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Life-Saving Skills Manual for Midwives

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Illustrated by Angeline Hale

Second Edition

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This manual has been developed to serve as a continuing education resource for practicing midwives, and for tutors and students in midwifery education programs. Its intent is to provide midwives working in primarily rural and isolated practice settings with the knowledge and skills needed to perform life-saving techniques. The first edition was field tested during fifteen trainings in Ghana, West Africa.

Suggestions for additions and improvements would be gratefully received. Please send all comments to:

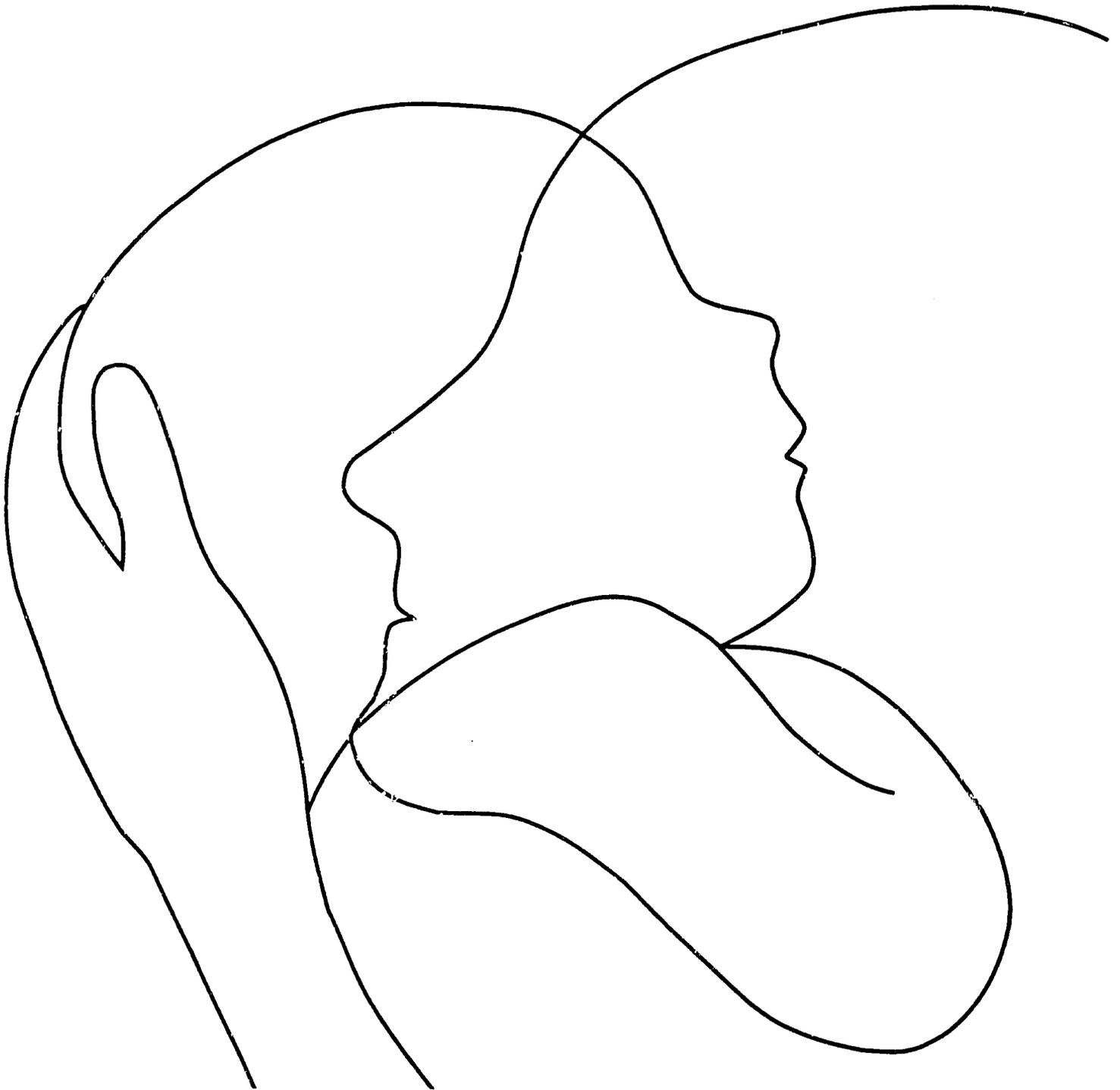
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TABLE OF CONTENTS

- Module 1. Introduction to Maternal Mortality**
Role of the Midwife
Using the Problem Solving Method to Give Maternity Care
Teaching and Implementation of Life Saving Skills Training
- Module 2. Antenatal Risk Assessment and Treatment**
Prevention and Treatment of Anemia
Prevention and Treatment of Pregnancy Induced Hypertension
- Module 3. Monitoring Labor Progress**
History and Physical Examination
Use of the Partograph
- Module 4. Episiotomies and Repair of Lacerations**
Mediolateral Episiotomy
Median Episiotomy
Cervical Laceration Repair
- Module 5. Prevention and Treatment of Hemorrhage**
Active Management of the Third Stage
Manual Removal of the Placenta
Bimanual Compression of the Uterus
- Module 6. Resuscitation**
Infant Resuscitation
Adult Resuscitation
Heimlich Maneuver
- Module 7. Prevention and Management of Sepsis**
Chorioamnionitis
Postpartum Infection
- Module 8. Hydration and Rehydration**
Intravenous Fluid Therapy
Rectal Fluid Therapy
Intraperitoneal Fluid Therapy
Oral Rehydration
- Module 9. Vacuum Extraction**
- Module 10. Symphysiotomy**

12

Module 1: INTRODUCTION TO MATERNAL MORTALITY



Module Contents

INTRODUCTION TO MATERNAL MORTALITY

	Page
Introduction to Maternal Mortality	1
Overview of the Problem	1
Important Terms	2
Maternal Mortality	2
Maternal Morbidity	3
Risk	3
Risk Factors	3
Maternal Mortality Worldwide	4
Role of the Midwife	5
References	10
Using the Problem Solving Method to Give Maternity Care	11
Goal	11
Objectives	11
Procedure	11
Case Study	13
Teaching and Implementation of Life Saving Skills	16
Teaching of Life Saving Skills	16
Audience	16
Trainers	16
Teaching Methods	16
Equipment Needed	18
Sample Teaching Schedule	18

Introduction to Maternal Mortality (cont'd)

	Page
Protecting Trainers, Trainees, and Clients from Infection	23
Foot Protection	23
Hand Protection	23
Face Protection	24
Cleaning and Care of Equipment and Contaminated Surfaces	24
Implementation of Skills Into Practice	25
Transportation and Communication	25
Blood Supply	26
References	27

INTRODUCTION TO MATERNAL MORTALITY

Overview of the Problem

Maternal mortality worldwide can be pictured by imagining a jumbo jet with 250 women aboard crashing into the sea every four hours day-in, day-out, three hundred and sixty-five days of the year (Potts, 1986). How is it that such a huge problem is not on the front page of the newspapers or made an urgent health priority in every nation of the world.

Maternal mortality, the death of a woman related to pregnancy, is a rare event in comparison with infant death. Its low incidence contributes to its hidden nature. Ninety-nine per cent of the world's maternal mortality is contributed by the developing world where deaths frequently occur in the home and never become recorded in the health care system (Potts, 1986).

How is it possible to claim that maternal mortality is both a frequent and rare event. The World Health Organization, through monitoring deaths on various parts of the globe, estimates that 500,000 women die annually as a direct result of childbearing; and that most of these deaths are preventable (Boerma, 1986). The fact that the great majority of deaths are preventable with low to moderate technology and education adds to the tragedy.

Maternal deaths even with all the personal loss a family experiences, are a small portion of the problem. Though the true incidence of maternal morbidity (illness or complication suffered during the reproductive period) in the developing world is unknown, one study estimates that for every maternal death, there are sixteen episodes of maternal morbidity (illness) (Liskin, 1988). The importance for economic productivity for the nation, health of the family, and loss of personal fulfillment of the individual woman can not be calculated. The difficulty of measuring maternal mortality has long proved a barrier to progress in alerting health planners and others to the magnitude and causes of this problem and hence to effective interventions on an appropriate scale. (WHO, Maternal Mortality Rates, 1986).

The five major causes of maternal mortality are hemorrhage, sepsis, pregnancy induced hypertension (toxemia), obstructed labor, and unsafe abortion. Most of these deaths are preventable through improved nutrition, family planning (child spacing), access to safe abortion, high quality obstetric care (antepartum, intrapartum and post-partum), good transportation and communication, rapid and safe blood services, improved female education, and improved status of women within the culture. The World Health Organization has set as its goal reduction of maternal mortality by fifty percent by the year 2,000.

Important Terms

Maternal Mortality

Maternal mortality is defined by the World Health Organization as the death of a woman while pregnant or within forty-two days of termination of pregnancy, irrespective of the duration and site of pregnancy [uterine or extra-uterine], from any cause related to or made worse by the pregnancy or its management, but not from accidental or incidental causes (Boerma, 1987). Maternal mortality is then sub-divided into direct and indirect maternal deaths.

Direct maternal deaths result from obstetric complications of pregnancy, labor, and puerperium, and from interventions or any sequelae [after effects] of the above. On the other hand, **indirect maternal deaths** result from the worsening of existing conditions by pregnancy or delivery (Boerma, 1987). Thus, death from post-partum hemorrhage is a direct maternal death, whereas death from sickle cell disease during pregnancy is an indirect death.

Maternal mortality is traditionally measured in two ways- ratio and rate. The **maternal mortality ratio** compares the number of maternity associated deaths per 100,000 live births in a given population. In developing countries this is often expressed per 1,000 or 10,000 live births. For example, a hospital which has 10,000 live births per year and 11 maternal deaths, has a hospital maternal mortality ratio of 11/10,000 live births.

The **maternal mortality rate**, on the other hand compares the number of maternity associated deaths to the number of women within the reproductive age, generally calculated as all women from 15-49 years (Boerma, 1987). This association is made by dividing the number of maternity related deaths by the general fertility rate. The **general fertility rate** is the number of live births per thousand women within the 15-49 year age range (Boerma, 1987). This is a difficult rate to calculate in countries without good census data; so the ratio calculation tends to be used more often.

The average maternal mortality ratio for developing countries has been calculated as roughly 400 per 100,000 and less than 25 for the developed world. These best estimates however are based on incomplete and defective data. In countries with the highest rates, a majority of deaths go unreported (Boerma, 1987).

Maternal Morbidity

Maternal morbidity is any symptom or condition resulting from or made worse by pregnancy. It is often the quality of care that determines whether or not these complications are taken care of, or continue on to death. The developing world must care for women with problems seen less often in developed countries such as malaria, guinea worm, leprosy, malnutrition, vesico-vaginal fistula, and damaging effects from hemorrhage, infection and scarring in female circumcision.

Risk

"The developing world accounts for 76 per cent of the global population, 86 per cent of the world's births, 96 per cent of the infant mortality and 99 per cent of the maternal mortality" (Potts, 1986, p.29). The risk involved with having children then is very unequal. A rural woman from Bangladesh is 55 times as likely to die as a woman from Portugal, and 400 times as likely to die as a woman from Scandinavia each time she becomes pregnant (Maine, 1986).

Another way to calculate risk is to calculate the **lifetime risk of dying from childbearing causes** by multiplying the maternal mortality rate by 30 (the number of years exposure to risk [sexually active and fertile] between age 15 and 44) (Fortney, 1987). Some consider the years 15 to 49 as a better measure of true exposure to risk. Though fertility declines with age, women between 45 and 49 continue to reproduce; and they are a very high risk group for pregnancy related morbidity and mortality.

Risk Factors

The likelihood of developing a given risk factor is also very unequal. In Africa a major cause of reproductive morbidity and mortality is obstructed labor. Several well documented risk factors include young age, short stature, and first pregnancy. These risk factors often lead to cephalopelvic disproportion (the woman's pelvis is too small for easy passage of the fetal head) caused by pelvic contraction from rickets, infection, malnutrition, or cervical and vaginal scarring from female circumcision (Liskin, 1988). Thus, though short, young, primigravid women become pregnant worldwide, many African women have additional risk factors increasing their chances of developing complications. The health care system is seriously overworked trying to manage the complications resulting from these additional risks.

Maternal Mortality Worldwide

Great differences exist in maternal mortality ratios for women depending on where they live in the world. Women from Southern Asia and Africa are at highest risk. A community based study in Bangladesh showed ratios of approximately 600 maternal deaths per 100,000 live births. In rural India a 1984-5 study in Andhra Pradesh showed a ratio of 874 per 100,000 live births (WHO, Maternal Mortality Rates, 1986).

Northern and Southern Africa suffer somewhat lower mortality rates than the rest of Africa. However, the very high fertility rate (an average of eight live births per woman plus fetal loss) gives a lifetime risk of greater than five per cent, that a woman will die related to pregnancy (WHO, Maternal Mortality Rates, 1986).

In rural Africa, ratios of 1000 have been recorded in several studies and ratios of over 500 in urban areas with an overall ratio of 640. Thus Africa, while contributing eighteen per cent of the world's live births, contributes thirty per cent of the world's maternal mortality. On the other hand, the developed nations contribute fourteen per cent of the world's live births, but only one per cent of the maternal mortality (WHO, Maternal Mortality Rates, 1986).

Latin American mortality rates vary markedly between temperate and tropical areas. It is estimated that tropical South American ratios are an average of 270 with temperate climate ratios somewhat lower. Fifty per cent of the Latin American maternal deaths are due to complications from illegal abortions. Stated another way, 170,000 Latin women die annually due to lack of safe abortions (WHO, Maternal Mortality Rates, 1986).

In contrast with Southern Asia, Eastern Asia enjoys quite low maternal mortality ratios. China reports rural ratios of 59 maternal deaths per 100,000 live births and urban ratios of 25. Widespread access to antenatal care and safe abortion are two important contributors to these relatively low ratios. USSR maternal mortality data are not available (WHO, Maternal Mortality Rates, 1986).

Maternal mortality ratios in Northern and Western Europe, Canada, the United States, Japan, Australia, and New Zealand are all in the range of 10 or lower. The Nordic countries are the lowest with ratios of 2-6. Romania in Eastern Europe has a ratio out of line with the rest of the region, greater than 30, largely due to abortion related deaths (WHO, Maternal Mortality Rates, 1986).

The most recent data available data for the United States indicates a ratio of 7.2 per 100,000 live births in 1986. Black women were 3.8 times as likely to die from pregnancy as white women (Monthly Vital Statistics Report, September 30, 1988).

Role of the Midwife

Certainly the role of the midwife in decreasing maternal mortality throughout the world is a great one. Midwives have access to urban and rural women. They often live in the communities they serve and are familiar with the religion, beliefs, superstitions, taboos, and preferences of the families they serve. They know who controls decision making in the family. They know who gets to eat the choice bits of food and how hard the pregnant woman has to work.

In most communities midwives have a position of respect and honor. They are consulted by both women and men. They are expected to give advice on pregnancy, family planning, human sexuality, and many unrelated issues. It is through using her position of respect and knowledge of her community that midwives can exert a powerful positive influence on the lives of women.

In 1987 the International Confederation of Midwives (ICM) in collaboration with the World Health Organization (WHO) and the United Nations Childrens Fund (UNICEF) held a conference of midwifery leaders throughout the world. They identified problems that midwives in many countries must deal with.

This long list of problems is what they discussed (WHO, 1987):

- Deployment of maternal care personnel
- Status of women
- Attitudes of health care providers
- Inadequate training for midwives
- Female illiteracy
- Lack of technical support
- Poor basic supplies to do the job
- Community perception and involvement
- Need for continuing education for midwives
- Poor data collection and use
- Limited research capability of midwives
- Transport needs to expand coverage
- Midwives rules and codes of practice
- Outdated laws and regulation
- Difficulty of access to primary and secondary health services
- Increasing rates of obstetric intervention
- Poor cooperation between health professionals
- Limited available finances
- Birth customs may be dangerous
- Harmful practices affecting health of women and girls
- Population coverage for care
- Career development prospects
- No strategies to improve life and work conditions for rural health workers
- Overuse of technology
- Midwives not influencing health plan so therefore inadequate provision for service
- Lack of confidence of young midwives in community settings.
- Community participation not perceived
- Maldistribution of midwife resources
- Real needs not identified
- No incentives for rural practice

Place a check mark (tick) next to all of those problems in this list that are a problem in your own work situation. Start to think about which are the most important problems.

How can you as an individual help to solve the problems?

How can the community you live in become organized to help solve the problems?

How can your local and national midwifery association become organized to help solve the problems?

At the meeting of midwifery leaders they felt all the problems listed above fall into four categories:

- Educational change
- Changes in roles and functions of midwives
- Administrative and managerial changes
- Midwifery research

Under Educational Change the group considered midwifery personnel in a broad way to include all people who provide midwifery care whether it is a midwife, a TBA, a family member, or other. To provide safe care to all women, all who care for women must be educated in safe care.

Education issues include not only basic or pre-service education taken to enter the profession. With changes in knowledge it is important that midwives organize continuing education programs for themselves, as individuals and as groups of midwives.

In their discussion of the roles and functions of midwives the group stated, "reduction of maternal mortality where it is most serious, can only be effected if the midwife is facilitated to be accountable for her own actions and assume the role of specialist when life-saving care is to be performed in the absence of any specialized medical staff. District and sub-district levels are the most appropriate places for her to work in the developing world" (WHO, 1987).

This manual for midwives is one attempt to provide education for both midwifery students and for midwives involved in continuing education programs. Some of the modules (study units) will be a review for some midwives. Many of them will be new skills to add to your practice.

Midwives in most countries have written into their midwifery code or rules that they are expected to give emergency care until the woman can reach the care of a hospital or prepared specialist. Therefore, most midwives will be able to start practicing these new skills as soon as they are competent (skilled) through taking a training program.

In some cases midwives may have rules which are restrictive or there is strong doctor or political pressure to not practice one or more of the particular skills. It will be important for the local midwives to meet and discuss how important an issue this is. Are women being denied care that they need and dying as a result? If the answer is yes, the first step will be for midwives to press for changes in the rules to permit them to practice emergency midwifery care.

Nothing in this manual is meant to replace the care of a good hospital or a good doctor. Our goal is to better identify, treat, and transfer women with emergencies or potential emergencies. The aim is to have women and newborns who are alive and well.

Protection of the life of the midwife is also a life saving skill. In parts of this manual advice is given about how to do vaginal examinations and how to resuscitate babies or adults. With AIDS occurring in every part of the world, it is important that midwives provide themselves with protection. It is very important to use gloves and mucus extractors to protect yourself from infection with the AIDS virus. We recognize that this is not realistic at this moment in all places. It is important that midwives get together to buy in large volume to decrease prices and place pressure on ministries of health to provide supplies to keep midwives healthy. A nation can not achieve health if its midwives are dying from AIDS.

References

Experience and the following references provided information for this module.

Boerma, J. T. (1987). Levels of maternal mortality in developing countries. Studies in Family Planning. 18 (4), 213-221.

Fortney, J. A. (1987). The importance of family planning in reducing maternal mortality. Studies in Family Planning. 18 (2), 109-114.

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

Maine, D. (1986). Maternal mortality: Helping women off the road to death. WHO Chronicle. 40(5), 175-183.

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

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

World Health Organization. (no date). Maternal mortality rates: A tabulation of available information. 2nd edition. 1-46.

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

USING THE PROBLEM SOLVING METHOD TO GIVE MATERNITY CARE

The problem solving method is an organized way of giving care to women. Other names for it are the midwifery management process or the client management process. By getting information and carefully organizing information the midwife can better identify all the problems a woman has and organize her care.

Goal

This module will help the midwife learn the steps needed to find what is wrong and decide how to help the woman.

Objectives

The midwife caring for women during and between pregnancies should be able to:

1. Define the problem solving method.
2. List the four steps of the problem solving method
3. Explain and demonstrate the four steps of the problem solving method.
4. Explain why it is important for the midwife to use the problem solving method.
5. Use the problem solving method process in her practice.

Procedure

The four steps of the problem solving method are:

- **ASK and LISTEN**
- **LOOK and FEEL**
- **IDENTIFY THE PROBLEM/NEEDS**
- **TAKE APPROPRIATE ACTION**

ASK and LISTEN

This is the first step that must be taken when seeing a woman. Ask questions about the reason she came to see you. Listen carefully to her answers. Make her feel welcome. Help her to feel comfortable with your actions. Ask questions in a kind and interested way. Listen to all answers. All answers are important and will help you to find out the problems.

LOOK and FEEL

This is the second step that must be taken when seeing a woman. Examine the areas of the woman's body depending on the information you got in step one - ASK and LISTEN. For example, if a woman complains of jaw pain you will want to check her teeth, ears, throat, and neck. If she complains of a vaginal discharge you will want to do a speculum and pelvic examination.

Sometimes you will want to do a general or full examination of the body. For example, you may not be able to pinpoint the cause of her problem from the complaints she gives to you. Or in the case of a woman registering (booking) for antenatal care, you will want to know about the condition of her entire body. A general examination of the body also helps you to find problems that the woman did not know she has.

IDENTIFY THE PROBLEMS OR NEEDS

This is the third step of the problem solving method. The midwife must identify what are the problems using information from the first two steps. It is important that all problems found are treated; not just the problem that brought the woman to you.

She may need information on family planning methods, good nutrition during pregnancy, how to relieve hemorrhoid pain, and where to go for immunizations for her small children, all in one visit. She may have only brought one complaint, problem, or question with her. Make certain that you write all the problems or teaching needs on her record/antenatal card.

Then when she returns you can check to see if the problem is solved, staying the same, or getting worse. You can develop a new plan for treating her. She may need to have information or advice repeated so it is very clear. She may need a different medication or treatment. She may need to be referred to a hospital/doctor.

TAKE APPROPRIATE ACTION

This is the fourth step of the problem solving method. The midwife decides what should be done to take care of each problem or need. The following areas should be considered for each problem or need.

Medical treatment - Take care of the problem with medicines or treatments indicated. (Remember all medicines must be used with caution during pregnancy.)

Education - Teach the woman information needed to care for herself better.

Counselling - Help the woman understand the problem and help her develop ways to deal with it.

Laboratory tests/investigations - Gather more information about the problem.

Referrals - Use other resources in the community to help her solve her problems such as doctors, hospitals, education programs, women's groups, charity groups, and so on.

Plans for follow-up - Ask the woman to return depending on how severe her problem is and how long it should take to improve. You may wish to see her in 24 hours, 3 days, 2 weeks and so on. If she may get a serious complication from her problem, she should be seen frequently until she is out of danger.

Recording - All symptoms, problems, counselling needs, laboratory information, physical examination, treatments given, and date to return for care should be clearly and carefully written in her record. When the recording is good and complete, usually the care is good and complete.

Who should use the problem solving method and why ?

It should be used by midwives and any other people caring for women. It is a step-by-step, thorough way of trying to find and take care of problems. It helps you to keep organized.

Case Study

Anna is an 18 year old girl who comes to you complaining that she has not seen her period for four months. She works in a paint factory and has been there 10 months now. She lives at home with her parents, five brothers and sisters, two cousins, and an elderly grandmother.

Step 1. ASK and LISTEN

How will you make this shy girl comfortable in your clinic or maternity?

What questions do you want to ask her about her social situation, her family, her job, her symptoms (complaints or problems), her plans for the future?

Step 2. LOOK and FEEL

What parts of her body do you want to examine today? What particular things are you looking for? Do you need any laboratory investigations to get more information?

Step 3. IDENTIFY THE PROBLEMS OR NEEDS

Think about and write down the problems or needs you have learned in Step 1 and 2. It is important that you organize the information so that you can then TAKE APPROPRIATE ACTION.

