period – from 24 weeks gestation though the first seven days after birth (definition varies in different areas – use local definition).

Preterm, Premature – a baby who is born before 37 weeks gestation.

Risk – the harm that something **might** cause. A risk means that a problem **is more likely** to happen. There is no way to predict a problem. Women and babies in some countries have a higher risk in pregnancy and labor than women and babies in other countries. The risk is not equal for all women and babies.

Risk Factors – those things that make the individual more likely than normal to develop a condition. A problem in a previous pregnancy may be more likely to happen again in this one. For example, eclampsia happens again in almost a third of the next pregnancies.

Stillbirth – the delivery of a dead baby who weighs 0.5 kg (500 grams or 1.1 pound) or more; 24 weeks or more gestation (definition varies in different areas – use local definition).

MATERNAL AND NEONATAL MORTALITY AND MORBIDITY

It should not cost a woman her life to have a baby. In some places, 1 of every 12 women die because of pregnancy or childbirth – this is 3 in a class of 36 girls. Babies of the women who die are also at serious risk of dying. Almost everyone knows of someone in their family who has died in childbirth. Do you know of someone who died in childbirth? Some 1600 women and over 10,000 babies die every day from problems of childbirth. Do you know of a newborn baby who died?

Causes of Maternal Death

The **major causes of women dying** during pregnancy and after the baby is born are hemorrhage, sepsis/infections, unsafe abortion, hypertensive disorders/eclampsia, and obstructed labor. More than 80 percent of maternal deaths are due to these **five direct causes**. "It is estimated that anemia is associated with 22% of all maternal deaths occurring annually around the world," (Stoltzfus, 2004). Figure 1 shows the medical causes of maternal deaths in developing countries.

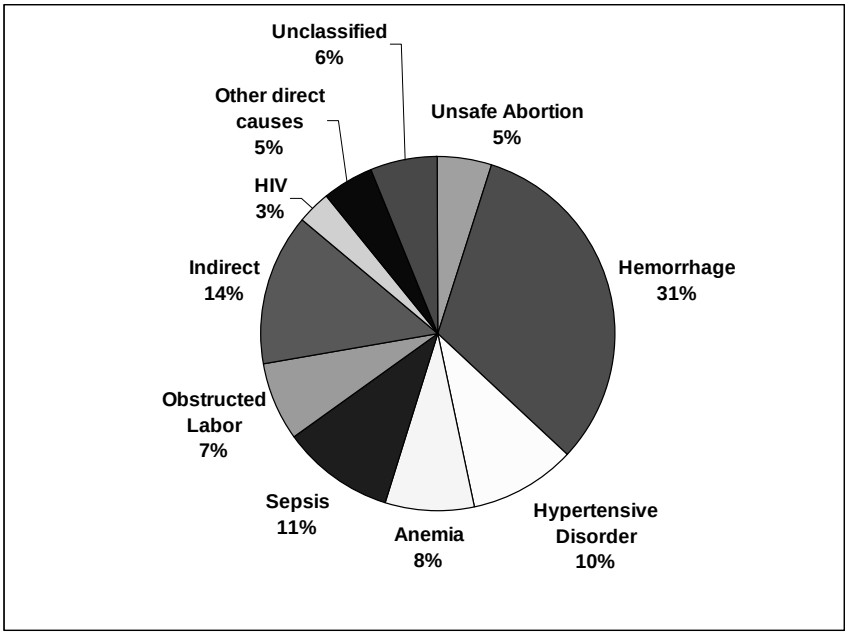

Figure 1. Medical causes of maternal deaths in developing countries.

Source: Kahn 2006; adapted graph Stanton 2006.

- **Over 31% of all maternal deaths are due to hemorrhage.** Blood loss can rapidly lead to death unless there is prompt and appropriate life saving care. Hemorrhage, especially postpartum hemorrhage, is unpredictable, and sudden in onset. Hemorrhage is more dangerous when a woman has any anemia.

- **Over 11% of maternal deaths come from sepsis and other infections.** Infections can be prevented and treated. Women who bleed a lot are more likely to develop infections.

- **Eclampsia and other hypertensive disorders of pregnancy are the cause of about 10% of all maternal deaths.** Many deaths from hypertensive disorders during pregnancy, labor and postpartum can be prevented. Hypertensive disorders can be prevented or managed.

- **Anemia causes 8% of all maternal deaths.** Anemia may cause death through cardiovascular problems. If the woman is anemic before she bleeds, she may die from even a small amount of blood loss. An anemic woman is more likely to get an infection.

- **Obstructed or prolonged labor causes nearly 7% of maternal deaths.** This is often the result of mismanaged labor, cephalopelvic disproportion, and abnormal lie. Women who have a prolonged labor are more likely to hemorrhage.

- **Unsafe abortions and complications of unsafe abortions are responsible for about 5% of all maternal deaths worldwide. In some parts of the world, more than 33% of all maternal deaths are associated with unsafe abortions.** These deaths can be prevented if women have access to family planning information and services, care for abortion-related complications, and safe post abortion care.

- **Other direct causes** such as anesthesia-related deaths, embolism, and ectopic pregnancy **make up 5% of maternal deaths.**

Notice that **indirect causes**, that is, other existing illnesses or conditions a woman has, are also responsible for many maternal deaths. **Approximately 14% of maternal deaths are the result of indirect causes of death:**

- **Malaria** can infect the placenta of a pregnant woman and pass to the baby. Malaria can cause problems for the woman and baby including death. Malaria infects 300 to 500 million people worldwide, and 1 to 2.5 million people die annually because of the disease. Forty percent of the world's population is at risk of malaria infection. Most of these people live in the world's poorest countries in Africa, Asia, and Latin America. Outside Africa, approximately two thirds of the remaining cases occur in three countries: Brazil, India, and Sri Lanka. However, malaria is still endemic in more than 100 countries. **Ninety (90) percent of all malaria deaths occur in Africa (RTI, 2007).** Malaria is caused by the bite of a malaria-infected Anopheles mosquito. There are four kinds of human malaria: Plasmodium vivax, P. malariae, P. ovale, and P. falciparum. The most common species are P. vivax and P. falciparum. The most deadly type of malaria is caused by P. falciparum and it is most common in sub-Saharan Africa.

- Other important indirect causes of death include **hepatitis, diabetes, heart disease**, and in some places, **HIV/AIDS**. These conditions may be reasons to not get pregnant. Women and their families should be informed of these problems and offered ways to prevent further pregnancies if a pregnancy could be a danger to the woman.

Causes of Neonatal and Stillborn Deaths

The **main causes of newborn deaths** (mortality) are infections, asphyxia, and problems of prematurity (preterm). More than 85 percent of 4 million newborn deaths are due to these **three direct causes**, see Figure 2. “It is estimated that anemia is associated with 24% of all perinatal deaths occurring annually around the world,” (Stoltzfus, 2004). In addition to the direct causes, many babies die because their mother died. When a mother dies, the baby is ten times more likely to die. The health of women and babies is closely linked. Another 4 million babies each year are stillborn, most die in late pregnancy or during labor. Cephalic disproportion (CPD) and birth injuries are the most common causes of stillbirth. In many countries these babies are forgotten and not registered or counted, so that no one knows how many babies are stillbirths.

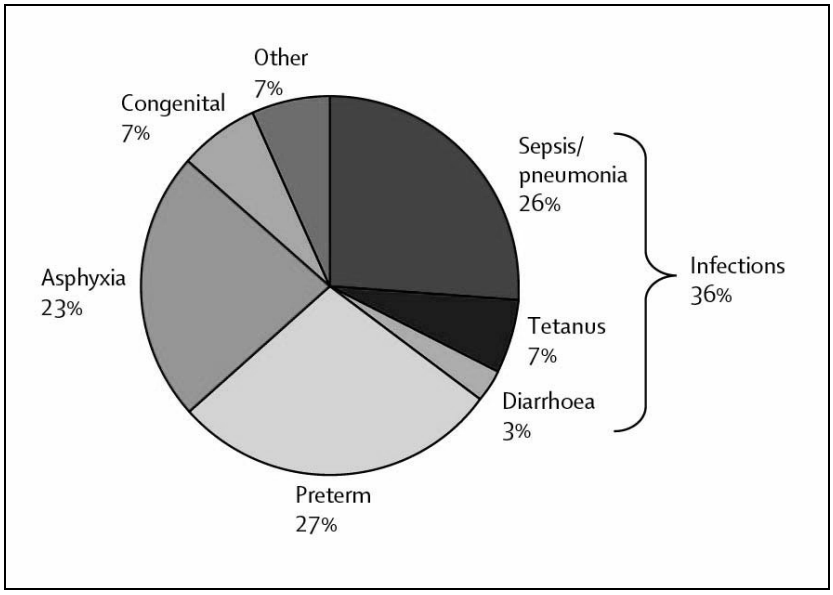

Figure 2. Direct causes of 4 million neonatal deaths for year 2000.

Source: The Lancet Neonatal Survival Series Paper 1, 2005.

- **Infections are most common after the second day through the first month of life and happen in about 36% of neonatal deaths.** The midwife can save the life of a baby through early identification of infections, life saving care, and infection prevention steps, see Module 7: **Infections**. Prevent infections in the woman to prevent fetal death, or to prevent other baby infections. When giving information to communities and caregivers, focus on proven interventions such as clean cord-care practices. Hand washing and use of a clean blade to cut the cord are very important.

- **It is estimated that low birth weight babies (preterm, small for gestational age, or both) account for 60-80% of neonatal deaths.** Preterm (premature) babies are babies born before term (37 weeks). Twenty seven percent (27%) of the 4 million neonatal deaths each year are preterm babies. Prevent infections in the woman to reduce late fetal deaths and preterm labor. Low birth weight babies are smaller but not always preterm. Pre-eclampsia and some infections during pregnancy slow the growth of the fetus in the uterus. About half the babies born are weighed, and less than half have a recorded gestational age, so it may not be clear if the baby is preterm or low birth weight. Life-saving care for both conditions includes: keep the baby dry and warm, watch that the baby continues breathing, give the baby expressed breast milk, delay bathing, and prevent infections.

- **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.** Life saving care for birth asphyxia includes neonatal resuscitation skills for midwives and others with midwifery skills. Community level workers and family members may learn to give breathing resuscitation, see Module 6: **Resuscitation**.

  To help prevent maternal and neonatal morbidity and mortality, it is important that all women receive quality care during pregnancy, childbirth and postpartum. Teach the woman and her family about danger signs. Encourage them to get money and plan transportation early to be ready for a possible problem, and tell them where to go for care, if she has an emergency.

  All women have some risk of developing problems in pregnancy. Early identification of problems and risk factors, and having good referral services, are important in maternity care. In low resource areas with high maternal and neonatal mortality and weak health systems, home and community based help is important to save the lives of both women and their babies. Maternal risk, problems, and mortality differ depending on where women live in the world. Compare the ratios in different areas in Table 1 on the next page. Women from Asia and sub-Saharan Africa are at the highest risk.

Table 1. Maternal Mortality By Regions.

	Maternal Mortality Ratio	Number of Maternal Deaths	Lifetime Risk of Maternal Death
World total	400	529,000	1 in 74
Developed regions [1]	20	2,500	1 in 2,800
Europe	24	1,700	1 in 2,400
United States	17	660	1 in 2,500
Developing regions	440	527,000	1 in 61
Africa	830	251,000	1 in 20
Northern Africa	130	4,600	1 in 210
Sub-Saharan Africa	920	247,000	1 in 16
Asia	330	253,000	1 in 94
Eastern Asia	55	11,000	1 in 840
South Central Asia	520	207,000	1 in 46
Southeast Asia	210	25,000	1 in 140
West Asia	190	9,800	1 in 120
Latin America & Caribbean	190	22,000	1 in 160
Oceania	240	530	1 in 83

Source: AbouZahr 2004. Maternal mortality in 2000: estimates developed by WHO, UNICEF, UNFPA.

"It is estimated that there were 535,900 maternal deaths in 2005, corresponding to a maternal mortality ratio of 402 (uncertainty bounds 216 - 654) deaths per 100,000 live births. Most maternal deaths in 2005 were concentrated in sub-Saharan Africa (270,500 - 50%) and Asia (240,600 - 45%). To achieve MDG 5 targets by 2015 will require sustained and urgent emphasis on improved pregnancy and delivery care throughout the developing world." (Hill,2007).

[1] Australia, Canada, New Zealand, and Japan have been excluded from the regional totals but are included in the total for developed countries. Figures may not add due to rounding.

Reduce Life Threatening Delays

As with any life threatening clinical condition, the problem must be identified before appropriate care can be given. This decision must be made by a birth attendant, the woman or a family member. Timing is critical to prevent death and disability. A woman with postpartum hemorrhage can die in less than 2 hours without life saving care. Other problems may give the woman 6 - 12 hours or more to get life saving emergency care. Most newborn baby deaths happen during labor and delivery, or within the first 48 hours of life. Immediate emergency care is needed when there is a baby problem.

There are five steps to reduce life threatening delays when there is a problem, see Table 2. Each step asks someone to make decisions and take actions. Some decisions may lead to survival, and other decisions may lead to death. All five steps need attention to ensure a good result.

Table 2. Pathways to Survival and to Death

1	2	3	4	5	
Recognize Problem Train family, TBA, & community about danger signs. Educate girls and boys	Get Emergency First Aid Train family, TBA, & community in first aid knowledge and skills	Decide to Seek Care Birth preparedness, emergency planning, orientation at hospital	Seek Timely Care Referral planning, transportation plan, financial plan, repair roads	Get Quality Care Update/train personnel, supplies, equipment, blood transfusion. Available 24 hours a day and 7 days a week	S U R V I V A L
In Household or Community				In Health Facility	
Delay in Recognizing Problem Lacks danger sign knowledge, women's low social status, lack of education	Delay in Getting Emergency First Aid Lack of first aid knowledge and skills	Delay in Deciding to Seek Care Decision maker not home, limited decision making ability, poor perception of hospital, local preference	Delay in Seeking Timely Care No money saved for emergency, no transportation, dangerous roads, poor referral system	Delay in Getting Quality Care Lack of updates / trained personnel. Shortage of supplies and equipment. No blood transfusions available. Limited budget. No 24 hour care.	D E A T H

Source: MotherCare Matters 1996 Vol. 5 No.4; ACNM adapted 2000, modified 2005 & 2007.

First step, recognize that something is wrong, that there is a problem. In the community this may be done by educating girls and teaching pregnant women, families and community members what the danger signs are.

Second step, first aid care must be given right away to prevent the problem from getting more serious. At the same time, other decisions must be made. Someone in the community or family may be trained in first aid for pregnancy and childbirth emergencies.

Third step, a decision must be made to try to find care. This can be done by the family, the woman or other helpers. The family must decide who can make the decision to find care. If one person is allowed to make that decision and is not with the woman when a problem happens, she may die before the person comes home. Help the family understand that someone should always be with the woman to make that decision (it may have to be a different person at times). The woman and family must learn where to seek care during the pregnancy and postpartum. Who will make the decision? Is there a place to go for care? Does the family know where to go to get care?

Fourth step, someone must take the woman for care. Once the decision is made to get care, it must be done as soon as possible. The community and family may get ready for this during the pregnancy by saving money and arranging for emergency transportation. If the weather is too rainy and the roads are not passable, or if it takes more than an hour to reach the referral facility, the pregnant woman should move closer to the referral facility before labor begins. Sometimes there is fear of the staff at the facility and sometimes the staff does not make the family or woman feel welcome. This may make it difficult for the family or woman to agree to go to the facility.

Fifth step, the facility care must be good quality and welcoming. This is the responsibility of the staff and administration of the facility. The LSS program works with staff and administrations on this fifth step. They support the staff and the health facility to be ready to give critical, quality **basic emergency obstetrical and neonatal care**. Once a woman and her family reach the facility, there must be someone on duty every day and night. Staff must welcome those needing help, and have the skills, medicines, and supplies needed to care for the problem. LSS can help with this.

REMEMBER

Each step, to reduce delay when there is a life threatening problem,
asks someone to make a decision and take an action.

Prevent Maternal and Neonatal Mortality

Midwives and other providers have a very important responsibility in lowering maternal and neonatal mortality at local, national, and worldwide levels. Midwives usually live in the communities they serve and are familiar with the religions, beliefs, customs, taboos, and preferences of the families who live there. Midwives usually know who controls decision making in the family and in the community. They know who gets to eat the choice bits of food and how hard pregnant women work. In most communities, midwives are respected. They are consulted by both women and men. They are expected to give advice on pregnancy, family planning, human sexuality, baby care, and many other issues. Midwives must be aware of the needs of women. Midwives must let women know they are cared for and listened to. Midwives must work with women and share in their joys and sorrows.

How Can We Prevent the Death of Women and Their Babies?

1. **We can provide family planning services** to help women not get pregnant when they do not want to be pregnant. If all unwanted pregnancies were prevented, most induced and/or unsafe abortions would be prevented. Family planning helps with child spacing, having fewer children, and waiting until more mature for pregnancy. Prevent maternal mortality by making family planning available for everyone who wants it, see Module 10: **Postpartum**. The World Health Organization recommends that there should be at least 24 months from last birth to next conception. This could eliminate 10% of child deaths and lower the risk of woman or baby sickness or death. It also supports the recommendation of breast feeding for at least two years.

2. **We can perform surgical procedures or refer the woman to a facility for a safe procedure**. If a woman has a difficult labor, she may need a vacuum extraction, a symphysiotomy, or cesarean section. Safe procedures need an LSS trained team of midwives and other providers. The midwife should know which facility always has staff available who are skilled in doing these surgical procedures so she can refer with confidence. See Module 9: **Vacuum Extraction and Other Procedures**. Women may need emergency transportation to get to the facility (see number 6 below).

3. **We can prevent infections**. The MMR (Maternal Mortality Ratio) fell in some countries, mainly because of the use of infection prevention techniques, having antibiotics available, blood transfusions, and better anesthesia. If we could prevent infection from unsafe abortions and postpartum infection, we could greatly reduce MMR, see Module 7: **Infections**.

4. **We can make antenatal care available and accessible.** A third of pregnant women receive no antenatal care (ANC). Some conditions may be identified and managed, such as detection of pre-eclampsia, screening for sexually transmitted infections, abnormal lies and anemia. Most maternal deaths happen at delivery. Women who go to ANC are more likely to choose a skilled birth attendant at delivery. ANC must include planning for the birth with a skilled provider. Planning for possible problems is important, as problems are often not predictable, see Module 2: **Antenatal**.

5. **We can support the efforts of the community to build a waiting place (hostel) for pregnant women,** close to each facility, to give the woman a place to wait during the last weeks of pregnancy. Then if they need help they are close to the facility. If a working referral system is not possible in your area, help to set up a waiting hostel.

6. **We can work with the community to organize emergency transportation services**. As soon as a woman has a problem during pregnancy or postpartum, she needs to get to a facility with skilled staff. It is an emergency. The prevention of deaths (woman and baby) in this case depends on identifying the problems early and transporting the woman to the facility quickly by any kind of transport. See Table 2 – Pathways to Survival and Death. In remote areas or night time hours, many women die due to lack of adequate transportation. It is the responsibility of the entire community to see that emergency services are provided for its people. Transport unions and emergency community funds can be organized. Women can be carried short distances on a door, a sling tied to a sturdy pole, a cart attached behind a bicycle or horse, a truck, a bus, a taxi, a boat, or by other means. Sometimes the community pays the village truck driver or a private individual an advance to carry emergency passengers when the need arises. Once communities understand the need for an emergency system and understand that many women die needlessly without this plan, they will come up with many creative ways to solve the problem. Many minds working together can find good local solutions.

7. **We should provide skilled attendants for all deliveries as problems are often not predictable.** Pregnant women need skilled birth attendant care to prevent death or long-term disease or disability. Half the world's pregnant women are delivered by untrained attendants. Skilled (trained) birth attendants prevent death in women during childbirth. More training opportunities are needed for all attendants.

8. **We must monitor all labors**. Most difficulties and deaths in labor are unpredictable. Use a partograph and actively monitor all women in labor whether in their home or in a facility, see Module 3: **Labor.**

9. **We can be role models of good nutrition.** When we eat nutritious foods, we feel better and we show women how they can be healthy. Good nutrition in women of all ages prevents malnutrition. Preventing malnutrition improves maternal health, and reduces deaths. Improved nutrition also prevents anemia, see Module 2: **Antenatal.**

10. **We must be involved in community education programs for girls, women, and men.** In one country, women with no schooling and no antenatal care had an MMR of 2,900. In the same country, women with schooling and antenatal care had an MMR of 250. The more years of school a woman has, the safer she is. Educated women: (1) are better users of family planning, (2) have longer birth intervals, (3) marry later, (4) accept health education, and (5) get antenatal care. Countries with low MMR have good education for women.

11. **We can work with communities and other groups to improve the status of women.** Anyone who has power over a woman about her work, what she eats, when she does or does not have sex, or cares for her daily needs, has an effect on her health. Women may have too many pregnancies, too much work, and not enough food. Encourage men and women in the community to feel responsible for the health of women. Healthy women have healthy babies, see Module 2: **Antenatal**.

12. **We can inform family members, community and government leaders about the main causes of mortality and morbidity for women and babies.** Discuss what groups can do to prevent problems during pregnancy and postpartum. Help each community record and know all pregnancies and outcomes. If the community and you know how many women and babies die in your area, it may be easier to get help from others.

Source: King 2003.

Review Questions

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

1. Explain and give an example of the following (page 1.3).
    a. maternal mortality

    b. maternal morbidity

2. List the five major causes of death for women during pregnancy, childbirth and postpartum (page 1.4).

3. List the three major causes of death for newborn babies (page 1.6).

4. What can you do in your clinic/health center to prevent deaths of women and newborn babies (pages 1.11-1.12)?

The Problem Solving Method

This LSS manual uses the problem solving method to identify what is both normal and not normal, to make decisions about problems and needs, and to give life saving care to women and babies. This method guides you to gather information which leads to safe and effective care. The problem solving method should be used by midwives and others with midwifery skills in a manner that is polite, respectful, and supportive. Then you will give quality care as well as safe and effective care during pregnancy, childbirth and postpartum (Brazier, 2007).

When a woman comes to you or brings her baby to you with a problem, you should try to learn all you can about the problem. You will talk to her and ask questions about the problem and listen carefully for her answers. This is called ASK and LISTEN. Next, you will do the examination. This is called LOOK and FEEL. Then you will use the information from the answers and from the examination to IDENTIFY THE PROBLEMS / NEEDS. Then you, with the woman and her family, TAKE APPROPRIATE ACTION for the problem(s). You EVALUATE AND REPEAT THE PROCESS when the woman comes back for follow-up, to see whether the problem is solved, staying the same, or getting worse. You will ASK and LISTEN; and LOOK and FEEL. If a problem (same or other) is identified, you will develop a new plan of care. **This is called the Problem Solving Method.**

Procedure

The 5 steps of the Problem Solving Method are:

1. ASK and LISTEN	Take a history
2. LOOK and FEEL	Do a physical examination
3. IDENTIFY PROBLEMS / NEEDS	Decide problems and needs
4. TAKE APPROPRIATE ACTION	• Make a plan of care with the woman and family • Give treatment for the problem / needs • Provide education, information, advice • Give counseling to help understanding • Do laboratory tests to gather more information • Refer as necessary for more care • Plan for follow-up to evaluate the care • Record all actions
5. EVALUATE / REPEAT PROCESS	• Decide with the woman/family the results of the care • Repeat the first 4 steps

REMEMBER

When you first see a woman (or baby) who says she is not well or her family says she is not well, quickly decide how serious the problem is. **This may be a life threatening problem**, see Module 8: **Stabilize and Refer**. If there is no shock, or after you have treated the woman or baby for the shock and she is stable, continue the Problem Solving Method.

1. ASK and LISTEN

This is the first step that is done when a woman and her family come to you for care. Make her feel welcome. Go to a private area to talk. Ask questions in a kind and interested way. Ask about the reason she came to see you. Listen carefully to all the answers. All answers are important and will help you find the problems. Help her feel comfortable with your actions. Write down the important points so you will not forget her answers, see **Learning Aid 2** for interviewing skills. Recognize the need for immediate emergency care. For specific information on **ASK and LISTEN**, see Module 2: **Antenatal**, Module 3: **Labor**, and Module 10: **Postpartum.**

Ask Questions to Help Understand the Problem Better.

- **Start of the problem:** When did it start? Did it start gradually or suddenly? Did anything unusual happen before it started? Did anything cause it to happen?
- **What she is feeling:** Where she feels or has the problem? Is it constant or comes and goes? What does it feel like? Is it feeling better, worse or staying the same?
- **Helping the problem:** Has she or anyone done anything for the problem? What was done? Did it help the problem?