Step 4. TAKE APPROPRIATE ACTION

Look at the problems/needs you have written. Ask yourself how can I take care of these problems or needs.

The more complete and the more organized your information is, the better the chance that you will give good advice and appropriate treatment. This does not mean that you will have solved all of her problems. You may need to complete Steps 1 through 4 several times before a difficult problem is handled well.

Some answers to the case study above are:

Step 1:

Find out if she has been sexually active, uses family planning regularly, what method, is she married or in a supportive relationship?

What does she think is the reason for no periods? Has she taken any medications or treatments? Has she seen any other health personnel or traditional healers? Has she had a pregnancy test done somewhere else? If she is pregnant, would she be happy? Would she keep the pregnancy? How would the baby's father feel, her family?

What other symptoms has she had? Sore breasts, bloating of the abdomen, nausea or vomiting, tiredness, nipples getting darker, other symptoms?

Is she well nourished, getting enough to eat? At her job does she wear protective clothing so she does not touch the chemicals or inhale the fumes? What type of chemicals is she working with? What are the bad effects of these chemicals found in people?

Does she live in a healthy home? Anyone else in the family ill, for example, with tuberculosis or other diseases she might get?

What other questions would you ask?

Step 2

The number one reason for loss of periods in women between the age of 15 and 49 is pregnancy. Therefore, you will want to do all the physical examination and laboratory investigations you would do for a pregnant woman (breast examination, abdominal examination, pelvic examination, blood pressure, pregnancy test if pelvic examination is not clear, hemoglobin/hematocrit, and so on).

If you picked up clues as to other reasons she might not be getting her periods you would want to follow-up on those as well. For example, did she tell you that a lot of the women working in this paint factory miss periods after they have worked there for some time?

Step 3

Once you have gained all the information you can from asking questions (ASK and LISTEN), doing the physical examination, and laboratory investigations (LOOK and FEEL), you will organize the information. The answers you put here depend on what she answered to the questions above and what you found when examining her.

Step 4

Your actions or plan for treatment include general education, counselling for particular problems, giving treatments, and sometimes referring her to someone else for care or parts of her care. Remember, if the problem is not solved, start all over again to gain more information that will help you to help her better.

In each of the modules of this **Life-Saving Skills for Midwives Manual** you will find this problem solving method used. With practice, it helps you to be more organized and more thorough in giving care to women.

TEACHING AND IMPLEMENTATION OF LIFE SAVING SKILLS

Teaching of Life Saving Skills

Audience

This training manual is intended for all midwives in active practice or those who wish to get back into practice. In addition to being used for continuing education, it can be used for midwifery students and incorporated into their basic training program.

If you do not have enough money to train all practicing midwives, it is valuable to train midwifery tutors and rural midwives. Tutors can make an important contribution in decreasing maternal mortality and morbidity because they teach student midwives - the future of the profession. Rural midwives make a valuable contribution to decreasing mortality because they are far from referral institutions and need to cope with emergencies without the help of lots of equipment and other trained personnel. As more training money becomes available, it is important that all midwives in practice have the opportunity to update their knowledge and clinical skills.

Trainers

Successful trainers of Life Saving Skills are very special people. They need to be very clinically competent and confident. In order to teach these advanced midwifery skills, trainers/teachers need to be active in clinical practice.

Teachers who have stayed in the classroom for many years will need to refresh their own clinical skills and add on these new advanced skills to their own practice prior to teaching others. At first new trainers will need to be supervised by an obstetrician, doctor, or an experienced clinical midwife who will provide guidance and support until she is competent.

When planning your training be sure to give the new trainer several months of clinical practice by herself (without the responsibility for students/participant(s)) to gain competence and confidence. Remember, strong trainers are the key to a successful training program.

Teaching Methods

Clinical Practice

Life Saving Skills are advanced midwifery skills focused on those skills which will help midwives save lives. The emphasis is on clinical practice with as much experience as it takes for a particular participant to become expert. Classes should be in or near the clinical area so that discussion can be interrupted when a laboring woman presents with need for any of the clinical skills to be learned. The group moves into the labor or delivery area to see trainers demonstrate skills or see classmates practice particular skills.

Remember that learners will remember a very short time if they hear how to do something. They will remember longer if they see something demonstrated. But they will remember longest and best if they performed the skill themselves.

Competency Based Practice

This manual is designed to assist tutors and participants to assist the midwife in becoming highly competent to practice a given set of skills. We are not interested in the **quantity** of times she performs a particular skill but the **quality** with which she performs it.

In the past midwifery education in many countries has concentrated on having students perform so many deliveries, attend so many antenatal clients, or start so many intravenous infusions. A system based on quantity of experience does not take into account that we all learn at a different pace and with a variety of learning styles. It means that a slow student may not be competent when she graduates even though she completed the numbers of experiences required. On the other hand, a fast learner may be bored by having to repeat over and over skills which she is very competent to perform. Fast learners could better use their time gaining additional skills and knowledge.

For competency based assessment to occur the education or training program must be very flexible. If a student does not receive the variety and amount of clinical experience she needs in the given time for clinical practice, arrangements must be made where she can stay on longer or return at another time to get the experience she needs. Participants should not be made to feel that they are stupid or incompetent if more experience is needed. Stress to participants that everyone learns differently. There is no right way or right amount of time for learning.

The goal is always to have confident, competent midwives who can practice advanced midwifery skills and save the lives of women and newborns. Participants who have been out of the classroom for many years are often quite frightened about studying again. Stress to the group that all of us should continue to learn until we die. You are never too old to learn and your brain is still good. Experienced midwives have valuable experience to share and enrich the learning for everyone when they share their stories of clinical situations. They also help to keep the training very practical and focused on the needs and emergencies found in your communities.

At the end of each skills module (Modules 2 -10) you will find skills sheets. For each skill taught in the module the procedure is broken down into all of its parts. The trainer and participant are asked to evaluate for each piece of the skill whether it was performed satisfactorily or needs improvement.

These sheets should be filled out by the trainer and participant together at the end of each clinical experience. It serves as an excellent way for both to share how they think things went and what should be done differently next time. It gives the trainer the opportunity to discuss alternate ways of doing something, perhaps demonstrating with a model. It gives the participant time to ask questions which could not be discussed while the client was being cared for.

By filling the sheets completely each time she practices a particular skill, she will know what she needs to study more and what pieces of the skill she needs to concentrate on next time. It also serves as a valuable way for trainers to communicate with one another. A trainer coming to work need only review the checklists of the participants she is working with that day to see what skills are giving the learner problems, which parts of a given skill need particular help, and any helpful comments offered by previous trainers to aid in improving her performance.

Teacher/Student Ratio

Because life saving skills is a clinically based training, there will have to be few students/participants per tutor/teacher in the clinical area. One tutor will probably not be able to handle more than two to four experienced midwives or one to two midwifery students. Students/participants will need sufficient opportunities to perform the skills themselves over and over until they feel comfortable. Midwives working in rural areas will not be able to contact a colleague for advice during an emergency. She will need to be both confident and competent to put these newly learned skills into practice safely.

It is important that the trainers periodically make support or supervision visits on selected trained midwives. You will be able to evaluate whether or not participants have gained enough skill in the training program to feel comfortable in practice. You will be able to find out if the teaching was understood well. You will be able to review her records including her partographs and antenatal risk assessment forms to see if high quality care is being given. You may need to revise your training program based on this information gained from these visits.

Equipment Needed

Because Life Saving Skills is a clinically based training, it is also quite expensive. Equipment needed for each procedure is included in the beginning of each module. The modules you choose to teach will determine what equipment is needed. In many cases hospitals or maternity homes will already have some of the needed equipment. In order to keep the training program at a reasonable cost, it is important to do an inventory of what is available before ordering training equipment. It is important that trainees coming from the public sector understand that the equipment they receive belongs to the institution they work for, and is not theirs as an individual. The goal is always to do the greatest good for the greatest number of women. Equipment should not be sitting on the shelf of a trainees home.

Sample Teaching Schedule

How the training schedule is organized will be effected by many things such as how long trainees can be away from their work sites, how much clinical experience is available in the backup hospital used for training, how many skills you wish to teach individuals, and so on. Attached is an example of a schedule which was used in Ghana, West Africa. All of the skills in this manual were included in this training program except symphysiotomy which was not part of the local standard of practice.

Notice that skills which require a great deal of clinical practice or are not often available clinically are taught in the first few days of the program so participants will have the theory and practice skills before seeing clients. Therefore vacuum extraction, episiotomy repair, administration of local anesthesia, and treatment of hemorrhage is taught early in the training program. Skills such as resuscitation of the adult and Heimlich maneuver where the clinical experience is on mannequins or classmates rather than clients, comes late in the training program.

LIFE-SAVING SKILLS

Evening of arrival receive book of modules.
 Homework: Study module on Vacuum Extraction

	DAY 1 - MONDAY	DAY 2 - TUESDAY	DAY 3 - WEDNESDAY
8:00 AM	Welcome Introductions Overview of Maternal Mortality Video: Why Did Mrs. X Die? Registration Pre-Test	Review material on Vacuum Extraction Episiotomy and Laceration Repair Seminar	Review Episiotomy and Laceration Repair Prevention and Treatment of Haemorrhage Active Management of the Third Stage Manual Removal of the Placenta Bimanual Compression of the Uterus
10:30 AM	BREAK	BREAK	BREAK
11:00 AM	Introduction to the Problem Solving Method Vacuum Extraction Seminar Video on Vacuum Extraction	Suturing Practice	Continue
2:00 PM	LUNCH	LUNCH	LUNCH
	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT
	8:00 AM TO 8:00 PM - MIDWIVES 1,2 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 3,4 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 5,6 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 7,8 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 3,4 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 1,2 ON CALL
	Homework: Study module on Episiotomy and Laceration Repair	Homework: Study Module on Prevention and Treatment of Haemorrhage	Homework: Study Module on Monitoring Labour Progress

LIFE-SAVING SKILLS

	DAY 4 THURSDAY	DAY 5 - FRIDAY	DAY 6 - SATURDAY
8:00 AM	Review Prevention and Treatment of Haemorrhage Use of Partograph for Labour Management	Review Use of the Partograph More on the Partograph	
10:30 AM	BREAK	BREAK	
11:00 AM	Continue	Continue	
2:00 PM	LUNCH	LUNCH	
	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT:
	8:00 AM TO 8:00 PM - MIDWIVES 7,8 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 5,6 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 1,2 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 3,4 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 5,6, ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 7,8 ON CALL
	Homework: Review Module on Partograph	Homework: Study Module on Antenatal Risk Assessment	Homework: Review All Modules for the Week
			DAY 7 - SUNDAY
			CLINICAL ASSIGNMENT:
			8:00 AM to 8:00 PM - MIDWIVES 3,4 ON CALL 8:00 PM TO 8:00 PM - MIDWIVES 1,2 ON CALL

LIFE-SAVING SKILLS

	DAY 8 - MONDAY	DAY 9 - TUESDAY	DAY 10 - WEDNESDAY
8:00 AM	Review Partograph Use of the Antenatal Risk Assessment Tool in Prevention and Treatment of Anemias and Pregnancy Induced Hypertension	Review Antenatal Risk Assessment IV Fluid Management Recognition and Treatment of Sepsis: PROM Puerperal fevers Incomplete and Septic Abortions	Cardio-Pulmonary Resuscitation and Heimlich Maneuver
10:30 AM	BREAK	BREAK	BREAK
11:00 AM	Practice Tool at Antenatal Clinic	Continue	Continue
2:00 PM	LUNCH	LUNCH	LUNCH
3:00 PM			Continue
	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT:
	8:00 AM TO 8:00 PM - MIDWIVES 7,8 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 5,6 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 1,2 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 3,4 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 5,6 ON CALL 8:00 PM TO 8:00 AM - MIDWIVES 7,8 ON CALL
	Homework: Study Modules on Hydration and Management of Sepsis	Homework: Study Module on Cardio-Pulmonary Resuscitation and Heimlich Maneuver	Homework: Review Module on CPR

LIFE-SAVING SKILLS

	DAY 11 - THURSDAY	DAY 12 - FRIDAY
8:00 AM	CPR Continued	Review POST TEST General Review
10:30 AM	BREAK	CLOSING
11:00 AM	CPR Continued	
2:00 PM	LUNCH	
	POST-TEST	
	CLINICAL ASSIGNMENT:	CLINICAL ASSIGNMENT OPTIONAL:
	8:00 AM TO 8:00 PM - MIDWIVES 3,4 ON CALL	8:00 AM TO 8:00 PM - MIDWIVES 7,8 ON CALL
	8:00 PM TO 8:00 AM - MIDWIVES 1,2 ON CALL	8:00 PM TO 8:00 AM - MIDWIVES 5,6 ON CALL
	Homework: General Review	

Protecting Trainers, Trainees, and Clients from Infection

In this age of Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS), it is critical that health care providers and clients be protected. Many maternity homes and hospitals are lacking in very basic equipment. However, it is often possible to improvise ways which help protect against infection. Because laboratory testing is not widely available, and because a woman may transmit the virus even before her laboratory test turns positive, we must protect ourselves as if every woman and newborn might have the infection.

Likewise, we must protect every woman and newborn from us, as in the early stages of the disease we might not recognize that we are infected.

Many people recommend that those who deliver women wear cover gowns, boots, goggles, and masks. If commercially made materials are not available improvise with whatever protective means is available to you locally. It is important that the midwife protect herself from contamination with amniotic fluid (liquor) and blood as they are sources of infection from the HIV virus. The midwife should teach the traditional birth attendants (TBAs) in her area how to protect themselves.

Foot Protection

The person delivering the woman should wear a covering on her feet. If TBAs do not have shoes, think of ways she can protect her feet. She might wear plastic bags, wrap her feet in old cloth or large leaves. Use care when disposing of them after delivery that you do not get blood or amniotic fluid (liquor) on your hands or skin.

Hand Protection

The deliverer should wear sterile or clean gloves if at all possible. In order to protect the woman from getting germs into her vagina and uterus, sterile gloves should be used when available.

Gloves which are to be reused should be washed and checked for holes between use. Gloves with holes should be discarded.

If gloves are not available, get thin, very flexible plastic (polyethylene) bags from the market. Wash the plastic bag (sack) with disinfectant and place it on your examining hand to do the vaginal examination. Because plastic bags are widely available, TBAs should be able to have a supply in their delivery kits at all times ready for a delivery. Wear the bags to handle the placenta and baby as well until the baby has been washed.

When performing manual removal of the placenta, it is common that you get blood on your arm. This contaminates your skin and is also a source of possible infection to the woman from your skin. When performing manual removal place a polyethylene bag, which has been previously disinfected, over your examining hand and tear through the closed end. Now put on your sterile glove placing the cuff over the plastic sack at your wrist. Your arm should now be protected up to the elbow.

Face Protection

Try to avoid getting splashes of blood or liquor on your face particularly in your eyes. Those who wear glasses have some protection from splashes. You can buy plain lens glasses or plastic goggles. Hold your head away from the woman while rupturing membranes to decrease your chance of being splashed. If you do get a splash in your eyes, rinse them out immediately with a lot of clean water.

Cleaning and Care of Equipment and Contaminated Surfaces

Although your delivery instruments will not be sterile, an adequate high level of disinfection can be obtained by boiling instruments for twenty minutes. Count the time from when the water starts to boil. You can also get a high level of disinfection by washing instruments and then soaking them in any fresh preparation of the following:

- Sodium hypochlorite 0.5% available chlorine
- ethanol 70%
- isopropyl alcohol 70%
- formaldehyde 4%
- glutaraldehyde 2% (Cidex)
- hydrogen peroxide 6%
- polyvidone iodine 2.5%

Choose whichever disinfectant is easily available at a reasonable cost in your area. Chlorine bleach often is the cheapest and is one of the best. Wash surfaces (tables, floors, and so on) which have been contaminated with blood or amniotic fluid, with bleach as soon as you are able.

It is important that you dispose of needles, syringes, cotton wool, and other blood soaked materials in a safe manner. Place used needles in a covered container where cleaners, children, and others will not be accidentally stuck. Dispose of waste by burning or burying in a manner that children or animals will not dig them up and spread contamination.

IMPLEMENTATION OF SKILLS INTO PRACTICE

Mobilization of the Community

Saving the lives of women and newborns is an important issue for the community. Many times community members do not realize what a valuable role they can play in saving the lives of women. Community leaders need education on how they can contribute. Help them organize support services through improved communication, transportation, blood supply, and other ways.

The midwife can play a vital role through meeting with village/community leaders, men's or women's social and religious groups, schools, and other gatherings to discuss that a majority of maternal deaths are preventable. Many sicknesses/injuries are also preventable. For example, women are less likely to suffer the disabling problems of vesico-vaginal fistulas and serious pelvic infections if they have not had neglected (prolonged) labors or do not have scarring of their genitalia from female circumcisions.

Transportation and Communication

In remote areas or night time hours many women die for lack of adequate transportation and communication. It is the responsibility of the entire community to see that emergency services are provided for its people. Transport need not be by ambulance. 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 boat, or other means.

In some communities the transport unions have organized an emergency community fund so that there is never a delay during an emergency while the family searches for transport money. Sometimes the community pays the village lorry driver or private individual an advance to carry emergency passengers as the need arises. These individuals can also stock a fuel ration saved for emergencies. Once communities are educated to the need for an emergency system and understand that many die needlessly without this plan, they will come up with many creative ways in which to solve the problem. Many minds working together can find good local solutions.

Midwives must serve the important role of getting emergency systems organized and operating. As respected members of the community who care for women and see the effects of hemorrhage, convulsions, infection, and shock, the midwife is in the best position to understand what needs to be done to improve the situation in her own village or area.

Blood Supply

In many countries of the world hemorrhage is the leading cause of maternal mortality. In all countries of the world hemorrhage is at least one of the three top killers of pregnant women. Therefore, making certain that blood is available for emergencies is of critical importance.

Once communities understand how common and serious the problem of hemorrhage in childbirth is, they can mobilize to establish a system of blood donation. There are often rumors or cultural beliefs which prevent families or neighbors from donating blood. A strong community education program plus frequent reminders of the high value of blood is necessary. Midwives can play a valuable role in education of the community.

In some communities the referral hospital will have a blood bank with blood on hand ready for emergencies. In other communities all adults will have their blood typed so that they can be called upon when blood of their particular type is needed. In other situations clients are expected to bring several blood donors in with them when they travel to the referral hospital. Whichever of these options would work best in your situation, education and coordination are key to making certain blood is available to women when and where they need it.

There is a decreased need for blood transfusions if the woman enters pregnancy and labor in good health. The community can contribute to the improved health of its girls and women by encouraging adequate food intake, doing away with food taboos which prevent women from getting foods they need, encouraging antenatal care, and urging early referral to hospitals and other resources when needed.

References

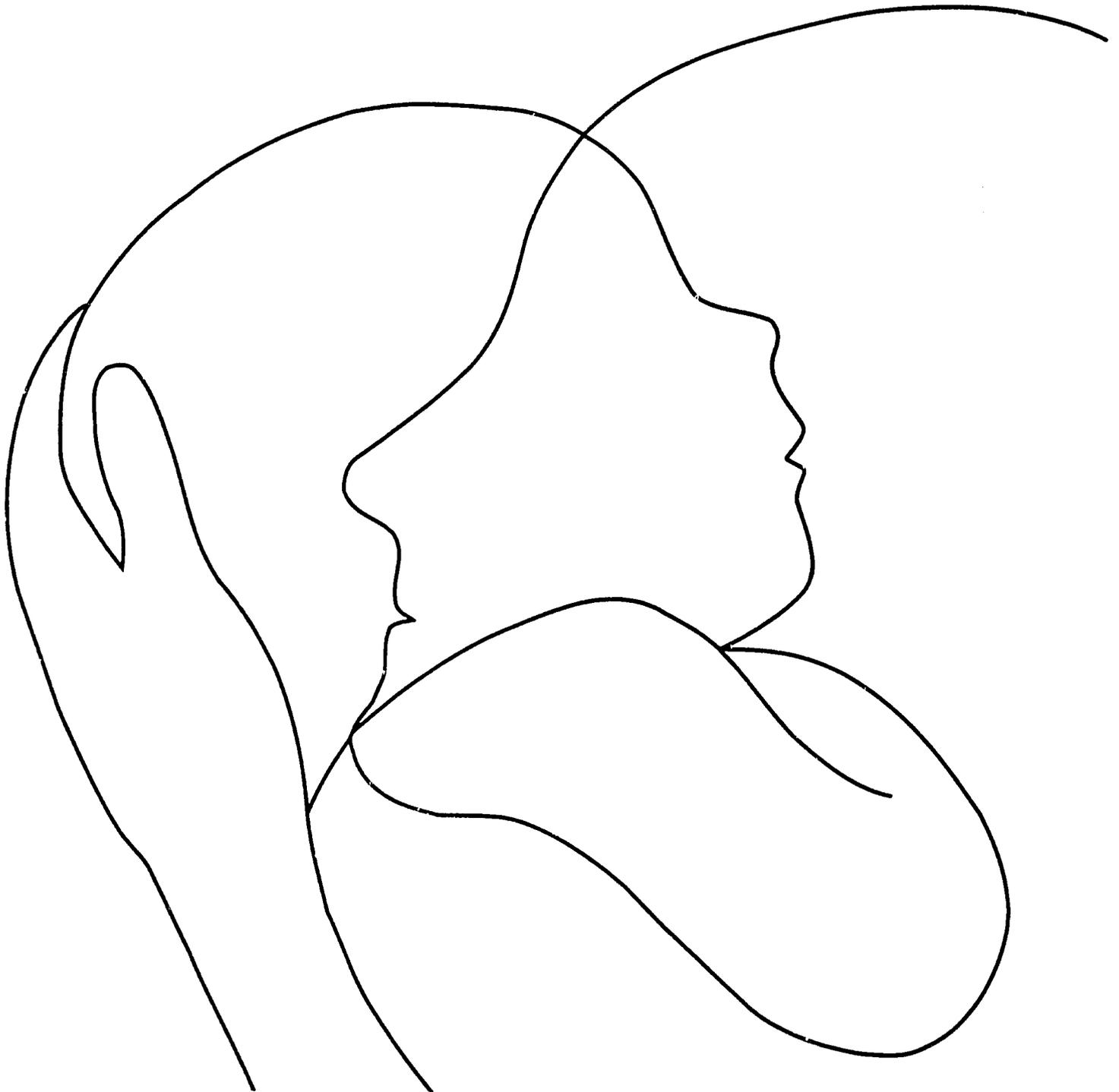
Experience and the following references provided information for this module.

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

Lamptey, P. and Piot, P. (Eds) (1990). *The handbook for AIDS prevention in Africa*, Family Health International, Durham.

Varney, H. (1987). Nurse-Midwifery, 2nd Edition. Blackwell Scientific Publications, Boston.

Module 2:
ANTENATAL RISK ASSESSMENT
AND TREATMENT



Module 2

ANTENATAL RISK ASSESSMENT AND TREATMENT

	Page
Goal	1
Objectives	1
Common Medical Terms	1
Equipment	2
Introduction	2
Fundal Height Growth Monitoring Procedure	3 3
Checking for Anemia	4
Checking for Pregnancy Induced Hypertension (Preeclampsia) Procedure	8 8
Using the Antenatal Risk Assessment/Intervention Form	10
Case Study	17
Learning Aid - Reflex Testing Using a Reflex Hammer Checking Reflexes	25 25 25
Review Questions	28
Skills Checklist	30
References	36

ANTENATAL RISK ASSESSMENT AND TREATMENT

Goal

This module will help the midwife in giving excellent care to women who might develop one of the two major killers of pregnant women- pregnancy induced hypertension (preeclampsia/eclampsia) or anemia with the complication of hemorrhage.