2. LOOK and FEEL

This is the second step that is done when seeing the woman or her baby. Examine the areas of her body with the complaint, concern or problem. For example, if a pregnant woman complains of headache, you will want to check her blood pressure, visual problems, and urine protein. If she is postpartum and complains of a vaginal discharge, you will need to check for fever, abdominal pain, contracted uterus, look at the discharge and observe the odor, and you may need to do a speculum and pelvic examination. Recognize the need for immediate emergency care.

When seeing a woman or her baby for routine care, follow the appropriate skill checklist in the *Guide for Caregivers.* Sometimes you may need to do a system review, see **Learning Aid 1**. For example, you may not be able to find the cause of her complaint from what she has told you. You may need to ask more questions and do more examination. A general examination of the woman or baby may help you find problems that the woman herself has not recognized.

3. IDENTIFY THE PROBLEMS / NEEDS

This is the third step of the Problem Solving Method. Use information from the **ASK and LISTEN** and the **LOOK and FEEL**, your knowledge, experience, information in this manual and the *Guide for Caregivers - Complaint and Findings section* to compare information and identify the problems and needs.

If you do not find a problem, review everything with the woman and the family to make sure you did not miss something. If nothing is found, reassure the woman and encourage her to return if she has a problem. If the woman does not appear to be well or you are just worried about her, refer her to the doctor or hospital. If you identify a problem or need, and do not have the medicine or know how to help her, refer her to the doctor or hospital. A woman may come with only one complaint, problem, or question. However, as you talk with her, you find she has many needs, such as information on family planning methods, good nutrition advice during pregnancy, how to relieve hemorrhoid pain, and where to go for immunizations for her small children. Try to help her with all her problems or needs.

4. 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. For example, when a woman has a retained placenta and is bleeding heavily, you must stop the bleeding by manually removing the placenta **before** laboratory tests can be done. You may then give her more treatment, education, or counseling, or refer her.

Medical treatment. Take care of the problem with medicines or treatments, following standards and protocols of practice. Remember that all medicines must be used with caution during pregnancy because they may cause harm to the fetus. Choose the correct treatment for the problem, see *Guide for Caregivers - Protocols.*

Education. Help the woman learn the information she must know in order to care for herself. Teach the woman and her family the danger signs for her and the baby. Teach women how to prepare for and what to do in case of an emergency.

Counseling. Have a conversation with the woman and her family. Listen, help and teach them to make decisions about the needed health care. Help her understand the problem or needs. Find out if the woman can do what you advise. Help her decide how to do what you are advising and work with the family so they can also help. Give her time to ask questions, talk about what has been discussed, and listen to her concerns. It is important that the woman and her family understand what they need to do and know how to do the care when they get home. Ask the woman to repeat important information or instructions to be sure she understands. To be good at counseling, a midwife must know the subject, be familiar with the woman's cultural, educational and spiritual background, have self-confidence, be able to empathize or have compassion, and be able to communicate effectively.

Laboratory tests / investigations. Gather more information about the problem to confirm your findings.

Referrals. Use other resources in the area, such as doctors, hospitals, education programs, women's groups, or charity groups to help the woman solve her problems. If there is no one else to help, you must try to help the woman with her problem and referral.

Plans for follow-up. Ask the woman to return. Explain **why** you have asked her to return. The time she should return will depend on how severe her problem is and how long it should take for improvement. You may wish to see her in 24 hours, 3 days, 2 weeks, or later. If her problem is serious, she should be seen often until she is out of danger.

Recording. All information gathered during the history and physical examination, problems and needs identified, and plan of care (medical treatment, education, counseling, laboratory information, referrals, and date to return for care) should be clearly and carefully written in her record. When the recording is good and complete, the care is usually good and complete. See **Learning Aid 3** for a sample record form.

5. EVALUATE

This is the fifth step of the Problem Solving Method. Decide if the actions taken were effective at resolving the problem. The evaluation will be immediate if the problem was an emergency such as hemorrhage. The evaluation will be done at the next visit for a problem such as anemia. At the next visit, to decide if the problem is solved, staying the same or getting worse, 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.

REMEMBER

The Problem Solving Method should be used by midwives and others with midwifery skills who care for women and babies. It is a step by step way of finding and taking care of problems and needs. It helps you to work in an organized and careful way.

Exercise 1: Using the Problem Solving Method

The Problem Solving Method is a way of thinking about the care you give to women and babies. This case study will help you review the Problem Solving Method.

We all solve problems every day of our lives. We usually do not think about the steps involved in problem solving, though we all follow steps to solve problems. The Problem Solving Method is a way to help us follow steps in giving care to women.

The five steps of the Problem Solving Method are:

1.

2.

3.

4.

5.

Check your answers by looking on page 1.14.

Mrs. E.M. is a 24 year old gravida 1. She comes to you and says she is having abdominal pain. It is 12:30 pm.

1. **ASK and LISTEN**

What do you **ASK** the woman?

QUESTIONS: *You ask her due date, where she attended antenatal clinic and did she have any problems during her pregnancy, when did her contractions start, when did her water break (membranes/liquor start leaking), is she feeling the baby move, when did she last eat and drink, has she taken or used any medicines or traditional treatments, does she have any problems such as cough, pain and burning when passing urine, headache, visual problems (trouble with eyes), epigastric pain, is anyone coming to be with her.*

FINDINGS*: You find out her due date was 2 days ago, her contractions started at 4 AM and got stronger about 4 hours later and she has been leaking clear fluid for 2 hours. She says the baby is moving. She is thirsty. She has not had anything to eat or drink for 6 hours. She attended ANC at the mobile clinic that came to her community. She has an antenatal card and has been well throughout her pregnancy. No one is coming to be with her and she has not taken any medicines.*

Look at her antenatal card – you see that her hemoglobin at 28 weeks was 11.5; HIV test negative. Before you ***LOOK and FEEL,*** *think about the information you have learned. For example, no one is with her, she has not taken anything to eat or drink for 6 hours, she says she is leaking clear fluid, has had contractions for about 8 hours and she is thirsty*

2. **LOOK and FEEL**

What examination do you do **(LOOK and FEEL**) on Mrs. E.M. using the information you now have?

EXAMINATION: *You take her blood pressure, pulse and temperature. Look at her general condition. Does she look well? Is she nervous? Is she coughing? Does she have trouble walking? Listen to the fetal heart rate. Feel her contractions. Feel the uterus to see if the size seems correct with her gestation, feel descent of the baby. Look at and smell the fluid from her vagina. Do a vaginal examination.*

FINDINGS: *You find: blood pressure is 108/68, pulse 100, temperature 37.5 C., fetal heart rate is 150. Her lips are dry and she feels very thirsty. Contractions are 3 every 10 minutes lasting 60 seconds. The head of the baby is 3/5 descended. Her cervix is 6 cm dilated and thin, there is a bloody show, the membranes are ruptured and the fluid is clear without unusual odor.*

3. IDENTIFY THE PROBLEM

When you have gathered all the information, you should decide what are the problems or needs. The problems and needs depend on what Mrs. E.M. answered to the questions above and what you found when you examined her.

Using the information from **ASK and LISTEN, LOOK and FEEL**, what is the problem with Mrs. E.M.?

FINDINGS: *She has a term pregnancy, is in active labor with ruptured membranes for about 2 hours. The fetal heart rate is within normal limits. She is a little dehydrated as she said she is thirsty and her lips are dry.*

4. **TAKE APPROPRIATE ACTION**

Your action or plan for care and treatment include general education and counseling for the particular problems, giving treatments and possibly referring her to someone else for care or some of her care.

What **ACTION** will you take to help Mrs. E.M.?

ACTIONS: *Admit her to labor and delivery, do routine monitoring using the Partograph, give her oral fluids at least one cup (250cc) every hour or more if she feels like drinking more, give her something soft to eat if she agrees or give her sugar/salt solution or local fluids with sugar, encourage her to take any position she chooses, explain her progress to her as you monitor her, try to stay with her as much as possible.*

5. **EVALUATE**

What actions will you take to evaluate her condition?

ACTIONS: *Monitor labor hourly, ask her to pass urine, repeat vaginal exam in 4 hours (or before if indicated), reassure her, stay with her, encourage change of position.*

FINDINGS: *Vital signs and fetal heart rate remain within normal limits, pulse lowers to 90, she passes urine in 2 hours and the color of her urine is clear and light yellow indicating she is getting hydrated, abdominal exam shows descent of baby to 0/5 and repeat vaginal examination in 4 hours shows normal progress.*

Note: *If Mrs. E.M. were not in labor and you were managing her for a problem which needed treatment you would give her a date to return for evaluation. When she returns, find out whether the problem is solved, staying the same or getting worse. You will repeat the entire problem solving method, evaluate progress or improvement of the condition, repeat laboratory tests as appropriate, and refer as needed.*

REMEMBER

In each of the modules of the Life-Saving Skills Manual for Midwives, the Problem Solving Method is used. With practice, the method helps you to be more organized and more careful in giving care to women and their babies.

CARING BEHAVIOR

Source: Family Care International 2005. *Compassionate Care.*

Country leaders, program managers and health care providers throughout the world are trying to find ways to reduce maternal mortality and morbidity. One challenge, however, is the fear many women and families have about midwives' and others' poor attitudes and behaviors during childbirth. Research has shown there is neglect, verbal abuse, and humiliation of women during childbirth by midwives and others. This means fewer women will want to use skilled attendants and health care facilities for fear of neglect, abuse or humiliation. One method encourages use of "caring behavior" by midwives and others at childbirth. It encourages a caring and kindness by midwives and others at childbirth. Maternal mortality and morbidity is reduced when women and their families are willing and able to find midwives and others to help them for childbirth.

LSS Modules 2 to10 describe technical skills to use when caring for women and babies with problems and needs. This is only part of the 'quality care' we should give. We also need to think about the person we are caring for. We should offer care in a manner that the woman and family will understand and be willing to accept. We must do no harm. Caring behaviors are a critical provider skill. Midwives and other providers of care should treat women as they themselves want to be treated.

To be **caring and kind,** we must really want good for the woman and family. **"Kind"** is our attitude to the women and those who come for help. It includes what we think of them and the many small things we do for them. Put yourself in the woman's place. **"Caring behaviors"** are the simple actions that midwives and other providers can take to show women kindness and respect, give them privacy, and make them feel comfortable. Women receive caring behavior when midwives respond to their needs promptly, provide reassurance and information on ways women can help themselves, and tell them what to expect during labor and birth. For example, if a woman comes on the wrong day or at the wrong time, try to see her. Don't send her away or scold her. Try to learn as much as you can about the women and children who come to you for care. Recognize them and call them by name. Be kind to other workers also. They get tired too and may have home worries.

Everyone deserves to be treated with respect. As a midwife, the way you treat a woman is very important. Midwives are often trusted as an authority. When a woman does not come to antenatal clinic and then you see her in the market, speak to her with a smile, tell her you were worried about her when you did not see her last month. This kind and encouraging word from you can give her the feeling that you really want her to return to the clinic; that you think she is important.

Care for a woman as if she were yourself, your daughter or a member of your family. Look at the following guide on how to care for women and families with dignity and respect.

How to Care for Women and Families with Dignity and Respect

I TREAT WOMEN AND THEIR FAMILIES IN THE WAY I WOULD LIKE TO BE TREATED:

1. By using communication techniques that show respect and care:

- I introduce myself and talk to the woman using her name.
- I smile.
- I make her feel welcome.
- I look into the woman's eyes when speaking.
- I use clear or common language.
- I use a calm, respectful tone of voice.
- I keep body height at the same level when talking together (if the woman is lying down, I try to sit beside the bed or on the bed).
- I pay attention when the woman and her family talk.
- I include the woman and family in discussions about the woman's situation when doing bedside rounds, a good way to educate and show respect at the same time!

2. By Assuring Privacy / Confidentiality:

- I do not discuss personal details about the woman where others can hear.
- I try to find a private place to talk.
- During examinations I draw curtains between beds if possible.
- I do appropriate exposure during examinations:
  - Carefully expose only the part of the body to be examined.
  - Cover parts of body not being examined.
  - Ask family to help provide privacy by holding up cloth during examination.

3. By Supporting the Woman's Emotional and Physical Needs:

- I look for signs of fear, anger, stress, fatigue, and pain.
- I allow the woman to express her feelings.
- I show empathy to the woman by being kind.
- I praise and reassure the woman efforts!
- I check the woman, baby and labor regularly.

4. By Respecting a Woman's Dignity

- I offer choices / options as possible: position in labor and birth, who is with her, kind of fluids to drink, emptying bladder, staying cool, massage of back, arms, and legs.
- I always explain what I am doing before touching her: for a vaginal or breast exam, injection, or abdominal exam. I avoid touching sensitive areas, such as the clitoris.
- I tell the woman my findings during an examination.

5. By Providing Guidance

- I explain what to expect during labor and birth, especially for a primigravida.
- I tell the woman all the types of family planning methods available to her and discuss advantages and disadvantages.

Source: UNICEF – Bangladesh 2002.

Exercise 1 – Caring Behavior

As we just read above, quality health care is more than starting an intravenous injection or performing a vacuum extraction. Health care should help the whole person. In this exercise: 1) we will discuss caring behavior, 2) you will watch care on the labor ward and record what you see, and 3) we will come together and talk about your observations.

Answer the first two questions in Part 1 below. When everyone is finished, we will discuss them in a group.

Part 1: Discuss Caring Behavior

Individually:

1. What is caring behavior?

2. Write as many caring behaviors as you can.

In a Large Group:

3. Each person should say one caring behavior. Continue until all caring behaviors have been mentioned that were written individually. Write the behaviors on the board or newsprint as they are mentioned.

Note: Caring Behavior Section adapted with permission, Family Care International, 2005, Compassionate Care CMC Facilitators Module.

Part 2: Observation of Caring Behavior on the Labor Ward

You will do a two-hour observation of caring behaviors in the labor ward. Look at the observation tool in **Learning Aid 3**, and review how it should be completed. You will go to the ward to observe at a scheduled time during training when you do not have clinical responsibilities. You will discuss your observations with the trainers and participants. After the discussion give your completed observation form to your trainer.

(Discuss and note the schedule for observations. Ask each participant to use their observation form to write answers to the following questions that will be discussed during Part 3. Schedule a time for group discussion.)

1. What have you learned from your observations?

2. During your observation, did the staff perform any caring behaviors?

3. Did the staff appear too busy to perform caring behaviors?

4. Were they also too busy to perform additional clinical care such as monitoring fetal heart rate or taking the women's blood pressure?

5. How long does it take to perform caring behaviors?

6. Was there any behavior the staff performed that you think could be done differently to help the woman?

7. If you were in labor, would you want to be treated the way you observed it?

8. Did you observe anything else about caring behaviors?

Note: *This observation must be used (no names mentioned) in confidence and in a non-threatening manner so the staff understands it is a learning tool for you and not a test or evaluation for them. One day you may be the staff person being observed for the same activity. Observe them as you would want to be observed.*

Part 3: Group Discussion About Caring Behavior Observations

Share your responses to questions 1-8 in Part 2 above with other participants.

REMEMBER

Many caring behaviors take little time to perform but clearly increase the quality of care and satisfaction of women and families. Research shows that improving caring behavior will increase the number of women who use skilled attendants at childbirth; and so increase the number of safe births.

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 listed in parentheses ( ).

1. Describe the steps in the Problem Solving Method (page 1.14).

2. Identify up to ten caring behaviors that a midwife, nurse, or doctor can do to make the childbirth experience better for women (page 1.24).

3. What 5 actions do you think you can do at your clinic or hospital to introduce more caring behaviors?

Learning Aid 1 – Systems Review

General:
Happy, clean, tired, loss of appetite, malnourished, weight loss.

Mental Health:
Nervous, irritable, depressed, trouble sleeping, confused.

Respiratory & Heart:
Cough, coughing up sputum, chest pain, shortness of breath.

Breasts:
Tenter, enlarged, masses.

Nipples:
Flat, inverted, cracks.

Urinary:
Pain & burning, backache, urine test.

Vaginal:
Discharge, bleeding, amniotic fluid, sores.

Nervous System:
Headache, reflexes test, convulsions, fainting, loss of sensation.

Eyes:
Visual problems, pale conjunctiva, pain, discharge.

Mouth:
Pale lips / tongue, pain, missing teeth, anemia test.

Vital Signs:
Temperature, blood pressure, pulse.

Gastrointestinal:
Epigastric pain, nausea, vomiting, constipation, diarrhea.

Abdomen:
Shape, fetal movements, size, presentation.

Fetal Heart:
Heard after 20th week.

Skeletal & Skin:
Back & pelvis deformities, edema, sores, rashes, swollen veins, difficulty walking.

Learning Aid 2 – Interviewing Skills

Practicing some basic interviewing skills can help you get complete and accurate information during the **ASK and LISTEN** part of the problem solving method. These skills can be grouped into four categories:

1. Establish a good relationship with the woman and family. You and the woman must work together to identify and care for her problems. Establishing a good relationship will make her more comfortable when asking many questions. The following will help:

    - Dress appropriately.
    - Use greetings that are familiar to the woman and her family. Welcome her.
    - Meet with the woman in a comfortable, private area.
    - Introduce yourself. Explain what you are going to do and why you need to do the interview.
    - Use the woman's name (as culturally appropriate) during the interview.
    - Use words (language) that the woman understands. Avoid medical words.
    - Be pleasant and show that you are interested in what she says.
    - Show respect for the woman, her family and their ideas.

2. Use nonverbal ways to gather information. People communicate without words as well as with words. Nonverbal communication is a way to gather information without speaking.

    - Listen carefully. Listen not only to what the woman says but to how she says it. Let the woman do most of the talking.
    - Watch the woman's behavior. Notice how she reacts to your questions. Look for clues to how she feels about her problem.
    - Watch your own behavior. The woman and family will also be watching your actions and responses. If you are anxious or upset, your actions can show that something is wrong. The woman may be uncomfortable because you are. If you are relaxed and calm, your actions can show that you are comfortable. The woman will probably feel more comfortable because you are.

3. Ways to help you conduct the interview:

    - Sit near the woman at the same eye level. Look directly at her (if culturally acceptable). Direct eye contact usually reassures the woman that she has your full attention.
    - Encourage the woman to explain her problem in her own words. At the start of the interview, ask questions that help the woman tell her own story. Say, *"Describe your headaches to me."* Or ask, *"What kinds of things cause the headaches?"* Use direct questions only after the woman has explained her problem in her own words. If you use direct questions too early, the woman will wait for the next question. You may not find out all you need to know. Ask direct questions as you continue. Direct questions can be answered with a yes or no, or with short, simple phrases. For example, ask, *"Is*

the pain sharp or dull?" Or say, *"Show me where the pain is."* If necessary, explain to the woman why you are asking certain questions. Ask only one question at a time.

- Do not interrupt the woman. Listen carefully. Let the woman know that you are interested in what she is telling you. Nod your head as she speaks. Use expressions of interest and encouragement such as *"yes, go on,"* or *"I understand."*
- Listen for key phrases. Learn to direct an interview by repeating important phrases as questions. For example, a woman may say that she sleeps poorly at night. You ask: *"You are not sleeping well at night?"* This question will tell the woman that you are interested in hearing more about the problem. Most of the time, the woman will return to what she was talking about and tell you more.
- Do not be embarrassed to ask the woman many questions about her problem. It is better to ask questions than to pretend to know something that you do not know.
- Make your notes brief. The woman will be giving you a lot of information. You should take notes to help you remember the important parts. Later, you will write the medical history on the form (antenatal, labor, postpartum, other). Try not to write too much or look at your paper all of the time. While the woman is telling you about her problem, look at her.
- You may use a practice guide or checklist for taking the history. You can look down at the checklist once in a while to remind you of all the points that you need to cover.

4. Support the woman and her family.

- Show the woman you understand what she is saying and you are interested in helping her. You can show support by what you say and by how you act.
- Supportive words show the woman you understand how she feels. You can say, *"That must have been very difficult for you to do,"* or *"I understand what you are saying,"* or *"You must have been very frightened when your baby got the fever."*
- Supportive actions show your interest in the woman and your respect for what she says. Support the woman by being friendly and by showing that you are trying to help.

Learning Aid 3 – Caring Behavior Observation Tool

Source: Family Care International 2005.

Name of LSS trainee:_____

Date:_____ Start time: _____am _____pm Length of stay:_____

Directions: *Take this tool, a pencil/pen and a hard surface to write on (e.g., a notebook) to the Labor and Delivery unit (arrangements previously made by LSS trainer). Let the in-charge know that you are going to spend two hours observing in the labor room. Find a chair and carry it to the room where women are in active labor. Place the chair in a spot where you can see most women but are not preventing the midwives, nurses or doctors from moving easily around the room. Observe the activities in the labor room and fill in the information requested on the findings column. Ask the in-charge for information on staffing. Return the form to your LSS trainer.*

	Information and Behaviors	Findings
1.	**Labor Room Staffing Information**	
	Number of midwives in L&D where you are located	
	Number of midwives at the admission desk (if applicable)	
	Number of midwives assigned other areas in L&D unit	
	Number of students	
	Number of doctors who visit unit	
	Number of cleaning personnel	
	Are cleaning personnel available at all times?	
	How many of the available midwives give care to the patients?	
	What are labor and delivery staff doing when not attending to women?	
2.	**Clinical Care Information**	
	How many women are in active labor (dilated 4 centimeters or greater) in the labor / delivery room?	
	Is there water / fluids available at bedside for each woman to drink?	
	Is the room clean?	
	PROCEDURES	
	How many vaginal exams occurred?	
	How many births occurred?	
	How many intravenous procedures?	
	How many times are fetal heart rates monitored?	
	For how many patients?	
	How many times is a patient's blood pressure taken?	
	How many times ARMs?	
3.	**Caring Behavior**	
	Do the women in labor have a family member or friend with them?	
	Is there privacy for women as they are being examined?	
	How many times a woman in labor is: Fanned?	
	Wiped with cool cloth?	
	Massaged?	

	Information and Behaviors	Findings
	Are there are curtains or screens that come around the beds?	
	If curtains or screens are available, are they used?	
	How many women are covered with a hospital gown (or other covering) during the birth, an exam or other procedures?	
	Do midwives offer or encourage each woman to drink fluids at least every hour?	
	Do midwives encourage women to urinate at least every two hours?	
	Do midwives assist women to the toilet?	
	How many women are visibly uncomfortable or in pain?	
	How many women crying out or visibly in pain are visited by midwives to provide or give advice on comfort measures?	
	What does she do for them?	
	Tick or mark each time a woman is spoken to kindly, touched or comforted by the:	
	Midwife	
	Nurse	
	Doctor	
	Other hospital worker	
	How many women are advised on how to make themselves more comfortable?	

Are the women in labor being cared for as you would want to be cared for? If yes, then tell the midwives and other staff what great care they give to their women in labor. If not, think about what you will do differently when you return to your health facility. Write your ideas below.

Learning Aid 4 – Oral History of LSS Program Development [3]

In 1986, Peg Marshall was working with Bonnie Pedersen at the American College of Nurse-Midwives (ACNM), Special Project Section (now Department of Global Outreach), on introducing family planning practice into the scope of work for midwives in Ghana. The positive experience with this work led to asking to work with the Ghanaian midwives on maternal mortality reduction. As this was a new area of work for ACNM, they recognized the need to see what midwives were currently doing and to identify how they could do even more for maternal mortality reduction.

Two studies were conducted. The first one,[4] a chart review, showed that they could find how women were dying, of what, and with what quality of care. The second,[5] a qualitative study of the practice of private sector midwives, added significant detail on current practice, including how they felt they could give better care for women with an expanded practice and their understanding of deaths in their communities. The second study focused on what skills the midwives had to address the five major causes of death. The Ghanaian midwives had a very distinct and valuable non-institutional perspective. They recognized that teenage deaths from unsafe abortion were a larger problem than commonly recognized at that point in time. This was an important finding that helped to guide the design of the future manual. The findings of the two studies also led to the development of an assessment tool to help midwives manage two of the major killers of pregnant women: pregnancy induced hypertension and the prevention and treatment of anemia, thereby decreasing the risk of death from hemorrhage. **LSS was conceived.**

A team consisting of Ghanaian midwives, Peg Marshall and Sandy Buffington, developed the modules on monitoring labor using the partograph, pregnancy-induced hypertension, and hemorrhage. Multiple versions of these modules were tested by the midwives of the Greater Accra Region. Peg found a supportive OB/GYN physician, Dr. Joe Taylor, who worked together with the midwives to pre-test the modules in a Ministry of Health hospital. The Ghanaian team of midwives and doctors were thrilled with the interventions and felt they were very useful. **LSS was born**.

Much thought went into the naming of the manual, ***Life-Saving Skills Manual for Midwives.***[6] It was decided to highlight the target audience, **professional midwives,** as in many situations, midwives have not received appropriate respect and support for the work they do in helping women and families. The name reflects the philosophy that **the goal of training is to produce confident and competent midwives who can practice advanced midwifery skills and save the lives of women and babies.**

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[3] As told by Deb Armbruster, Diana Beck, Sandy Buffington and Annie Clark, January 19, 2006. Review and edit by Peg Marshall Feb 2006, "This brings back memories. What fabulous partners we have had on this initiative. I feel lucky. Please do give tons of credit to our wonderful midwife partners globally….and others. ACNM and USA midwives could not have done this alone." Edit by Sandy Buffington April 2006.

[4] Antwi, Phyllis Mary, and Margaret Marshall, A Retrospective Analysis of Maternal Mortality Data From Three Major Maternity Hospitals in the Greater Accra Region, Ghana from 1986-1988, American College of Nurse-Midwives, 1989.

[5] Marshall, Margaret, An Investigation of the Cultural and Service Factors Contributing to Maternal Mortality in the Greater Accra Region Ghana: Implications for Education Policy, Unpublished doctoral dissertation, George Washington University, 1990.

[6] By Margaret Ann Marshall and Sandra Tebben Buffington

Within three months the first edition of LSS was drafted. It took another 6 months to edit, illustrate, and publish the manual. The development of the materials combined Peg's research/academic background, Sandy's field experiences, and the LSS team's practical application skills. This first edition was field tested and revised in a pilot training project in Ghana in late 1989. The LSS pretest was used for 15 clinical trainings. Dr. Rogers Beasley of Hyden, Kentucky, as the only external reviewer with very substantial comments, gave support and encouragement to continue to use LSS for midwives around the world. After this, the LSS Manual was expanded to address the five major causes of maternal mortality (hemorrhage, sepsis, unsafe abortion, pregnancy induced hypertension, and obstructed labor) along with emergency care including hydration for shock prevention, resuscitation of woman and baby, and neonatal sepsis.

In order to find midwives interested in the training, the LSS team advertised in a national Ghanaian newspaper. The first midwives to apply were self-selected, energetic and enterprising. We give our Ghanaian colleagues praise and thanks for their efforts in having worked together with ACNM on this effort. Later, the team of Ghanaian master trainers opened a second training center and combined LSS skills with the regional safe motherhood clinical skills master training teams. They continue to train to this day.

Much credit goes to Peg Marshall for launching the LSS effort by stretching her doctoral dissertation budget for her research and pretest trainings. She found donations for necessary equipment. No other money backed this pilot project. Dr. Ade Lucas from The Carnegie Corporation of New York was very supportive of both studies, as well as of Peg's doctoral dissertation, and was very instrumental in the development of a role for ACNM in maternal mortality reduction. He funded four proposals over several years, including partial financial support for the development of the first edition of the LSS manual.

In 1991, the Ghana LSS program was presented at the ICM conference in Kobe, Japan. Abimbola (Lola) Paine recognized that such a program would greatly enhance midwifery training in Nigeria. She attended LSS training in Koforidua, Ghana and worked tirelessly to get LSS started in Nigeria. When LSS finally began, she served as country coordinator, under MotherCare, to develop training centers in Ibadan and Bauchi. These training centers continue to be used periodically to this date, based on available funding. Nigerian master trainers have traveled all over the country to teach new training teams.

The second edition, published in 1991, used the lessons learned from the trainings in Ghana. It was translated into other languages including Vietnamese, French, and Bahasa Indonesia. ACNM directed the implementation in five countries: Ghana, Nigeria, Uganda, Viet Nam, and Indonesia. **LSS matures.**

ACNM used the second edition in Uganda at three sites, a mission hospital and two government training hospitals. This project demonstrated the importance of trainers being midwives who actually had jobs in the system. This allowed the trainers to work from within the system, to include new skills instead of hiring training staff for the length of the project. Thus, when the project ended, the LSS training teams could continue to train while doing their own jobs. **LSS training worked together with the manpower system.**

A little recognized fact is the importance of LSS early support of active management of third stage labor as a necessary intervention. This procedure was introduced into the LSS very first edition. Today, active management of third stage labor is being encouraged worldwide as a normal management procedure in order to save many lives. **LSS has been a leader in active management of third stage labor.**

Many lessons were learned along the way. Two critical lessons learned were: 1) the use of the LSS Manuals in several countries without supervision or direction by ACNM, led to poor or no results, and 2) it is important to have a community connection within a program.

ACNM conducted LSS programs for various NGOs and government organizations in Bangladesh, Cambodia, Eritrea, Zambia, Viet Nam, Uganda, Ghana and Indonesia. In 1996, ACNM was invited to conduct an assessment focusing on village midwives in Indonesia. This project used a combination approach, first identified as a need in Uganda, which combined LSS with additional skills and information on community and normal midwifery care. Out of this came the 1998 first edition of ***Healthy Mother Healthy Newborn Care*** manual for village midwife training. **LSS goes to the community.**

By then, many people were interested and offered comments and suggestions on the second edition of LSS and requested to be external reviewers for the third edition. The valuable comments and many suggestions from master trainers, midwives, and doctors from Ghana, Indonesia, Nigeria, Uganda, and Viet Nam provided the foundation for the revisions in the third edition (1998). It included new material requested by LSS midwives and trainers, as well as experiences they had shared from their practice and incident report forms. The master trainers provided much of the clinical 'practicality'. LSS third edition was translated into Spanish, Russian and Tajik. LSS began to spread through other groups and via ACNM as shown below:

- 1996 and 1997 implemented in Jakarta, Java and Pontianak in the province of West Kalimantan; and in Banjaramisin and Banjar Baru in the province of South Kalimantan, Indonesia.
- 1998 – 2000 implemented in Cambodia; in Hanoi, Viet Nam (new project); in Eritrea; in Honduras; and in Tanzania.
- 2001 – 2005 implemented in Dushanbe, Panjikent, Khatlon, Tajikistan; in Rwanda; in Negelle, Nazaret, and Addis Ababa, Ethiopia; and in Lusaka, Zambia.
- 2006 implemented in Khojand, Tajikistan (new project) and in Bong and Nimba Counties, Liberia.

Now the fourth edition of ***Life-Saving Skills Manual for Midwives*** is published. The fourth edition combines third edition updates (focusing on life saving knowledge and skills to manage complications) with Healthy Mother Healthy Newborn (normal and preventive care) in hopes of continuing to improve maternal care and safe deliveries around the world. **LSS is growing in the needs it meets and in stature.**

Healthy Mother Healthy Newborn Care manual was created for Bidan di Desa in South Kalimantan, Indonesia in 1998 by Diana Beck, Sandy Buffington, Jeanne McDermott, and Karen Berney.

REFERENCES FOR 4TH EDITION

Experience and the following references provided information for this module.

AbouAzhr, C., & Wardlaw, T. (2004). *Maternal mortality in 2000: Estimates developed by WHO, UNICEF, and UNFPA.* Geneva, Switzerland: World Health Organization. www.who.int

Adam, T., Limm, S. S., Mehta, S., Buhutta, Z. A., Fogstad, H., Mathai, M., et al. (2005, November 12). Cost effectiveness analysis of strategies for maternal and neonatal health in developing countries. *British Medical Journal*, *331*(7525), 1107.

Ashford, L. (2002). *Hidden suffering: Disabilities from pregnancy and childbirth in less developed countries.* Accessed on line August 28, 2007. www.prb.org/Publications/PolicyBriefs

Beck, D. (2002, July). *I treat women and their families in the way I would like to be treated.* Bangladesh: UNICEF.

Bhutta, Z. A., Hasan, B. S., & Haws, R. A. (2005, February). Community-based interventions for improving perinatal and neonatal health outcomes in developing countries: A review of the evidence. *Pediatrics, 115*(2), 519-617.

Brazier, E., & Oyugi, C. (2007). *Compassionate care: An essential competency for skilled attendants.* Family Care International. Unpublished draft used with permission.

Brown, M., Mackenzie, C., Dunsmuir, W., Roberts, L., Ikin, K., Matthews, J., et al. (2007). Can we predict recurrence of pre-eclampsia or gestational hypertension? *British Journal of Obstetrics and Gynaecology, 114,* 984–993.

Cleland, J., Bernstein, S., Ezeh, A., Foundes, A., Glasier, A., & Innis, J. (2006, October). Family planning: The unfinished agenda. *Lancet,* 47-64.

Darmstadt, G., Bhutta, Z., Cousens, S., Adam, T., Walker, A., & deBernis, L. (2005). Evidence-based, cost effective interventions that matter: How many newborns can we save and at what cost? The Lancet Neonatal Survival Series, Paper 2. *Lancet, 365*(9463), 977-988. Published on line March 3, 2005. www.thelancet.com

Department for International Development (DFID). (2004). *Reducing maternal deaths: Evidence and action.* London: Author.

Family Care International. (2005). *Compassionate care CMC facilitators module*. New York: Author. http://familycareintl.org/en/issues/38/#training

Hill, K. (2006). Measuring maternal mortality [Correspondence]. *Lancet, 368*(9553). Published on line December 16, 2006. www.thelancet.com

Hill, K., Thomas, K., AbouZahr, C., Walker, N., Say, L., Inove, M., & Suzuki, E. on behalf of the

Maternal Mortality Working Group. (2007). Estimates of maternal mortality worldwide between 1990 and 2005: An assessment of available data. *Lancet, 370,* 1311-1319.

King, M., Mola, G., Thornton, J., Breen, M., Bullough C., Guillebaud, J., et al. (2003). *Primary mother care and population*. Stamford, United Kingdom: Spiegel Press. http://www.leeds.ac.uk/demographic.disentrapment, M.H.King@leeds.ac.uk

Khan, K. S., Wojdyla D., Say, L., Gulmezoglu, A. M., & Van Look, P. F. A. (2006). WHO analysis of causes of maternal death: A systematic review. *Lancet, 367,* 1066-1074.

Kwast, B. E. (1995). Building a community-based maternity program. *International Journal of Gynecology & Obstetrics, 48*(Suppl.) S67-S82.

Lawn, J., Cousens, S., & Zupan, J. for The Lancet Neonatal Survival Steering Team. (2005, March). 4 million neonatal deaths: When? Where? Why? *Lancet,* 365(9462), 891-900. Accessed June 2006. www.thelancet.com

Lewis, G. (2003). Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer. *British Medical Bulletin, 67*, 27-37.

McClure, E. M., Goldenberg, R. L., & Bann, C. M. (2007, February). Maternal mortality, stillbirth and measures of obstetric care in developing and developed countries. *International Journal of Gynecology & Obstetrics, 96*(2), 139-146. Accessed February 1, 2007 on line.

Maine, D. (2007). Detours and shortcuts on the road to maternal mortality reduction. *Lancet, 370,* 1380-1382.

MotherCare Matters. (1996, August). Improving obstetrical and neonatal management: Lessons from Guatemala. *MotherCare Matters, 5*(4).

Moore, M., Armbruster, D., Graeff, J., & Copeland, R. (2002, August). *Assessing the 'caring' behaviours of skilled maternity care providers during labour and delivery: Experience from Kenya and Bangladesh.* Washington, DC: The CHANGE Project, Academy for Educational Development / The Manoff Group.

Mullan, F., & Frehywot, S. (2007). Non-physician clinicians in 47 sub-Saharan African countries. Published on line June 14, 2007. www.thelancet.com DOI:10.1016/S0140-6736(07)60785-5

Quimby, C. H., & Mantz, M. L. (2000). *Expanding access to reproductive health through midwives.* SEATS. Family Planning Service Expansion and Technical Support. Arlington, VA: John Snow, Inc.

Research Triangle Institute - RTI International. (2007, January). *Integrated vector management programs for malaria control: Programmatic environmental assessment.* Washington DC: USAID. http://www.epa.gov/pesticides/health/mosquitoes/larvicides4mosquitoes.htm

Ronsmans, C., & Graham, W. J. on behalf of The Lancet Maternal Survival Series Steering Group. (2006). Maternal Survival 1 - Maternal mortality: Who, when, where, and why. *Lancet, 368*(9542)*,* 1189-1200*.* Published on line September 28, 2006. www.thelancet.com

Save the Children. (2007). *State of the world's mothers: Saving the lives of children under 5*. Washington, DC: Author.

Sloan, N. L., Ngoc, N. T. N., Hieu, D. T., Quimby, C., Winikoff, B., & Fassihian, G. (2005). Effectiveness of Life Saving Skills training and improving institutional emergency obstetric care readiness in Lam Dong, Vietnam. *Journal of Midwifery & Women's Health, 50,* 315-323.

Stanton, C., Blanc, A. K., Croft, T., & Choi, Y. (2006). Skilled care at birth in the developing world: Progress to date and strategies for expanding coverage. *Journal of Biosocience*, 1-12. Cambridge University Press.

Stanton, M. E. (2006, July 7). *Pie charts of causes of maternal death*. Fogarty Fellowship Orientation, USAID.

United Nations Population Fund and University of Aberdeen. (2004). Maternal Mortality Update – *Delivering into good hands;* and a companion booklet, *Into good hands: Progress reports from the field*. UNFPA.

United Nations Children's Fund and Save the Children. (2006). *Strategic guidance notes on the newborn.* UNICEF.

World Health Organization. (1999). *Care in normal birth: A practical guide*. Report of a technical working group. Geneva, Switzerland: Author.

World Health Organization. (2004). *Stopping the invisible epidemic of maternal deaths – WHO and partners act to reduce the maternal death toll of half a million women each year.* News release, September 29. Geneva, Switzerland: Author.

World Health Organization. (2005). Safe motherhood fact sheet: Maternal health: A vital social & economic investment. *Making Pregnancy Safer, Issue1*. Geneva, Switzerland: Author. http://www.who.int/making_pregnancy_safer/en/, www.safemotherhood.org/facts_and_figures/good_maternal_health.htm

WHO/UNFPA/UNICEF/World Bank. (1999). Why do women die? In *Reduction of maternal mortality. A joint statement* (chapter 3, The dimensions of the problem, pp. 11-14). WHO. Accessed on line August 27, 2007. http://www.who.int/reproductive-health/publications/reduction_of_maternal_mortality/reduction_of_maternal_mortality_abstract.htm

REFERENCES FOR PREVIOUS EDITIONS

Antwi, P., & Marshall, M. A. (1989). *A retrospective analysis of maternal mortality data from three major maternity hospitals in the Greater Accra Region, Ghana from 1986-1988*. Unpublished document. Washington, DC: American College of Nurse-Midwives.

Beck, D. (1990). Training workshop GRMA/ACNM: *Client management process*. Unpublished document. Washington, DC: American College of Nurse-Midwives.

Boerma, J. T. (1987). Levels of maternal mortality in developing countries. *Studies in Family Planning, 18,* 213-221.

Fortney, J. A. (1987). The importance of family planning in reducing maternal mortality*. Studies in Family Planning 18,* 109-114.

Klein, S. (1995). *A book for midwives: A manual for traditional birth attendants and community midwives* (pp. 3 -14). Palo Alto, CA: Hesperian Foundation.

Liskin, L. (1988). *Incidence of maternal mortality in developing countries* (pp. 1-27). Unpublished manuscript. Johns Hopkins University Population Information Program.

Maine, D. (1986). Maternal mortality: Helping women off the road to death. *WHO Chronicle*, *40*, 175-183.

Marshall, M. A. (1990). *An investigation of the cultural and service factors contributing to maternal mortality in the Greater Accra Region Ghana: Implications for education policy*. Doctoral Dissertation. Washington, DC: George Washington University.

Ministry of Health. (1994). *Integrated technical manual: Perinatal-maternal audit at district level*. Unpublished manuscript. Republic of Indonesia.

Potts, M. (1986). Can family planning reduce maternal mortality? *Journal of Obstetrics and Gynaecology of East Central Africa, 5,* 29-35.

Tinker, A., & Koblinsky, M. (1993). Making motherhood safe. *World Bank Discussion Paper, 202*(3), 65-79.

U. S. Department of Health and Human Services Monthly Vital Statistics Report (1988, September 30). *Advance report of final mortality statistics, 1986*. Author.

Varney, H. (1997). *Varney's midwifery* (3rd ed., pp. 23-39). Boston: Jones and Bartlett.

World Health Organization. (n.d.). *Maternal mortality rates: A tabulation of available information* (2nd ed., pp. 1-46). Geneva, Switzerland: Author.

World Health Organization. (1987, August). *Women's health and the midwife: A global perspective,* (pp.1-29). Geneva, Switzerland: Author.

World Health Organization. (1991, March). *Maternal mortality: A global fact book*. Geneva, Switzerland: Author.

World Health Organization. (1992). *The global burden of disease*. Contribution to the World Development Report 1993. Unpublished. Geneva, Switzerland: Author.

World Health Organization. (1994, November). *Mother-baby package: Implementing safe motherhood in countries.* Geneva, Switzerland: Author.

World Health Organization. (1996, April). *Revised 1990 estimates of maternal mortality: A new approach by WHO and UNICEF*. WHO/FRH/MSM/96.11, UNICEF/PLN/96.1:1-16.

NOTES

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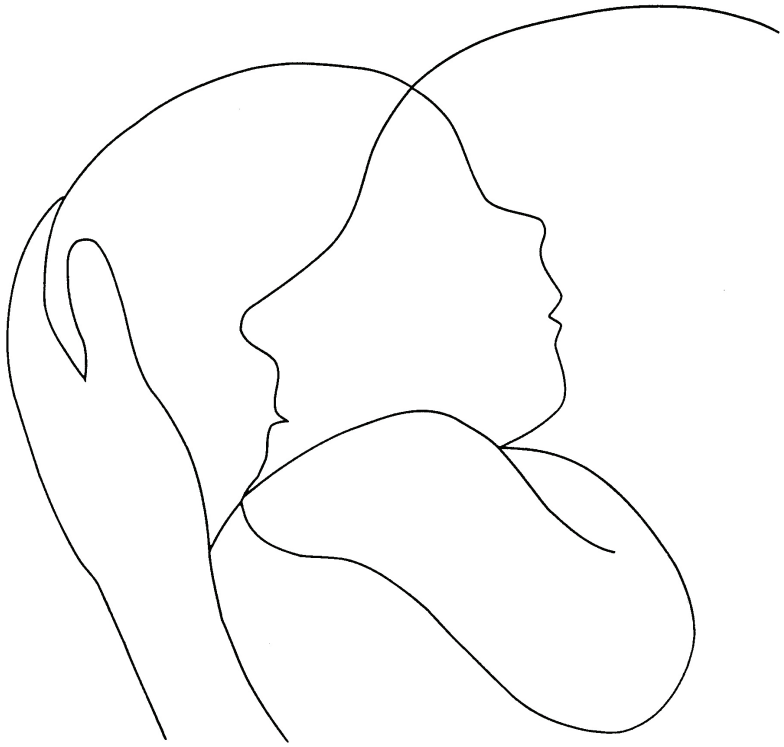
Life-Saving Skills
Manual for Midwives

Fourth Edition

Module 2: Antenatal Care



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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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ANTENATAL CARE
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ANTENATAL CARE

Goal

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

Objectives

The midwife caring for a woman during the antenatal period will use the Focused Antenatal Care matrix and be able to:

1. **ASK and LISTEN.** Take the antenatal history to identify possible problems, including **anemia** and **pre-eclampsia**.
2. **LOOK and FEEL.** Perform an antenatal physical examination to identify possible problems, including **anemia** and **pre-eclampsia**.
3. **IDENTIFY PROBLEMS and NEEDS.** Describe normal findings, common changes, and findings that are not normal or are dangerous.
4. **TAKE APPROPRIATE ACTION.** Use the information from the antenatal history and physical examination to give treatment, provide health information, and plan care with the woman, her husband and her family for birth, emergencies, and postpartum.
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 (MCTC) of HIV.
7. Record information from antenatal history, physical examination, treatment and plan of care on the antenatal record.

Introduction

The midwife provides care and counseling to a pregnant woman and her family, so the woman can prevent problems, receive help with problems, and prepare for the birth. You will learn how to provide focused antenatal care using the problem solving process.

The information you get will help you identify any problems and risk factors for two major causes of maternal mortality, **pre-eclampsia and anemia**. Anemia puts women at high risk of death from hemorrhage. You will learn to plan with the woman so the pregnancy and birth are as safe as possible. You will learn to explain and give advice about what you are doing and what you have found.

Important changes have been made from the previous definition of pre-eclampsia. **Edema is no longer considered to be a sign of the diagnosis for pre-eclampsia. Also, the use of blood pressure increases of 30 mm Hg systolic or 15 mm Hg diastolic with blood pressure less than 140/90 mm Hg is not considered a danger sign. It has been shown that women with blood pressures in this range are not more likely to have pre-eclampsia.**

It is recommended that you plan a minimum of four antenatal care (ANC) visits for a pregnant woman with no problems. Some women may not be able to visit a midwife or doctor for their antenatal care. If this happens in your area, you should find a way for these women to have care during pregnancy and birth.

It is important to write down what you learn about the woman and baby during each visit. The information will help you and the woman plan her care during the pregnancy and after the baby is born. Each time the woman returns to the antenatal clinic, read her record to remind yourself of the findings at the previous visits. If you do not have an antenatal record form, write the information on a paper or in a booklet for each pregnant woman, see **Learning Aid 3**. Look in the *Guide for Caregivers* for Antenatal Skill Checklists.

A Midwife's Experience...

The woman was a 44 year old gravida eleven. She came in at 38 weeks' gestation. She was in labor. I had referred her to hospital prior to labor but she was not admitted although her BP was 170/100. I admitted her at 7:30 a.m. in labor with cephalic presentation, 3/5, os 5 cms, BP 180/100, pulse 90, reflexes normal. The woman was complaining of headaches and severe palpitation. A sedative was given and she was transferred to the referral hospital immediately. She delivered by vacuum extraction in the middle of the night. The baby, a male, was in satisfactory condition. She was discharged after 4 days. She reported to my maternity for cord dressing. I gave her advice on family planning and advised her to report at 6 weeks for counseling, but she has not turned up to date. I felt very competent to manage this case.

LSS Midwife, Ghana

Common Medical Terms

Adnexa – attached or next to; the ovaries and fallopian tubes are uterine adnexa.

Albuminuria – the presence of albumin (a protein) in the urine. Also referred to as proteinuria. When present, it may indicate pre-eclampsia or infection.

Anemia – a low level of hemoglobin in the blood or a reduction in the number of red blood cells.

Cephalopelvic Disproportion (CPD) – the baby's head can not fit through the pelvis of the woman, resulting in obstructed labor.

Chronic Hypertension – high blood pressure of or above 140/90 observed before pregnancy.

Eclampsia – one or more convulsions related to pregnancy not caused by epilepsy or cerebral hemorrhage. A pregnant woman may have other pre-eclampsia signs: high blood pressure, protein in the urine and symptoms such as headache, visual problems, hyper-reflexia, and epigastric pain.

Female Genital Cutting – also called female circumcision or female genital mutilation. It is the removal of part or all of the external female genital tissue. This harmful practice affects 100 to 140 million girls and women alive today. It is estimated that about 3 million female circumcisions are performed every year in the world.

Folic Acid Deficiency – a low level of the nutrient folic acid which the body needs to make red blood cells. This deficiency most often occurs in pregnant women and may cause major defects of the brain and spinal cord in her baby, preterm birth, pre-eclampsia, and anemia.

Fundal Height Monitoring – measuring the uterus from the top of the pubic symphysis to the fundus during pregnancy to see if the baby is growing as expected.

HELLP Syndrome – a serious complication which can occur in women with pre-eclampsia. The woman usually has **H**emolysis (breakdown of red blood cells), **E**levated **L**iver enzymes, and **L**ow **P**latelet count. It causes too little oxygen to the brain and possibly death of the fetus. The woman may die from hemorrhage, seizures, or a ruptured liver.

Hemoglobin – a color (pigment from iron) in the red blood cells which enables the red blood cells to carry oxygen around the a person's body. Blood with enough oxygen in the hemoglobin is bright red in color. Blood with less oxygen in the hemoglobin is lighter red in color.

High Risk – the term used when there is a strong possibility a person may develop a particular condition or problem. For example, there is a strong possibility there will be problems during delivery of a baby in breech presentation.

Hydatidiform Mole – an abnormal growth of tissue with the woman having signs and symptoms of early pregnancy, but no development of an embryo. With this problem signs of pre-eclampsia may be seen before the 20th week of pregnancy.