Objectives

The midwife caring for women during the antenatal period will be able to:

1. Take the medical history which will alert her to possible problems with anemia and/or pregnancy induced hypertension (preeclampsia) (ASK and LISTEN).
2. Do the physical examination and laboratory tests to get information which will alert her to the possible problems with anemia and pregnancy induced hypertension (LOOK and FEEL). It includes fundal height (uterine) growth monitoring, testing reflexes, monitoring weight gain and vital signs, and other procedures.
3. Do health teaching, give treatment, and refer the woman to a doctor when needed. (IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION)

Common Medical Terms

Eclampsia - one or more convulsions in a pregnant woman with preeclampsia which are not caused by epilepsy or cerebral hemorrhage.

Folic Acid Deficiency - This is when there is a low level of a nutrient needed to make red blood cells. This deficiency is most often found in pregnant women.

HELLP Syndrome - This is a serious complication which occurs among women with preeclampsia. The woman usually has Hemolysis (breakdown of red blood cells), Elevated Liver enzymes, and Low Platelet count. It causes severe hypoxia (too little oxygen to the brain) and possibly death of the fetus due to vasospasm (narrowing of the vessels). The mother may die from hemorrhage, eclamptic seizures, or more commonly from ruptured liver.

High Risk - a person who has a strong chance of developing a particular disease or problem. For example, a woman with a very small pelvis is at high risk for developing an obstructed labor.

Hyper-reflexia or hyper reaction of the reflexes - a faster or brisk response of the reflex which may mean edema of the brain in a preeclampsia patient or neurological disease.

Iron Deficiency Anemia - a disease where the iron stores in the body are exhausted. The red blood cells are small, pale, and new red blood cells are slow to form.

Preeclampsia - the development of hypertension with proteinuria and edema during pregnancy. Preeclampsia is typically a disorder of primigravidas. It occurs after the 20th week of pregnancy but may develop before 20 weeks in trophoblastic disease (hydatidiform mole).

Pregnancy Induced Hypertension - This is the term used to include all hypertensive disorders of pregnancy including preeclampsia and eclampsia.

Risk factor - those things in an individual or in the environment that make the individual more likely to develop a particular disease. For example, smokers are more likely to develop lung cancer. Smoking then is a risk factor for lung cancer.

Equipment

reflex hammer

risk assessment form/graph

BP apparatus

adult weighing scales

Tallquist or other hemoglobin testing equipment

urine albumin testing equipment where possible

centimeter tape to measure the uterus

Introduction

Antenatal care is very important to a good outcome of pregnancy. The baby grows. The mother's body changes. The midwife monitors the growth and change so that she can **IDENTIFY PROBLEMS** early and solve the problem.

Fundal Height Growth Monitoring

Procedure

ASK and LISTEN

1. The midwife will ask if the baby is active and moving often.

LOOK and FEEL

2. The midwife will palpate the woman's abdomen to check the fetal growth at each antenatal visit. She will then compare what she finds with how big the baby should be at this point in pregnancy. Between 20 and 36 weeks gestation (pregnancy) it is expected that the woman's fundal growth (height of the uterus) will be one centimeter per week and can be measured from the top of the symphysis pubis to the top of the uterus. For example, a woman who is 29 weeks pregnant should be just about 29 centimeters from the top of the symphysis pubis (pubic bone) to the top of the uterus. If the uterus is more than 24 centimeters, check the position, lie, and level of the head.
3. In women under 20 weeks gestation you may estimate gestational age (age of the pregnancy) by using your fingers. This gives less exact information as different midwives have different size fingers. You can also make the measurement by estimating what per cent the uterus is up to the umbilicus (naval). Just above the pubic bone is 12 weeks pregnancy, half way to the umbilicus is 16 weeks, and at the level of the umbilicus is 20 weeks.
4. In women over 36 weeks gestation, growth will continue at roughly one centimeter per week. However, if the head has begun to descend into the mother's pelvis, it may appear that growth is not sufficient because you are not measuring the entire baby. Feel for descent of the fetal head if growth seems too little.

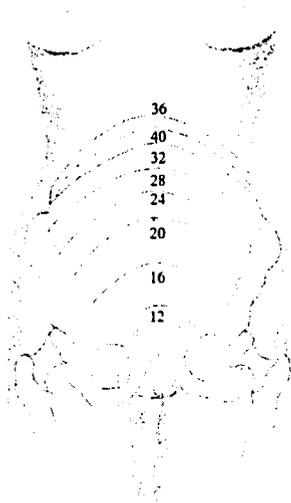


Figure 1. Fundal Height in weeks gestation

5. If the uterus measures more than two centimeters different (larger or smaller) than expected, look for wrong dates, abnormalities of the baby, too much amniotic fluid (liquor), twins, a very large baby, or abnormal presentation of the baby (breech). If the baby is very large, remember to have the mother checked for possible diabetes and refer her if you anticipate a difficult delivery (cephalo-pelvic disproportion).

IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION

6. If a woman's growth is less or more than you would expect between two visits, try to figure out why.

Are the dates of her last menstrual period correct?

Is she malnourished?

Could she have diabetes?

Does she have

twins?

a breech presentation?

too much amniotic fluid (polyhydramnios)?

a deformed infant?

If you find a reason why she is too large or too small, refer her to a doctor/hospital with a clear referral note explaining the problem.

7. If you can not find an explanation for your finding, have her return in one week and remeasure. If she still is more than two centimeters different (larger or smaller) than expected, refer her with a good referral note explaining your findings. Many women will have a growth spurt between 20 and 24 weeks, so you may notice she is larger than expected for one visit, and then the growth evens out.

Checking for Anemia

ASK and LISTEN

1. At the first antenatal visit find out what this woman eats. Do not assume she eats what you do or that she eats what the rest of her family eats. Ask her if she is allergic to any foods. Is she avoiding any particular foods because she is pregnant (food taboos)? Can she afford to eat regularly and eat well? What foods does she dislike?

Take a diet history at the first antenatal visit. Review her diet anytime she seems to be having difficulty. For example she is anemic, having nausea and vomiting, constipation, or social problems at home. To get an accurate history ask what she has eaten so far today. Do not rush her answer. Most people will have to think a minute to remember everything. Ask her what she ate last evening? Yesterday during the day? Is that all? Did she have any snacks? What did she drink?

Did she eat anything that some people might not think of as food such as ashes, starch, clay, ice? A woman who craves and eats such things is frequently anemic. If she does eat this type of thing (called pica or eating of non-foods) make certain to check her hemoglobin.

Ask the woman whether or not she is suffering from fatigue, drowsiness, headaches, sore tongue, loss of appetite, nausea, or vomiting. These symptoms can indicate anemia.

2. Find out if this woman is at high risk to develop anemia. Has she had closely spaced pregnancies (less than two years)? A history of heavy or long periods? A history of anemia previously? Does she bruise easily? Has she had a history of hemorrhages before with pregnancies or surgeries?

LOOK and FEEL

3. Each visit include looking for anemia in your physical examination. Look at the woman's eyelids, nail beds, gums, and palms. Severe pallor (paleness) usually indicates a hemoglobin under 8 Gms. and severe anemia. **This woman is at high risk.**
4. The woman's hemoglobin should be checked at the time of registration (booking) and at least every two months during pregnancy. If the hemoglobin falls below 8 grams (55%) on any visit, it should be checked every visit thereafter until it returns to 8 grams or better. At the first visit the woman should also have a sickle cell screen, and stool for parasites. If she lives in an area where malaria is found she should also have a blood test for malaria. She will need to be referred to a doctor if she is sickle cell positive. These women can develop serious complications quickly and die.

IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION

5. Question her as to who else is giving her advice and what advice has been given, and what treatments is she currently using. Advice may come from many sources- family, friends, herbalists, spiritualists, black magic practitioners (juju men), or other health care practitioners. Determine if the treatments and advice she has received is helpful, harmless, or harmful. Reassure her about the helpful advice, permit her to continue with the harmless practices, and carefully advise her as why the harmful practice may damage her baby or herself.
6. Counsel the woman on high iron, high folic acid foods. Assist her to overcome any food taboos which limit her protein or iron intake. It is effective to give health talks on nutrition to many women at once. Check individually to see if each one has understood what you said and counsel each one about her specific situation.
7. The World Health Organization (WHO) recommends giving ferrous sulfate 320 milligrams (60 mg elemental iron) two times a day for all pregnant women. If her hemoglobin is 8 grams or less at any visit, increase her iron tablets to one, three times a day for the rest of her pregnancy. Also repeat her stool specimen looking for hookworm and other parasites. Inquire at each visit if she has enough medicines. Check to see that she is taking them correctly and regularly. If ferrous sulfate is not available in your area, give an equal amount of elemental iron in another iron preparation.
8. Give folic acid 500 mcg. each day to prevent anemia. In many countries only 1 or 5 mg tablets are available. It is OK to use these. Sometimes you can find combination pills which have folic acid combined with multivitamins. These are good but often quite expensive.
9. Vitamin C helps her to absorb the iron into her system more efficiently. She can take her iron tablets with citrus juice (orange, grapefruit, lemon, lime) which is rich in vitamin C or eat three servings of citrus fruits or green vegetables per day. Avoid drinking tea and coffee as these will decrease the absorption of vitamin C. If she is unable to get enough vitamin C in her diet, give one vitamin C 250 mgs. tablet daily.
10. It is controversial at this point in time as to whether women living in areas with malaria should take weekly prophylaxis. Some feel that women take it only irregularly and this may lead to development of chloroquine resistance. Some studies show that in women taking prophylaxis regularly, that the placenta and the mother still have parasites.

Others feel that regular use of prophylaxis does improve the health of the mother (less anemia) and baby (higher birth weight). Until there are further studies on this topic you may wish to consult the ministry of health in your area for its current recommendations. If you do choose to give chloroquine prophylactically, make certain you are giving chloroquine 300 mg base weekly.

11. If her stool is positive for parasites, treat her according to what type of parasites she has. Remember that severe anemias can develop from chronic loss of blood from the intestines in women with heavy parasite infestations. Urine should be checked for blood in areas where schistosomiasis is common.
12. If the woman is more than 28 weeks gestation at registration (booking) with a hemoglobin of less than 8 grams (55%) refer her to a doctor for a complete anemia workup and treatment.
13. Women who have delivered or who are not yet pregnant should be checked for anemia. If a woman is anemic, she can be treated and be advised to improve her eating habits. A woman who starts pregnancy well nourished is at much lower risk of dying from hemorrhage or infection. She is also more likely to carry a healthy, full term infant. Although we do not know the ideal weight gain during pregnancy for all women in all countries, a good guideline is that women who start pregnancy at a normal weight should gain 25 to 35 pounds (11.5 to 16 Kgs). Obese women should gain at least 15 pounds (7 Kgs) in order to get sufficient nutrients to their infants. Underweight women should gain 28 to 40 pounds (12.5 to 18 Kgs). It is important that midwives see all adolescent girls and all women as their concern. It is important that midwives have a public health or community focus to providing health care to all.

Important Points to Remember

- Check the woman on first visit for anemia and at least every two months during pregnancy.
- If the hemoglobin falls below 8 grams (55%) on any visit, check her at every visit until it rises to 8 grams or more. If she does not improve to more than 8 grams in two or three weeks, refer her to the hospital/doctor.

Rich sources of iron are:

egg yolk, ground nuts, dried navy and lima beans, dried apricots, dried peaches, prunes, figs, dates, raisins, and molasses, fish (dried or fresh), liver, beef, veal, lamb, pork, turkey, chicken, oysters, enriched bread and cereals, pumpkin seeds, sunflower seeds, betel nuts, grasshoppers, termites, crickets, amaranth leaves.

Rich sources of folic acid are:

dark green leafy vegetables (such as kontonmire, cassava leaves, pumpkin leaves, kale, spinach), liver, meats, fish, nuts, yeast, legumes, eggs, whole grains, and mushrooms. Storage of food and over cooking destroy folic acid. Avoid cooking food too long.

Rich sources of vitamin C are:

citrus fruits (grapefruit, oranges, lemons, limes), mangoes, papaya, guava, lychee, avocado pears, pineapple; also tomatoes, cabbage, melon, chili peppers, white and sweet potatoes, broccoli, baobab (monkey bread), cauliflower and carrots. Storage and cooking destroy vitamin C. Avoid cooking if possible.

Conversion Tables for Hemoglobin Estimation:

Per Cent Saturation	Equivalent Hemoglobin in Grams	
100%	14.6 Grams	
95	14.1	
90	13.3	
85	12.6	
80	11.8	
75	11.1	Mild Anemia
70	10.4	
65	9.6	
60	8.9	Moderate Anemia
55	8.1	
50	7.5	
45	6.7	
40	5.9	
35	5.2	
30	4.4	Severe Anemia
25	3.7	
20	3.0	
15	2.2	
10	1.5	

Checking for Pregnancy Induced Hypertension (Preeclampsia)

Procedure

Pregnancy induced hypertension which progresses to eclampsia is a major contributor to maternal mortality worldwide. With very careful antenatal care, many of these deaths can be prevented.

It is best if women receive antenatal care throughout pregnancy. A blood pressure taken prior to 20 weeks is considered the woman's normal or baseline blood pressure. A thirty point systolic rise (top number), or a diastolic rise (bottom number) of fifteen points is considered dangerous. Thus, if a woman has a normal BP of 90/40, a rise to 120/80 is a bad sign. If you do not know what the woman's baseline blood pressure is, 140/90 can be used as the measure of abnormal. Early recognition of problems and early treatment with appropriate referral will save lives.

ASK and LISTEN

1. Take a good symptom history. ASK if she has had any epigastric pain (heart burn) not related to malaria, headaches, dizziness, visual problems (double vision, partial vision, rings around lights), edema or swelling of the hands, face, and feet.

LOOK and FEEL

2. Take the blood pressure at every visit. If elevated, check and see if the woman is nervous. Repeat the blood pressure in twenty minutes.
3. If the blood pressure is elevated, check the biceps and patellar reflexes. If the reflexes are brisk (plus 3 or 4), refer her to a hospital/doctor. Look at the Learning Aid on **Reflex testing** in the back of this module.
4. If the blood pressure is elevated, check a mid-stream urine sample for protein. If she has +1 or more proteinuria (albuminuria), refer her to a hospital/doctor.

IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION

5. **Diuretics are not an effective treatment for pregnancy induced hypertension and should never be used at home or in the maternity.** Diuretics can make the situation worse by causing too many electrolytes (salts) to leave the mother. Lack of salts cause hypoxia (lack of oxygen) in the placental circulation to the fetus.
6. In the case of severe pre-eclampsia (BP 160/100 or higher, proteinuria +3 or +4, hyperreflexia, symptoms such as headache, visual problems, and heart burn), the midwife may give Valium 10 mgs. intramuscularly to help sedate the woman while transporting her to the closest hospital/doctor. Keep the woman's face out of bright light. Try to keep noise and other stimulation to a minimum to decrease the risk of convulsions.

The pregnant woman should not be kept on Valium at home or in the maternity or health post. Valium can produce depression in both the mother and infant. Transfer the woman quickly while keeping the woman and family calm and quiet. In the case of mild preeclampsia (BP 140/90, protein +1, normal reflexes, no headache, visual problems or heartburn), have the woman lie on her left side and stay in bed. Have her drink a lot of fluids. Continue to check her blood pressure, reflexes and urine often.

7. If the woman has eclampsia (convulsions), protect her from choking on her tongue with a padded tongue blade. Do not force the mouth open. Protect her from falling or injury from nearby furniture or objects. Turn her on her side. Do not give her any fluids or medicines by mouth until she is fully awake. Give Valium 10 mg intramuscularly and transfer her quickly to the nearest hospital/doctor. Avoid stimulation from noise, light or unnecessary moving of the woman. Travel with the woman and give medical personnel a complete summary of your care. Take her antenatal card with you and give it to the hospital personnel.

Using the Antenatal Risk Assessment/Intervention Form

This form will help the midwife follow the woman during the antenatal period. By recording the information, the midwife can IDENTIFY PROBLEMS and decide to treat or refer. The risk assessment form is divided into two parts - history and physical examination. This information will help you IDENTIFY women with the problems of pregnancy induced hypertension (preeclampsia), anemia, and other problems of pregnancy. You may wish to adopt this form to supplement the current antenatal record you are using.

The history side of the form :

The first section is to gain social information about the woman. If her partner or family is not supportive, she is more likely to have problems getting enough good food. She is then at higher risk for anemia. It is important to know where she plans to deliver as she must be low risk if she chooses to deliver with a TBA, or with a midwife far from the hospital.

ANTEPARTUM RISK ASSESSMENT/INTERVENTION FORM

Client's Name _____	Age _____	Parity _____
Planned Delivery Site _____		Date Booked _____
Blood Group _____	Rh _____	Hemoglobin Type _____
Height in cms. _____	Partner Supportive? _____	Family Supportive? _____
Expected Date of Delivery _____	Education Level _____	

Figure 2. Social history section

It is important to have a complete medical and surgical history. If she should have a history of sickle cell disease, diabetes, heart disease, or epilepsy, she needs to see a doctor during this pregnancy. Women with sickle cell disease can develop complications quickly and die. If you are working closely with a doctor and agree on her treatment plan, you may continue to care for her during pregnancy. It is important that you, the doctor, and the woman work out a plan for where she will deliver.

If she has had previous surgeries, it is important to determine if it might cause complications during this pregnancy. For example, if the woman has had a cesarean section during a previous pregnancy, she should deliver in a hospital this time as well.

MEDICAL/SURGICAL HISTORY

emia _____
Sickle cell disease (joint pains) _____
diabetes _____
Other diseases (Asthma, T.B.) _____
Cardiac diseases _____
Hypertension _____
Seizures (epilepsy) _____
Cesareanotomy (specific reason) _____
Other Surgeries (specify) _____
Previous accidents _____
Other Medical problems (specify) _____

Figure 3. Medical and Surgical History

16

The next section of the history form asks a lot of questions about her previous pregnancies. If she has had many pregnancies (more than five), closely spaced pregnancies (less than two years), or previous hemorrhages, she is at high risk for having anemia this pregnancy. She is also at higher risk of post-partum hemorrhage this pregnancy. It will be important to watch her closely. If she has a history of high blood pressure or if this is her first pregnancy, she is more likely to develop pregnancy induced hypertension. Watch her more closely.

PREVIOUS OBSTETRICAL HISTORY

Number Term Births _____
 Number Pre-term Births _____
 Number Abortions (Induced) _____
 Number Abortions (spontaneous) _____
 Number Stillborn _____
 Number C/Sections _____
 Number Children Currently alive _____
 Age youngest child _____
 History antepartum hemorrhage _____
 History postpartum hemorrhage _____
 History retained placenta _____
 History long or obstructed labour _____
 History abnormal presentation (transverse, breech, face) _____
 History hypertension/pre-eclampsia, eclampsia _____

Figure 4. Previous Obstetrical History

The next section of history questions the woman about her menstrual history. If she has a history of heavy, long, or very frequent periods watch closely for anemia. If her periods are not regular it will be important to try to calculate her due date using size of the uterus combined with the best history you can get.

MENSTRUAL HISTORY

Age of Menarche _____
 Last Menstrual Period _____ Duration _____ Amount _____
 Last Normal Menstrual Period _____
 Examined by _____ Today's Date _____

Figure 5. Menstrual History

46

The other side of the form is to record your physical findings throughout her pregnancy. The first section is for recording her blood pressure. If her blood pressure is above normal (see normal ranges and definition of baseline blood pressure earlier in this module) manage her care as outlined in the section on pregnancy induced hypertension.

To record her blood pressure move your finger along the bottom line until you see how many weeks pregnant she is today. For example, if she is 25 weeks pregnant stop your finger half way between the 20 and 30. Now move your finger up until you cross the line that indicates her systolic blood pressure today of 110. Place the top of an arrow there. Now place the bottom of the arrow on the line that indicates her diastolic pressure of 70. Draw a dark line between the two points and completing the arrow as show below. Is this blood pressure normal for a woman 25 weeks pregnant?

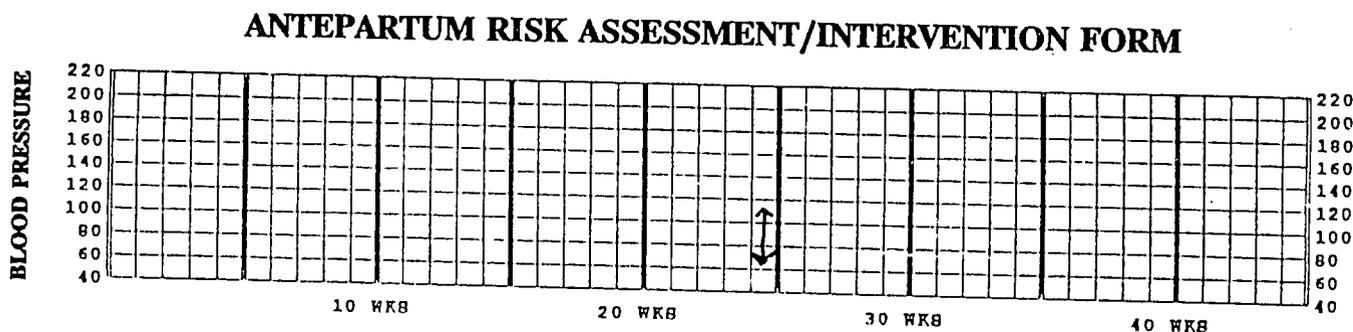


Figure 7. Blood pressure graph

The next section is to graph her hemoglobin. If she is 25 weeks pregnant today, chart her hemoglobin above the 25 week line. If she is anemic refer to the section in this module on the prevention and treatment of anemia. Today her hemoglobin is 9 Gms.

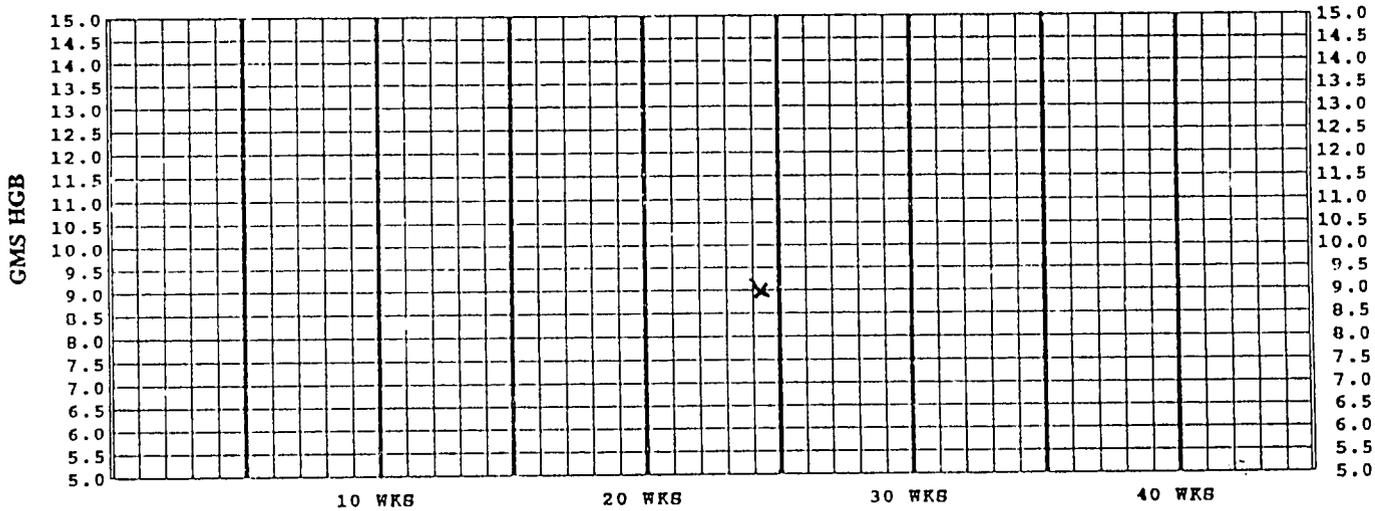


Figure 10. Hemoglobin portion of form

Remember to put a date on all of your notes. Remember to sign your name at each visit.