Hyper-reflexia – an overactive reflex, an increased reaction of a reflex or a very fast or brisk response of a reflex which may mean there is edema of the brain. This may be seen in a woman with pre-eclampsia when there is neurological disease.

Indoor Residual Spraying – indoor residual spraying (IRS) is the application of small amounts of insecticide to the interior walls of houses to kill malaria-transmitting mosquitoes. IRS is a highly effective, proven malaria prevention strategy that saves lives, see Module 7.

Iron Deficiency Anemia – the iron stores in the body are low or exhausted. Iron is very important to carry oxygen to the tissues from the lungs. When the amount of iron is low, the persons' body does not have enough oxygen. .

Pre- eclampsia – occurs during pregnancy of unknown cause. Signs include high blood pressure and protein in the urine. With severe pre-eclampsia, hyper-reflexia, headache, visual problems, and epigastric pain may be seen. Pre-eclampsia happens more often in a primigravida but also can occur in a multigravida. Pre-eclampsia usually occurs after the 20th week of pregnancy but may develop before 20 weeks if the pregnancy is a hydatidiform mole.

Pregnancy Induced Hypertension – high blood pressure without proteinuria after 20 weeks of pregnancy. Usually returns to normal by 12 weeks postpartum.

Proteinuria – the presence of protein in the urine (also called albuminuria).

Risk – the harm that something might cause. A risk does not mean a problem will happen. It means a problem is more likely to happen. For example, a woman with a very small pelvis is more likely to develop an obstructed labor.

Risk Factor – something in an individual, in their health habits or in the environment that makes the individual more likely than normal to develop a particular condition. For example, the first pregnancy (primigravida) is a risk factor for pre-eclampsia, or, an abnormality in a previous pregnancy is more likely to happen again in a present pregnancy.

Vision Problems – the woman reports the presence of spots in front of her eyes, double vision, partial vision, rings around lights, blurry vision. May occur when there is high blood pressure in pregnancy, in malaria and other infections.

Equipment and Supplies

- Adult weighing scales
- Adult stethoscope
- Blood pressure cuff
- Fetal stethoscope
- Gestation wheel
- Gloves
- Height measure or mark on wall
- Laboratory testing as appropriate for: anemia, urine protein, malaria, HIV, syphilis
- Medications including iron folate
- Soap, water
- Towels
- Teaching Aids
- Thermometer and timer
- Measuring tape
- Vaginal speculum with lubricant / water
- Forms as needed: antenatal record, referral, laboratory, consent form for voluntary counseling and testing

Prevent Mother to Child Transmission of HIV

Mother-to-child transmission (MTCT) of HIV is an urgent and growing problem. Each year more than 600,000 infants are infected with HIV, at a rate of one infant every minute of every day. The majority of these infections are in developing countries. As the number of women of childbearing age with HIV rises, so also does the number of infected children. This increases child morbidity and mortality.

Transmission

HIV is transmitted from mother to child at three times: during pregnancy, during labor and delivery, and after birth, usually through breast feeding. The risk of MTCT in women with HIV during pregnancy is estimated at 5 – 10 percent, during labor and delivery at 10 – 20 percent, and during breast feeding at 10 – 20 percent. If no preventive measures are taken, the risk of MTCT in women with HIV is estimated at nearly 35 percent. The risk of MTCT increases if a woman becomes infected or re-infected with HIV during pregnancy, or if she becomes ill with AIDS, because of higher viral loads. Other factors that increase transmission during this period include viral, bacterial, or parasitic placental infection.

Most infants who get HIV during delivery do so through exposure to maternal blood or cervical secretions that contain HIV. Prolonged membrane rupture and invasive delivery techniques have also been associated with higher risks of MTCT during labor and delivery.

The danger of MTCT is greater when HIV-positive women do not exclusively breast feed for the first six months, or if complications develop from poor breast feeding techniques (e.g. mastitis, cracked and bloody nipples). The risk of MTCT also increases if the mother becomes infected or reinfected with HIV while breast feeding. Encourage sexually active partners to use the appropriate use of male and female barrier methods during pregnancy. The woman should use dual protection family planning methods that protect the man and the woman after the baby is born, see Module 10: **Postpartum** for additional information.

Gender and HIV/AIDS

Women, particularly young women, are biologically, socio-culturally, and economically at greater risk when infected with HIV infection than men. Women risk discrimination if they are infected. They may be physically abused or chased out of their homes, or have their property taken by their husband's relatives after his death. They are less likely to receive home care and more likely to have to continue with heavy workloads when ill with AIDS-related conditions.

Strategies for Reducing the Risk of Mother to Child Transmission (MTCT)

Preventing MTCT is critical to saving children's lives. Prevention can have major impact on improving overall maternal and child health through improved antenatal, delivery, and postpartum care. The key intervention strategies include:

- Primary prevention
- Preventing unwanted pregnancy
- Voluntary and confidential counseling and testing
- Antenatal care of a woman with HIV
- Anti-retroviral drug therapy, if available and acceptable
- Reducing risk of MTCT during pregnancy
- Safer delivery practices
- Promoting affordable, feasible, acceptable, safe, sustainable feeding for the baby

Primary Prevention. Decreasing exposure of girls and women to HIV infection. Reducing exposure to HIV infection is the best way to prevent MTCT. Prevention begins with education and includes: increasing knowledge among adolescents, women, and men about HIV/AIDS, its transmission and prevention; helping girls and women gain skills in having safer sex; and providing information about sexual health, prevention of infections and unwanted pregnancy. PMTCT education for the community is important to reduce stigma and develop an attitude that supports women who face difficult decisions related to MTCT.

Preventing Unwanted Pregnancy. To prevent HIV and other sexually transmitted infections barrier methods of contraception must be used. Pregnant and breast feeding women should be counseled to use condoms to prevent primary HIV infection or re-infection, which increases viral load and the risk of MTCT. Preventing unwanted pregnancy in women with HIV is also an important strategy to guard against MTCT.

Voluntary and Confidential Counseling and Testing (VCCT). VCCT is strongly recommended during pregnancy. If a woman does not have HIV, she can be counseled in appropriate prevention methods. If a woman knows she has HIV, early counseling and treatment can reduce the risk of MTCT during pregnancy, labor and delivery, and the postpartum period. Ways to ensure privacy and follow-up support are important parts of VCCT services. With her consent, a woman's partner and family should be involved during pregnancy and postpartum to ensure sharing and support in decision making.

Antenatal Care of a Woman with HIV. Care for a woman with HIV includes all the care a pregnant woman without HIV receives. Counseling on self-care, nutrition, **early detection and seeking immediate care** for infections and other problems, safer sex, family planning and infant feeding options are critical.

Antenatal Services for Woman with HIV

- Education on nutrition and providing of nutritional supplements
- Screening for sexually transmitted infections and other infections
- Immediate care for other infections (e.g. tuberculosis, parasites, herpes)
- Malaria prophylaxis and treatment
- Education about safer sex
- Planning for safe delivery, including emergency transport
- Counseling on postpartum family planning
- Counseling on infant feeding

Anti-retroviral Drug Therapy. Giving anti-retroviral drugs to the woman during pregnancy and labor, and to the baby after delivery, is effective in reducing MTCT. Studies continue to look at what is the most effective timing to give the drug, or combination of drugs, which drug(s), and dosage. Follow local protocols when giving antiretroviral drugs.

Reducing Risk of MTCT During Pregnancy. Quality antenatal health care including testing, can help reduce the risk of MTCT in women with HIV. Treating STI's and other infections such as malaria and tuberculosis, and giving advice on prevention of infection and re-infection, will reduce the risk of MTCT. For every pregnant woman, good antenatal health services can improve overall health and nutrition, improve birth outcomes, reduce maternal mortality, and reduce a woman's risk of HIV infection. In many places, pregnant women are of unknown HIV status and most will not have any symptoms of HIV infection, so providing essential antenatal care to all women will help to ensure that women with HIV will receive the best care.

Safer Delivery Practices. Using good infection prevention practices for all patient care, doing vaginal exams only when absolutely necessary, avoiding prolonged labor, avoiding tears of the perineum and vagina, and reducing the risk of postpartum hemorrhage by doing active management of third stage of labor are safer delivery pracies that canreduce the risk of MTCT during labor and birth, see Module 3: **Labor.**

Promoting affordable, feasible, acceptable, safe, sustainable feeding for the baby. Breast feeding is one of the best ways to ensure the health of babies in resource poor environments. Infants who are not breast fed are almost six times as likely as breast fed infants to die in the first two months of life. WHO, UNICEF, and UNAIDS have affirmed that breast feeding remains the best and safest choice for women who do not have HIV or who do not know their HIV status.

If a woman knows she is HIV positive, the best way to prevent MTCT of HIV during the postpartum period is for the woman to do replacement feeding if it is affordable, feasible, acceptable, safe, and sustainable. But if she has limited access to safe water, adequate sanitation, health care, and affordable infant formula, breast feeding provides the best chance of infant survival.

There are also considerations of the stigma a woman may face with her family and community if she does not breast feed her infant. If an HIV-positive woman chooses to breast feed, she should do so exclusively for about the first six months. Giving the baby both breast and formula (mixed feeding) increases the risk of MTCT and diarrheal disease. Mixed feeding should be completely avoided. Breast feeding has the added benefit of helping a woman to limit her fertility by extending the period of postpartum amenorrhea.

Counsel Women to Reduce the Risk of MTCT with Breast Feeding

- Initiate breast feeding soon after delivery
- Practice good breast feeding techniques
- Exclusively breast feed their babies for the first six months

SKILL: Give Focused Antenatal Care

One way the midwife can learn if a pregnant woman is healthy and identify any concerns or problems is to take an antenatal history. When a woman first comes for antenatal care she may feel afraid and not know what to do. Welcome her and show her where to go and tell her what will happen. She may need to meet someone like a clerk, give her name and address and tell them why she has come to the clinic. She may need to receive or purchase an antenatal record form before being examined. This is called **registration**.

During the first visit the pregnant woman should become comfortable talking to you about herself. If she feels shy to talk about her body or about sex, it may be difficult for her to tell you things that you need to know about her health. To help her feel comfortable:

- Provide privacy
- Listen carefully to her
- Answer her questions
- Show her respect

When you first see a woman for care, do a history and an examination of the body, see Module 1: **Introduction** - **Learning Aid 1** for a system review for the woman. This will help you find problems that the woman herself has not recognized. Use **Learning Aid 8** for a focused antenatal care matrix to help you remember what to do at each visit.

ASK and LISTEN – Take an Antenatal History

ASK the following questions and **LISTEN** carefully to the woman's answers. Use this information each time you provide care for her. Write the information on the antenatal record so you can use it at other visits. At each visit, review the written record. Since some of her answers might change at each visit, you will need to ask her about some things each time you see her.

1. **Personal History.** Find out about the woman as a person. *What is your name and where do you live? Do you work outside the home? If yes, what kind of work do you do? Are you happy to be pregnant? How many years did you study in school? How old are you?* Women who are between 18 and 35 usually have the fewest problems giving birth.

2. **Family History.** *Has anyone in your family had any health problems like high blood pressure, heart disease, diabetes, epilepsy? Are there any twins in your family? Is your husband healthy?*

3. **Social History.** *Do you get enough rest?* If she has no social support, she has a higher risk for developing anemia. *Is there someone to help you with your work, with money for pregnancy care and medicines? Are you afraid someone might hurt you?* Ask these questions several times during the pregnancy. If you listen carefully, you may learn important information when you are talking about other things. Women being abused may

tell you about it. Take time to listen. Having love, comfortable housing, food, baby supplies, health care, and transportation will help the woman relax and feel good about her pregnancy. Do all you can to help a pregnant woman relax and enjoy her pregnancy. If her family can not help her, perhaps some experienced women in the community can help.

4. **Medical and Surgical History.**

- *Have you had any health problems: sickle cell disease, weak and tired (anemia), shortness of breath (heart disease), diabetes, fits (epilepsy), asthma, cough with blood or cough lasting more than 2 weeks (tuberculosis)?* If the woman has a history of any long term health problem, **explain** you would like her to see the doctor to find out where is the safest place for her to deliver. If the woman knows she has sickle cell disease or if it is a problem in your area, the woman should have a sickle cell screen at the first visit. Sickle cell positive women can quickly develop serious complications and die. REFER all sickle cell positive women to the doctor or hospital.

- *Have you had any teeth or gum problems?* Women who delivered low birth weight infants had more gum or tooth infection.

- *Have you had any abdominal surgery or circumcision* (ask about circumcision if common in your area)*? Have you ever had a blood transfusion?*

- *Have you had any vaginal bleeding, too much vaginal discharge or abdominal pain (reproductive tract infections)?*

- *Have you had problems with fever, diarrhea or skin rashes (HIV/AIDs)?*

- *Are you taking any medicines now?* You need to know if the woman is taking any medicines, if she is allergic to any medicines, and if she has ever had problems with any medicines. **Explain** that some medicines she might normally take could possibly harm her unborn baby. It is best for her to only take medicines prescribed by a midwife or someone who knows which medicines are safe for her to take.

- *Have you had tetanus injections?* If yes, *when was last injection?* Most women receive tetanus toxoid at least once during infancy, twice in primary school, and once when they get married. If the last injection was less than 10 years ago, she will need one tetanus booster during this pregnancy. If she does not know when she last had a tetanus immunization, give her a dose at her first visit and another dose at least one month later. Check with your local health authorities for where and when she can get these injections if you do not have the vaccine. **Explain** to the woman that tetanus injection protects her and her baby from lockjaw disease and death.

5. **Obstetric and Gynecology History, including Family Planning**
   - *How many children have you had? When was each child born? How old is your youngest child?* Women who have had one or two babies, whose last baby was born at least three years ago, and whose children were born alive and healthy usually have the fewest problems during pregnancy.

   - *Are all your children alive and well? Have you had any problems with past pregnancies or births, abortions (miscarriages) or had any babies die (stillbirth).* If she had previous stillbirths or baby deaths in the first 4 hours, the baby is at risk.

   - *Have you had any problems? Have you had any problems with high blood pressure or convulsion (pre-eclampsia / eclampsia)? Have you had bleeding before delivery, too much bleeding after delivery, or any problems with the afterbirth (placenta)?* A history of hemorrhage with other pregnancies may indicate increased risk of bleeding with this pregnancy.

   - *Have you had a cesarean section? Have you had an episiotomy, vacuum extraction, forceps*? A history of cesarean section or instrument delivery may indicate risk of CPD.

   - *Have you used family planning before?* If you have, *what method did you use? Did you like it?* It may be a good time to ask her how she wants to space her children after this baby is born.

6. **Breast Feeding History.** *Did you breast feed your last baby? How long? Any problems?*

7. **Current Pregnancy History**
   - *How many weeks or months pregnant are you? When is the baby due? Have you felt the baby move? When did you first feel nausea or breast tenderness*? Use this information to see if the baby is growing and to confirm the length of the pregnancy (gestation) when you do the abdominal examination.

   - *Has your monthly bleeding been mostly regular, once every 4 weeks*? If a woman bleeds regularly every four weeks, she will usually get pregnant about two weeks after her last monthly bleeding. If the answer is yes, “monthly bleeding is mostly once every four weeks”, go to the next question below. If the answer is no, use **Learning Aid 4.**

   - *Was your last monthly bleeding normal*? If the answer is yes, go to the next question. If the answer is no, remember some pregnant women do have bleeding at the time they would normally have their monthly bleeding. Usually this bleeding is not a sign of a problem and it is lighter in amount and lasts for a shorter time. For this woman you need to calculate her due date using her last “normal” monthly bleeding date.

- *What is the date of the first day of your last monthly bleeding.* Figure the due date and how many weeks pregnant she is at this visit. Use one of the methods in the **Learning Aid 4. At each repeat antenatal visit, decide the number of weeks of pregnancy and compare it to the size of the woman's uterus to see if the baby is growing as expected.**

- Take a diet history at the **first antenatal visit and review** when she seems to have problems (anemia, nausea and vomiting, constipation, or social problems at home). Do not assume she eats what you do or she eats what the rest of her family eats. The effects of malnutrition and anemia go from one generation to another. Malnourished women have low birth weight babies who become short, malnourished children, who grow up malnourished, who have low birth weight babies. Half of the people in many countries are anemic. To get an accurate history, ask the questions in the box below. Do not rush her. Most people will have to think a minute to remember everything.

Ask Diet History Questions

- 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?
- Do you eat anything that is not really food such as ashes, starch, clay, ice (pica)? A woman who craves and eats such nonfoods is frequently anemic.
- Do you feel tired, sleepy, or out of breath? Do you have heart palpitations, headaches, sore tongue, loss of appetite, nausea, or vomiting? These symptoms can be signs of anemia.
- Are there any foods you are not eating because you are pregnant? Are there any food taboos?
- Try to find out if she can afford to eat regularly and well.

- Ask about medicines and substance abuse. *Do you smoke, drink alcohol, use illegal drugs? Is anyone giving you advice on medicines or herbs?* Decide with the woman if the advice is helpful, harmless, or harmful. **Discuss** with her any information or advice that may damage her baby or herself.

- Ask this in malaria-endemic areas. *Do you own an insecticide-treated bed net (ITN*)? If yes, *do you use it?* If she answers no, **explain** she is more likely to get malaria while pregnant. *Do you do inside residual spraying?* Malaria during pregnancy increases chances of sickness, severe anemia, spontaneous abortion and even death, see **Learning Aid 2**. It is important to prevent and treat malaria.

8. **Current Pregnancy Conditions and Complaints.** You need to tell the difference between complaints that are normal in pregnancy and complaints that are danger signs and may be life threatening. Ask questions that help you decide which are life threatening.

- *How are you feeling?* A healthy pregnant woman has plenty of energy and a good appetite. No appetite or feeling tired may indicate anemia.

- *Have you felt the baby move? When was the first time you felt the baby move? When was the last time you felt your baby move? Is the baby moving as often as usual?* Primiparas usually feel the baby move the first time at 20-22 weeks, multiparas at 16-18 weeks.

- *Have you had any problems or danger signs?* A healthy pregnant woman has no problems or danger signs. Women may have danger sign complaints but do not know they are serious. These danger signs are not common but may be life threatening. Bad smelling vaginal discharge or fever may be signs of infection. Epigastric pain and vision problems may indicate pre-eclampsia. Ask about danger signs during pregnancy at every visit.

Danger Signs During Pregnancy

• Any bleeding • Headaches • Visual problems: spots in front of eyes, blurry vision • Abdominal (epigastric) pain, severe heart burn	• Fever • Bad smelling vaginal discharge • Convulsions • Baby not moving as usual • Losing weight, constant diarrhea, thrush (candida)

- *Do you have any other complaints during this pregnancy?* Pregnant women usually have some complaints such as mild nausea, sleepiness, constipation, aches and pains. They are not serious and will usually go away in a short while.

- *Do you have any concerns about this pregnancy or other problems?* Sometimes a woman is not comfortable telling you about a problem bothering her until after you talk together for a while. At each visit ask her if she has any other worries or problems she wants to talk about. If you listen carefully you may learn important information.

REMEMBER

At each visit ask the woman if she has had any danger signs. She should see a midwife, nurse or doctor immediately if she has. She should know how to get to the hospital if she needs to go. See the *Guide for Caregivers* on management of danger signs and common complaints during pregnancy.

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. Write the **ASK and LISTEN** questions that you should ask a pregnant woman at her first antenatal visit (pages 2.9 – 2.13)?
   a.

   b.

   c.

   d.

   e.

   f.

   g.

   h.

   i.

   j.

2. Write 5 questions to ask a woman so that you can decide if she has danger signs in her present pregnancy (page 2.13)?

LOOK and FEEL – Do a Physical Examination

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 woman's condition from one visit to the next. At the first visit, you will look and feel to decide if the woman is pregnant and how many weeks or months pregnant she is. At each visit, you **LOOK and FEEL** to see if the woman is healthy, if the baby is growing, if the size of the uterus matches the gestation you calculated from her dates, and later in the pregnancy, the presentation of the baby.

Ask the woman to empty her bladder so you have a sample of urine for testing and she feels more comfortable for the exam. The woman may feel shy to undress in front of you or for you to see parts of her body. Protect her privacy by covering her with a cloth and only exposing the part of her body you need to see. **Be gentle and friendly, explaining what you are going to do and why before you do it.** After each step in the examination, tell the woman what you have found.

The list of equipment that is helpful in giving antenatal care is found at the beginning of this module. The equipment may differ among places you work. The important thing to remember is that you can use your voice, eyes, ears, nose and hands to find out almost everything you need to know about a pregnant woman and her baby. If some of the equipment is not available, you can still find out many things about the woman and help her. **Make sure everything you use is ready and clean, including your hands, to provide antenatal care.**

1. **General Health. LOOK** for signs of general good health. Look at the woman as she walks in to see you. Watch for any skeletal deformity, this may be a risk factor for CPD. Is she walking as though she feels well? Look at her energy level. Does she look happy? Is she clean? Look at her skin as you examine her. Is it free from sores? Any signs of bruising, injuries, or infection? When the immune system is weakened by HIV/AIDS, there are secondary infections such as diarrhea, tuberculosis, candidiasis, herpes. When a HIV positive person has any kind of infection, HIV makes it worse. The dangerous combination of HIV and malaria in pregnant women causes an increased risk of illness, anemia, and low birth weight. See **Learning Aid 6.**

2. **Weight and Height.**
   - **Weigh the woman at each visit.** If you do not have a scale, **LOOK** at the woman to see if you think she looks average weight for height, too thin, or obese on her first visit. On return visits look to see if you think she is gaining weight. Weight gain is one way to determine if the pregnant woman is eating enough. **LOOK** for sickness in a woman who is very thin. Poor nutrition in someone with HIV/AIDS may increase the risk of transmission, due to low calorie intake and poor micronutrient status. **Explain**: *Some weight gain is normal. It shows that you are eating well and the baby is growing*. If a woman gains less than 5 kilograms by 28 weeks, REFER.

- **The height needs to be measured only on the first visit.** If there is no measuring rod attached to the weighing machine, a part of the wall or a door may be marked in centimeters, or a tape measure may be nailed to the wall. If you have no way to measure, **LOOK** to see if the woman is shorter than other women from her area. Too short (stunting) from malnutrition may cause a small pelvis and that can lead to CPD.

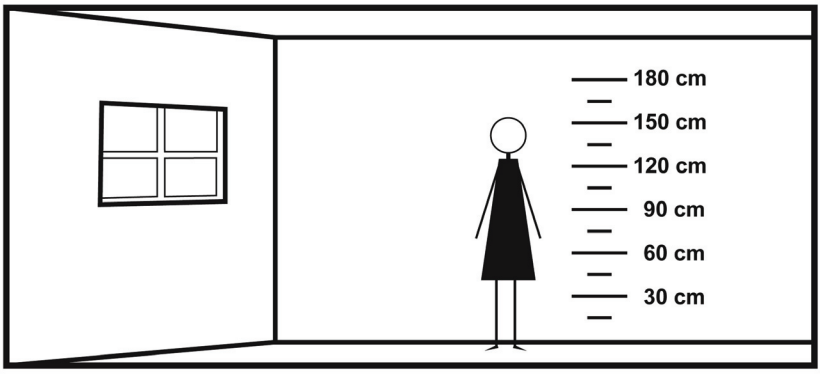

Figure 1. Measuring height against scale marked on the wall.

3. **Pre-eclampsia Screening: Blood Pressure, Reflexes.** Pre-eclampsia is a very dangerous problem that can happen in pregnancy, during labor, or in the few days after a woman has her baby. It can lead to convulsions (eclampsia) and even death. **Eclampsia and other hypertensive disorders of pregnancy are the cause of about 10% of all maternal deaths.** Deaths from hypertensive disorders during pregnancy, labor and postpartum can be prevented and managed.

   - **Take her blood pressure.** A blood pressure taken before 20 weeks gestation is considered to be the woman's normal or baseline blood pressure. The blood pressure usually stays between 80/60 and 140/90. The blood pressure does not go up during pregnancy unless there is a problem. If the woman has a diastolic blood pressure of 90 or higher, help her lie on her left side and relax (maybe she can sleep a little). After 20 minutes of rest, take her blood pressure again. If it has not decreased, it may be a sign of pre-elampsia if she is 20 weeks or more pregnant, or chronic hypertension if she is less than 20 weeks pregnant.