The form consists of two rows: 'EXAMINER'S INITIALS' and 'TODAY'S DATE'. The columns are grouped into four 10-week sections labeled '10 WKS', '20 WKS', '30 WKS', and '40 WKS'. In the 25-week column, the initials 'mb' are written in the top row and 'GK' in the bottom row.

Figure 11.

Case Study

To practice use of the graph portion of this risk assessment tool, fill in these findings on the risk assessment form which follows. You need to determine how many weeks pregnant she is (or should be) today before you start to fill in the graph.

This woman comes for four antenatal visits to see you. You give her iron, folic acid, and vitamin C at each visit. The findings are:

First visit:

Height - 5 feet 4 inches
Blood pressure - 100/60
Weight - 62 Kgs. (136 lbs)
Hemoglobin - 6.2 Gms.
Weeks gestation - 18 weeks
Signs and symptoms - none
By size 18 centimeters

Second visit:

Blood pressure - 110/68
Weight - 64 Kgs.
Hemoglobin - 6.5 Gms.
Weeks gestation - 24 weeks
Signs and symptoms - very tired, eyelids very pale
By size 26 centimeters

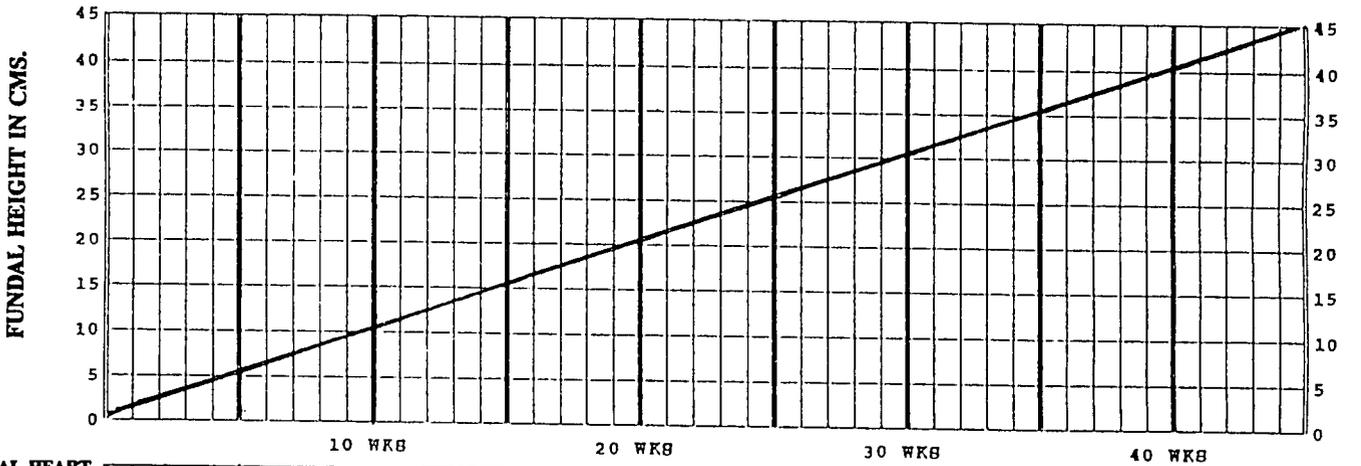
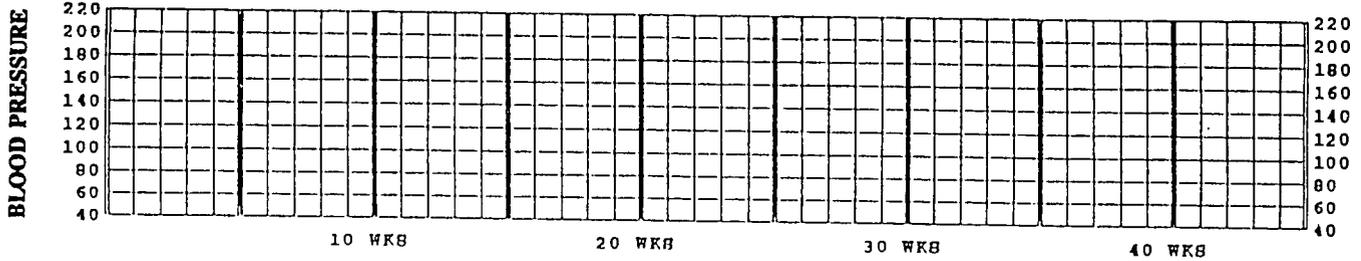
Third visit:

Blood pressure 120/70
Weight- 65 Kgs.
Hemoglobin- 6.8 Gms.
Weeks gestation- 32 weeks
Signs and symptoms- still very tired, eyelids very pale, not taking medications regularly
By size 35 centimeters

Fourth visit:

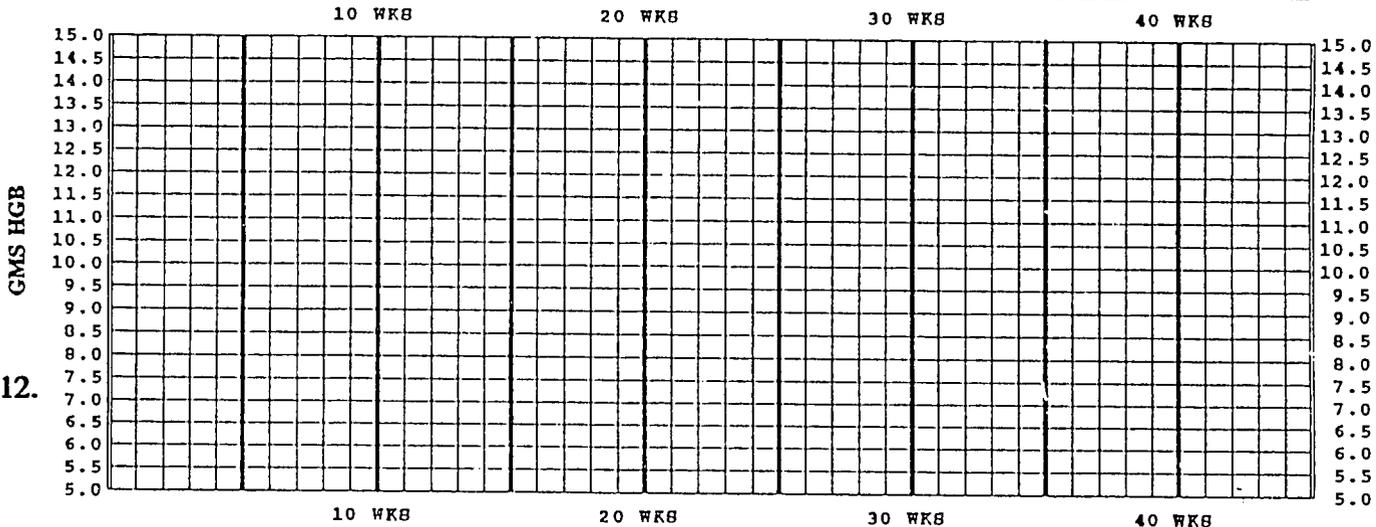
Blood pressure- 114/76
Weight- 67 Kgs.
Hemoglobin- 7.0 Gms.
Weeks gestation- 37 weeks
Signs and symptoms- complains of constipation from iron tablets, less tired, still eyelids very pale
By size 36 centimeters

ANTEPARTUM RISK ASSESSMENT/INTERVENTION FORM



FETAL HEART RATE	
ALBUMINURIA	
WKS. BY DATES	

TREATMENT	
SIGNS AND SYMPTOMS	



EXAMINER'S INITIALS	
TODAY'S DATE	

Figure 12.

ANTEPARTUM RISK ASSESSMENT/INTERVENTION FORM

Client's Name _____ Age _____ Parity _____
 Planned Delivery Site _____ Date Booked _____
 Blood Group _____ Rh _____ Hemoglobin Type _____
 Height in cms. _____ Partner Supportive? _____ Family Supportive? _____
 Expected Date of Delivery _____ Education Level _____

MEDICAL/SURGICAL HISTORY

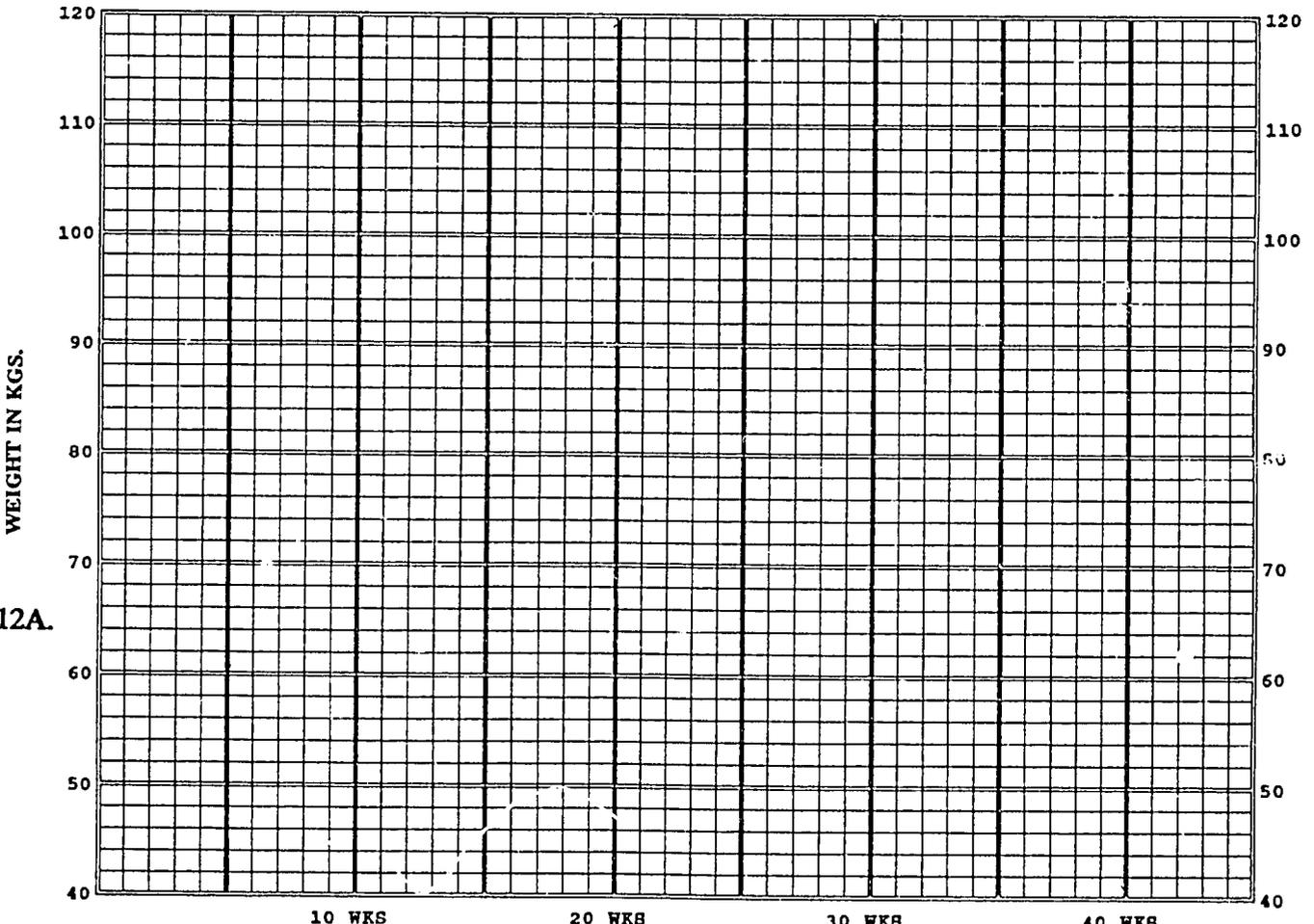
Anemia _____
 Sickle cell disease (joint pains) _____
 Diabetes _____
 Chest diseases (Asthma, T.B.) _____
 Cardiac diseases _____
 Hypertension _____
 Seizures (epilepsy) _____
 Laparotomy (specific reason) _____
 Other Surgeries (specify) _____
 Previous accidents _____
 Other Medical problems (specify) _____

PREVIOUS OBSTETRICAL HISTORY

Number Term Births _____
 Number Pre-term Births _____
 Number Abortions (Induced) _____
 Number Abortions (spontaneous) _____
 Number Stillborn _____
 Number C/Sections _____
 Number Children Currently alive _____
 Age youngest child _____
 History antepartum hemorrhage _____
 History postpartum hemorrhage _____
 History retained placenta _____
 History long or obstructed labour _____
 History abnormal presentation (transverse, breech, face) _____
 History hypertension/pre-eclampsia, eclampsia _____

MENSTRUAL HISTORY

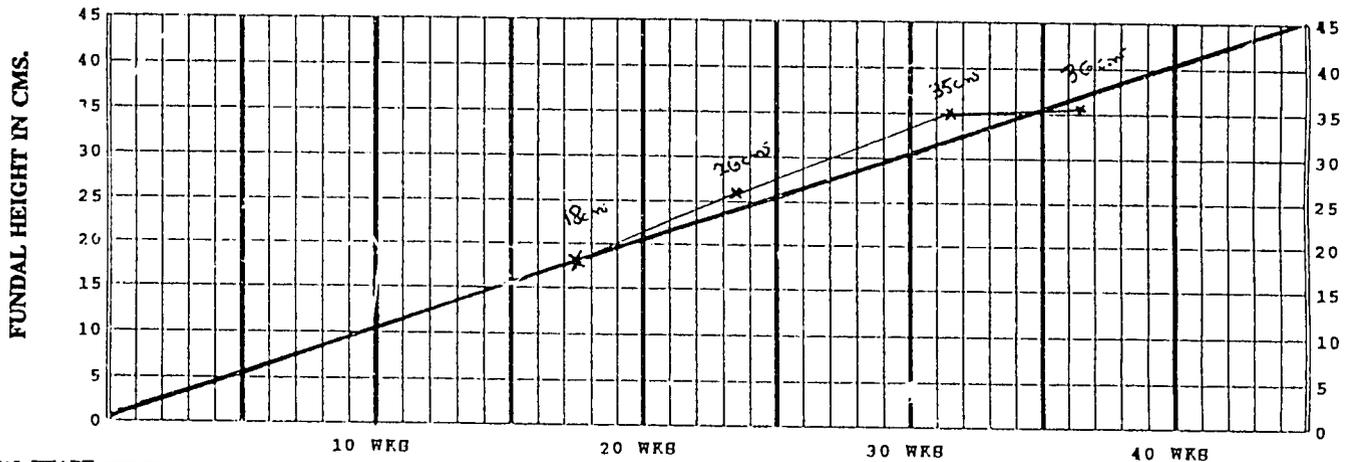
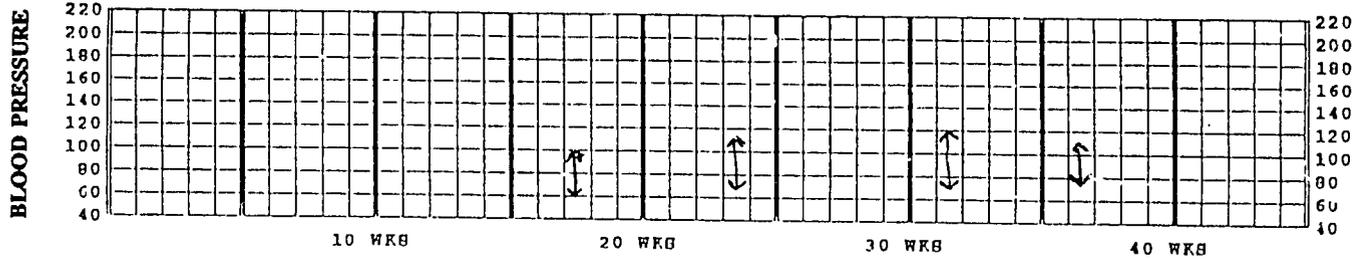
Age of Menarche _____
 Last Menstrual Period _____ Duration _____ Amount _____
 Last Normal Menstrual Period _____
 Examined by _____ Today's Date _____



WEIGHT IN KGS. _____

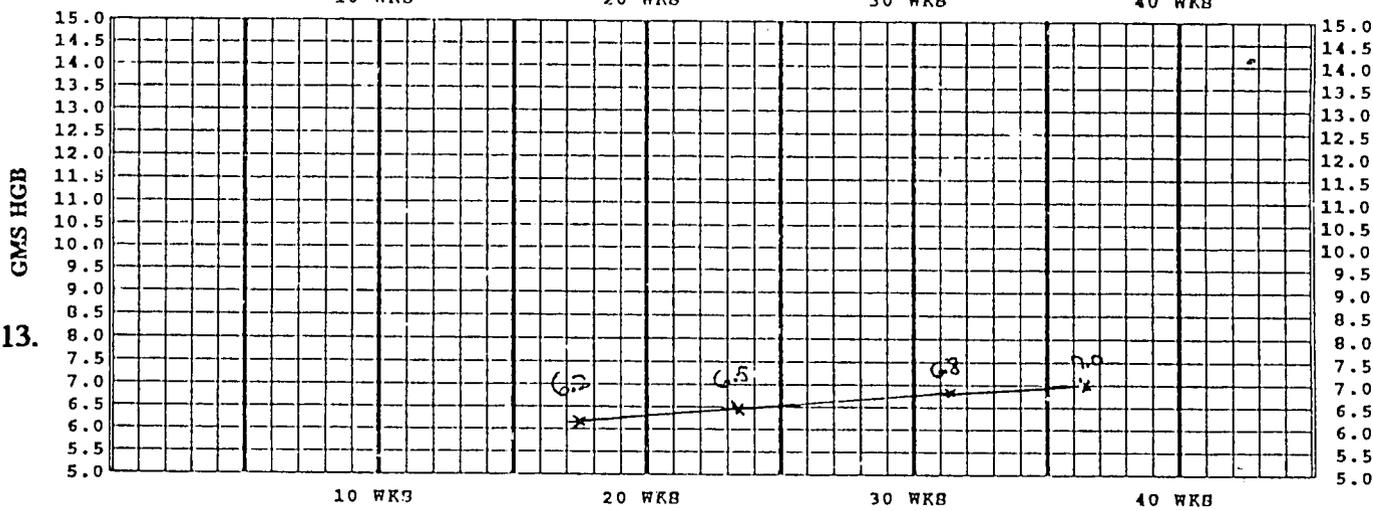
Figure 12A.
19

ANTEPARTUM RISK ASSESSMENT/INTERVENTION FORM



FETAL HEART RATE							
ALBUMINURIA							
WKS. BY DATES		28	24	32	36		

TREATMENT		Fesoy 320mg/d Folic Acid 5mg/d VIT C 250mg/d	Ceftriaxone very pale analysis VMS, Folic Acid	Ceftriaxone VMS VIT C, Folic Acid Taking meds.	Ceftriaxone VMS VIT C, Folic Acid		
SIGNS AND SYMPTOMS							



EXAMINERS INITIALS		mw	mw	mw	mw		
TODAY'S DATE							

Figure 13.
20

ANTEPARTUM RISK ASSESSMENT/INTERVENTION FORM

Client's Name _____ Age _____ Parity _____
 Planned Delivery Site _____ Date Booked _____
 Blood Group _____ Rh _____ Hemoglobin Type _____
 Height in cms. _____ Partner Supportive? _____ Family Supportive? _____
 Expected Date of Delivery _____ Education Level _____

MEDICAL/SURGICAL HISTORY

Anemia _____
 Sickle cell disease (joint pains) _____
 Diabetes _____
 Chest diseases (Asthma, T.B.) _____
 Cardiac diseases _____
 Hypertension _____
 Seizures (epilepsy) _____
 Laparotomy (specific reason) _____
 Other Surgeries (specify) _____
 Previous accidents _____
 Other Medical problems (specify) _____

PREVIOUS OBSTETRICAL HISTORY

Number Term Births _____
 Number Pre-term Births _____
 Number Abortions (Induced) _____
 Number Abortions (spontaneous) _____
 Number Stillborn _____
 Number C/Sections _____
 Number Children Currently alive _____
 Age youngest child _____
 History antepartum hemorrhage _____
 History postpartum hemorrhage _____
 History retained placenta _____
 History long or obstructed labour _____
 History abnormal presentation (transverse, breech, face) _____
 History hypertension/pre-eclampsia, eclampsia _____

MENSTRUAL HISTORY

Age of Menarche _____
 Last Menstrual Period _____ Duration _____ Amount _____
 Last Normal Menstrual Period _____
 Examined by _____ Today's Date _____

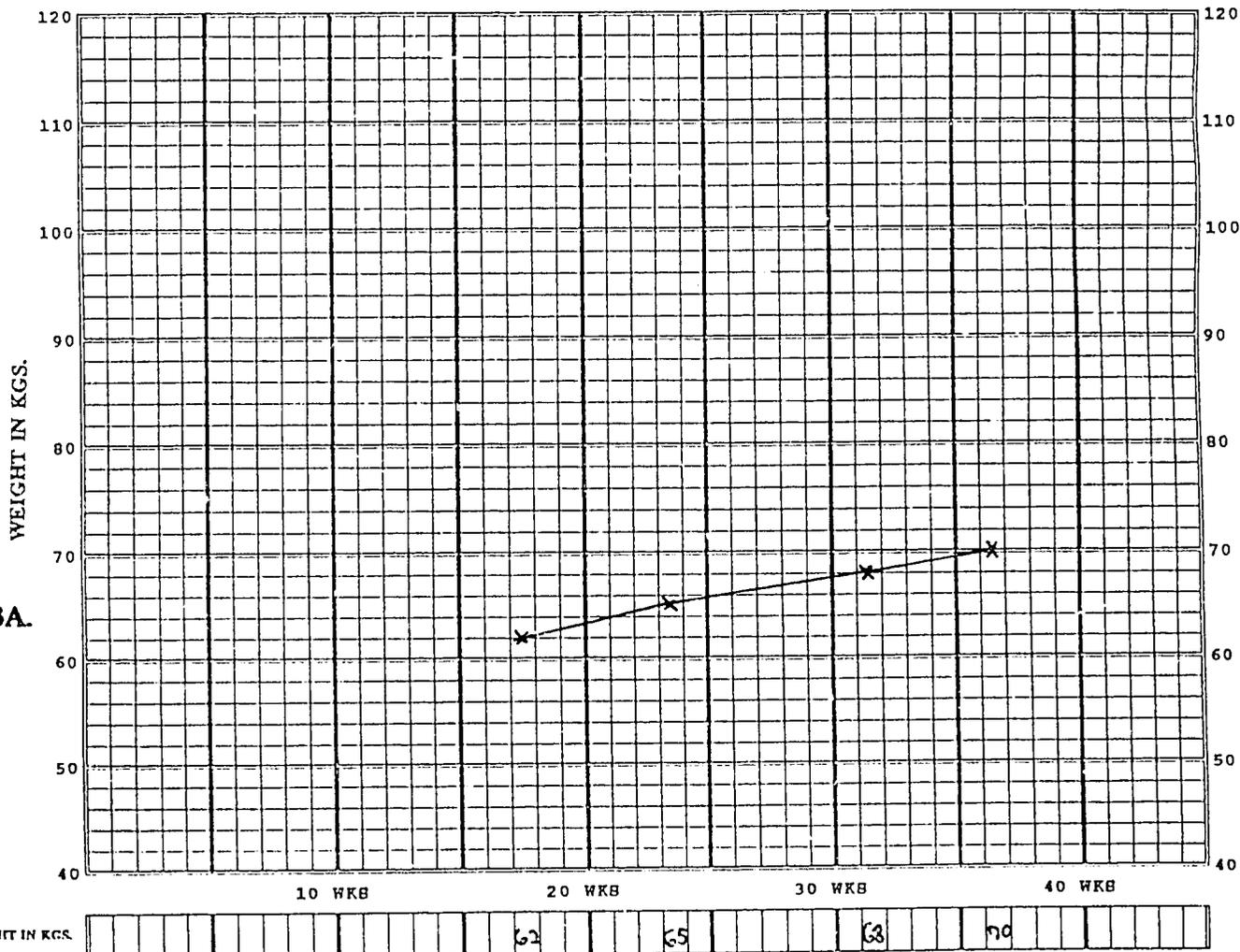


Figure 13A.