   - **Do reflex tests if the blood pressure is high.** Do this test at the first visit and at other times if the blood pressure is high, if the woman has a headache, vision problems and/or epigastric pain. Testing of reflexes is part of an examination of the nervous system. Reflexes are graded by the level of response: no response (0), low to average normal response (1+ to 2+), or brisk to very brisk or hyperactive (3+ to 4+). Hyper or brisk reflexes can indicate diseases of the nervous system or edema of the brain (cerebrum) in a pregnant woman. A woman with a brisk response to the reflex test is at very high risk for developing eclampsia (convulsions). **Control of pre-eclampsia to prevent eclampsia is life-saving for both the woman and baby.**

The patellar reflex is a common reflex to use when looking for pre-eclampsia in pregnant women. When you check the patellar reflexes, always check that the response is similar in both legs. When checking the patellar reflexes:

a. Ask the woman to sit on the examining table or bed. Her legs should hang freely. Her muscles need to be completely relaxed.

b. Tell her what you are going to do.

c. Feel for her tendon right below the kneecap (patella). If it is difficult to locate, move her lower leg a little while feeling at the same time.

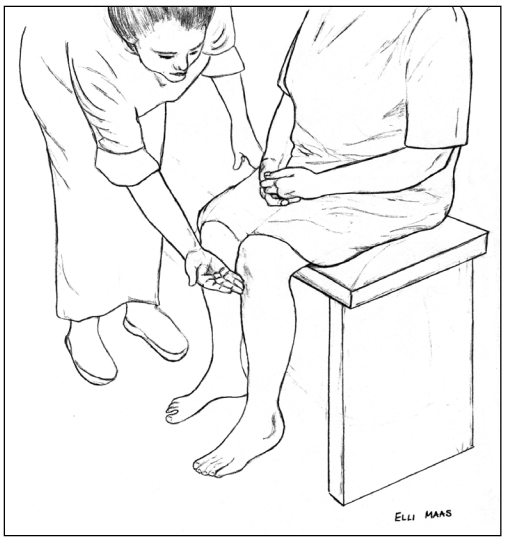

Figure 2. Position for testing patellar reflex.

d. Strike the tendon with a quick, firm tap and lift up immediately. **You may use the side of your hand, your knuckle, or a reflex hammer to tap the tendon.** Tapping the tendon contracts the quadriceps muscle, causing the lower leg to move. The patellar reflex can also be tested with the woman lying in bed. Put one arm under her leg at the knee so you support the leg completely. The foot can not be touching the bed. Strike the tendon.

e. If the woman is tense and contracting her muscles, you will not get an accurate test of her reflexes. You may need to talk to her and keep her attention away from what you are doing.

Classification of Signs

Findings	Diastolic BP At or Above	Protein in Urine	Headache, Vision Problems, Epigastric Pain	Reflexes
Chronic high BP	90	No	No	Normal
High BP in pregnancy (starts after 20 weeks)	90	No	No	Normal
Mild pre-eclampsia	90	+	No	Normal
Severe pre-eclampsia	110	++, +++	Yes	Brisk
Eclampsia	90	+++	Yes and fits	Brisk

Source: National Institutes of Health 2000.

If the diastolic blood pressure is more than 90 or it does not decrease after rest and the woman is more than 20 weeks pregnant, she may have pre-eclampsia. See *Guide for Caregivers* for management. If her diastolic blood pressure is above 90 in the first 20 weeks of pregnancy, she probably has chronic hypertension. REFER this woman to a doctor for evaluation and management of this problem.

4. **Anemia Screening: Pallor, Edema.** Anemia is the most common medical problem in the developing world. **Anemia causes 8% of all maternal deaths.** It is estimated that 50% of all anemia is due to iron deficiency anemia caused by:

   - Low dietary (food) intake of iron
   - Poor absorption of dietary iron
   - Blood loss from hookworm, repeated pregnancies, or heavy monthly bleeding

   Other causes of anemia come from malaria, genetic disorders such as sickle cell, and micronutrient deficiencies.

   Anemia causes weakness, tiredness, and a reduced physical ability to work. Anemia may cause death through cardiovascular problems. An anemic woman may be more likely to get an infection. Anemia in pregnancy reduces the woman's ability to survive bleeding (even a small amount of bleeding) during and after the baby is born. It may result in premature and low birth weight babies. **Iron deficiency anemia is a risk factor related to 22% of all maternal deaths whether the death is caused by anemia or by hemorrhage** (Stoltzfus, 2004).

   A woman can become anemic during pregnancy so check her for anemia at each visit. **A woman who is well nourished when she starts a pregnancy is at much lower risk of anemia and of dying from hemorrhage or infection.** Prevention and management of anemia is life saving.

Actions to Prevent Anemia

- Iron folate supplements for adolescents.
- Iron folate supplements during pregnancy and postpartum.
- Use foods high in iron and folate and foods such as flour or cornmeal with added iron and folate.
- Prevent malaria if in endemic area: intermittent preventive treatment after first trimester, insecticide treated bed nets, indoor residual spraying.
- Give antiparasite medicine after 1st trimester if in endemic area for parasites, wear shoes, safely dispose of feces (latrine or bury).
- Birth spacing of 3 years or longer.

5. **LOOK at Eyes, Mouth and Fingernails.** Pink conjunctiva, inside lower lip and fingernails are healthy signs. If they are pale she is anemic. **See Learning Aid 1. Explain** that you are checking her color to see how much blood she has. When her blood is good, she will feel well and strong during her pregnancy and delivery.

   - *Ask the woman to show you her fingernails.*
   - Pull down the bottom of her eyelid to look at the conjunctiva.
   - Look inside her lower lip.
   - *Ask her if she has any tooth or gum pain or any bleeding when cleaning her teeth.* **Explain** that pain or bleeding may be a sign of infection. An infection of teeth and gums may cause preterm labor. **Discuss** foods she should eat and teeth care.

Figure 3. LOOK for signs of anemia.

6. **LOOK at Edema of Face and Hands.** No edema of the face and hands are healthy signs. Swelling of the face and hands may be a sign of anemia.

7. **Kidney Infection Screening: Tenderness.** The kidneys, bladder, and urethra are all connected. When germs get into the urethra, it can get infected. That infection can go to the bladder and kidneys. Normally a woman has no pain, tenderness or burning when passing urine. When there is a bladder infection, a woman has pain, burning and frequency when passing urine. When there is kidney infection, a woman has kidney tenderness. This is also called costovertebral angle (CVA) tenderness.

   - **FEEL the back for kidney tenderness.** *Tell the woman you are going to gently tap her back on the right and left sides.* If she feels pain when you tap over her kidney area with your fist, it is a sign of kidney infection. If there is pain, it is usually only on one side. Do this check at the first visit and at other times if the woman has symptoms of a urinary tract infection. See Module 7: **Infections.**

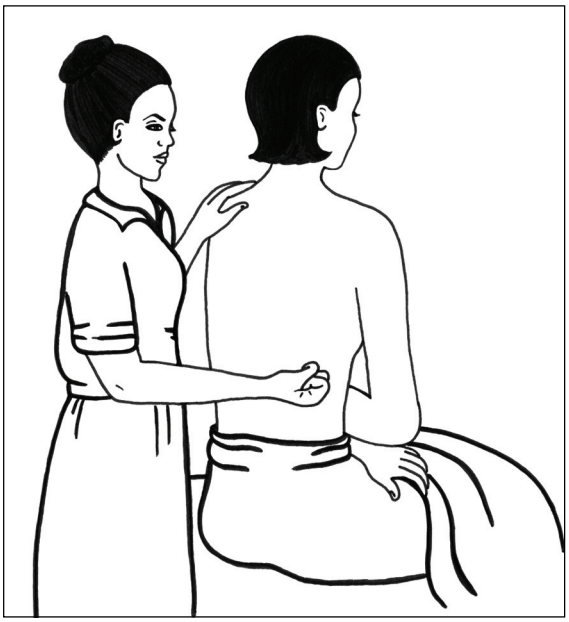

Figure 4. Tap the lower back over each kidney, using your fist.

8. **Breast Examination.** Normally a woman's breasts get bigger during pregnancy. Sometimes they are tender to touch or itchy. During the last months of pregnancy a watery, yellowish fluid may leak from the nipples. This is normal. The fluid is colostrum – the first milk for the baby.

   - **LOOK and FEEL the breasts.** At the first visit, examine the women's breasts for any lumps, or flat or inverted nipples. **Explain** that breast changes are normal and a sign her body is preparing to feed the new baby. Talk to her about the importance of exclusive breast feeding for the first six months. Teach her to do self examination of her breasts. **Explain** that many breast problems can be found early with self examination and have a better chance for successful treatment.

9. **Abdomen Examination.** Normally the skin on the abdomen is smooth and no sores or lymph nodes are felt in the inguinal area. The size of baby and the womb grows each visit.

- **LOOK and FEEL the abdomen (inspection and palpation). LOOK** at the skin and **FEEL** the inguinal area. If the woman has painful, frequent urination or back / kidney tenderness, **FEEL** the lower abdomen (above the pubic area) for tenderness of the bladder. This is another sign of a urinary tract infection (UTI). If swelling, sores, or enlarged lymph nodes or tenderness of the bladder are observed, see *Guide for Caregivers*.

- **FEEL for baby's growth (fundal height).** As the baby grows, the top of the uterus moves up in the woman's abdomen. You may measure by using your fingers or a centimeter tape. Use the method you are used to that works for you. The uterus grows about two finger breadths or 4 centimeters in a month. At 12 weeks the top of the uterus is usually just above the pubic bone, at 16 weeks halfway to the umbilicus, and at about 20 weeks the top of the uterus is usually at the umbilicus, see Figure 5.

At the first visit, FEEL the uterus to see if the size seems correct for the weeks of gestation you estimated from the woman's dates. If you do not have information about the dates, then estimate the weeks of gestation from the size of the uterus.

At each visit, measure the uterus to check the fetal growth. FEEL for the growth of the baby when a woman does not gain weight. **FEEL** for twins when weight is gained suddenly or the uterus increases in size quickly. The growth may vary among women, but the most important thing is that the uterus grows two finger breadths per month after 20 weeks. **Explain** to the woman what you have found. If growth of the uterus is LESS than 2 finger breadths per month or MORE than two finger breadths per month, check dates and try to figure out if the woman is malnourished, has diabetes, has too much amniotic fluid, or other problem.

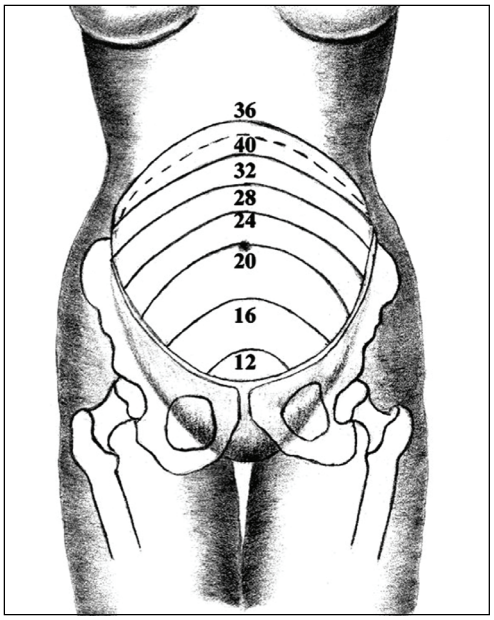

Figure 5. Fundal height in weeks of gestation.

- **FEEL for baby's lie, presentation, and engagement of presenting part. FEEL** for the baby's head and body. See Figure 6. **LOOK** and **FEEL** for movement of the baby. By 28 -30 weeks, the baby is usually lying with the head down towards the woman's pelvis. Most babies lie more on one side of the woman than the other. Most baby's lie parallel to the mothers spine (long axis). Abnormally the fetus lies across the mothers uterus (transverse). **Tell** the woman about the baby's presentation. If the baby's head is not down by 36 weeks (beginning of the ninth month), REFER to doctor / hospital for evaluation and possible external cephalic version, see **Learning Aid 9.**

  Step 1: Feel what part of the baby is in the upper uterus
  Step 2: Feel for the baby's back
  Step 3: Feel what part of the baby is in the lower uterus
  Step 4: Feel for descent of baby's presenting part

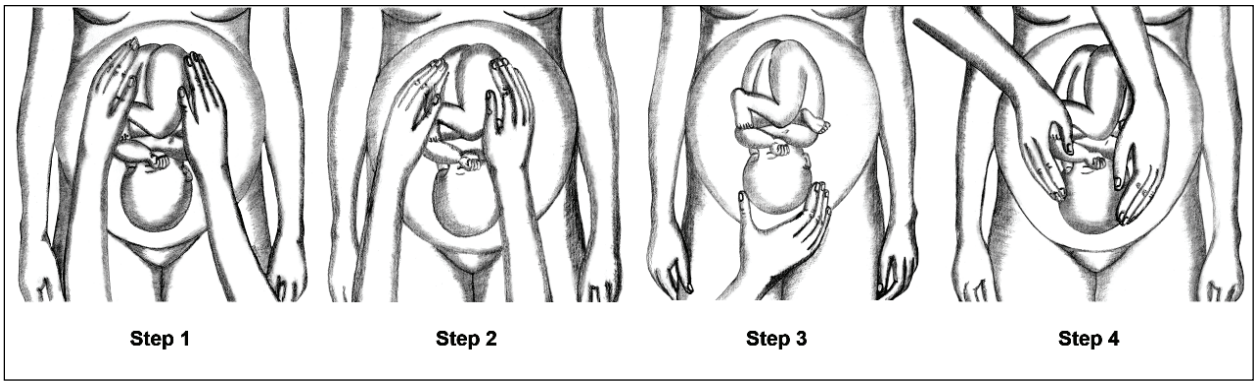

Figure 6. FEEL for the lie, presentation and descent of the baby

- **Fetal Heart Rate (FHR). LISTEN** to fetal heart beat and calculate the rate per minute. This gives you information about the baby's health and position inside the woman. Usually you hear the fetal heart beat over the baby's upper back.

  Beginning at 20 weeks, listen to the heartbeat at each visit. Ask the woman if she can feel the baby moving. **Tell** her when you are able to hear the baby's heart beat and let her listen. Also **ask** her to tell you if the baby stops moving.

  By 28 weeks, if you can not hear the baby's heart beat, or the woman says the baby is not moving as much or has stopped moving, REFER to doctor / hospital.

10. **Inspection of Legs for Varicose Veins, Deep Vein Thrombosis.** Swollen blue veins seen in the legs are called varicose veins. Sometimes these veins are painful. Advise the woman to sit with her feet up or lie down when they are painful. If the leg is red, swollen or hot to touch the woman may have a blood clot in her leg. She should go to the doctor or hospital.

11. **Genital Inspection.** Many women are embarrassed or feel shy about the pelvic parts of their bodies. They may not want to talk about them, look at them, or have other people look at them. **Explain** what you are doing and why you are doing it. Keep her as covered as you can. **LOOK** at the vulva. It is normal to see a small amount of clear or white, odorless, vaginal discharge. **LOOK** for:

    - **Sores, genital ulcers.** Most sores on the genitals are sexually transmitted infections. There may be other causes such as boils or injuries.

    - **Varicose veins, swelling or edema.** Swollen veins around the genitals can cause bleeding problems if they tear during birth. Swelling or edema may be signs of infection or injury.

    - **Abnormal vaginal discharge, fistula signs, or bleeding.** A change in the amount, color, or smell of the vaginal discharge may be a sign of infection. Leaking of urine or stool from the vagina indicates a fistula. Any bleeding during pregnancy is a danger sign. See **Learning Aid 5** for speculum examination, take caution when there is bleeding. **Explain** to the woman how to protect herself from infection.

    - **Circumcision or scarring.** Circumcision may have been revealed during the history taking. **LOOK** and decide if the circumcision scar, keloids or cysts may cause problems during labor or delivery.

      Type I or II circumcision. Part or all of the clitoris is removed (clitoridectomy), Type I. The clitoris and the labia are removed without stitching (excision), Type II. If you see a well-healed scar, no special care is needed. **Reassure** the woman the circumcision will cause no problems and encourage her to ask any questions she may have.

      Type III circumcision. When the clitoris and labia minor are removed, and the cut sides of the labia majora are sewn together making the vaginal opening smaller and covering the urethra, this is called Type III (infibulation). If the scar will need to be cut open for the baby to be born, see Module 4: **Episiotomy, Learning Aid 3**. **Reassure and explain** to the woman that her pregnancy and delivery should have no problems as long as the scar is opened before the baby is born. Explain that she will not be able to deliver at home.

      Large keloids or cysts. Explain to the woman that these may cause problems, she needs to go to the doctor or hospital for care.

- **Explain to the woman in the third trimester**, there is a possibility her perineum will tear when the baby is born. Tell her you can help her learn how to massage her perineum to help prevent a tear. Ask her if she would like to learn how to do this. If she is interested, teach her, see **Learning Aid 7.**

12. **Laboratory Tests.** Do laboratory tests as appropriate and available. The type of tests you do for a pregnant woman and how often you should do them will depend on the guidelines or protocols in your country. Voluntary and confidential HIV testing and counseling should be offered to all pregnant women. The hospital and some larger health centers may be able to do tests for blood grouping, rhesus factor, and for syphilis. Two of the most useful tests are on her blood for anemia and her urine for protein. They are noted below. More information about these tests and management of anemia, urine infection, and pre-eclampsia can be found in the *Guide for Caregivers – Protocols.*

    - **Anemia.** Do a visual screening at every visit and hemoglobin or hematocrit as available at first visit and at 28-32 weeks. Treat for anemia if hemoglobin is less than 11 gms, hematocrit is less than 34%, or visual screening shows pale conjunctiva and nails and extreme tiredness as described in **Learning Aid 1.**

    - **Protein or Albumin in Urine.** Positive protein in early pregnancy usually means urine infection. In late pregnancy a positive protein may mean a urine infection or the woman may have pre-eclampsia. If you only have a few urine test supplies, use them when there is high blood pressure.

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. Describe what you will **LOOK, LISTEN and FEEL** for in the steps of an antenatal physical examination. Also write what you will explain to the woman as you complete each step (pages 2.15 - 2.24).

   a.

   b.

   c.

   d.

   e.

   f.

   g.

   h.

   i.

   j.

2. When must you take a baseline blood pressure (page 2.16)?

3. Why are brisk (hyperactive) reflexes a danger sign (page 2.16)?

4. How much should the uterus grow each month after 20 weeks gestation (page 2.21)?

5. If the uterus is growing too fast or too slow, what could the problem be (page 2.21)?

6. Why do anemic women develop more complications than women who are not anemic (page 2.18)?

IDENTIFY PROBLEMS

This is the third step of the Problem Solving Method. Use information from the **ASK and LISTEN** and the **LOOK and FEEL**, your knowledge, experience, information in this manual and the *Guide for Caregivers - Complaint and Findings section* to compare information and identify the problems and needs.

1. 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 or the baby is not growing, try to decide the problem and manage the complication. For example: If signs of anemia are identified, remember anemia is one of the major complications during pregnancy and birth and you need to TAKE APPROPRIATE ACTION. Or if you see signs of pre-eclampsia, TAKE APPROPRIATE ACTION to prevent eclampsia.

    - No Complications. If you find the woman is healthy and the baby is growing according to expected dates, you can plan her care with her. She may have problems and/or needs. See TAKE APPROPRIATE ACTION in the section below for treating common problems of pregnancy, giving drugs and immunizations, client education and counseling, and planning repeat an antenatal visit.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. You must decide what should be done to solve each problem or help with each need. If you have identified any complications, danger signs or common problems of pregnancy, plan the action that is needed using the *Guide for Caregivers – Protocols and Antenatal Counseling.*

1. Manage Complications. You can talk with the woman and family about where to go if a danger sign develops. Anemia and pre-eclampsia are two complications that can be managed during pregnancy to prevent life-threatening problems for the woman and baby.

2. Treat Common Problems of Pregnancy. If you have identified any common problems of pregnancy, plan the care with the woman and her family. Some common complaints of pregnancy include:

    - Mild nausea in the first three to four months. **Explain**: Small amounts of salty or sweet foods might help. Eat something before getting up in the morning.

    - Some sleepiness in the first three to four months and again in the last weeks of pregnancy. **Explain**: Get enough sleep and try to rest at least an hour every day.

- Aches and pains that go away with rest, massage or exercise. **Explain**: Come to the midwife if your leg is swollen, red and painful as it may indicate a clot and do not massage the affected leg.

- A little shortness of breath at eight to nine months. **Explain**: The baby is taking up breathing room.

- Swelling of feet, ankles, lower legs. **Explain**: Rest with feet up to help this go away. If associated with anemia, take iron folate.

3. **Drugs and Immunizations.** Give medicines such as iron-folate, antimalarial tablets, bed nets, parasite medication and tetanus immunization. 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.

4. **Client Education and Counseling.** It is important to answer women's questions about normal pregnancy, delivery, the new baby, and family planning. A health education message is teaching about good health habits as you consider the beliefs, values and customs of the people with whom you are working. It is important for girls to learn and practice healthy habits long before they become pregnant.

   Do not try to give the woman all the information at one time. Each time you see her, offer her additional information, advice and counseling. You may need to give some of the information several times during the pregnancy. If you think you may see her only once, choose the most important information, based on your assessment of her condition and situation. The *Guide for Caregivers – Antenatal Counseling* has a summary of health information and advice for pregnant women. Information to provide:

   - **Process of pregnancy and complications.** It is important for a pregnant woman to have information about the pregnancy and delivery, what to expect, how she can help herself, and how her family can help her.

   - **Diet and nutrition.** A woman needs more food during pregnancy, because she shares the food with her baby. Encourage her to eat one extra serving of a staple food such as rice, cornmeal, yam or bread each day during pregnancy. A woman who has HIV but no symptoms will need to eat an extra 10% more food over her pregnancy need for energy, that is, one more extra serving of a staple food. A woman with HIV and symptoms will need to eat 20 – 30% more food for energy. Eating different foods will help her body in different ways. To stay healthy and to help her baby grow, the woman must eat enough food from each of the three food groups at least three times each day. The three food groups are body building foods (protein), protective foods (vitamins and minerals), and energy foods (carbohydrates, fats and sugar). In addition, she should eat snacks such as fruit and nuts and drink at least 6 glasses of water or juice or other liquids each day. Micronutrients such as calcium, iron and folic acid, iodine, vitamin A and vitamin D are important to the health of the woman and baby.

- **Rest and exercise.** Talk with women about how to stay healthy as soon as you learn she is pregnant. Advise her to rest one hour every day and get daily exercise. The earlier a woman practices healthy habits, the healthier she and her baby will be at the birth.

- **Personal hygiene.** She should keep her body clean and care for her teeth and gums.

- **Malaria.** It is important for a pregnant woman to protect herself from malaria. In malaria-endemic areas all pregnant women should take intermittent preventive treatment at least twice during routine antenatal clinic visits starting in the second trimester according to country protocols. Encourage the woman to use indoor residual spraying, insecticide treated bed nets and malaria treatment as soon as she thinks she has malaria, see **Learning Aid 2**.

- **Things to avoid during pregnancy and when breast feeding.** Use of drugs and non prescribed medicines in pregnancy should be done with the permission of the midwife because some medicines can harm the baby. Habits (smoking, drug abuse, alcohol) are known to harm the unborn baby. Advise her to stay away from fumes, ill people, people smoking, and not to take any alcohol or nonprescription drugs during the pregnancy or when breast feeding.

- **Family Planning.** It is important to help the pregnant woman think about child spacing. Encourage her to plan at least 3 years between pregnancies. Provide her with information about the different methods she can use for safer sex. Give her and her husband time to make this important decision before the baby is born.

- **STIs and HIV.** Offer voluntary counseling and testing to the woman and her husband. A person can have HIV or STI for a long time without feeling sick. At some time the person will become very sick and if this is the time a woman is pregnant, this can affect both her and the baby. It is not always possible to know that someone has these sicknesses without tests and examinations. It is important for a pregnant woman to protect herself from HIV / STI by using condoms during sexual relations.

- **PMTCT.** Preventing mother to child transmission of HIV is critical to saving children's lives. Prevention can have an impact on improving mother and child health over all. Exclusive breast feeding can reduce MTCT of HIV if replacement feeding is not affordable, feasible, acceptable, safe or sustainable.

- **Exclusive breast feeding** is the best for babies. It reduces exposure to infections and keeps the infants stomach mucosal lining healthy. It also promotes immune responses that increase resistance to infection, see *Guide for Caregivers – Breast Feeding Counseling and LAM, also* Module 10: **Postpartum**.

- **Colostrum and early initiation of breast feeding.** Colostrum gives the newborn baby protection from infection and other things. Mother and baby should not be separated after birth to help promote bonding, keep the baby warm and initiate breast feeding (if that is the feeding choice). The midwife should help to watch for the time when the baby is ready (usually 30-60 minutes after birth) and help the woman hold her baby and offer the breast.

- **Symptoms and signs of labor.** Explain to the woman and her family that there is no way to be sure when labor will begin but there are some things to watch for. The baby may drop lower, the woman may feel more contractions, or the woman may just feel different. One or two days before labor starts, the woman's stool may change or a little bloody mucus may come out of the vagina, and sometimes the bag of water leaks or breaks. The woman or her family should get ready and go to the midwife or call for the midwife when labor contractions start, if the bag of waters breaks, or the woman feels she needs the midwife.

- **Breathing during labor.** During the last part of labor, the woman can help her baby to be born.. Before the baby is born, the midwife may ask her to help so the baby does not come too fast. The woman will feel like pushing with the strong contractions. But *if the head is born slowly*, the woman's skin has more time to stretch and is less likely to tear. Tell her if the baby is coming very fast, you will guide her on when to push and when to blow to control the speed of the delivery.

  Explain to the woman the way you will want her to keep from pushing, the woman should blow with short fast breaths. Show her by saying to her "Blow, blow, blow -- don't push -- blow, blow, blow". Tell her you will coach her so the baby's head can be born slowly. Ask the woman to practice this way of breathing. Tell the woman you will help her remember to push at the best time so the head can be born slowly.

5. **Preparation and Planning for Birth and Postpartum.** Being ready for the birth and the baby can make things easier, and even save lives. Discuss with the woman and her family about getting ready for the birth of a new baby. Asking questions can help her plan for her birth and postpartum care. *Do you have plans where you want to deliver? Who is the birth attendant? Where will you go after you have your baby? Do you have someone (husband, family, friend) to help provide money for pregnancy needs, birth costs and birth supplies?* If planning a facility birth, follow facility guidelines for preparation. If planning a home birth, prepare:

   - **Clean birth things:** Clean razor blade and cord tie, clean clothes for woman and baby, clean mats and pads, waterproof container for placenta disposal.
   - **Clean woman:** Bathe and wear clean clothes when labor begins.
   - **Clean helpers:** Wear clean clothes and clean apron. Use gloves or plastic bags to cover hands.
   - **Clean delivery place,** soap and clean water.

- **Plans for postpartum care.** Decide early in the pregnancy who will check the woman and baby 4 - 5 times after the baby is born. The woman and baby are given immediate care after the baby is born. If the baby is born at home, the family is responsible for the immediate care and makes a plan for the woman and baby to be checked by a midwife within 6 hours of the baby's birth or as soon as possible. Discuss the importance of checking on the woman and baby within 6 hours after the baby's birth, 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. See Module 10: **Postpartum Care**.

6. **Emergency Referral Plan.** The life of a woman or baby can be saved with planning and preparation for any problems during pregnancy, birth or postpartum.

- **Prevent delays:** A woman, her family and community are the first ones to see a problem, if a problem starts at home. When a problem happens, it can become worse if there are delays in the woman or baby getting the care they need. There may be delays in knowing there is a problem, delays in making a decision to go for referral, and delays in having things ready to go for the referral, see Module 1: **Introduction** – Pathways to Survival and to Death. Encourage the woman and her family to know the signs of serious problems and to have an Emergency Referral Plan ready.

- **Know danger signs** and what to do if a danger sign happens: Explain danger signs to the woman and family. If no family is present, ask the woman to explain the danger signs to her husband and other family members.

Danger Signs

<table>
<tr><td rowspan="2">For Woman</td><td>• During pregnancy: baby not moving as usual, any bleeding

• Postpartum: too much bleeding, baby died</td><td>During Pregnancy & Postpartum
• Headaches
• Visual problems: spots in front of eyes, blurry vision
• Abdominal (epigastric) pain, severe heart burn
• Fever
• Bad smelling vaginal discharge
• Convulsions
• Losing weight, constant diarrhea, thrush</td></tr>
<tr><td>For Baby</td><td>• Poor or no sucking
• Trouble breathing
• Too hot or too cold
• Convulsions or tetany
• Jaundice</td><td>• Low birth weight: premature or small for gestational age
• Redness, pus, or swelling of eyes or umbilical stump
• Diarrhea
• Mother died</td></tr>
</table>

- **Make Emergency Referral Plan:** Decide early what to do in case of an emergency to prevent delays in getting help. Ask the woman to talk about the questions in the box below with her family. Encourage her and her family to make a plan for any emergency and find out the information. Ask the woman at each visit about preparations for the birth and possible emergency. See Module 8: **Stabilize and Refer**.

Emergency 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?
- What money will be used to pay cost for the emergency?
- Who will you ask to help give you care on the way?
- Who will go with you and your baby?
- Who will give you permission to travel?
- Who will be available to give blood if it is needed?
- Who will care for the home and children?

Source: Buffington, 2004.

7. **Documentation and Recording.** Antenatal forms differ from one place to another. If you already have an antenatal form, you should continue to use it when you return to your place of work. In this module, review the form provided. As you study it, think about the information you are learning about and recording. Is any of this information missing from the form you normally use? Is there something you normally ask or do during an antenatal visit that is missing from this form? You may wish to adopt this form or parts of this form to supplement the record you use when providing antenatal care. See **Learning Aid 3.**

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 evaluation will be immediate if the problem was an emergency such as hemorrhage. The evaluation will be done at the next visit for a problem such as anemia. 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.

Repeat Antenatal Visits. Repeat antenatal visits are just as important as the first visit. A pregnant woman can develop a problem at any time during her pregnancy. The **ASK and LISTEN** questions you discuss with the woman during her follow-up visits can help you find problems early while you are showing her that you are interested in her.

A minimum of 4 visits is encouraged for a woman without problems (Visit 1 before 16 weeks, Visit 2 between 20 - 24 weeks, Visit 3 between 28 - 32 weeks, and Visit 4 at about 36 weeks). A woman with problems should be seen as often as needed. See **Learning Aid 8** and *Guide for Caregivers – Skill Checklist: Repeat Antenatal Visit.* It will help you get the information you need to be certain all is well with the woman and her pregnancy.

Case Study 1 - What Is the Problem?

Read the **ASK and LISTEN** and the **LOOK and FEEL** sections in this case study. Use this information to decide what the **PROBLEM** is and what **ACTION** you need to take to help the woman. Remember, action may include treatment, education, counseling, more laboratory tests, referral, and follow up with **EVALUATION.**

It is also important to think about prevention, so you will find a question asking how you think this problem can be prevented. Sometimes it is very difficult to decide before a problem occurs, that it might be about to happen. Other times it is very easy to say that certain actions can prevent a problem. Sometimes a problem can not be prevented.

When you finish, look on the next page for suggested answers.

ASK and LISTEN: *A 32 year old woman, gravida 7, para 6, comes for her second antenatal visit. She complains of feeling very tired.*

LOOK and FEEL: *At today's visit you find the woman's BP 112/66, pulse 78 beats in a minute, uterus 36 weeks by dates and exam (size), conjunctiva pale, nail beds pale, hemoglobin 9 gm.*

1. What is the **PROBLEM**?

2. What **APPROPRIATE ACTIONS** will you take?

3. **EVALUATION and REPEAT PROBLEM SOLVING METHOD**: What will you look for and do when the woman returns for follow-up visit?

ANSWERS - Case Study 1

1. *What is the PROBLEM? Anemia.*

2. *What APPROPRIATE ACTIONS will you take?*

Find out why she is so anemic. It may be related to malaria, other parasites, poor quality diet or lack of access to food, closely spaced pregnancies, bleeding or chronic illness. Treat her anemia depending on the cause or causes you find.

- *Diet -- take a diet history of what she ate in the last 24 hours. Tell her which foods are high in iron, folic acid, Vitamin A, Vitamin D and Vitamin C, see Learning Aid 10. Find out if she can afford these foods. Is she getting her fair share of family foods? Is something interfering with her food intake -- sore teeth/gums, nausea, pica or something else?*
- *Iron -- give her ferrous sulfate, folic acid, and Vitamin C if she is unable to get Vitamin C in her diet, according to your protocols.*
- *Malaria and other parasites -- treat the malaria/parasites and give malarial prophylaxis according to your protocols.*
- *Closely spaced pregnancies -- explain that getting pregnant so soon after the last child has been hard on her body. It helps her and her baby if she spaces her pregnancies 3 years apart. Teach her family planning methods appropriate for both breast feeding and beyond.*
- *Bleeding -- identify if there is bleeding, the source of the bleeding, and treat and REFER.*
- *Chronic illness -- identify symptoms according to condition such as HIV, tuberculosis, malnutrition, and so forth.*
- *Follow-up -- EVALUATION to decide if the actions taken were effective at resolving the problem. Repeat the problem solving method find out if there are any other problems..*

REMEMBER

Women can die from a small amount of bleeding if they are severely anemic.
Preventing and treating anemia saves lives.

Case Study 2 - What Is the Problem?

Mrs. K is a 19 year old primigravida who presents at your maternity home to register for antenatal care. She is 28 weeks pregnant, has no complaints, but has a BP of 140/90.

1. What **PROBLEMS** do you particularly want to rule out during this first antenatal visit?

To decide **APPROPRIATE ACTIONS**, you must get more information through history, examination, and laboratory tests.

2. **ASK and LISTEN:** What history questions will you ask to help you diagnose this woman's problem?

3. **LOOK and FEEL:** What parts of the physical examination relate to this complaint?

What laboratory tests will you do for Mrs. K?

IDENTIFY PROBLEM: *1) Mrs. K is 28 weeks pregnant, and 2) BP is still 140/90 after resting on left side for 20 minutes, + protein in urine. You decide Mrs. K has mild pre-eclampsia.*

4. **APPROPRIATE ACTIONS:** What actions will you take?

5. **EVALUATION and REPEAT PROBLEM SOLVING METHOD**: What will you look for and do when Mrs. K returns for repeat visit?

ANSWERS - Case Study 2

1. *What **PROBLEMS** do you particularly want to rule out during this first antenatal visit?*
   - *Pre-eclampsia.*
   - *Urinary tract infection.*

To decide APPROPRIATE ACTIONS, get more information: history, examination, and laboratory tests.

2. ***ASK and LISTEN**: What history questions will you ask to help diagnose this woman's problem?*
   - *Pre-eclampsia: Have you ever had high BP before? Do you have headaches or visual problems (spots in front of your eyes or blurry vision)? If yes, when did they start? Are they constant or come and go? How bad is the headache? Have you done anything that helps the headache and visual problems?*
   - *Urinary tract infection: Have you had any pain or burning when you urinate or any frequency of urination?*

3. ***LOOK and FEEL**: What parts of the physical examination relate to this complaint?*
   - *Pre-eclampsia: Recheck her BP after she rests on her left side for 20 minutes, reflexes.*
   - *Urinary tract infection: Check for suprapubic tenderness and kidney tenderness.*

   What laboratory tests will you do for Mrs. K?
   - *Urine test for albumin/protein*
   - *Urinalysis*
   - *REFER to physician for liver studies if indicated.*

IDENTIFY PROBLEM: 1) Mrs. K is 28 weeks pregnant, and 2) BP is still 140/90 after resting on left side for 20 minutes, + protein in urine, and you decide she has mild pre-eclampsia.

4. ***APPROPRIATE ACTIONS.** What actions will you take for mild pre-eclampsia?*
   - *Explain to woman and family the need for extra rest, to eat a normal healthy diet and to drink lots of fluids. Stress the importance of eating foods high in calcium and folic acid.*
   - *Review danger signs of severe pre-eclampsia or eclampsia (convulsions).*
   - *DO NOT give diuretics or medicines for high blood pressure.*
   - *Encourage birth at a hospital.*
   - *See her twice a week (if possible).*

5. ***EVALUATION and REPEAT PROBLEM SOLVING METHOD***
   - *Do pre-eclampsia checks and routine ANC. Focus carefully on BP, urine protein level, headache, visual problems, epigastric pain, and fetal growth.*
   - *REFER if pre-eclampsia becomes worse or if fetal growth is not consistent with gestational age.*

Learning Aid 1 – Conversion Table for Anemia Testing

Maternal and perinatal mortality and morbidity increase when a woman is anemic. Anemia contributes to many maternal deaths because it reduces a woman's ability to survive bleeding during and after childbirth. It also causes perinatal deaths probably due to prematurity or low birth weight. Mortality is increased whether the woman has mild, moderate, severe or very severe anemia.

Lab tests are not always available. Visual screening may be the most you can do, and if so, it is the best to use. At 50% saturation or a hematocrit of 20%, a woman's conjunctiva is white. WHO has a simple hemoglobin color scale test similar to Talquist, sometimes called paper test. The Sahli is another laboratory test. See *Guide for Caregivers – Procedures and Tests* for both methods.

Visual Inspection[1]	Hematocrit[2]	Per Cent Saturation[3]	Hemoglobin in Grams[4]	Interpretation
Pink	35 – 44 %	100%	14.8 Grams	NO ANEMIA
		95	14.1	
		90	13.3	
		85	12.6	
		80	11.8	
	30 – 34 %	75	11.1	MILD ANEMIA
		70	10.4	
Pale	24 – 29 %	65	9.6	MODERATE ANEMIA
		60	8.9	
		55	8.1	
White	13 – 23 %	50	7.5	SEVERE ANEMIA
		45	6.7	
		40	5.9	
		35	5.2	
		30	4.4	
	4.5 – 12 %	25	3.7	VERY SEVERE ANEMIA
		20	3.0	
		15	2.2	
		10	1.5	

[1] **LOOK** at nailbeds, conjunctiva, inside lips.

[2] **Hematocrit** is percent of red blood cells in blood, example, a hematocrit value of 40% means there are 40 milliliters (cc) of red blood cells in 100 milliliters of blood.

[3] **Percent saturation** is amount of red blood cells in liquid.

[4] **Hemoglobin** is measured in grams of hemoglobin per deciliter, deciliter or 'dL' is 100 ml (cc) or about ½ cup measurement. A dL of blood from a healthy woman has 12 -14 grams of hemoglobin (12 – 14 g/dL). During a normal pregnancy hemoglobin may fall to about 11 g/dL, because body makes more plasma than red cells, so hemoglobin is diluted. When discussing hemoglobin levels we usually leave out the 'dL'.

Learning Aid 2 – Malaria in Pregnancy

Source: WHO 2003, Kuile 2007

Globally, around 50 million women living in malaria-endemic areas become pregnant each year. For these women, malaria is a threat both to themselves and to their babies. Up to 200,000 newborns die each year as a result of malaria in pregnancy. Pregnancy reduces a woman's immunity to malaria, making her more susceptible to malaria infection and increasing the risk of illness, severe anemia and death. For the unborn baby, maternal malaria increases the risk of spontaneous abortion, stillbirth, premature delivery and low birth weight - a leading cause of child mortality. See Module 7: **Infections** and your country's malaria policy.

Protect Pregnant Women

- **Insecticide-treated Nets (ITNs).** Sleeping under ITNs remains an important strategy for protecting pregnant women and their newborns from malaria-carrying mosquitoes.

- **Intermittent Preventive Treatment (IPT).** In areas of high and moderate transmission (endemic) of *Plasmodium falciparum* (the most prevalent type of malaria in Africa), intermittent treatment with an antimalarial drug is a cost-effective means of preventing malaria in pregnancy. **"Sulfadoxine-pyrimethamine (Fansidar) is currently the only single-dose long-acting antimalarial drug that has ideal properties (low cost, documented safety, and ease of use) for use as an IPT during pregnancy (Kuile, 2007)."** All pregnant women living in communities where malaria is endemic, should receive at least 2 doses of IPT after quickening.

- **Inside Residual Spraying (IRS).** In communities where malaria is endemic, there is a decrease of malaria in pregnancy when greater than 85% of the homes are residual sprayed. Explain that people should stay in well screened areas, residual spray their homes and wear clothes to cover the body if they must be outside for protection from night feeding mosquitos. It is important to know the biting patterns of mosquitos in your area.

- **Effective Case Management of Malaria (treatment).** The recommended antimalarial for treatment of malaria is chloroquine (CQ) in CQ sensitive areas and sulfadoxine-pyrimethamine (SP) in areas with CQ resistance. Quinine is used in areas where CQ and SP do not work well, and used in the first trimester of pregnancy and for severe malaria. The **following drugs are not used during pregnancy**: halofantrine, tetracycline, doxycycline and primaquine. Make sure the antimalarial you use is safe to use during pregnancy.

  In areas of low malaria transmission, pregnant women have low immunity to malaria and a two to threefold higher risk of severe malarial illness than non-pregnant women. In countries where recent drug efficiacy studies have been done, treatment recommendations may vary. Use your local protocols and *Guide for Caregivers – Formulary*.

Delivering Malaria Interventions with Focused Antenatal Care

Intermittent preventive treatment is recommended as part of routine antenatal care. This practice uses the opportunity to prevent and treat malaria even if the woman attends clinic only once. Pregnant women who do not attend clinics or attend too late during pregnancy need to be reached. Reach out to communities and encourage people to help their pregnant women attend antenatal clinic. Community care and responsibility can support and help families learn about improving their health.

Learning Aid 3 – Sample Antenatal Record Form

Use an antenatal record form for writing the information from the woman's antenatal visits if one is available. If you do not have a form, copy the information in the boxes below onto a paper or in a book to make a record for the pregnant woman. It is a good idea to give the woman her records and explain the information on the form to her. If she has a problem or can not return to you, she will have the information about her pregnancy to give to another health care provider. Look at the sample form on the following pages and find where this information goes:

RECORD THIS INFORMATION AT THE FIRST VISIT

- Name
- Age
- Address
- Children (gravida, parity, date of last birth)
- Date of last monthly bleeding
- Probable due date
- Problems with this pregnancy
- Problems with other births or pregnancies
- Plan delivery: place, helpers
- Plan for problems: transport, place, money, helpers, blood donor
- Postpartum family planning interest
- Physical exam results (including any abnormalities)

RECORD THIS INFORMATION AT EVERY VISIT

- Date of visit
- Month or weeks of pregnancy
- General health
- Non-physical problems
- Weight
- Blood pressure
- Baby's heart beat
- Baby's presentation
- Any change in place for delivery
- Size of uterus (centimeters or how many fingers above or below the umbilicus, above symphysis or below xiphoid)
- Signs of problems, if present (bleeding, headaches, visual problems, abdominal or epigastric pain, baby not moving as much as usual, etc.)

RECORD THIS INFORMATION WHEN INDICATED

- Medications given
- Tests done (Hemoglobin, protein in urine, HIV, syphilis)
- Advice and counseling given
- Vaccines given

Sample ANTENATAL RECORD – side one: History

ANTENATAL RECORD

Write information or circle response

Health Unit: **No:**

Name:

Age: **Married / Single / Widowed**

Address:

Occupation:

Education

Next of Kin:

Relationship:

Occupation:

Plan place to deliver?

Plan for problems? Place, transport, money, donors

Postpartum family planning? Yes / No

Gravida: **Para:** **AB:**

Blood Group: **Rh:**

DATING OF THIS PREGNANCY
Menses:Every_____Days for_____Days
Amount: Heavy / Normal / Light
Date of Conception (If Known)_____
LNMP: Date:_____ Normal / Not Normal
First Exam: Size_____Date_____
Confirms LMP: Yes / No
First FHR: Gestation_____ Date_____
Confirms LMP: Yes / No
EDD:_____

PREVIOUS ILLNESS

Medical :
- **Anemia: Yes / No**
- **Rheumatic Fever: Yes / No**
- **Cardiac Disease: Yes / No**
- **Lung Disease (TB/Asthma): Yes / No**
- **Renal Disease: Yes / No**
- **Hypertension: Yes / No**
- **Infections (RTI, Herpes): Yes / No**
- **Diabetes: Yes / No**
- **Epilepsy (seizures): Yes / No**
- **Sickle Cell (joint pain): Yes / No**
- **Phlebitis/Varicosities: Yes / No**

Surgical:
- **Operations (when/what):**

Blood Transfusions (when / how many):
Fractures:

FAMILY HISTORY

Hypertension: Yes / No	Lung Disease: Yes / No
Diabetes: Yes / No	Epilepsy (seizures): Yes/No
Kidney Disease: Yes / No	Cancer: Yes / No
Heart Disease: Yes / No	Twins: Yes / No

Health of Husband:_____

CONTRACEPTIVE HISTORY
- **Methods Ever Used:**
- **When Discontinued:**
- **Happy / Not happy with method:**

DIET / HABITS/ MEDICINE HISTORY
- **Eats Enough:**
  - **Body Building Protein:**
  - **Protective Vitamins and Minerals:**
  - **Energy Carbohydrates, Fats ,Sugar:**
  - **Fluids:**
- **Habits / Exposure:**
  - **Alcohol_____ Smoking_____**
  - **Other Drugs_____HIV_____**

Allergy to Meds:

THIS PREGNANCY
- **Problems (what problem / how long):**
- **Weight Loss:**
- **Pruritus /itching:**
- **Present x 1 month:**
  - **Fever_____ Cough_____**
  - **Diarrhea_____**
  - **Other_____**

PHYSICAL EXAM:
- **Height_____ Weight_____ BP_____**
- **Pulse _____ Temp _____ Nutrition_____**
- **Skin:**
- **Mouth/Teeth (Oral Thrush):**
- **Neck**
- **Lungs:**
- **Heart:**
- **Breasts:**
- **Abdomen:**
- **Lymph Glands:**
- **Neuro (reflexes) / Legs:**
- **Back (CVA):**
- **Anemia Screen:**
  - **Eye Conjunctiva_____ Nails_____**
- **Pelvic Exam:**
  - **Vulva:**
  - **Vagina:**
  - **Cervix:**
  - **Uterine Adnexa:**
  - **Signs of STI:**

PREVIOUS OBSTETRICAL HISTORY

WOMAN'S PREGNANCIES / DELIVERIES						CHILD				
Num Preg	Year	Weeks Gestation	Type of Delivery	Length of Labor	Complications (AN, L & D, PP)	Alive, SB Died Later	Sex	Birth Weight	Immun-izations	Current Condition
1										
2										
3										
4										
5										
6										

Sample ANTENATAL RECORD – side two: ANTENATAL VISIT FINDINGS

Date	Weeks Gest	Fundal Height	Fundal Ht. > or < 2 cm from Normal	Presen-tation	FHR	Weight	BP	Varicose Veins	TT	Findings / Complications / Problems	Date Next Visit	Name Examiner

LAB - DATE AND RESULT			TREATMENTS	RISK FACTORS
Test	**Date**	**Result**		
Urine protein				
Hgb/Hct				
Hgb/Hct				
HIV				
Syphilis				

CPD SCREENING

Primigravida:
Height below normal for ethnic group. REFER for assessment.

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

CPD screening is not 100% reliable; most CPD is identified during labor. Conduct a trial labor with a 'possible CPD' where surgery can be done.

Learning Aid 4 – Ways to Find Due Date

To use these methods, ASK the woman:

1. Has her monthly bleeding been regular, about every 4 weeks?
2. Was her last monthly bleeding normal?
3. Does she remember the date of the first day of her last monthly bleeding?

If the answer is **no** to any of the above three questions, use "Ways to Find Due Date and Gestation Using Other Signs of Pregnancy" at the end of the page. Then ask her when she first noticed symptoms of pregnancy. Measure the size of her uterus. Then estimate her gestation and due date.

Calendar Method

To find the **Due Date:** take the first day of the last monthly bleeding and count backwards 3 months. Then add 7 days. For example, if her last monthly bleeding started May 6, count back 3 months to, February 6). Then add 7 days (February 6 + 7 days). February 13 is her due date.

Gestation Wheel

To find the **Gestation and Due Date:** calculate on the gestation/pregnancy wheel. Line up the date of the first day of the last monthly bleeding with the LNMP (last normal monthly period) arrow. Then see what date is lined up with the EDD (expected date of delivery) arrow and that is her due date. See where the gestational week is associated with today's date and that is the gestational age now.

Ways to Find Due Date and Gestation
Using Other Signs of Pregnancy

Sign	Weeks
Breast Changes: enlargement, tenderness	4 – 8
Nausea	4 – 6
Feel First Baby Movement	Multipara 16 – 18 Primipgravida: 18 – 20
Baby Heartbeat with Fetoscope	20
Due Date (Time from LNMP)	40

Practice Figuring Due Date and Gestation

For the women below, use the two methods described on the previous page to find out due date and gestation. Compare your answers with others to see if they are similar. You should get the same, or very close, due date and gestation:

1. Mrs. T.K. comes to you March 11. Her first day of the last monthly bleeding was October 3. What is her due date? What is her gestation?

2. Mrs. M.J. comes to you April 14. First day of last monthly bleeding was October 8. What is her due date? What is her gestation?