Check your findings with the filled in form on the following page.

Would you deliver this woman in your maternity?

What are her problems?

How will you treat her problems during the antenatal period?

Do you consider her to be high risk?

If yes, high risk for what?

Learning Aid - Reflex Testing

Testing of reflexes is part of examination of the nervous system. It is very helpful for midwives to know how to test a few basic reflexes on adults. Hyper reflexia can indicate many diseases of the nervous system or edema of the brain (cerebrum) in a pregnant woman. A woman with cerebral edema is at **very high risk** for developing eclampsia (convulsions).

Using a Reflex Hammer

A reflex hammer is used to check the deep tendon reflexes. Once you are very experienced you may be able to use your fingers or the head of a stethoscope instead. For beginners it is very helpful to use a reflex (percussion) hammer.

1. Hold the hammer loosely between your thumb and index finger.
2. Bring the hammer down onto the tendon in a rapid, smooth movement.
3. Tap quickly and firmly.
4. Lift the hammer back up quickly.
5. Watch for how fast the response is. It is the speed of the response, not how far the limb moves that tells you if her reflexes are normal.

Reflexes are usually given a grade of 0 to 4+.

The scale of grading is:

- 0 no response
- 1+ low but within normal response
- 2+ average or normal response
- 3+ brisker than average
- 4+ very brisk, hyperactive, abnormal, may have clonus with it (rhythmic tremors)

Checking Reflexes

When you check reflexes always check both sides (both arms, both legs, etc.). Check that the response is similar on both sides. There are many reflexes you could check. The biceps and patellar reflexes are the common ones to use when looking for preeclampsia in pregnant women.



Biceps reflex:

1. Bend the woman's arm about half way.
2. With your fingers, feel for her tendon on the inside of her elbow (antecubital fossa). If it is difficult to locate, move her arm up and down while feeling. You will notice a cord-like tendon.
3. If the woman is lying down, the bed will support her arm. If she is sitting up you will need to support her arm on yours. Place your thumb on the tendon.

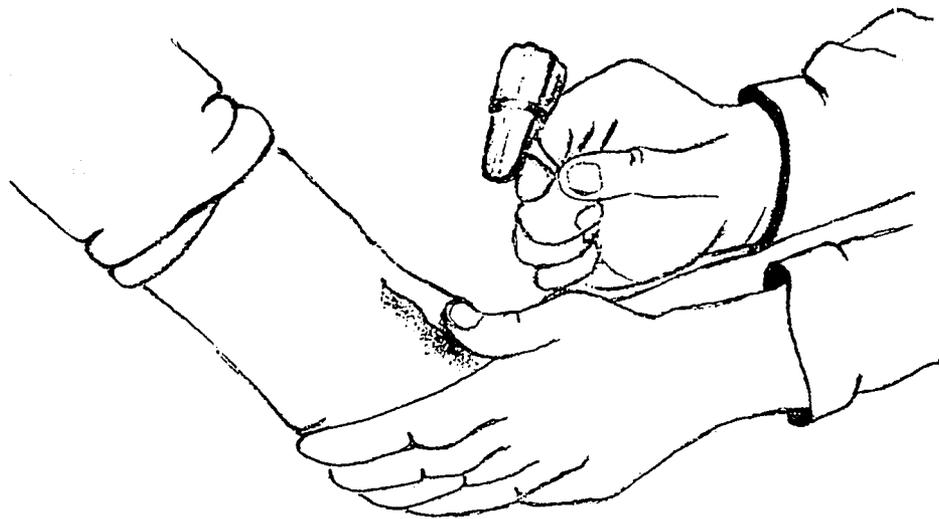


Figure 13. Testing biceps reflex

4. Strike your thumbnail which is positioned over the tendon. This causes the biceps muscle to contract. You may or may not see the slight contraction at the woman's elbow.
5. You will be able to feel the response from the tendon through your thumb. You will grade the response by how fast you are able to feel the reflex response. You will need to check many reflexes to gain a knowledge of what is normal. Check your family, friends, and all of your patients to gain experience

Patellar Reflex

1. Have the woman sit on the examining table or couch. Her legs should hang freely.
2. Feel for her tendon right below the knee cap (patella). If it is difficult to locate, move her lower leg a little while feeling at the same time.

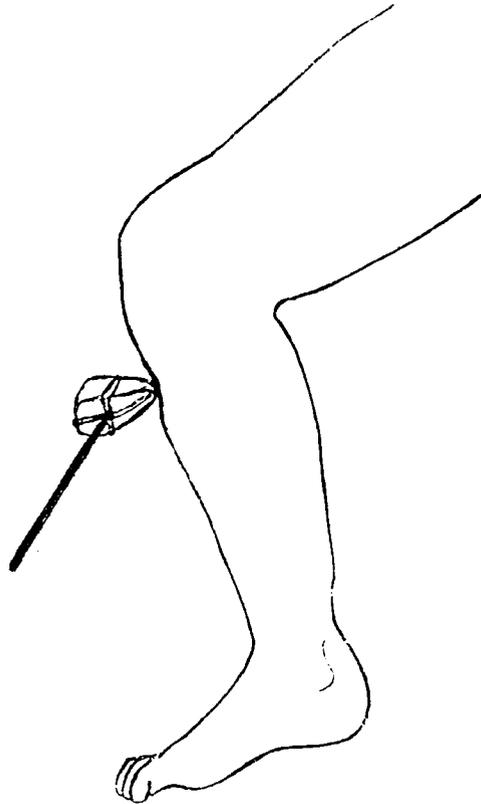


Figure 14. Testing patellar reflex

3. Strike the tendon with a quick, firm tap of the reflex hammer and lift up immediately.
4. Tapping the tendon will cause the quadriceps muscle to contract causing the lower leg to move.
5. The patellar reflex can also be tested with the woman lying in bed. Place one hand under the leg supporting it and tap with the hammer held in your other hand
6. 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.

Remember: A woman with preeclampsia who has hyperflexia (3+ or 4+) is at very high risk for having seizures. She must be given sedation and transferred to a doctor/hospital as quickly as possible. Control of preeclampsia is a life saving procedure for both the mother and fetus.

4. If the uterus is growing too fast or too slow what could the problem be? (pages 3 and 4)

5. Why do anemic women develop more complications than women with a normal hemoglobin?
(page 6)

Date Date Date Date

Checking for Anemia				
1. At the first antenatal visit find out what this woman eats. · Get a complete diet history				
· Ask if she eats non-foods (pica)				
· Ask if she has symptoms that interfere with a good diet (fatigue, drowsiness, headaches, sore tongue, loss of appetite, nausea, or vomiting).				
2. Check the woman's history. Find out if this woman is at high risk to develop anemia.				
· Has she had closely spaced pregnancies?				
· A history of heavy or long periods?				
· A history of anemia previously?				
· Does she bruise easily?				
· Has she had a history of hemorrhages before with pregnancies or surgeries?				
3. Each visit include looking for anemia in your physical examination. Look at the woman's: · eyelids				
· nail beds				
· gums				
· palms.				

Comments:

	Date	Date	Date	Date
4. Check her hemoglobin at her first visit. Repeat her hemoglobin every visit if 8 Gms or below.				
· If above 8 Gms., check her hemoglobin every two months. · Do a sickle cell screen.				
· Check her blood for malaria parasites.				
· Check her stool for parasites.				
5. Find out what treatments and medications she is taking. Give advice if any of the treatments or medications are harmful.				
6. Counsel the woman on: · high iron foods				
· high folic acid foods				
· high vitamin C foods				
· good protein food sources.				
7. Give ferrous sulfate 320 milligrams (mgs) (60 mg elemental iron) two times a day. Increase her iron to three times a day for a hemoglobin 8 grams or lower.				
· Repeat her stool specimen looking for hookworm and other parasites if her hemoglobin has not improved with treatment.				
· Inquire at each visit if she has enough medicines.				
· Check to see that she is taking them correctly and regularly.				
8. Give folic acid 500 mcg. each day to prevent anemia.				
9. Give vitamin C 250 mgs. daily or three servings of citrus juice or leafy green vegetables.				

Comments:

68

	Date	Date	Date	Date
10. Give malaria prophylaxis chloroquine 300 mgs. base per week if routine in your area.				
11. If her stool is positive for parasites, treat her according to what type of parasites she has.				
12. If the woman is more than 28 weeks gestation at registration (booking) with a hemoglobin of less than 8 grams (55%) refer her to a doctor for a complete anemia workup and treatment.				
13. Give nutrition advice to girls and women who are not pregnant to prepare their bodies for the increased demands of pregnancy.				

Comments:

	Date	Date	Date	Date
Checking for Pregnancy Induced Hypertension (Preeclampsia)				
1. Take a good symptom history. ASK if she has had any: · epigastric pain (heart burn) not related to malaria				
· headaches				
· visual problems (double vision, partial vision, rings around lights),				
· edema or swelling of the hands, face, and feet.				
2. Take the blood pressure at every visit.				
· If elevated, check again in 20 minutes.				
3. If the blood pressure is elevated: · check the biceps and patellar reflexes.				
· If the reflexes are brisk (plus 3 or 4), refer her to a hospital/doctor.				
4. If the blood pressure is elevated: · check a mid-stream urine sample for protein.				
· If she has +1 or more proteinuria (albuminuria), refer her to a hospital/doctor.				
5. Diuretics are not to be given.				
6. In the case of severe pre-eclampsia: · give Valium 10 mgs.				
· transfer her to the hospital/doctor.				

Comments:

	Date	Date	Date	Date
7. If the woman has eclampsia (convulsions):				
· protect her from choking on her tongue with a padded tongue blade.				
· Do not force the mouth open.				
· Protect her from falling or injury from nearby furniture or objects.				
· Give Valium 10 mgs. intramuscularly.				
· Transfer her right away to the nearest hospital/doctor.				
· Travel with the woman.				
· Give medical personnel a complete summary of care given.				
· Take her antenatal card with you.				
· Give it to the hospital personnel.				

Comments:

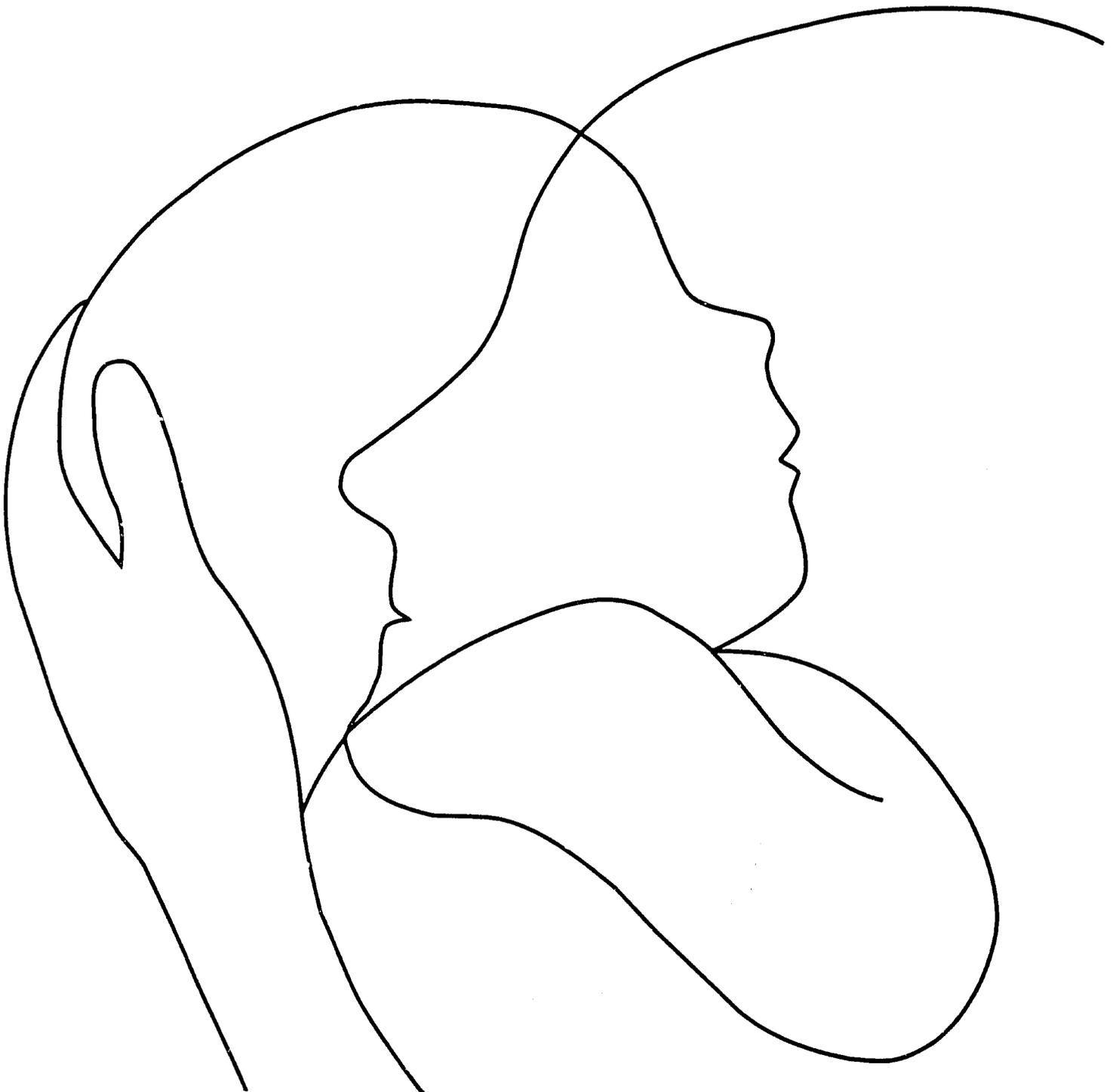
References

Experience and the following references provided information for this module.

- Anderson, G.D. (1987, Mar). A systematic approach to eclamptic convulsion. Contemporary OB/GYN. 65-70.
- Campbell, W.A. and Vintzileos, A.V. (1988, Jan). Are beta-blockers safe for hypertension during pregnancy? Contemporary OB/GYN. 178-88.
- Carr, M.C. (1974, Sept). Managing iron deficiency in pregnancy. Contemporary OB/GYN. 15-19.
- Charache, S., Scott, J., Niebyl, J. and Bonds, D. (1980, Apr). Management of sickle cell disease in pregnant patients. Obstetrics and Gynecology. 407-10.
- Friedman, S.A. (1988, Jan). Preeclampsia: A review of the role of prostaglandins. Obstetrics and Gynecology. 122-37.
- Elegbe, I, Ojofeitimi, E.O., and Elegbe, I.A. (1984, Oct). Traditional treatment of pregnancy anaemia in Nigeria. Tropical Doctor. 175-7.
- Gabbe, S.G., Niebyl, J.R., and Simpson, J.L. (Eds.) (1986). Obstetrics: Normal and problem pregnancies. Churchill Livingstone, New York.
- Hendrickse, R.G. (1987). Malaria and child health. Annals of Tropical Medicine and Parasitology. 81(5).499-509.
- Hill, M. and Fink, J.W. (1983, Feb). 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. 71-4.
- 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, 536-8.
- Magil, B. and Machol, L. (1989, Mar). Caring for pregnant patients with sickle cell disease. Contemporary OB/GYN. 214-31.
- Mayet, F.G.H. (1985, May). Anaemia of pregnancy. South African Medical Journal. 804-9.
- 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. 520-3.

- McGanity, W.J. (1987, June). Protection of maternal iron stores in pregnancy. The Journal of Reproductive Medicine. 475-96.
- 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, and Dobler, J. (1980, Oct). Outcome of pregnancy in sickle cell anemia and sickle cell-hemoglobin C disease. American Journal of Obstetrics and Gynecology. 239-45.
- Morrison, J.C. et al. (1980, Sept). Prophylactic transfusions in pregnant patients with sickle hemoglobinopathies: Benefit versus risk. Obstetrics and Gynecology. 274-80.
- O'Shaughnessy, R.O. and Zuspan, F.P. (1981, Nov). Managing acute pregnancy hypertension. Contemporary OB/GYN. 85-98.
- Pastored, J. G., and Seier, B. (1985, Feb). Maternal death associated with sickle cell trait. American Journal of Obstetrics and Gynecology. 295-7.
- Poole, J.H. (1988, Nov/Dec). Getting perspective on HELLP syndrome. Maternal and Child Nursing. 432-7.
- Shannon, D.M. (1987, Nov/Dec). 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, Dec). Preeclampsia-eclampsia: Maternal and perinatal outcomes. Contemporary OB/GYN. 109-118.
- Steketee, R.W. (1989, June). Recent findings in perinatal malaria. World Health Organization, Geneva. MAP/SGCM/INF/89.21.
- 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. 885-90.
- Varney, H. (1987). Nurse-midwifery. Blackwell Scientific Publications, 2nd Edition, Boston.
- Villar, J. et al. (1987, Sept). Calcium supplementation reduces blood pressure during pregnancy: Results of a randomized controlled clinical trial. Obstetrics and Gynecology. 317-22.
- Willis, S. E. (1982, May). Hypertension in pregnancy: Pathophysiology. American Journal of Nursing. 792-821.

Module 3: MONITORING LABOR PROGRESS



Module Contents

MONITORING LABOR PROGRESS

	Page
Goal	1
Objectives	1
Common Medical Terms	2
Introduction	2
Skill - ASK and LISTEN (History Taking)	3
Equipment	3
Procedure	3
Review Questions	5
Skill - LOOK and FEEL (Physical Examination)	8
Equipment	8
Procedure	8
Review Questions	18
Skill - Identify the Problems/Needs and Take the Needed Action	20
Review Questions	25
Skill - How to Use a Partograph When Monitoring Labor Progress	27
Equipment	27
Learning Aid - Cervical Dilatation Measurements	51
Review Questions	52
Skills Checklist	54
References	59

MONITORING LABOR PROGRESS

Goal

This module will help you learn how to help a woman during labor. Before you start this module, make sure you review normal anatomy and physiology of the female reproductive system and the normal changes in a woman's body during pregnancy in your midwifery textbook.

Objectives

The midwife caring for women during labor and delivery should be able to:

1. Take the medical history (ASK and LISTEN)
2. Do (LOOK and FEEL) a general physical examination, an abdominal examination and a vaginal examination
3. Write information from findings (ASK, LISTEN, LOOK, FEEL) on the labor record including the partograph
4. Define the latent and active phases of labor
5. IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION
6. Interpret the recorded partograph

Common Medical Terms

Medical History - ASK and LISTEN. Finding out all you can about a woman's problem by talking; ask questions about the problem and listen to the answers.

Physical examination - LOOK and FEEL. Finding out all you can about a woman's problem by looking, listening, touching and smelling. The medical history helps you know where to look for signs of the problem.

Partograph - A chart or card used to write all findings of a woman in labor. Some of the findings are dilatation of cervix, descent of the presenting part, baby's heart beat, contractions, blood pressure, and pulse. These findings are used to watch the progress of the labor.

Latent phase of labor - The early part of first stage of labor, the cervix dilates 0 - 3 cm and the cervix shortens (effacement).

Active phase of labor - The later part of first stage of labor the cervix dilates faster, 3 - 10 cm, and the cervix is very thin.

Sinciput - The brow or forehead of the baby.

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

Pelvic brim or inlet - The round opening at the top of the pelvic cavity that the presenting part of the baby goes into on the way to delivery. In measuring the progress of labor and the descent of the baby, the pubic bone area of the pelvic brim is used as a landmark.

Introduction

According to the World Health Organization (WHO), 500,000 women die every year because of complications of pregnancy. In 1987, a Safe Motherhood Conference was held in Nairobi by WHO and United Nations Fund for Population Assistance (UNFPA). This Safe Motherhood Conference called to action all health workers caring for mothers and children to reduce maternal and infant morbidity and mortality. One of the actions is to identify those at risk during labor and help them get the needed care.

The midwife gives the care needed and identifies risks or problems when a woman comes in labor. The midwife does a complete evaluation including:

- a. ASK AND LISTEN (medical history)
- b. LOOK AND FEEL (physical examination)
- c. IDENTIFY AND RECORD THE PROBLEMS/NEEDS
- d. TAKE THE NEEDED ACTION

Skill: ASK and LISTEN (History Taking)

When a woman comes to the midwife in labor find out the condition of the mother and baby. ASK and LISTEN is the first part of finding out.

Equipment

Labor record (partograph), pen

Procedure

Welcome the woman and others coming with her. Show her a comfortable place to sit or lie depending on her choice. She may undress before or after the history. The history may be taken slow or fast depending on the woman's condition. Explain to the woman that you need to ask her some questions about her labor.

Start the labor record by writing the woman's name and other admission information. Write the time of arrival which you will use to follow the progress of labor. As you LISTEN to the answers from the woman, write the information on the labor record. The labor record will be discussed in detail later in this module.

ASK the following questions and LISTEN to the answers:

1. **WHEN DID YOUR LABOR PAINS BEGIN? HOW OFTEN DO THEY COME?**
Listen carefully, you will get a good idea just how the woman is doing. She may not know exactly when the pains started but will be able to tell you if they started during the night, morning or afternoon.
2. **HAVE YOU BEEN EXAMINED AT AN ANTENATAL CLINIC?**
If the woman has been coming to your antenatal clinic, you will have her record to review or she may bring her record with her.

A woman who has had an antenatal examination and antenatal care will often have fewer untreated or unidentified problems than a woman who has not. Look at the general condition of a woman who has not had any antenatal examinations. Take her complete antenatal history. Ask about her past pregnancies. Ask about any antenatal problems and medical conditions she may have.

3. **HAS YOUR BAG OF WATERS (MEMBRANES) BROKEN?**
Ask when the bag of waters broke. Tell the woman that the bag of waters surrounds the baby and breaks close to term or during labor. She may notice a slow leaking of fluid or a rush of waters.
4. **HAVE YOU HAD ANY BLOODY SHOW?**
The woman may see the spot, or bloody show on her clothing. Tell the woman that the bloody show is a spot of blood and mucus that comes out of the opening of the womb during early labor. Bloody show is another sign of early labor. She can tell the difference between bloody show and antepartum hemorrhage as show is often sticky and stretches between her finger.

5. WHEN DID YOU LAST EAT?

Labor may cause a woman with a full stomach to vomit. Tell the woman that she should not eat a lot of food at one time. Explain that food and water give strength and it is important to eat small amounts of food and drink water especially during early labor.

6. WHEN DID YOU LAST PASS STOOL?

An empty rectum allows more room for the descent of the baby. You may choose to give an enema to a woman who has not passed stool for twelve hours. If the woman is in active labor and the cervix is dilated more than 5 centimeters, do not give an enema. She may have an uncontrolled delivery in the bed pan or bathroom.

7. HAVE YOU TAKEN ANY MEDICINE OR TREATMENT TO INCREASE OR DECREASE YOUR LABOR?

A woman may have taken medicine for her labor pains. A traditional healer, family member or friend may have given her some local medicine. What are the effects? Decide if the effects are helpful, harmless or harmful.

8. DO YOU HAVE A TRADITIONAL BIRTH ATTENDANT? WHAT IS HER NAME?

If the traditional birth attendant came with the woman in labor, make sure to meet and welcome her. The traditional birth attendant may give you additional history. You will have a chance to share information with her. You will also have a chance to learn and work with her during the labor and delivery.

9. HAVE YOU BLED FROM YOUR BIRTH CANAL (VAGINA)?

Decide during the physical examination whether any bleeding is normal bloody show or a more serious kind of bleeding. Bleeding during labor is a sign of serious problems and referral is necessary.

ADDITIONAL POINTS TO REMEMBER: If the woman in labor has not been to antenatal clinic, the midwife must **ASK** the following questions.

How old are you? Women younger than 16 often have problems. Women over 35 and/or having a first pregnancy may have long labors and difficult deliveries.

Is this your first pregnancy? Women with a history of any one of these should be referred to hospital: more than five pregnancies, two or more miscarriages, stillbirth, Cesarean section, forceps or vacuum extraction, retained placenta or severe bleeding, prolonged labor, preeclampsia or eclampsia.

Tell me about this pregnancy. Have you had any problems? Women sick with any one of these during labor should be referred to hospital: heart disease or shortness of breath, kidney disease, diabetes, tuberculosis, malaria, sickle cell disease, anemia, high blood pressure, epilepsy.

ASK AND LISTEN IS THE FIRST STEP THAT MUST HAPPEN WHEN SEEING A WOMAN IN LABOR. WRITE THE TIME OF ARRIVAL AND INFORMATION YOU ASK THE WOMAN ON THE LABOR RECORD (PARTOGRAPH).

3. Read the following case studies. Use the questions to ask a woman who comes in labor. Write the answers using the information in the case study.
- a. A young woman nine months pregnant comes to the maternity because she feels sharp pain in her abdomen and has had some vaginal bleeding. She says this is her first child. She has had the pain in her abdomen for about two hours. They come about every twenty minutes.

She has not been to an antenatal clinic. Her bag of waters has not broken. The bleeding from her vagina appears to be bloody show. She ate a large meal about two hours ago. She passed a stool three hours ago. She is not taking any medications and does not have a traditional birth attendant.

- b. A woman comes to the maternity and says that her bag of waters has broken. She has had labor pains for about two hours and they are now coming every ten minutes. She has been to antenatal clinic and has had a healthy pregnancy. This is her third child.

She ate a big meal about four hours ago but has not passed a stool in the last twenty-four hours. She is not taking any medications. Her traditional birth attendant has been told of her labor. She says that her traditional birth attendant wishes to attend this birth and will be coming to the maternity soon. The woman has not bled from her vagina.

Skill: LOOK and FEEL (Physical Examination)

The second step that must happen when seeing a woman in labor is to **LOOK** and **FEEL**. When you examine a woman in labor **LOOK** for changes that happen at the start of labor and during labor.

Equipment

Fetal scope (fetal stethoscope)	BP apparatus
thermometer	labor record (partograph)
sterile gloves, bowl, cotton balls	soap and water (or antiseptic solution)
pulsometer or watch	

Procedure:

You examine a woman in labor to find out:

- the stage of her labor
- the presenting part of the baby
- any problems that might affect the woman or baby

A woman in labor needs a complete general physical examination, abdominal examination and vaginal examination.

General Physical Examination

1. The woman should be clean and comfortable. If there is time, allow the woman to bathe. Explain what you are going to do. During the examinations tell the woman why you are doing what you are doing.
2. Ask the woman to empty her bladder so she will not be uncomfortable when you feel her abdomen. Help the woman to lie down.
3. Take the blood pressure (normal 90/60 - 140/90), temperature (normal 37.5C or 98.6F) and pulse (normal 70 - 90). Check her height. Is this woman shorter than most people in your area?
4. **LOOK** at the general appearance. Notice if the woman looks ill, tired or malnourished. **LOOK** at the eyes, ears, nose, mouth, throat and neck for signs of infection or anemia.
5. **LOOK** and **LISTEN** to the respiratory system. **LOOK** how fast and deep the woman breathes between contractions (normal 16 - 20) and during contractions (normal 20 - 40). **LISTEN** to the breath sounds of the lungs (normal breathing sounds). **LISTEN** to the heart for heart sounds (regular heart rate between contractions is normal). **COUNT** the heart rate. **LOOK** for enlarged veins in the neck.
6. **LOOK** and **FEEL** the breasts for problems that might interfere with breast feeding such as inverted nipples.
7. **LOOK** and **FEEL** the arms and legs for swelling, enlarged veins. **LOOK** for deformities of her legs, back and pelvis which may make delivery difficult or impossible. Check her reflexes if indicated. See the module **Antenatal Risk Assessment and Treatment** for management of pregnancy induced hypertension (preeclampsia).

REMEMBER TO WRITE ON THE LABOR RECORD INFORMATION FROM THE PHYSICAL EXAMINATION. USE THIS INFORMATION TO IDENTIFY PROBLEMS/NEEDS SO THAT YOU MAY TAKE THE APPROPRIATE ACTION.

Abdominal Examination

An abdominal examination will help you find out the stage of labor, the progress of labor and the condition of the baby. In order to do an abdominal examination, the woman must be well prepared. Explain to her what you will be doing.

1. Ask the woman to empty her bladder if she has not done so before.
2. Help the woman relax. You can help by placing a pillow under her head and upper shoulders. She should place her arms by her side or across her chest and bend her knees a little. Help her to relax with some deep breathing.
3. Uncover her abdomen. **LOOK** for the way the baby is lying. **LOOK** for any movement of the baby. **LOOK** for contractions, unusual shapes or bumps. (Normal uterus is longer than wide, jerky movement in one area is from baby's arms and legs)
4. Make sure your hands are warm and dry after washing them.
5. **FEEL** for contractions. Good uterine contractions are necessary for progress of labor. Normally contractions become more frequent and last longer as labor progresses.
6. **OBSERVE THE CONTRACTIONS FOR TEN (10) MINUTES EVERY HOUR IN THE LATENT PHASE OF LABOR AND EVERY 30 MINUTES IN THE ACTIVE PHASE OF LABOR.**

There are two observations made of the contractions:

- How often are they felt (frequency)? The frequency of contractions is assessed by the number of contractions in a ten minute period.
- How long do they last (duration)? The duration of the contraction is from the time the contraction is first felt by your hand on the abdomen to the time when the contraction is no longer felt. Though strength is not recorded on the Partograph, monitor strength of contractions at the same time you observe duration.

Recording of contractions may be found in the Partograph Section.

7. **FEEL** for the baby. Use the flat surface of your fingers for palpating. Keep your fingers together. Press evenly and firmly to feel the fundal height. Refer to **Antenatal Risk Assessment and Treatment** module for fundal height measurements.

A. FEEL (Palpate) the abdomen

Step 1: First Palpation

HOW: face the woman's head; put your hands on both sides of the top of the uterus and curve your fingers around. Palpate for shape, size, firmness, how easily the baby moves. Ask yourself, "What is in the top of the uterus?"

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

Step 2: Second Palpation

HOW: Continue to face the woman's head. Place both hands further down on the abdomen; push down with one hand, pushing the fetus to the other side of the abdomen. Feel the fetus so that you can tell the parts. Gently move the baby from side to side to more easily tell which side has the back and which side has the arms and legs.

FINDINGS: A firm, continuous, smooth part will be the back of the fetus. If you feel small, bumpy, irregular parts which may move or hit your hand, this will be parts of the fetus like the feet, knees, etc. If you cannot feel the back on either side, this will tell you that the back is towards the back of the mother, a posterior position or a transverse lie if the back is felt across the abdomen.

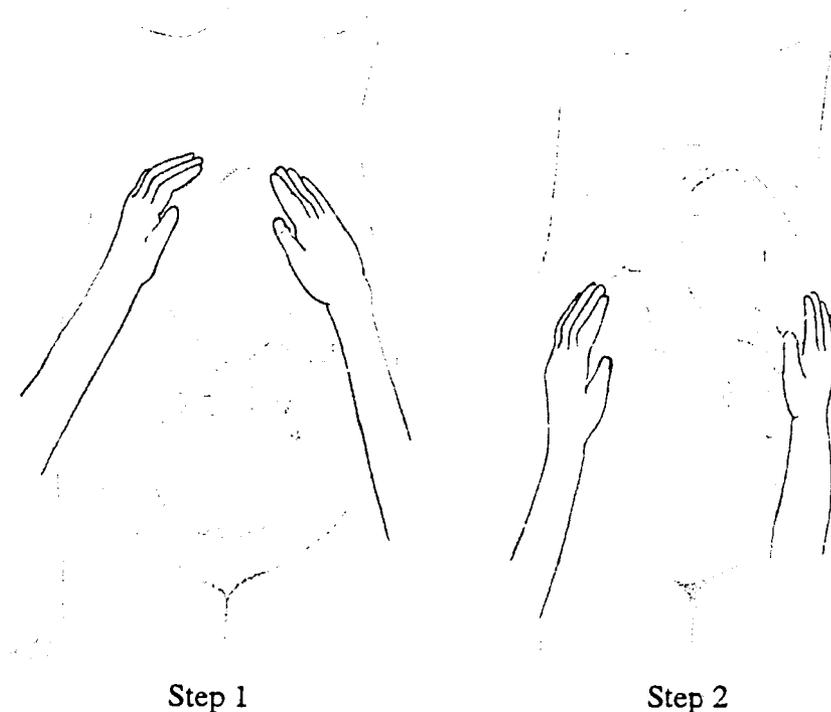


Figure 1. Palpation steps to decide the position of the baby

Step 3: Third Palpation

HOW: Continue to face the woman's head. Have the woman bend her knees. Grasp the part of the baby in the lower part of the abdomen. Ask yourself, "What is in the lower part of the abdomen?" Compare to your findings of the first palpation.

FINDINGS: If the mass moves up, the presenting part is not engaged. Most often the head is the presenting part. This is a vertex presentation. If the head is the presenting part, try to move it from side to side. If the head cannot be moved, the head is engaged. If neither the head or the buttocks can be felt in the lower abdomen the baby is lying sideways, a transverse presentation.

Step 4: Fourth Palpation

HOW: Turn and face the woman's feet. Make sure that the woman's knees are bent. Place both hands on the abdomen and press them towards the pelvis.

FINDINGS: Compare the findings to the other palpations and figure out the presentation. Ask yourself, "Do I feel more than one baby?"

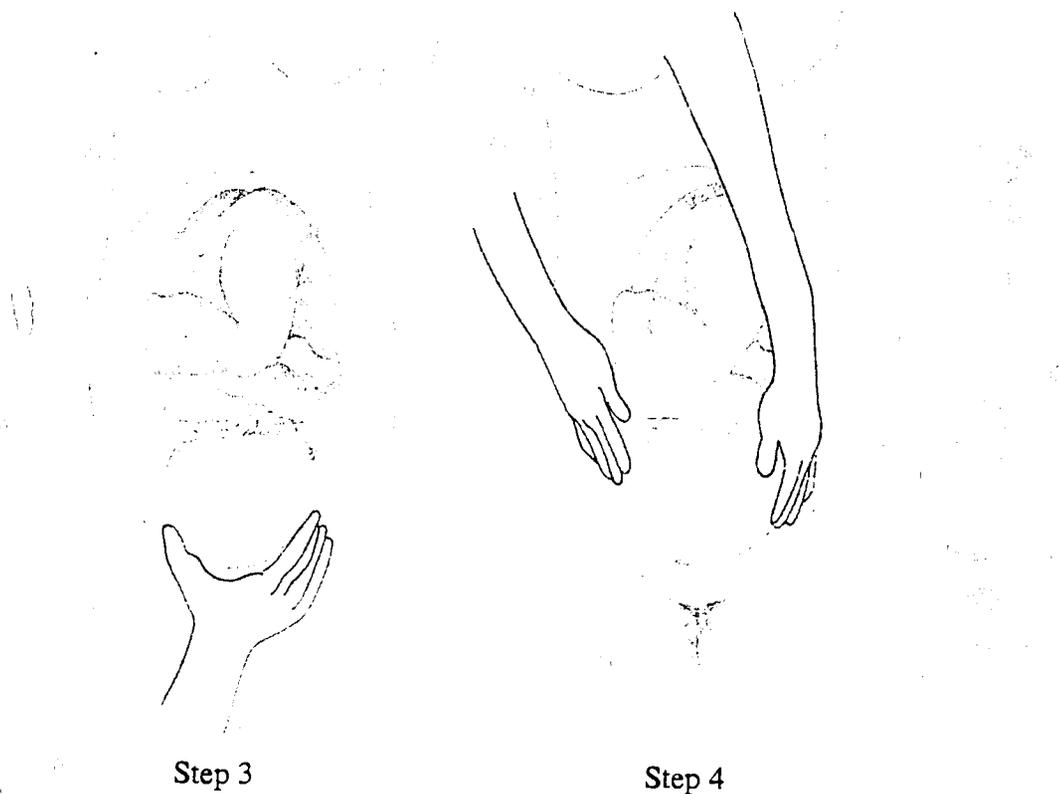


Figure 2. Palpation steps to decide the position of the baby

B. FEEL the level of the head (descent)

FEEL the level of the head or presenting part. Landmarks used in measuring the descent are the fetal occiput (back of the head), fetal sinciput (forehead) and maternal pelvic brim (inlet). **FEELING** the fetal descent through the abdomen is more comfortable than a vaginal examination for the mother.

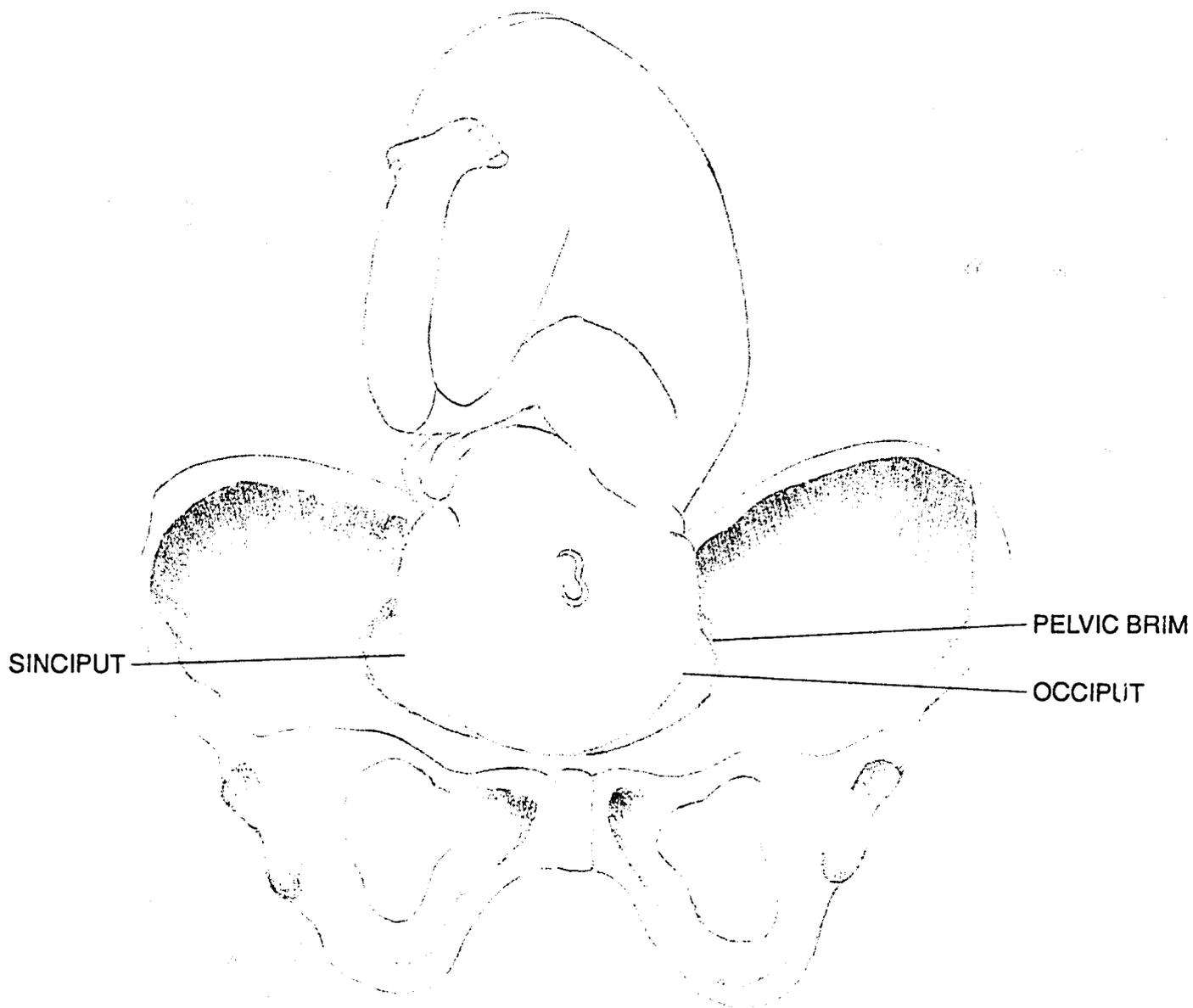


Figure 3. Landmarks for descent

Stand at the side of the woman. If you are right handed, stand at the woman's right side. FEEL the baby's head with your right hand. The head can be moved. When all of the head is felt, it is measured as **five - fifths** above the brim. Five of your fingers can cover the head above the brim.

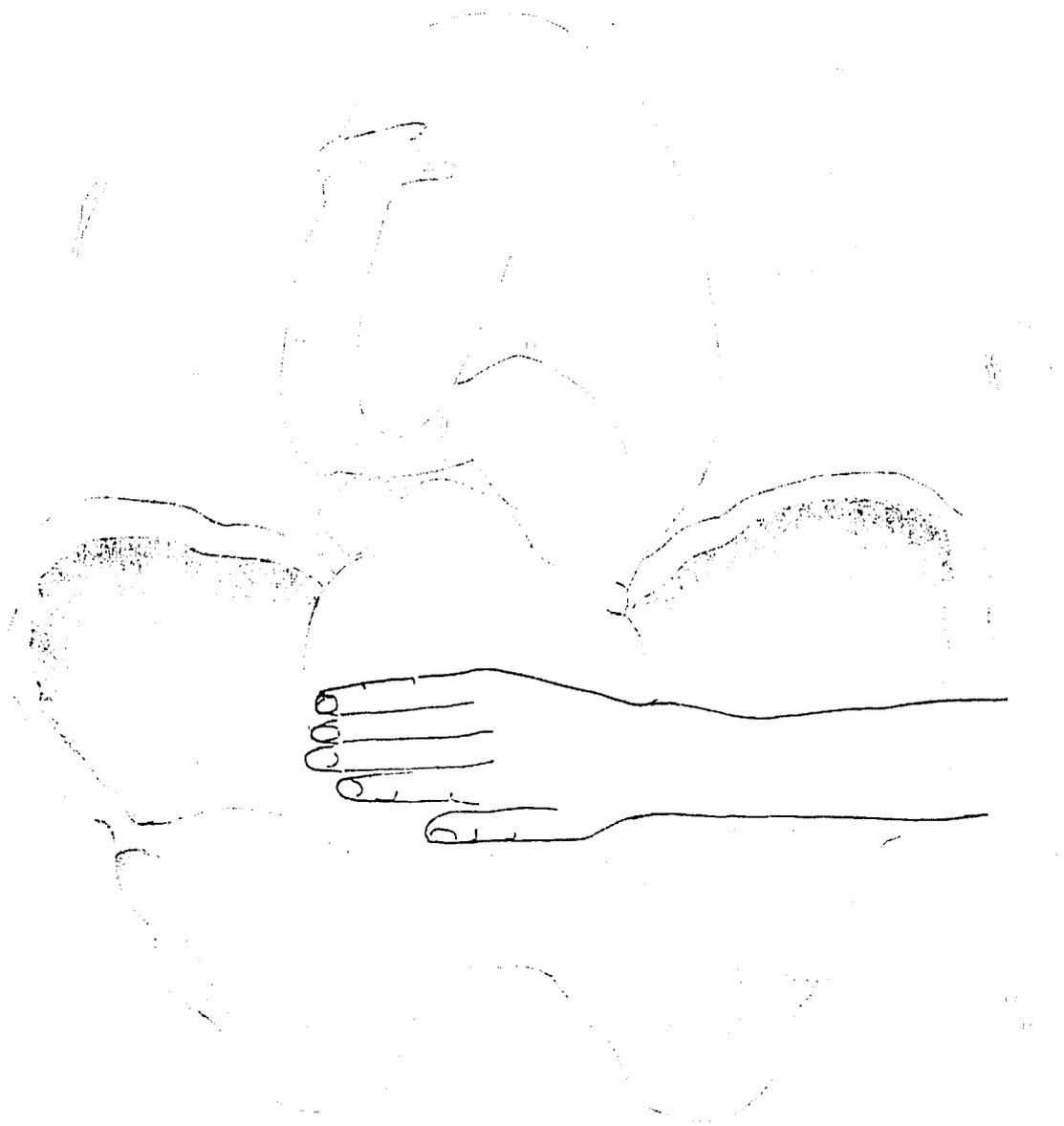


Figure 4. Level of head above the pelvic brim, five-fifths.

Four - fifths is when the baby's head is just entering the brim.

When the head is **three - fifths** above, three of your fingers can still go partially round the head.

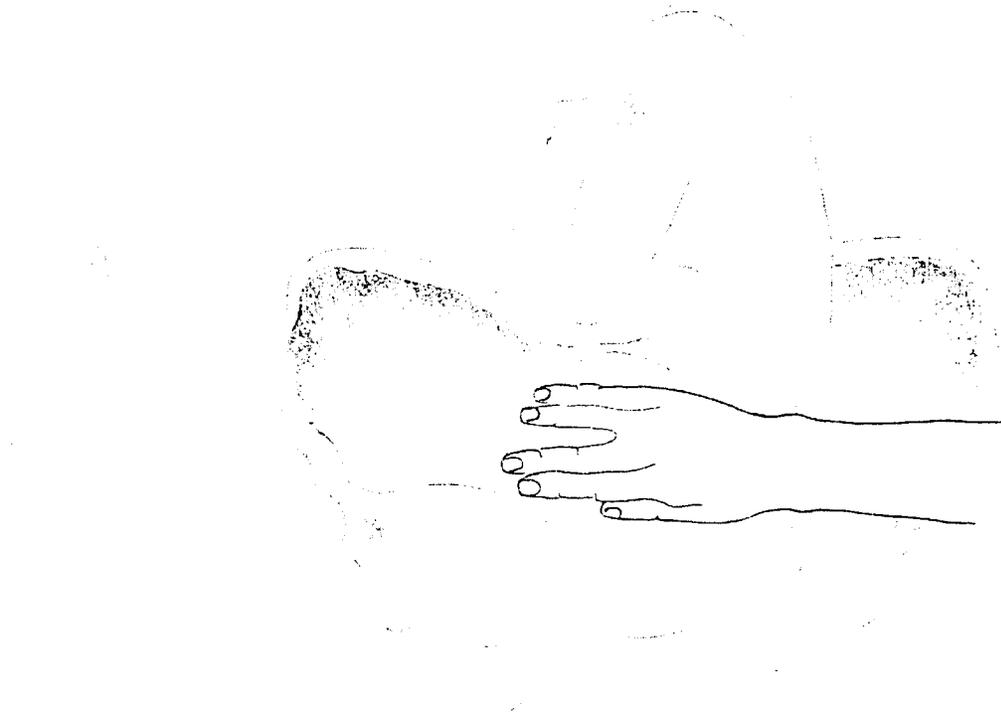


Figure 5. Level of head above pelvic brim, three-fifths.

When **two-fifths** above, only two fingers measure the head because more than half of the head has entered the brim. You can no longer feel the roundness of the head. The head is now **ENGAGED**. It is very difficult/impossible to move the head.