3. Mrs. R.N. comes to you November 26 because she thinks she is pregnant. She has had one baby who is two years old. She stopped breast feeding when her baby was one year old and started having regular menses when her baby was 13 months old. She had a regular menses starting 20 August, which lasted the normal six days with normal flow. She then had a very light menses for two days only in the middle of September. She has not had any more bleeding since then. She started feeling nausea and breast tenderness very soon after the light bleeding in September. She feels no movement of the baby. On examination you feel her uterus three finger breadths above the pubic bone. You hear no fetal heart beat. What is her due date? What is her gestation?

Answers:

1. Mrs. T.K.'s due date is July 10, gestation is 22 weeks.
2. Mrs. M.J.'s due date is July 15, gestation is 26 weeks.
3. Mrs. R.N.'s due date is May 27, gestation is 14 weeks.

REMEMBER

At each repeat visit,

- Confirm number of weeks (months) of pregnancy and
- Compare to the size of the woman's uterus to see if the baby is growing.
- If the uterus **FEELS** too small, check for incorrect dates, failure of baby to grow or a baby that is in transverse lie.
- If the uterus **FEELS** too big, check for incorrect dates, multiple pregnancy, and hydatidiform mole.

Learning Aid 5 – Inspection with Vaginal Speculum

Source: Klein 2004, Beckmann 2006.

The pelvic exam is easier and more comfortable when a woman is relaxed and not afraid. Explain what you are doing and why you are doing it. Go slowly, and stop if you are hurting her. Tell the woman, if she feels afraid or upset and wants you to stop at anytime, she should just tell you and you will stop. Some women are afraid to have a pelvic exam. Many women are embarrassed or feel ashamed about the pelvic parts of their bodies. They may not want to talk about them, look at them, or have other people look at them. When you do a pelvic exam, encourage the woman to ask questions. Explain that these parts of her body are an important part of being a woman. A woman should never be forced to have a speculum exam if she does not want one.

REMEMBER

Speculum exams must be done carefully to prevent problems, especially when a woman is bleeding:

- Before 24 weeks gestation, bleeding is often due to an abortion of a non-viable pregnancy
- Bleeding from 24 weeks onward is usually due to placenta previa or abruptio placenta
  Do not do a speculum examination after 24 weeks of pregnancy. REFER the woman.
- Bleeding postpartum is usually due to laceration, uterine atony or retained placenta.

Get Ready

- Make sure there is privacy.
- Have all equipment ready: clean or sterile speculum, clean or sterile gloves, light, clean cloths, lubricant, soap and water. Choose a small speculum for young women, older women and women who have had a circumcision.
- Explain to the woman what you are going to do and why. Show her the speculum.
- Ask the woman to urinate before the exam. A full bladder is uncomfortable during a vaginal examination.
- Ask the woman to remove her pants or pull up her skirt/cloths.
- Ask her to lie on her back with her knees up and her buttocks at the end of the table or bed (lithotomy position). Sometimes stirrups are needed so that you can see the cervix, although it is more comfortable for the woman not to use them.
- Cover her legs and pelvic area with a sheet / cloth until you are ready to do the exam.
- Wash your hands with soap and water.
- Put on gloves.

Visual Examination

- Explain what you are doing each time before you touch her, see Genital Inspection in this module.

Speculum Examination

1. Help the woman relax by asking her to breathe, and by being gentle and slow. Remind her to tell you if the speculum hurts. Tell her you will stop the exam if she tells you to stop.

2. Moisten the vaginal speculum to make it go into the vagina more easily.

3. Hold the speculum with your gloved hand to warm it.

4. Tell the woman you are ready to start and ask if she is ready? Tell her you are going to touch her. Explain that you are going to **LOOK** to see if there is any problem.

5. Gently open the lips of her genitals (labia) with your thumb and index finger so you can see the opening of her vagina. Make sure to explain everything you are doing as you do it.

6. Ask the woman to take a few deep breaths.

7. Hold the speculum with your other hand. Hold it with the handle 30 to 45 degrees to the side and with the blades closed, Figure 7.

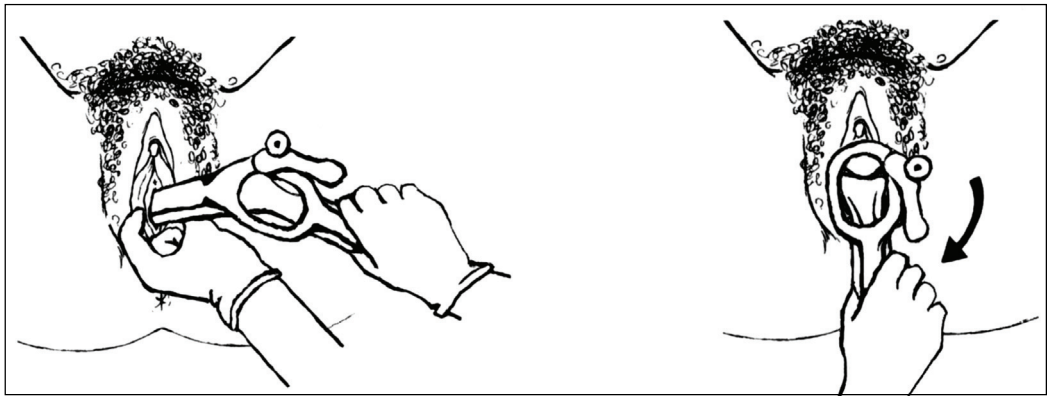

Figure 7. Insert speculum with blades closed. Turn handle to the midline.
Source: Klein 2004, page 377.

8. Gently slide the speculum downwards into the vagina, guiding it towards the woman's back. This should not hurt.

9. As you put the speculum in, turn it so the handle is down (midline), Figure 7. Take care not to pull her skin or hairs.

10. Gently push the speculum all the way in. The handle should rest against the skin between the vagina and the anus.

11. Slowly open the blades of the speculum by gently pushing the thumb-rest with your thumb to show the cervix, Figure 8.

12. Tighten the screw on the thumb-rest with your thumb to lock the blades open. Adjust the light so you see the cervix.

    a. If you open the speculum but do not see the cervix, close the speculum and remove it partway explaining what you are doing.
    b. Try again to push the speculum in and open the speculum. Sometimes the cervix is off to one side or very far to the back. Sometimes you can see the cervix if the woman coughs or pushes down a little.

13. **LOOK** at the cervix for color and smoothness of tissue, swelling, tears, discharge (clear, not clear, unusual odor, bleeding), and tissue, clots, or other products of conception.

14. When you finish, tell the woman you are going to remove the speculum.

    a. Loosen the screw to unlock the speculum
    b. Gently let the blades close as you turn the handle to the side
    c. Pull the speculum out of the vagina
    d. Tell the woman you are finished

15. Give her a clean cloth or wipe her genitals, make her comfortable.

16. Explain your findings.

17. Record the findings and your actions.

18. Clean the equipment, see Module 7: **Infection.**

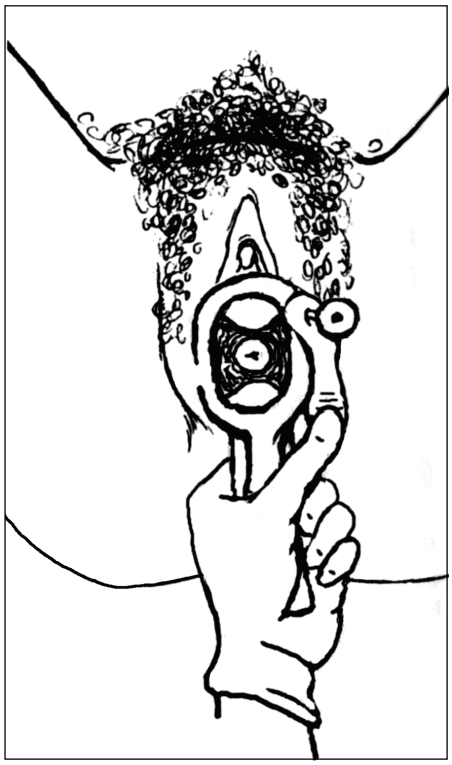

Figure 8. Speculum open to show cervix.
Source: Klein 2004, page 378.

Learning Aid 6 – Female External Genitalia

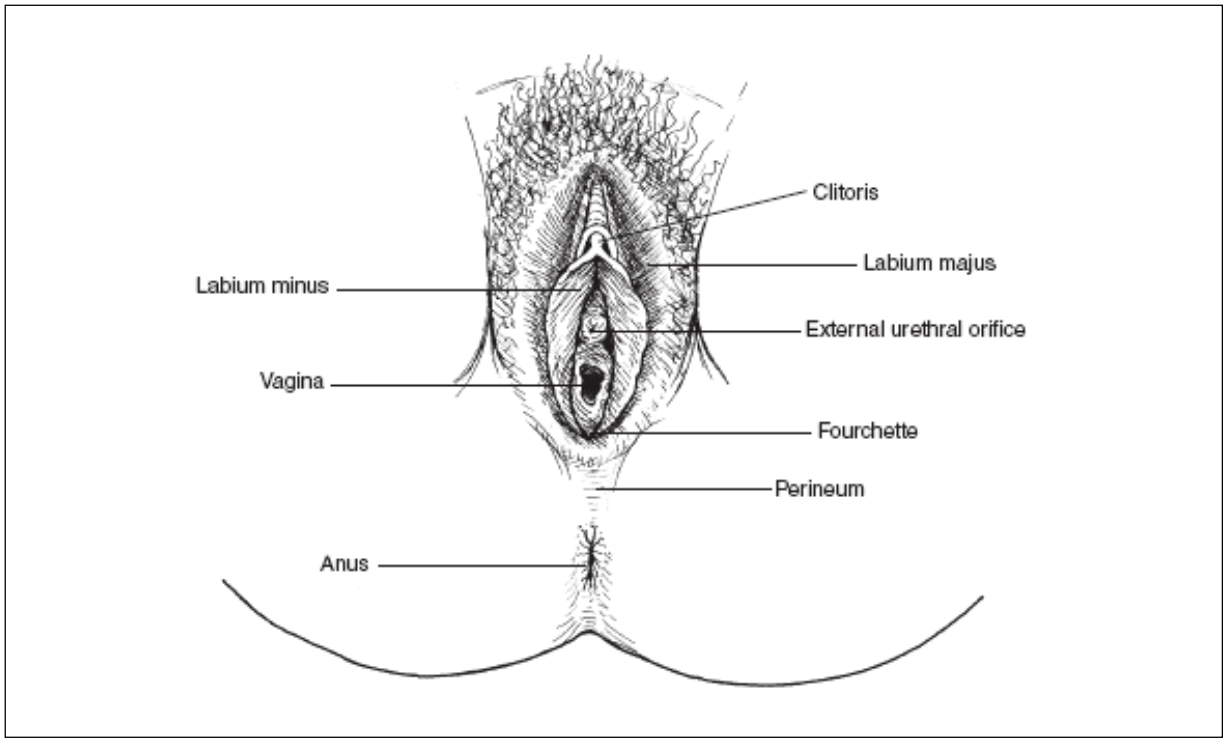

Figure 9. External genitalia.
Source: World Health Organization 2006 –
Managing postpartum hemorrhage, page 107.

Clitoris is a very sensitive spot that can give sexual pleasure when touched.

Labium majus (labia major) are the outer or sometimes called large lips.

Labium minus (labia minor) are the inner or may be called small lips.

External urethral orifice may be called urethra, the opening to the bladder.

Vagina is the opening to the cervix and uterus.

Fourchette is a fold of skin between the labia minora.

Perineum is between the vaginal opening and the anus.

Anus is the opening of the rectum.

Learning Aid 7 – Massage to Prevent Perineal Trauma

Source: reprinted with permission from the Journal of Midwifery & Women's Health 2005.

PERINEAL MASSAGE IN PREGNANCY helps reduce both perineal trauma and episiotomy during birth and pain afterwards. *Only use where culturally appropriate.*

What Is My "Perineum"?
Your perineum is the area between your vaginal opening and your rectum. This area stretches a lot during childbirth, and sometimes it tears. If your health care provider cuts an episiotomy during birth, it is this area that is cut. You may need stitches after your baby is born if you have a tear or have an episiotomy.

I'm Concerned About Perineal Tears—How Often Do They Occur?
40% to 85% of all women who give birth vaginally will tear. About two thirds of these women will need stitches.

I'm Also Concerned About Episiotomies—Are They Necessary?
An episiotomy is usually not necessary. However, sometimes your care provider may recommend an episiotomy. For example, an episiotomy can help if your baby needs to be born very quickly. Ask your health care provider to talk with you about episiotomies.

Can My Health Care Provider Do Anything to Help Me Avoid a Tear?
There are many ways that your health care provider can help to reduce your chances of tearing. For example, your provider may recommend specific pushing positions, provide gentle pressure on the baby's head as it comes out, and avoid the use of forceps.

Can I Do Anything *Before* The Birth To Help Me Avoid a Tear?
Reducing tearing has been the subject of many research studies. Several studies have found that perineal massage during the last weeks of pregnancy can reduce tearing at birth. This massage—using two fingers to stretch your perineal tissues—is performed by you, in your home, once or twice daily, for the last 4 to 6 weeks of your pregnancy. The other side of this handout tells how to do this massage.

Does Perineal Massage in Pregnancy Help All Women?
Massage seems to work better for some women than others. Women having their first baby, women 30 years or older, and women who have had episiotomies before have fewer tears and less severe tears when perineal massage is done during the last weeks of pregnancy.

Can My Partner Help?
Yes! Many women find that it is easier to have their partners do this massage. See the other side for more information.

Are There Any Risks to Perineal Massage During Pregnancy?
Not that we know of. It is free. It doesn't hurt. It is easy to do. And most women don't mind doing it. However, you should check with your health care provider before beginning perineal massage. And, if you believe your bag of waters is leaking, check with your health care provider before putting anything in your vagina.

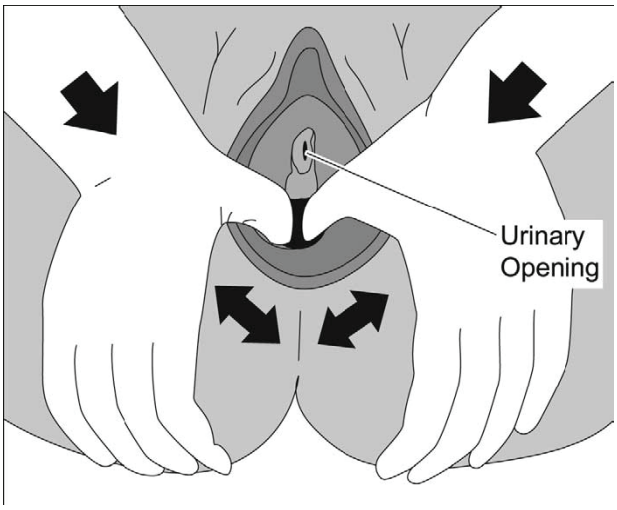

Figure 10. Perineal massage.

INSTRUCTIONS FOR PERINEAL MASSAGE DURING PREGNANCY

Here are some reasons you may want to use perineal massage during pregnancy:

- Some health care providers believe that perineal massage will increase the "stretchiness" of this area. This means you may have a smaller chance of tearing or needing an episiotomy.

- While you massage, you can practice relaxing the muscles in your perineum. This can help you prepare for the stretching, burning feeling you may have when your baby's head is born. Relaxing this area during birth can help prevent tearing.

If you wish to use perineal massage, begin 6 weeks before your due date and follow these suggestions: Wash your hands well with soap and water, and keep your fingernails short. Relax in a private place with your knees bent. Some women like to lean on pillows for back support.

Lubricate your thumbs and the perineal tissues. Use a lubricant such as vitamin E oil or almond oil, or any vegetable oil used for cooking—like olive oil. You may also try a water-soluble jelly, such as K-Y jelly, or your body's natural vaginal lubricant. Do not use baby oil, mineral oil, or petroleum jelly.

Place your thumbs about 1 to 1.5 inches inside your vagina (see figure). Press down (toward the anus) and to the sides until you feel a slight burning, stretching sensation.

Hold that position for 1 or 2 minutes.

With your thumbs, slowly massage the lower half of the vagina using a "U" shaped movement. Concentrate on relaxing your muscles. This is a good time to practice slow, deep breathing techniques. Massage your perineal area slowly for 10 minutes each day. After 1 to 2 weeks, you should notice more stretchiness and less burning in your perineum.

Partners: If your partner is doing the perineal massage, follow the same basic instructions, above. However, your partner should use his or her index fingers to do the massage (instead of thumbs). The same side-to-side, U-shaped, downward pressure method should be used. Good communication is important—be sure to tell your partner if you have too much pain or burning!

Learning Aid 8 – Focused Antenatal Care Matrix

Focused Antenatal Care Matrix				
Problem Solving Steps and Care	**Weeks of Gestation**			
	1st Visit or < 16 Weeks	**20 to 24 Weeks**	**28 to 32 Weeks**	**36 Weeks**
Registration	X			
Step 1: ASK and LISTEN (General History)				
▪ Personal history	X			
▪ Family history	X			
▪ Social history	X			
▪ Medical/surgical history, medications, allergies, immunizations	X			
▪ Obstetric and gynecological history, family planning, breast feeding	X			
▪ Current pregnancy history: monthly bleeding, LMP, EDD, diet	X			
▪ Use of bednets / residual spraying in malaria endemic areas	X			
▪ General condition: appetite, energy, constipation	X	X	X	X
▪ Fetal movements: first time and each visit	X	X	X	X
▪ Complaints: urination (pain, burning, frequency), nausea, other	X	X	X	X
▪ Danger signs: bleeding, headache, vision problems, discharge, pain	X	X	X	X
▪ Problems from previous visit: worse, same, improved		X	X	X
Step 2: LOOK and FEEL (Observe and Examination)				
▪ General health (check gait first visit)	X	X	X	X
▪ Weight (compare to previous visits)	X	X	X	X
▪ Height	X			
▪ BP, compare to previous visits (check reflexes as indicated)	X	X	X	X
▪ Pallor (anemia screening)	X	X	X	X
▪ Edema of face and hands (related to anemia)	X	X	X	X
▪ Kidney tenderness (infection screening)	X			
Breast examination and self breast examination	X			
Abdomen examination				
▪ Abdominal inspection: skin, scars, shape	X			
▪ Inguinal/femoral swelling, lymph nodes, suprapubic tenderness	X			
▪ Fundal height (compare to weeks gestation)	X	X	X	X
▪ Fetal presentation, lie and descent			X	X
▪ Fetal heart rate		X	X	X
Genital inspection				
▪ Sores, genital ulcers, fistulas	X			
▪ Varicose veins, swellings/edema	X			
▪ Abnormal vaginal discharge, bleeding	X			
▪ Female circumcision or scarring	X			
Legs: Varicose veins, areas red / hot / swollen (deep vein thrombosis)	X	X	X	X
Laboratory tests				
Blood				
▪ Hemoglobin or hematocrit	X		X	

Focused Antenatal Care Matrix				
Problem Solving Steps and Care	**Weeks of Gestation**			
	1st Visit or < 16 Weeks	**20 to 24 Weeks**	**28 to 32 Weeks**	**36 Weeks**
▪ Grouping and rhesus factor if available	X			
▪ HIV testing & counseling: offer at each visit without coercion	X	X	X	X
▪ Syphilis if available	X			
Urine				
▪ Protein	X	X	X	X
▪ Sugar, acetone, pregnancy test if available / indicated	X	X	X	X
Step 3: IDENTIFY PROBLEM / NEED				
Step 4: TAKE APPROPRIATE ACTION				
Manage any complications	X	X	X	X
Treat any common problems	X	X	X	X
Drug: administration and immunization				
▪ Iron	X	X	X	X
▪ Folic acid	X	X	X	X
▪ Antimalarials if endemic area		X	X	
▪ Antiparasites (as appropriate for hookworm, schistosomiasis)		X		
▪ Tetanus toxoid	X	X		
▪ Others as needed: Vitamin, calcium, iodine supplements	X	X	X	X
Client education and counseling				
▪ Process of pregnancy and its complications	X	X	X	X
▪ Diet and nutrition	X	X	X	X
▪ Rest and exercise in pregnancy	X	X	X	X
▪ Personal hygiene	X	X	X	X
▪ Use of treated bed net (ITN), residual spray (in endemic areas)	X	X	X	X
▪ Use of drugs/non prescribed meds in pregnancy	X	X	X	X
▪ Avoid smoking, drug abuse, alcohol, strong fumes or chemicals, ill people	X	X	X	X
▪ Effects of STIs and HIV: Offer voluntary counseling / testing	X	X	X	X
▪ Prevent mother to child transmission	X	X	X	X
▪ Exclusive breast feeding	X	X	X	X
▪ Importance of colostrum and early initiation	X	X	X	X
▪ Symptoms and signs of labor	X	X	X	X
▪ Birth preparation and planning	X	X	X	X
▪ Emergency preparation and planning	X	X	X	X
▪ Danger signs in pregnancy and postpartum	X	X	X	X
▪ Plans for postpartum care	X	X	X	X
▪ Family planning	X	X	X	X
Document and record	X	X	X	X
Repeat antenatal visit	X	X	X	X

Source: Malawi MOH 2006, Adapted for LSS 4th Edition 2008.

Learning Aid 9 – External Cephalic Version

In a breech presentation, the baby's buttocks or feet are presenting. A breech presentation is a high risk factor for the baby. During pregnancy, the baby moves around and changes position in the uterus. On one examination the head may present and the next month the breech presents. Research confirms that cephalic version reduces the chance of non-cephalic births and caesarean section.

Any time after 36 weeks, try to change the breech to cephalic presentation. This is called external cephalic version (outside head turning). There should be one baby with uncomplicated breech presentation. There should be no previous uterine scars, antenatal bleeding in this pregnancy, fibroids, a placenta previa, or ruptured / leaking membranes. **The procedure should only be done in a facility where emergency cesarean section is available. REFER to the hospital / doctor as needed.** Complications such as bleeding, fetal distress or ruptured membranes are rare but possible. **Whether or not the procedure is successful, listen to the fetal heart rate every 5 minutes for 30 minutes before and after trying to turn the baby.**

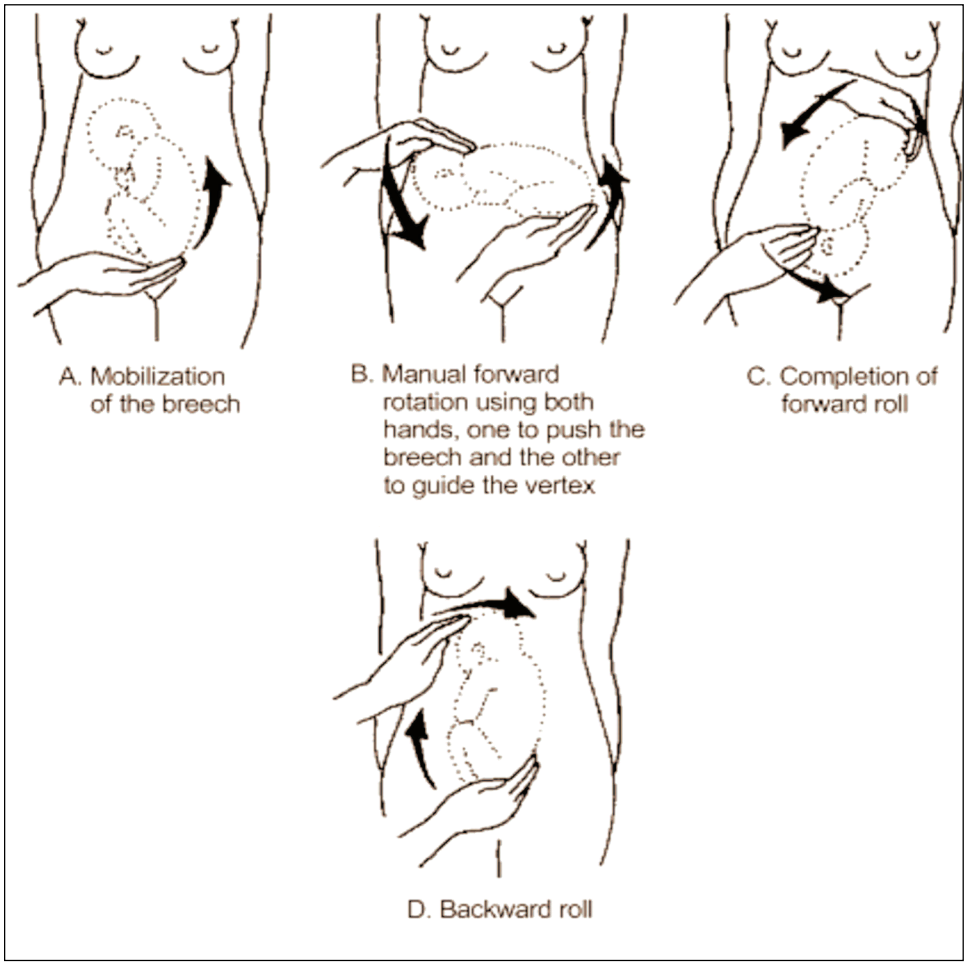

Figure 11. External version of a breech presentation.
Source: WHO 2000, P – 16.