When **one - fifth** above, only the sinciput can be felt abdominally and **no - fifths** is recorded when the head is all the way in the pelvis. You will learn how to plot this on the labor graph (partograph) later in this module.

C. LISTEN to the fetal heart rate

Listening to the fetal heart rate is a safe and reliable way of knowing how the baby is doing during labor. If the baby is having problems the heart rate will be above 160 or below 120 beats per minute.

HOW: Have the woman lie on her back. Find the heart beat before a contraction; use a fetal stethoscope or stethoscope to listen for the fetal heart sounds over the chest or back of the baby. You will know where to find the chest or back of the baby after palpating the abdomen. **LISTEN** carefully in all four areas of the abdomen; when you find where the heart beat can be heard the loudest, count the number of beats in a minute. Listen during contractions to determine how well the fetus is standing (tolerating) the stress of labor.

**COUNT AND RECORD THE FETAL HEART RATE EVERY
HALF HOUR (EVERY 30 MINUTES) WHEN IN ACTIVE LABOR.**

FINDINGS: The normal fetal heart rate is 120 - 160 per minute. A discussion on recording the baby's heart rate and problems are found later in this module.

Pelvic Examination

The reasons for doing a pelvic examination when the woman is in labor are to **FEEL** the condition of the cervix, to **FEEL** the presentation of the baby, to **IDENTIFY PROGRESS** of labor and to **TAKE APPROPRIATE ACTION**. A vaginal examination does not feel very comfortable and can be a way of infecting the woman. It is important to do a vaginal examination **ONLY** when it is necessary. You need to do a vaginal examination when you first examine the woman. **DO A VAGINAL EXAMINATION EVERY FOUR HOURS WHEN A WOMAN IS IN ACTIVE LABOR**. Some women, like multiparas may need to be examined more often in advanced labor.

You may need to do a vaginal examination for the following reasons:

- a. to decide whether a woman is in labor
- b. to monitor progress of labor
- c. to figure out the presentation or position, especially with an obese patient or when the abdominal wall is rigid
- d. before giving an enema to a multiparous woman who is having strong contractions
- e. to make sure the **CORD HAS NOT PROLAPSED** after membranes rupture or if the fetal heart rate is not normal

Procedure

1. Explain to the woman what you are going to do and gather your equipment.
2. Clean the genital area
 - ask the woman to lie on her back with her knees bent and her legs spread apart. **LOOK FOR DISCHARGE.**
 - wash the woman's genital area with soap and water
 - wash your hands with soap and water; put on sterile gloves
 - use cotton balls and antiseptic solution to wipe the woman's genital area from front to back
 - repeat the wiping from front to back with clean cotton balls until the genital area is clean.
3. **LOOK** at the woman's genitals; check for discharge. A whitish, clear, watery or blood tinged discharge may be mucous plug or liquor (amniotic fluid). Remember, breech presentation may have a yellowish or greenish stained liquor. Meconium (baby's stool) discharge from the vagina may mean the baby is lacking oxygen. This can be a serious warning sign of problems if the baby is in a cephalic presentation. Management of this problem is discussed later in this module.

4. **FEEL** the woman's genitals

- dip the index and middle fingers of your gloved hand into an antiseptic lubricant
- hold the woman's labia apart with the thumb and index finger of your other gloved hand. Gently insert the two fingers of your hand into the woman's vagina. Once your fingers are inserted, do not take them out until the examination is over; this decreases the risk of infection.
- feel the woman's vagina. Move your fingers around the vaginal wall. Check for hard scarring. Move your fingers to the back of the vagina. Feel for stool in the rectum.
- feel the cervix with the tips of your fingers. Check its firmness and thickness and decide how much the cervix has thinned; thinning of the cervix is effacement. Determine how much the cervix has opened; opening of the cervix is dilation. Measure the dilation in centimeters; complete dilation is 10 cm. (See Learning Aid - Cervical Dilatation Measurements.)

CERVICAL EFFACEMENT (THINNING) AND DILATATION (OPENING) ALLOW THE BABY TO PASS OUT OF THE UTERUS. FULL EFFACEMENT IS WHEN THE CERVIX IS VERY, VERY THIN. (It is as thin as the skin on a mango). COMPLETE DILATATION OCCURS WHEN THE CERVIX IS NO LONGER FELT.

5. **FEEL** the bag of waters (membranes). The membranes may be intact until the cervix is fully dilated. The membranes feel like a full balloon. If the membranes are ruptured, the water (amniotic fluid or liquor) should be clear. If the water is stained from the meconium (stool of the baby) or if there is very little or no water, the baby may be distressed. If the baby is not coming breech, the meconium may indicate hypoxia (too little oxygen to the brain.)

6. **FEEL** the presenting part of the baby and decide which part of the baby is at the cervix.
 - a vertex presentation means that the head is at the cervix
 - a breech presentation means the buttocks or legs are at the cervix
 - a transverse presentation means the baby is lying sideways in the uterus and an arm or shoulder may be at the cervix.

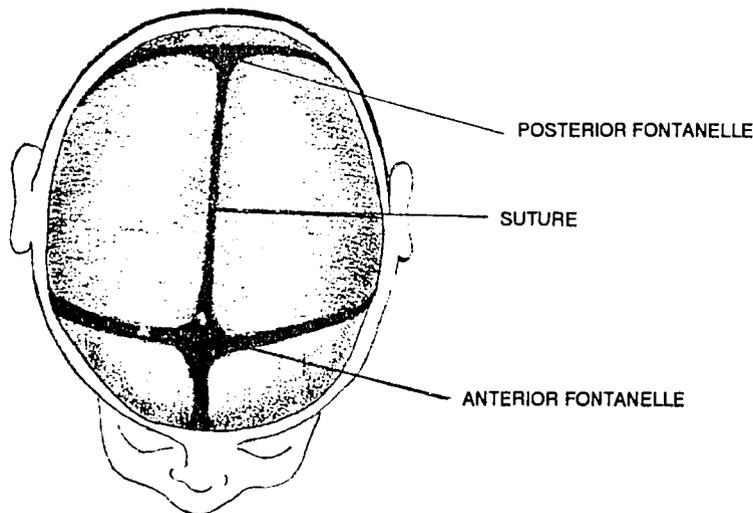


Figure 6. Fontanelles and Sutures

- **IF THE HEAD** is at the cervix, feel the fontanelles. The anterior fontanelle is a diamond shaped joining of four sutures; the posterior fontanelle is a triangular joining of three sutures. Feel the suture lines for separation; overlapping of the bones can be a sign that the head will not fit through the pelvis of the woman (cephalo-pelvic disproportion). In a well-flexed vertex presentation, only the posterior fontanelle is felt. If the head is deflexed, both fontanelles are felt.
7. **FEEL** how far the baby has progressed in to the pelvis. Compare this finding to your abdominal palpation of descent.
 8. **FEEL** for prolapse of the umbilical cord; the cord is prolapsed when it drops through the cervix before the presenting part; it will feel soft, cord like and will beat (pulsate). Feel for the ischial spines and sacral promontory to determine the size of the pelvis in relation to the size of this infant.
 9. Remove your hand from the woman's vagina. Help the woman turn to a comfortable position.
 10. Explain your findings to the woman and her family if they are present. Record your findings on the labor graph (partograph).

ALWAYS DO AN ABDOMINAL EXAMINATION BEFORE DOING A VAGINAL EXAMINATION. This will help to reduce how long it takes to do the vaginal examination and prevents unnecessary pelvic examinations.

4. Define engagement. How can you find out if the baby's head is engaged? (page 14)

5. Why do you listen to the baby's heart rate? What are the normal heart rates? (page 14)

6. Why do you do a vaginal examination? List five reasons. (page 15)

Skill: Identify the Problems/Needs and Take the Needed Action

The third and fourth steps that happen when seeing a woman in labor are **IDENTIFY THE PROBLEMS/NEEDS AND TAKE THE NEEDED ACTION**.

The midwife is an expert on caring for pregnant women, finding high risk women and recognizing complications. In order to identify the problem/need and take the appropriate action, the normal findings discussed in **ASK, LISTEN, LOOK, FEEL** must be well understood. If you have any questions about these, go back and review the information.

Labor is a natural process demanding a woman's total physical and emotional effort. You will find women in various stages of labor when you go to them at home or when they come to you at the maternity. You will have to adjust your actions to meet their needs. The normal needs of a woman in labor are: emotional support, cleanliness, nutrition, hydration and elimination. Look at your midwifery textbook to review normal labor progress.

ASK AND LISTEN for PROBLEMS and DECIDE ACTIONS

The following risk factors identified when you **ASK AND LISTEN** should be referred. You may find these risk factors during antenatal care or when a woman comes in labor. Refer to your midwifery textbook for discussions of these problems.

REFER these problems

- previous cesarean section
- deformed pelvis or leg and no previous vaginal delivery
- problem with the last delivery: instrument delivery, retained placenta, hemorrhage, prolonged labor
- height below normal for ethnic group
- more than five deliveries
- above 35 years old
- below 17 years old

LOOK AND FEEL for PROBLEMS and DECIDE ACTIONS

A woman in labor who suffers a problem that threatens her life and the life of her baby is in **distress** (trouble). Labor and delivery strains all of a woman's physical and emotional systems. For this reason monitoring the mother's condition during labor and delivery is as important as monitoring the baby's condition.

If action is not taken in the case of mother's distress, the problem may lead to death. Late signs of mother's distress include: anxious expression, paleness around mouth, perspiration on upper lip, dry mouth, concentrated urine and dark vomit.

42

Use this chart to find the mother's distress you have identified. Follow the actions to be taken. Ask the doctor you refer women to for help on updating the actions. It is important to always keep checking to see what improved kinds of care or treatments are available.

Mother's Distress

1. Vital Signs	
Blood Pressure	
FINDINGS:	BP above 140/90 or a rise of 30 mm systolic and 15 mm diastolic compared to previous reading.
ACTION:	Take every thirty minutes for three times, have her lie on her left side, hydrate (give fluids). If still 140/90 or above REFER.
FINDINGS:	BP above 140/90 with headache or blurred vision, or hyperreflexia, or edema of hands, feet, vulva.
ACTION:	REFER, after giving Valium 10 mg IM.
FINDINGS:	BP below 90/60
ACTION:	Take every thirty minutes for three times, hydrate. If still below 90/60 or lower REFER.
Pulse	
FINDINGS:	Pulse continuously above 90 or below 70 beats per minute
ACTION:	Take every thirty minutes for three times between contractions, hydrate. If the condition remains the same, REFER.
Temperature	
FINDINGS:	Temperature above 37.5C (98.6F)
ACTION:	LOOK for signs of infection, malaria or dehydration - refer to your midwifery text, Prevention and Treatment of Sepsis and Hydration and Rehydration modules for additional information. REFER to doctor if needed.
2. Breathing	
FINDINGS:	Respirations above 40 per minute between or during a contraction. Difficulty getting her breath
ACTION:	Encourage woman to deep breathe and relax to make sure she is not hyperventilating. Hydrate. REFER if no change in her condition.

744

3. Heart

FINDINGS: Distended (bulging) neck veins, irregular heart rate, or unusual heart sounds.
May have edema or high blood pressure
ACTION: REFER

4. Abdomen

Contractions, bleeding, early rupture membranes

FINDINGS: Regular contractions before 28 weeks with or without bleeding
ACTION: REFER

FINDINGS: Regular contractions 28-36 weeks, no bleeding
ACTION: Monitor, may deliver, be prepared for premature

FINDINGS: Regular contractions, 28-36 weeks, ruptured membranes
ACTION: Monitor, will probably deliver, be prepared for premature
Refer to module on **Prevention and Treatment of Sepsis, Prevention of Chorioamnionitis**

FINDINGS: Regular contractions, 28-36 weeks, severe bleeding
ACTION: REFER. Look at module on **Prevention and Treatment of Hemorrhage and Hydration and Rehydration**

FINDINGS: Continuous weak or strong contractions, term
ACTION: REFER

FINDINGS: Weak contractions, irregular, term
ACTION: Sedate, hydrate, monitor closely

Uterus shape

FINDINGS: Uterus wider than long, transverse lie
ACTION: REFER

Descent

FINDINGS: Presenting part not engaged, term, dilatation 3 cm or more, active labor
ACTION: REFER

Position

FINDINGS: Large breech or transverse position
ACTION: REFER

215

Bladder

FINDINGS: Full or distended bladder

ACTION: If unable to urinate, catheterize

5. Pelvis (see *Monitoring Labor Progress* module)**Cervical Dilatation**

FINDINGS: Less than 3 cm dilatation in 8 hours with good contractions

ACTION: REFER

FINDINGS: Dilatation moves to the right of the alert line

ACTION: REFER, unless delivery is about to occur

FINDINGS: Dilatation reaching the action line

ACTION: The woman should be in hospital, the doctor will make the decision for action

Vaginal Discharge

FINDINGS: Thick green vaginal discharge with intact or ruptured membranes

ACTION: Check condition of baby and cervix, if delivery not very soon, REFER

FINDINGS: Black, thick vaginal discharge

ACTION: Check condition and position of baby

Membranes

FINDINGS: Ruptured before labor begins, term, clear or milky liquor, fetal heart tones in normal range

ACTION: Do not do vaginal examination until active labor.

Bedrest, wait for labor, watch for prolapse cord, watch temperature, pulse and signs of infection; REFER for signs of infection or prolapsed cord.

FINDINGS: Ruptured before labor begins, term, prolapsed cord

ACTION: REFER, Fill the bladder with 500 ml. of sterile solution. This pushes the presenting part out of the pelvis and decreases pressure on the cord. If no fluid available or the woman is unable to retain the fluid, place her in knee chest position or with midwife, hand in the vagina, holding the presenting part up so that the cord does not get squeezed.

FINDINGS: Ruptured before labor begins and not term

ACTION: REFER

Baby's Distress

Distress (trouble) of the baby happens when some problem threatens the baby's life. Monitoring the baby during labor should give you early warning of any problem.

There are three FINDINGS to show you that a baby is having a problem:

Heart Rate FINDINGS: A baby's heart rate that is faster than 160 or slower than 120 beats per minute indicates a problem. A sudden change from a heart rate sounding very strong (loud) to very weak (soft) can also mean the baby is distressed. A heart rate of 100 or slower means very severe distress and ACTION should be taken right away. ACTION: LISTEN to the heart rate at the end of each contraction. Change the mother's position each time after listening to an abnormal heart rate.
Meconium FINDINGS: The baby passes meconium stool causing a thick meconium stained liquor (amniotic fluid) seen from the vagina of the mother. The color may be greenish or blackish. The meconium comes from the baby's rectum. The baby passes meconium when in distress from lack of oxygen. ACTION: Check position of the baby; if breech, check carefully for cephalo-pelvic disproportion. If not breech, check heart rate of the baby. If delivery is not very soon, REFER.
Activity FINDINGS: The baby moves around a lot in the uterus, just like the baby is having a problem and is trying to move around and get rid of the problem. The baby may even be having fits (convulsions). Normally the baby moves very little during labor. ACTION: Check heart rate of the baby. If delivery is not very soon, REFER.

If the heart rate remains abnormal for more than three contractions (above 160 or below 120), give the mother fluids, and change her position. Help the mother on to her left side or knee chest position.

Check the heart rate every 5 minutes. If again the heart rate is not normal, check for prolapse of the cord. Immediate help from a doctor is best.

If there will be a delay in getting help from a doctor, start an intravenous infusion (see **Hydration Rehydration** module) and help the woman to relax until delivery is possible.

If the woman is too tired or does not have the urge to push, or if the descent is slow, do a vacuum extraction (see **Vacuum Extraction** module) and/or make use of an episiotomy if appropriate (see **Episiotomies and Repair of Lacerations** module).

Be prepared for a depressed baby (see **Resuscitation** module). All these actions depend on the condition of the mother and the skill of the midwife.

3. Describe the three ways a baby can tell you that there is a problem during labor. (page 24)

4. What can you do for fetal distress? (page 24 and **Resuscitation** module)

Skill: How to Use a Partograph When Monitoring Labor Progress

The Ministry of Health usually provides all labor forms. Midwives in private practice can have copies made for their own practice. The midwife, doctor, and auxiliary personnel caring for a woman in labor are responsible for recording information.

The partograph was designed and used by Dr. R.H. Philpott, a Professor in Obstetrics and Gynecology at the University of Rhodesia (now Zimbabwe) since 1972. We wish to thank all those who contributed to the development of the World Health Organization version of the Partograph. This is a modification and simplification based on their work. This graph can be used in hospitals and maternities to help identify women whose labors are not progressing normally.

The partograph is a clear way to record all labor observations on one chart. It is important to remember that the partograph is a tool for monitoring/managing labor only. The partograph does not help you identify other risk factors which may have been present before labor started.

After the midwife **ASKS AND LISTENS** during the history taking and **LOOKS AND FEELS** during the physical examination, the information must be written so that the problems/needs can be identified.

Once the problems/needs are identified, the midwife will be able to take **ACTION** to take care of each problem or need.

In order to use the partograph to write and interpret the information you must learn a little more about the partograph.

Equipment

Partograph record, pen, fetal scope, BP apparatus, pulsometer or watch, thermometer

The Parts of the Partograph

The main use of the graph is recording and observing labor progress with the dilatation of the cervix, the descent of the head and the type of uterine contractions. An orientation to the parts of the graph is described below in the order in which they appear on the graph in **Figure 7**.

1. Patient Information including name, gravida, para, registration/hospital number, date of admission, time of admission, time of ruptured membranes is written at the top of the graph.
2. Fetal Heart Rate is recorded to monitor the condition of the fetus.
3. Liquor or Amniotic Fluid is observed and recorded as clear "C", blood stained "B" or meconium stained "M". If the membranes are not ruptured, record "I" for intact.
4. Cervical Dilatation is the most important observation to monitor progress of labor. The dilatation is plotted with an "X". The latent phase, active phase, alert and action lines will be explained in detail in the skill section of this module.
5. Descent of the Head is very important in the monitoring of labor progress. The descent is plotted with an "O".
6. Time is recorded using the time of admission as zero time. The actual time of day is recorded below the hours line.
7. Contractions along with cervical dilatation and descent of the head tell the progress of labor. The contractions are recorded under the time line.
8. Oxytocin, Drugs and Intravenous Fluids are recorded in the space provided.
9. Blood Pressure, Pulse and Temperature are recorded in the space provided.
10. Urine amount is recorded every time urine is passed. Albumin and acetone (ketone) are tested if the materials for testing are available.

Exercise 1: Plotting cervical dilatation when the labor is in the **ACTIVE** phase on admission.

Look at **Figure 9**. In the section marked active phase there is an alert line, a straight line from 3-10 cm. When a woman is admitted in the active phase the dilatation of the cervix is plotted on the alert line, at the place equal to her dilatation and the clock time written directly under the X in the space for time.

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

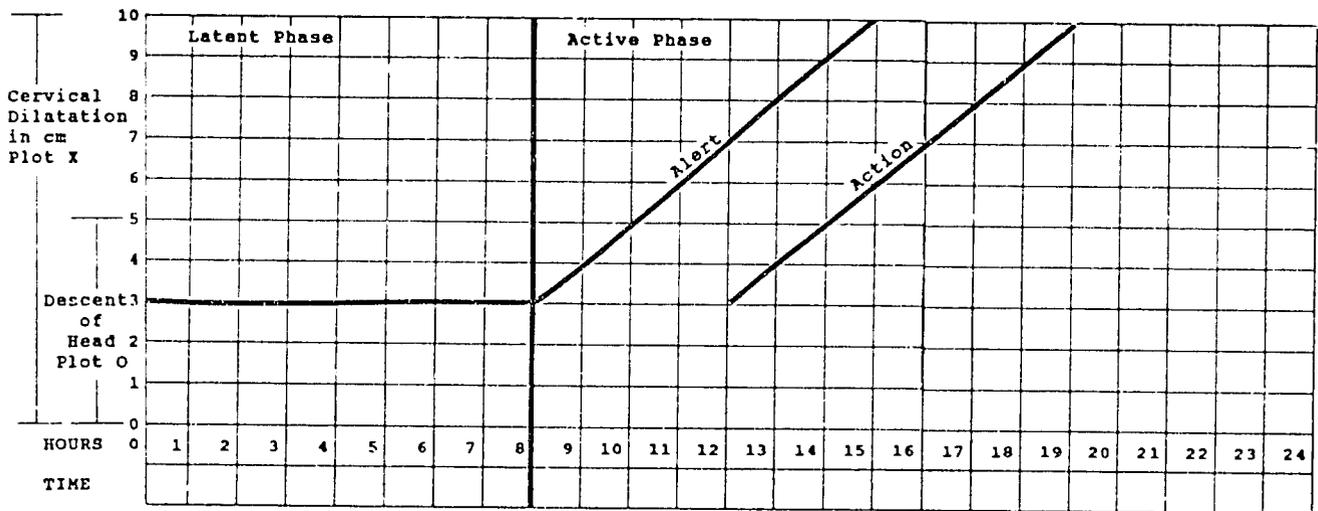


Figure 9

Record the following on the graph:

- The time of admission was 3:00 pm, dilatation of the cervix 4 cm.
- At 5:00 pm, dilatation was 10 cm.

How long was the first stage of labor at the maternity?

IF PROGRESS IS SATISFACTORY THE PLOTTING OF CERVICAL DILATATION WILL REMAIN ON OR TO THE LEFT OF THE ALERT LINE.

Answers to Exercise 1:

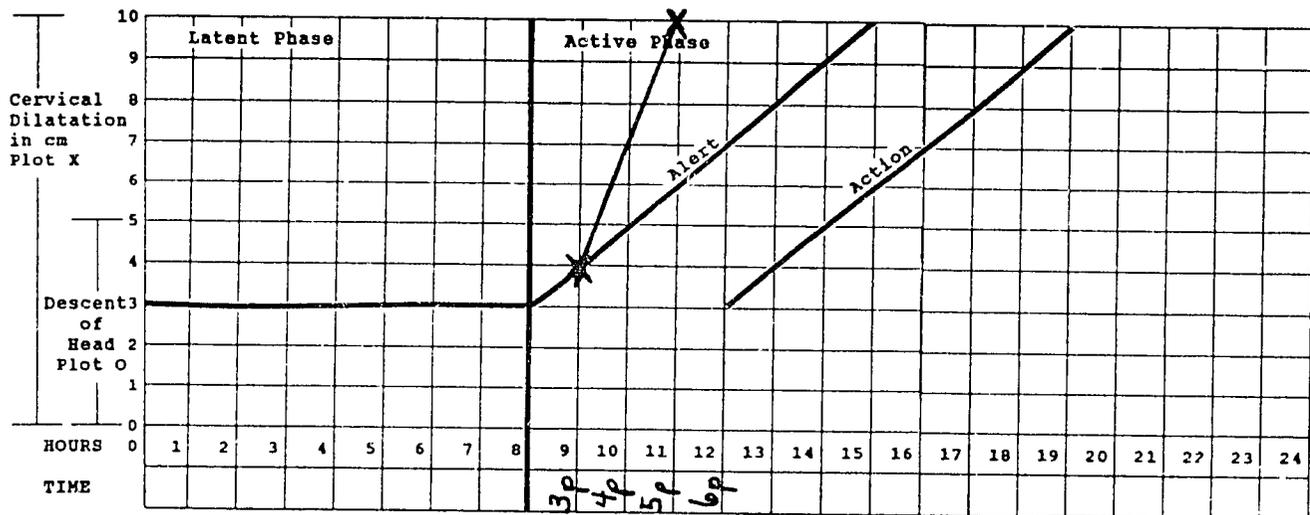


Figure 10

- Dilatation of the cervix was 4 cm, the active phase.
- Dilatation is plotted on the alert line at 4 cm.
- The time of admission was 3:00 pm.
- At 5:00 pm, dilatation was 10 cm.
- Time in the first stage of labor after admission was 2 hours.