Procedure: External Cephalic Version

The procedure should **only be done** in a facility where emergency cesarean section is available. It is best if the doctor and the midwife do the version together. The woman should be awake and agree to the procedure.

1. Explain carefully what you are going to do. Explain this might be uncomfortable. If it is too painful she should tell you and you will stop the procedure.

2. Ask her to empty her bladder.

3. Wash your hands.

4. Feel her abdomen to confirm the presentation and listen to the fetal heart rate every 5 minutes for 30 minutes to get the baseline FHR. Find the baby's head, back and breech. Use an ultrasound if available to confirm presentation.

5. Position the woman on her back, hips higher than her head. Try to have gravity help.
   a. Put a cushion under her hips, or
   b. Put something under the bottom of the bed, or
   c. Put the cushion under one of the woman's hips, so that she turns toward the side you want to turn the baby, or
   d. Have the woman lie flat on her back.

6. Make sure the woman is comfortable and that your hands are warm. Talcum powder (glove powder) or vegetable oil may be put on the abdomen to help turn the baby.

7. Lift the breech out of the pelvis, see Figure 11- A. Place one hand above the pubic bone on the breech and move the breech out of the pelvis.

8. Place your other hand on the back of the baby's head.

9. Turn by guiding the head towards the breech and at the same time guiding the breech toward the fundus of the uterus, see Figure 11 – B and C.

10. **If the procedure is successful,** have the woman remain lying down for at least 30 minutes and recheck the fetal heart rate every 5 minutes during that time. Counsel her to return if she sees any bleeding, has any leaking of amniotic fluid or has too much pain.

11. **If the procedure is not successful,** try again. No more than three attempts should be made. Try turning the baby in a backward roll, see Figure 11 – D. Don't try to turn the baby for more than five minutes.

12. Listen to the FHR. If the rate is below 120 or above 160 beats per minute, have the woman turn on her left side. **Recheck every 5 minutes for 30 minutes.** If the FHR has not returned to a range of 120 – 160, take to surgery (theater) for cesarean section.

Learning Aid 10 – Micronutrient Supplements

A woman needs more nutrients than she usually eats during pregnancy and lactation. Some of these nutrients protect maternal health while others affect birth outcome, infant health and the quality of the breast milk. If the woman does not get enough nutrients, she and the baby may have serious problems. In addition to increasing nutrients, preventing the loss of nutrients is very important. In areas where parasites are endemic, give the woman information for prevention and treatment of hookworm and malaria. *Advise her about the need for increased nutrient intake, a varied and nutrient-rich diet, and reduced workload during lactation for at least the first 6 weeks*.

Iron

Iron medication prevents anemia. Anemia makes a woman feel tired and unable to care for her baby. Iron makes the blood strong and should be taken during pregnancy and for 40 days postpartum to prevent anemia. To treat anemia, take iron until the hemoglobin / hematocrit is 11.5 / 35% or more and then continue with prevention for 3 months. **Educate** on parasite prevention, treat parasite infections, and follow national guidelines for the prevention and treatment of iron deficiency anemia.

Advise the woman to take iron pills with juice, a piece of fruit or water. Some women experience problems when they take iron pills, such as constipation, diarrhea, and nausea. These problems are not serious and usually go away in a few days. If the problems do not go away, the woman should tell the midwife. Advise the woman to eat more of the foods that give her body iron. Foods that are rich in iron include red meats, red organ meats, poultry, fish, beans, lentils, peas, some dark green leafy vegetables and whole grains. **To help the body make use of the iron in the food, it is good to eat foods with Vitamin C such as tomatoes, peppers, pumpkin and citrus fruits.** Drinking tea and coffee should be reduced or stopped. Tea, coffee, and soft drinks lessen the body's ability to use the iron in foods.

Folic Acid

In addition to helping prevent major birth defects of a baby's brain or spine and preventing anemia when given with iron, research is beginning to show that folic acid helps reduce preterm birth if supplements are taken for at least one year before starting a pregnancy. Early studies also show that taking folic acid during first and second trimester may help to reduce the risk of pre-eclampsia.

Advise the woman to eat foods that contain folic acid. These include green leafy vegetables, fruits, dried beans, peas and nuts.

Calcium

Helps to make bones and teeth strong. Research is beginning to show that calcium may also have a role in preventing some pre-eclampsia.

Advise the woman to eat foods such as milk and cheese, dark green leafy vegetables, beans, lentils, fish with bones, sweet potato, onions and figs.

Iodine

Iodine helps make thyroid hormone, which is important in the development and working of the brain and nervous system. Symptoms of thyroid deficiency may start with tiredness but with more severe deficiency may include an enlarged thyroid gland. It is the largest single cause of preventable mental retardation in the world. A deficiency in pregnancy can cause stillbirth and brain damage in the baby.

Advise the woman to use salt that has iodine added. Iodine is in iodine fortified salt and seafood. In endemic areas where iodized salt or other iodine-fortified products are not available, iodine can be given before conception or as early in pregnancy as possible using a single dose of 400-600 mg (2-3 capsules) of iodized oil. Giving iodine as early as possible can help a baby's outcome.

Vitamin A

Vitamin A deficiency may cause depressed immune function, and high morbidity and mortality of pregnant women and children due to infectious diseases such as diarrhea, measles, and respiratory infections. Vitamin A deficiency may cause severe visual problems and blindness, and even death. In areas where vitamin A deficiency occurs, give breast feeding women a high-dose vitamin A supplement as soon as possible after delivery, but no later than four weeks postpartum to ensure adequate vitamin A content in breast milk. Do not give for home consumption.

Advise the woman to eat fresh or dried fruits and vegetables. Suggest that she and her family start a garden to grow the fresh vegetables and fruit. Foods that are rich in Vitamin A include liver, eggs, dark orange and yellow fruits and vegetables, dark green vegetables, red palm oil, oils and other foods that have added Vitamin A.

Vitamin D

Helps the woman and baby fight infection. Vitamin D is in animal foods like liver, whole eggs and cheese. The skin can make Vitamin D if it gets enough sun.

REFERENCES FOR 4TH EDITION

Experience and the following references provided information for this module.

American College of Nurse-Midwives. (2005). Perineal massage. *Journal of Midwifery & Women's Health, 50*(1), 62-63. www.jmwh.org

American Dental Association. (2002). *Oral health during pregnancy, 27*(5). www.ada.org www.cdc.gov/nccdphp/oh

Beckmann, M. M., & Garrett, A. J. (2006). Antenatal perineal massage for reducing perineal trauma (Cochrane Review). *The Cochrane Database of Systematic Reviews, Issue 1*.

Bell, L. (2008). Folic acid may prevent preterm birth (Society for Maternal-Fetal Medicine 28th Annual Meeting: Abstract 5.) Presented January 31, 2008. *Medscape Medical News.* http://www.medscape.com/viewarticle/569590

Bretlinger, P., et al. (2006). HIV/AIDS therapy: HIV and malaria therapies given concurrently during pregnancy may prove incompatible. *Lancet Infectious Diseases, 6*(2), 100-111.

Brocklehurst, P., & Volmink, J. (2002). Antiretrovirals for reducing the risk of mother-to-child transmission of HIV infection (Cochrane Review). *The Cochrane Database of Systematic Reviews, Issue 2.*

Brown, H. C., & Smith, H. J. (2004). Giving women their own case notes to carry during pregnancy (Cochrane Review). *The Cochrane Database of Systematic Reviews, Issue 2*.

Campbell & Graham. (2006). Maternal Survival 2. Strategies for reducing maternal mortality: Getting on with what works. *Lancet, 368,* 1284–1299. Published Online September 28, 2006.

Center for Communication Programs, Johns Hopkins University Bloomberg School of Public Health. (2002). Population information program. *Issues in world health, XXX*(3), Series L, Number 13.

Centers for Disease Control and Prevention/National Center for Chronic Disease Prevention and Health Promotion. (2002). *Safe motherhood: Promoting health for women before, during and after pregnancy*. Atlanta, GA: Author.

Centre for Development and Population Activities. (2005). The abandonment of female genital mutilation. *FGM Abandonment Project Fact Sheet.* Washington,DC: CEDPA.

Change Project. (2006). *Preparing for my birth – birth preparedness card*. USAID. http://changeproject.org/pubs/maternaltoolkit/BP-01.pdf

Cleland, J., et al. (2006). Sexual and reproductive health 3. Family planning: The unfinished agenda [Electronic Version]. *Lancet*, November 1, DOI:10.1016/S0140-6736(06)69480-4. *www.thelancet.com*

Cuervo, L. G., & Mahomed, K. (2001). Treatments for iron deficiency anaemia in pregnancy (Cochrane Review). *The Cochrane Database of Systematic Reviews, Issue 2*.

Dickson, M. (1983). *Where there is no dentist*. Berkeley, CA: Hesperian Foundation.

Duckitt, K., & Harrington, D. (2005, March 12). Risk factors for pre-eclampsia at antenatal booking: Systematic review of controlled studies [Electronic Version]. *British Medical Journal, 330*(565). Retreived July 27, 2006. http://bmj.bmjjournals.com/cgi/content/full/bmj;330/7491/565

Duley, L. (2003). Pre-eclampsia and the hypertensive disorders of pregnancy. *British Medical Bulletin, 67*(1).

Enkin, M., et al. (2000). *A guide to effective care in pregnancy and childbirth* (3rd ed. pp. 42, 119-132). Oxford, England: Oxford University Press.

Ganatra, B., Coyaji, K., & Rao, U. (1998). Too far, too little, too late: A community based case control study of maternal mortality in rural west Maharastra, India. *Bulletin of the World Health Organization 76*(6), 591-598.

Ghulmiyyah, L., Stella, C., & Sibai, B. M. (2006, September). HELLP syndrome: Diagnosis, management and long-term outcome. *The Female Patient, 31*.

Hofmeyr, G. J., Atallah, A. N., & Duley, L. (2006). Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems (Cochrane Review). *The Cochrane Database of Systematic Reviews, Issue 3*.

Hofmeyr, G. J, & Kulier, R. (1996). External cephalic version for breech presentation at term (Cochrane Review). *The Cochrane Database of Systematic Reviews. Plain language summary, 2006, Issue 4.* Date of last substantial update: February 6, 1996.

Hutton, E. K, & Hofmeyr, G. J. (2005). External cephalic version for breech presentation before term (Cochrane Review). *The Cochrane Database of Systematic Reviews, 2006 Issue 4*. Date of last substantial update: October 18, 2005.

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

Jeffcoat, M. K., et al. (2001). Peridontal infection and preterm birth: Results of a prospective study. *Journal of the American Dental Association, 132*(7), 875-880.

Joint United Nations Programme on HIV/AIDS (UNAIDS). (1999, August 5). *UNAIDS questions and answers: Mother-to-child-transmission (MTCT) of HIV* (Background Briefing). www.unaids.org; www.unicef.org

Joyce, S. (2006). Accelerating the abandonment of female genital cutting: Community change to support human rights. *Global Health Technical Briefs.* www.maqweb.org

King, M., Mola, G., Thornton, J., Breen, M., Bullough C., Guillebaud, J., et al. (2003). *Primary mother care and population*. Stamford, United Kingdom: Spiegel Press. http://www.leeds.ac.uk/demographic.disentrapment, M.H.King@leeds.ac.uk

Klein, S., Miller, S., & Thomson, F. (2004). *A book for midwives – Care for pregnancy, birth and women's health.* Berkeley, CA: Hesperian Foundation. http://www.hesperian.org/

Kroger, M. (2001). *At a glance, mother to child transmission*. Washington, DC: NGO Networks for Health. www.ngonetworks.org

Kourtis, A.P., Lee, F.K., Abrams, E.J., Jamieson, D.J., Bulterys, M. (2006). Mother-to-child transmission of HIV-1: Timing and implications for prevention. *Lancet Infectious Diseases, 6,* 726-732.

Kuile, F. T. (2007). Anti-malaria drugs help Africa's women, babies. News Release. *Journal of the American Medical Association,* June 19, 2007. Publish Date: June 20, 2007. http://pediatric.health.ivillage.com/newsstories/antimalariadrugshelpafricaswomen.cfm

Linkages. (2001, May). *Breastfeeding and HIV: Frequently asked questions*, Washington, DC: Academy for Educational Development. www.linkagesproject.org

Linkages, CORE. (2006). *Maternal nutrition during pregnancy and lactation: A dietary guide.* Washington, DC: Academy for Educational Development. http://one.aed.org/upload/MaternalNutritionDietaryGuide.pdf

McFarlane, J., Campbell, J., Sharps, P., & Watson, K. (2002). Abuse during pregnancy and femicide: Urgent implications for women's health. *American College of Obstetricians and Gynecologists, 100*, 27-36.

Menendez, C., Todd, J., Alonsol, P. L., Francis, N., Lulat, S., Ceesayl, S., M'Boge, B., & Greenwood, B. M. (1994). The effects of iron supplementation during pregnancy, given by traditional birth attendants, on the prevalence of anaemia and malaria. *Transactions of the Royal Society of Tropical Medicine and Hygiene, 88,* 590-593.

Muthal-Rathore, A., Tripathi, R., & Arora, R. (2002). Domestic violence against pregnant women interviewed at a hospital in New Dehli. *International Journal of Obstetrics and Gynaecology, 76,* 83-85.

National Institutes of Health. (2000, July). National high blood pressure education working group report on high blood pressure in pregnancy. (NIH Publication No. 00-3029). *American Journal of Obstetrics and Gynecology, 183,* S1-S22.

National Maternal and Child Oral Health Resource Center. (2004). *Oral health and health in women: A two-way relationship*. Washington, DC: Georgetown University. www.mchoralhealth.org

Nyarko, P., Birungi, H., Armar-Klemesu, M., Arhinful, D, Deganus, S., Odoi-Agyarko, H., & Brew, G. (2006). *Acceptability and feasibility of introducing the WHO focused antenatal care package in Ghana.* New York: Frontiers in Reproductive Health Program, Population Council. www.popcouncil.org/pdfs/frontiers/FR_FinalReports/ghana_who_anc.pdf

Offenbacher, S., et al. (2001). Maternal peridontitis and prematurity. Part I: Obstetric outcome of prematurity and growth restriction. *Annals of Periodontology, 6* (1), 164-174.

PAHO. (1999). *Women and HIV/AIDS: Prevention and care strategies*. Washington, DC: Author.

Preble, E., & Piwoz, E. (2001). *Prevention of mother-to-child transmission of HIV in Africa: Practical guidance for programs*. SARA Project, Academy for Educational Development. New Orleans, LA: Department of International Health and Development, Tulane University School of Public Health and Tropical Medicine.

Save the Children. (2001). *State of the world's mothers 2001*. Westport, CN: Author. www.savethechildren.org

Save the Children. (2002). *State of the world's mothers 2002: Mothers in war*. Westport, CN: Author. www.savethechildren.org

Shah, B. K., & Baig, L. A. (2005). Association of anemia with parasites in pregnant Nepalese women: Results from a hospital-based study done in eastern Nepal [Electronic Version]. *Journal of Ayub Medical College, 17*(1), 5-9.

Shirima, C., & Kinabo, J. (2005). Nutritional status and birth outcomes of adolescent pregnant girls in Morogoro, Coast, and Dar es Salaam regions, Tanzania. *Nutrition, 21*(1), 32-38.

Sinclair, C. (2004). *A Midwife's Handbook* (chapters 1 & 2). St. Louis, MO: Saunders-Elsevier. www.elsevier.com

Stoltzfus, J., Mullany, L., & Black, R. E. (2004). Iron deficiency anaemia. In M. Ezzati, A. D. Lopez, A. Rodgers, & C. J. L. Murray (Eds.), *Comparative quantification of health risks - Global and regional burden of disease attributable to selected major risk factors, Vol 1* (pp. 211-256). Geneva, Switzerland: World Health Organization. http://www.aed.org/Publications/loader.cfm?url=/commonspot/security/getfile.cfm&pageid=15519

Toubia, N. (1999). *Caring for women with circumcision – A technical manual for health care providers.* New York: Rainbo Publishers. www.rainbo.org

USAID, GH/HIDNutrition. (2006). *PVO child survival and health grants program:Technical reference materials nutrition.* Washington, DC: Author.

Varney, H. B., Kriebs, J. M., & Gegor, C. L. (2004). *Varney's midwifery* (4th ed.). Sudbury, MA: Jones and Bartlett. www.jbpub.com

Villar, J., Carroli, G., Khan-Neelofur, D., Piaggio, G., & Gülmezoglu, M. (2001). Patterns of routine antenatal care for low-risk pregnancy (Cochrane Review). *The Cochrane Database of Systematic Reviews*, *Issue 3, 2006*. Date of last substantial update: August 18, 2001.

Wen, S.W., et al. (2008). Folic acid in early second trimester may reduce risk of pre-eclampsia. *American Journal of Obstetrics and Gynecology, 198* (45), 1-45.

World Health Organization. (2000). *Managing complications in pregnancy and childbirth: A guide for midwives and doctors, P-15-16.* WHO/RHR/00.7. Geneva, Switzerland: Author.

World Health Organization. (2001). *Antenatal care randomized trial: Manual for implementation for the new model* (pages 1-37). Ref. WHO/RHR/01. Geneva, Switzerland: Author. http://www.who.int/reproductive-health/publications/RHR_01_30/

World Health Organization. (2003). *Lives at risk: Malaria in pregnancy.* Geneva, Switzerland: Author. http://www.who.int/features/2003/04b/en/print.html

World Health Organization. (2003). *Surgical care at the district hospital - Incorporates: Primary trauma care manual.* ISBN 92 4 154575 5 (NLM classification: WO 39). Geneva, Switzerland: Author.

World Health Organization. (2005). *Detecting pre-eclampsia: A practical guide*. Geneva, Switzerland: Author.

World Health Organization. (2006). Female genital mutilation – New knowledge spurs optimism. *Progress in Sexual and Reproductive Health Research.* No.72.UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP). Geneva, Switzerland: Author.

World Health Organization. (2006). Female genital mutilation and obstetric outcome: WHO collaborative prospective study in six African countries. WHO Study Group on Female Genital Mutilation and Obstetric Outcome. *Lancet, 367*, 1835-1841.

World Health Organization. (2006). Managing postpartum haemorrhage – Education material for teachers of midwifery. *Midwifery education modules (2nd ed.)*. Department of Making Pregnancy Safer Family and Community Health. Geneva, Switzerland: Author.

REFERENCES FOR PREVIOUS EDITIONS

ACOG. (1996, February). Hemoglobinopathies in pregnancy: An educational aid to obstetrician-gynecologists. *Technical Bulletin, 220,* 1-9.

Anderson, G. D. (1987, March). A systematic approach to eclamptic convulsion. *Contemporary OB/GY,* 65-70.

Beck, D., Buffington, S., & McDermott, J. (1996). *Healthy mother and healthy newborn care, a guide and a reference for caregivers*. Washington, DC: American College of Nurse-Midwives.

Campbell, W. A., & Vintzileos, A. V. (1988, January). Are beta-blockers safe for hypertension during pregnancy? *Contemporary OB/GYN,* 178-188.

Carr, M. C. (1974, September). Managing iron deficiency in pregnancy. *Contemporary OB/GYN,* 15-19.

Charache, S., Scott, J., Niebyl, J. & Bonds, D. (1980, April). Management of sickle cell disease in pregnant patients. *Obstetrics and Gynecology,* 407-410.

Elegbe, I, Ojofeitimi, E. O., & Elegbe, I. A. (1984, October). Traditional treatment of pregnancy anaemia in Nigeria. *Tropical Doctor,* 175-177.

Friedman, S. A. (1988, January). Pre-eclampsia: A review of the role of prostaglandins. *Obstetrics and Gynecology,* 122-137.

Gabbe, S. G., Niebyl, J. R., & Simpson, J. L. (Eds.). (1986). *Obstetrics: Normal and problem pregnancies.* New York: Churchill Livingstone.

Hendrickse, R. G. (1987). Malaria and child health. *Annals of Tropical Medicine and Parasitology, 81*(5), 499-509.

Hill, M., & Fink, J. W. (1983, February). In hypertensive emergencies, act quickly but also cautiously. *Nursing, 83,* 34-42.

Jenkinson, D. (1984). Single-dose intramuscular iron dextran in pregnancy for anaemia prevention in urban Zambia. *Journal of Tropical Medicine and Hygiene,* 71-74.

Leeper, P. (1990, June). Nutrition and weight for healthy mothers and babies. *News Report,* 9-12.

Lubbe, W. F. (1987). Hypertension in pregnancy: Whom and how to treat. *British Journal of Clinical Pharmacology, 24*(15S), 536-538.

Magil, B., & Machol, L. (1989, March). Caring for pregnant patients with sickle cell disease. *Contemporary OB/GYN*. 214-231.

Mayet, F. G. H. (1985, May). Anaemia of pregnancy. *South African Medical Journal,* 804-809.

McDermott, J. M. (1988). Efficacy of chemoprophylaxis in preventing Plasmodium falciparum parasitaemia and placental infection in pregnant women in Malawi. *Transactions of the Royal Society of Tropical Medicine and Hygiene, 82,* 520-523.

McGanity, W. J. (1987, June). Protection of maternal iron stores in pregnancy. *Journal of Reproductive Medicine,* 475-496.

McGregor, I. A. (1984). Epidemiology, malaria, and pregnancy*. American Journal of Tropical Medicine and Hygiene, 33*(4), 517-525.

Milner, P. F., Jones, B. R., & Dobler, J. (1980, October). Outcome of pregnancy in sickle cell anemia and sickle cell-hemoglobin C disease*. American Journal of Obstetrics and Gynecology,* 239-245.

Morrison, J. C., et al. (1980, September). Prophylactic transfusions in pregnant patients with sickle hemoglobinopathies: Benefit versus risk. *Obstetrics and Gynecology,* 274-280.

Niebyl, J. R. (1996, March). Iron therapy in pregnancy. *Contemporary OB/GYN,* 146-150.

O'Shaughnessy, R. O., & Zuspan, F. P. (1981, November). Managing acute pregnancy hypertension. *Contemporary OB/GYN,* 85-98.

Pastored, J. G., & Seiler, B. (1985, February). Maternal death associated with sickle cell trait. *American Journal of Obstetrics and Gynecology,* 295-297.

Poole, J. H. (1988, November/December). Getting perspective on HELLP syndrome. *Maternal and Child Nursing,* 432-437.

Shannon, D. M. (1987, November/December). HELLP syndrome: A severe consequence of pregnancy-induced hypertension. *Journal of Obstetrical and Gynecological Nursing,* 395-402.

Sibai, B. M. (1988, May). Definitive therapy for pregnancy-induced hypertension. *Contemporary OB/GYN.* 51-66.

Sibai, B. M. (1988, December). Pre-eclampsia-eclampsia: Maternal and perinatal outcomes. *Contemporary OB/GYN,* 109-118.

Sibai, B. M. (1996, July). Treatment of hypertension in pregnant women. *New England Journal of Medicine,* 257-265.

Steketee, R. W., et al. (1987). In vivo response of Plasmodium falciparum to chloroquine in pregnant and non-pregnant women in Siaya District, Kenya. *Bulletin of the World Health Organization,* 885-890.

Steketee, R. W. (1989, June). *Recent findings in perinatal malaria*. Geneva, Switzerland: World Health Organization. MAP/SGCM/INF/89.21.

Steketee, R. W., et al. (1996). The problem of malaria and malaria control in pregnancy in sub-Saharan Africa. *American Journal of Tropical Medicine and Hygiene, 55*(1), 2-7.

Steketee, R. W., et al. (1996). Objectives and methodology in a study of malaria treatment and prevention in pregnancy in rural Malawi: The Mangochi Malaria Research Project. *American Journal of Tropical Medicine and Hygiene, 55*(1), 8-16.

Varney, H. (1997). *Varney's Midwifery* (3rd ed. pp. 227-375). Boston: Jones and Bartlett.

Villar, J., et al. (1987, September) Calcium supplementation reduces blood pressure during pregnancy: Results of a randomized controlled clinical trial. *Obstetrics and Gynecology,* 317-322.

Willis, S. E. (1982, May). Hypertension in pregnancy: Pathophysiology. *American Journal of Nursing,* 792-821.

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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