Continue to Exercise 2.

Exercise 2: Plotting cervical dilatation when admitted in the LATENT phase.

The latent phase normally may take 8 hours. When admission is in the latent phase dilatation of the cervix is plotted on the line marked zero. Vaginal examination is made every 4 hours, if the woman has contractions. If the membranes have ruptured and the woman has no contractions, a very careful vaginal examination is made upon admission to determine cervical dilatation, position of the head and to make sure the cord is not prolapsing.

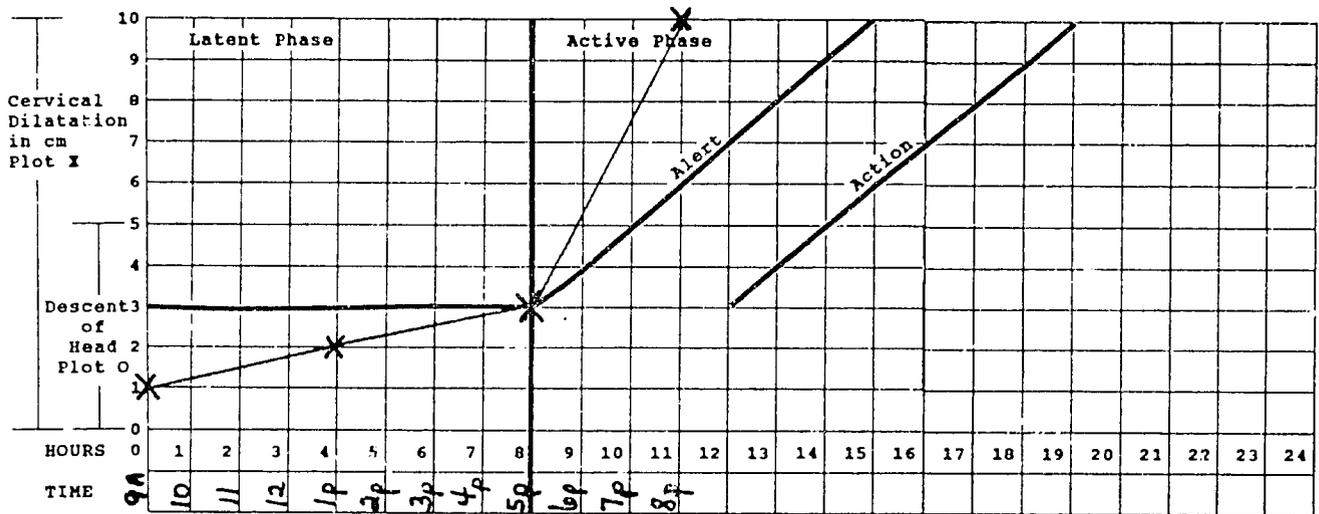


Figure 11

Find the following on **Figure 11**:

- Admission was at 9 am and the cervix was 1 cm dilated
- At 1 pm the cervix was 2 cm dilated
- At 5 pm the cervix was 3 cm dilated when she entered the active phase of labor
- At 8 pm the cervix was 10 cm

How many hours was the latent phase of labor?

How many hours was the active phase of labor?

Answers to Exercise 2:

- The latent phase of labor began at admission, 9 am and the cervix was 1 cm dilated. The latent phase of labor ended at 5 pm when the cervix was 3 cm dilated. The latent phase lasted 8 hours.
- The active phase began at 5 pm when the cervix was 3 cm dilated and ended at 8 pm when the cervix was fully dilated. The active phase lasted 3 hours.

Continue with Exercise 3.

Exercise 3: Plotting cervical dilatation from latent to active phase

When dilatation is 0-3 cm, plotting must be in the latent phase area of the graph. When labor goes into the active phase, plotting must be moved by a broken line to the alert line.

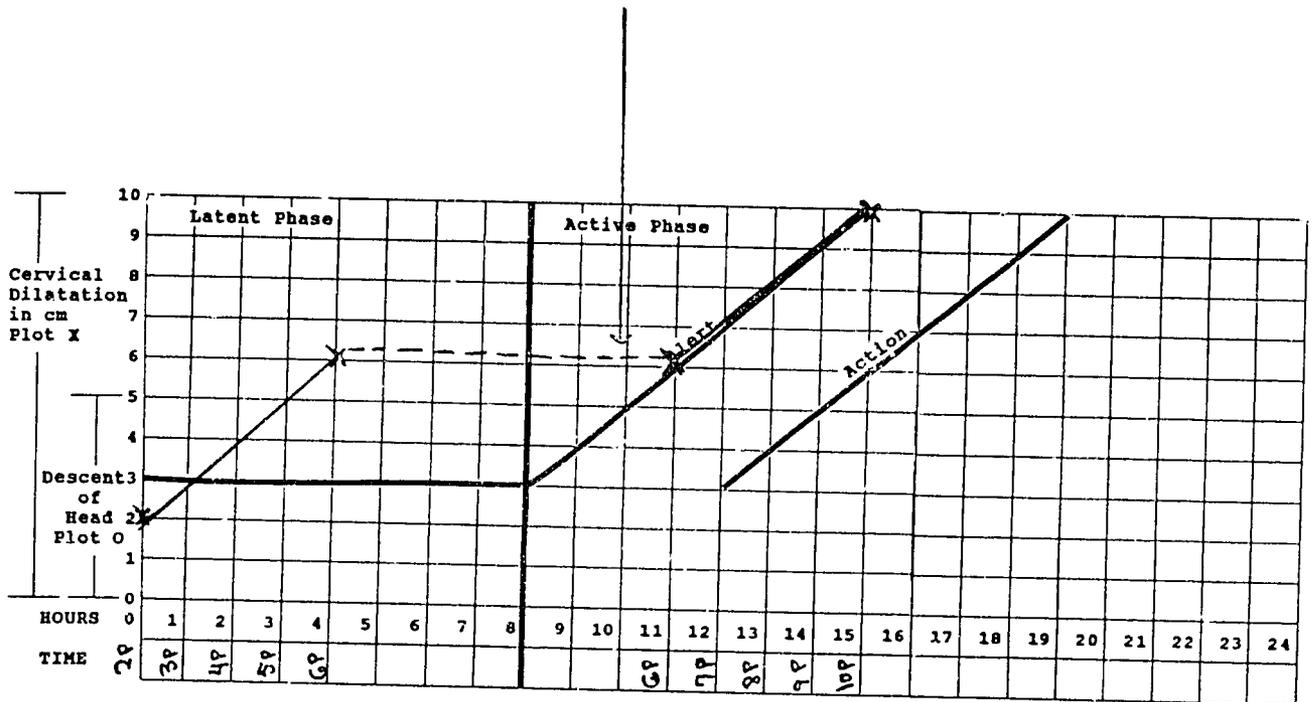


Figure 12

Look at the following information on **Figure 12**:

- Admission time was 2 pm and the dilatation was 2 cm
- At 6 pm, the dilatation was 6 cm - active phase
Move the time and dilatation from latent to active phase on the alert line. Remember to use a dotted line for the move.
- At 10 pm, the cervix was 10 cm.

How many vaginal examinations were performed?

How long was the first stage of labor at the maternity?

Answers to Exercise 3:

- Three vaginal examinations were performed at 2 PM, 6 PM, 10 PM.
- First stage of labor was 8 hours, beginning at 2 PM and ending at 10 PM.

Points to Remember

- **The latent phase is from 0-3 cm dilatation and is accompanied by gradual shortening and thinning (effacement) of the cervix. It should normally not last longer than 8 hours.**
- **The active phase is from 3-10 cm and dilatation should be at the rate of at least 1 cm/hour.**
- **When labor progresses well, the dilatation should not cross to the right of the alert line.**
- **When admission takes place in the active phase, the admission dilatation is immediately plotted on the alert line.**
- **When labor goes from latent to active phase, plotting of the dilatation is immediately moved from the latent phase area to the active phase area on the alert line.**

Descent of the Fetal Head

For labor to progress well dilatation of the cervix should be accompanied by descent of the head.

Descent of the head is measured by palpating the head through the abdomen and recording the findings every hour. As discussed in LOOK and FEEL (see **Skill: LOOK and FEEL (Physical Examination)**), descent is measured in fifths of head palpable above the pelvic brim.

Descent of the head should always be assessed by abdominal examination immediately before doing a vaginal examination so that you will know where to expect to feel the head during the vaginal examination.

Exercise 4 : To plot descent of the head, on the left side of the graph see the word descent with lines going from 5 - 0. Descent is plotted with an 0 on the graph.

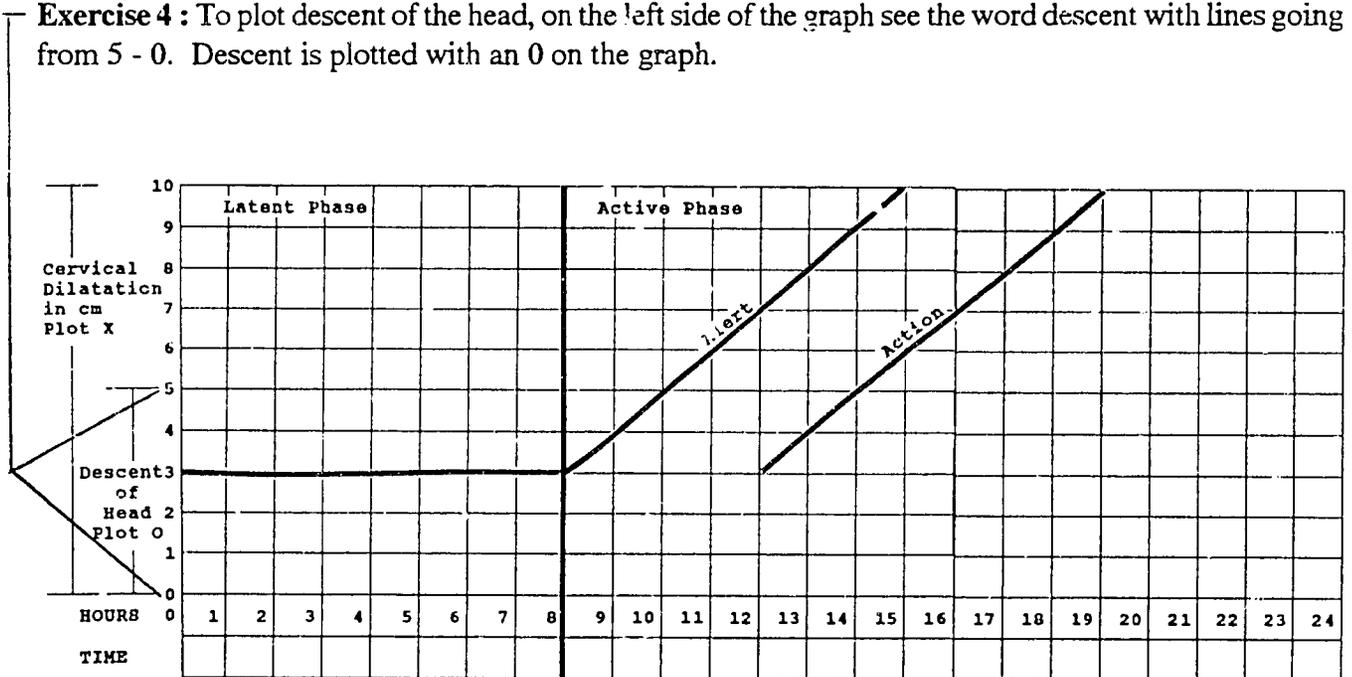


Figure 13

Record the following on the graph:

- On admission at 1 pm, the head is 5/5 (five-fifths) above the pelvic brim and the cervix is 1 cm dilated.
- After 4 hours, the head is 4/5 (four-fifths) above the brim and the cervix is 5 cm dilated.
- Labor is now in the active phase. Cervical dilatation, descent of head and time recordings are transferred to the alert line.
- After 3 hours, the head is 1/5 (one-fifth) above the pelvic brim and the cervix is 10 cm dilated.
- How long was the first stage of labor in the maternity?

Answers for Exercise 4.

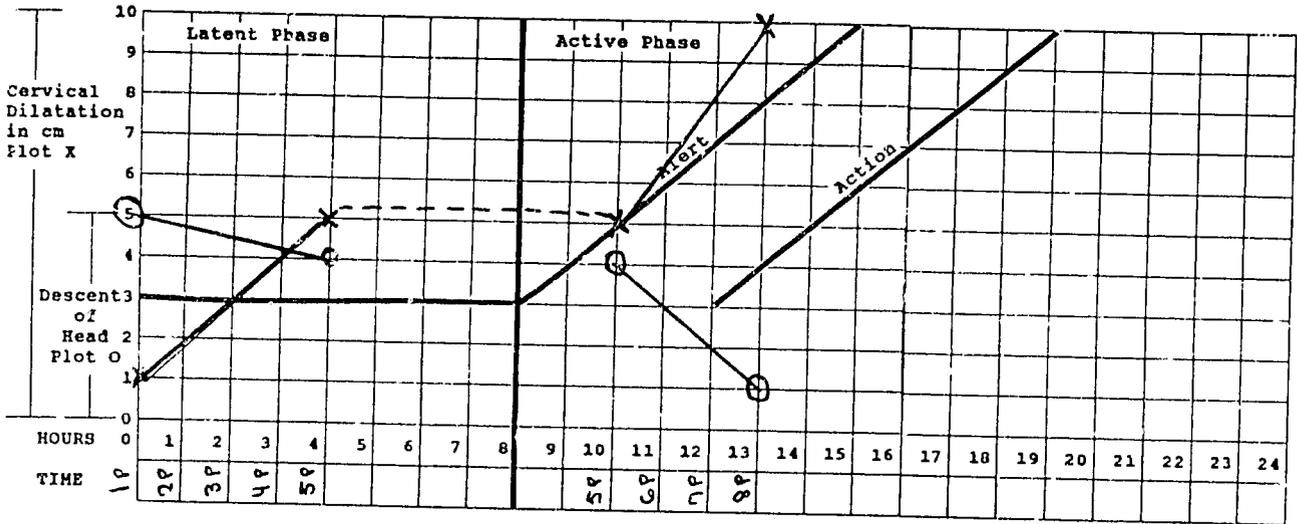


Figure 14

- On admission at 1 pm, the head is 5/5 (five-fifths) above the pelvic brim and the cervix is 1 cm dilated.
- After 4 hours, the head is 4/5 (four-fifths) above the brim and the cervix is 5 cm dilated. Labor is now in the active phase. Cervical dilatation, descent of the head and time recordings are moved to the active phase.
- After 3 hours, the head is 1/5 (one-fifth) above the pelvic brim and the cervix is 10 cm dilated.
- The first stage of labor in the maternity was 7 hours.

Points to Remember

- Measuring descent of the baby's head helps the midwife follow the progress of labor.
- An abdominal examination must always be done before a vaginal examination.

Uterine Contractions

Good uterine contractions are necessary for progress of labor. Normally contractions become more frequent and last longer as labor progresses.

Recording on the partograph

Below the time line and at the left hand side is written contractions per 10 mins.

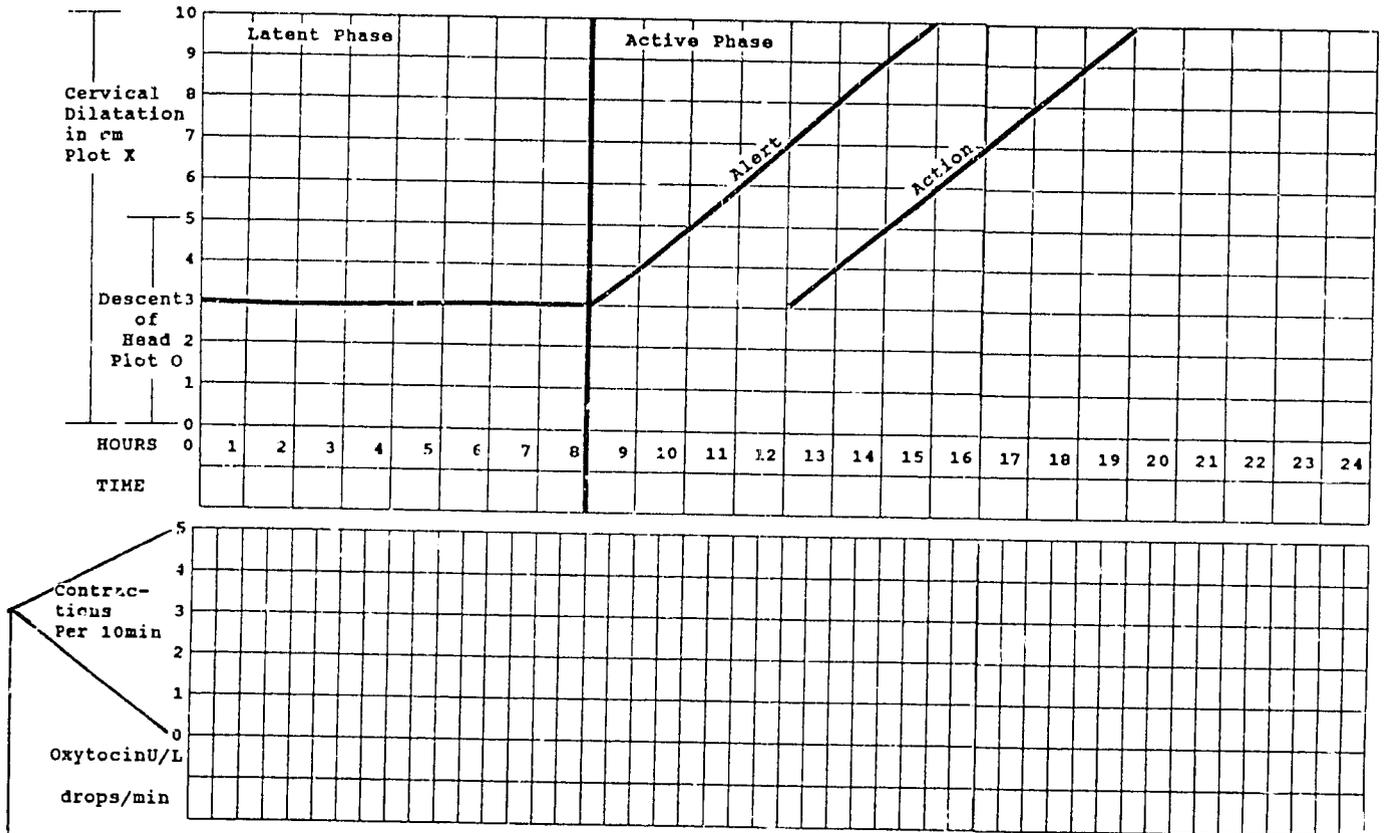


Figure 15

Squares are numbered from 1-5. Each square represents one contraction so that if 2 contractions are felt in 10 minutes, two squares will be shaded.

The squares below show the key to the three ways the strength of contractions are recorded on the partograph.

-  Dots represent **mild** contractions of less than 20 seconds duration.
-  Diagonal lines indicate **moderate** contractions of 20-40 seconds duration.
-  Solid color represents **strong** contractions of longer than 40 seconds.

Exercise 5: Plotting contractions on a partograph.

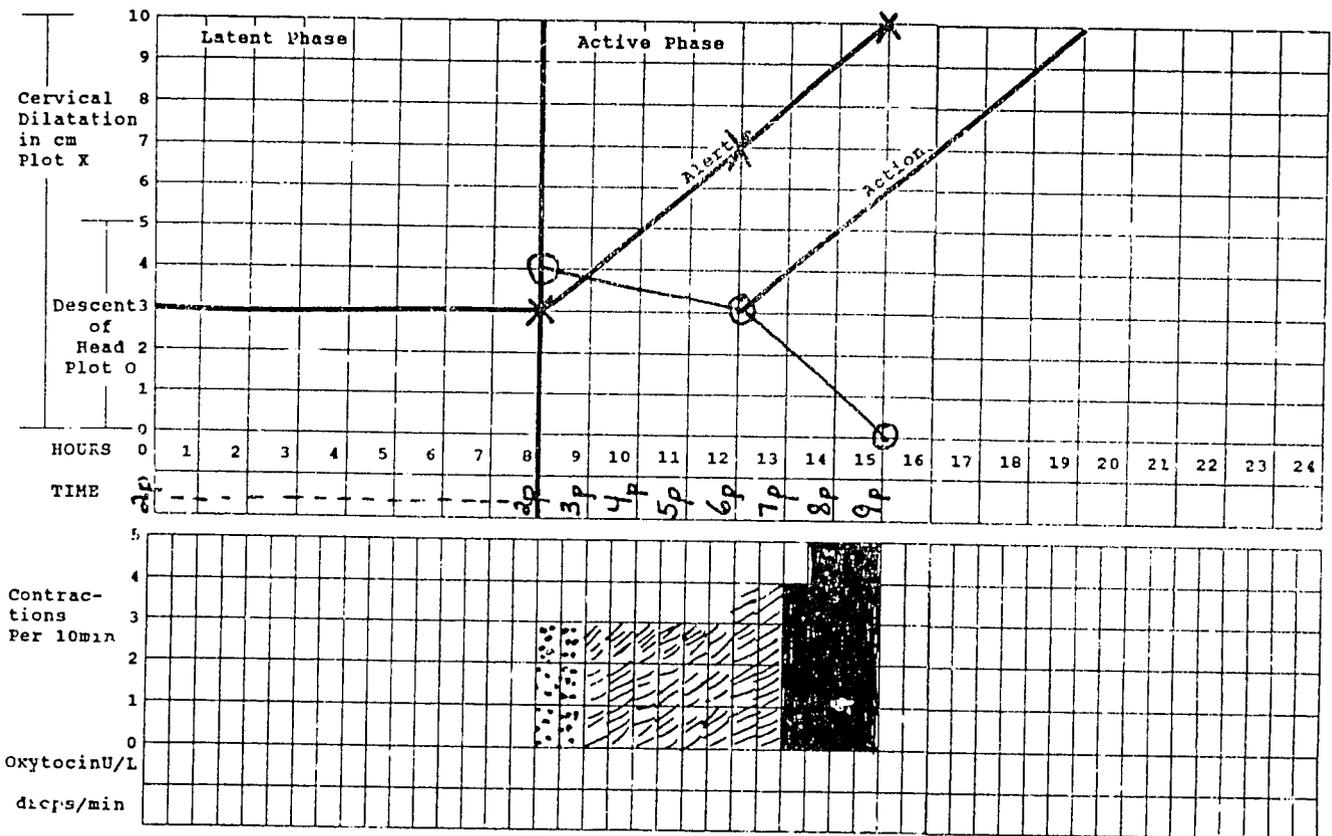


Figure 16

Find the following on the above graph:

The woman was admitted at 2 pm in the active phase of labor.

- The cervix was 3 cm dilated, the head was 4/5 (four-fifths) above the pelvic brim.
- Contractions were 3 in 10 minutes, each lasting less than 20 seconds.
- At 6 pm, the cervix was 7 cm dilated, the head 3/5 (three-fifths) and contractions were 4 in 10 minutes, lasting between 20-40 seconds.
- At 9 pm, the cervix was 10 cm, the head 0/5 (no-fifths), contractions were 5 in 10 minutes, lasting over 40 seconds.

Points to Remember

- Contractions are observed for frequency and duration.
- The number of contractions in 10 minutes is recorded.
- The three ways of recording the duration of contractions are: up to 20 seconds, 20-40 seconds, more than 40 seconds.
- Record contractions below the correct time on the partograph.

2. THE FETAL CONDITION

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

Fetal Heart Rate

Listening to and recording the fetal heart rate is a safe and reliable way of knowing that the fetus is well.

The fetal heart rate is recorded at the top of the partograph, **Figure 17**. It is recorded every half hour. Each square represents 30 minutes. The lines for 120 and 160 beats per minute are darker to remind the midwife that these are the normal limits of the fetal heart rate.

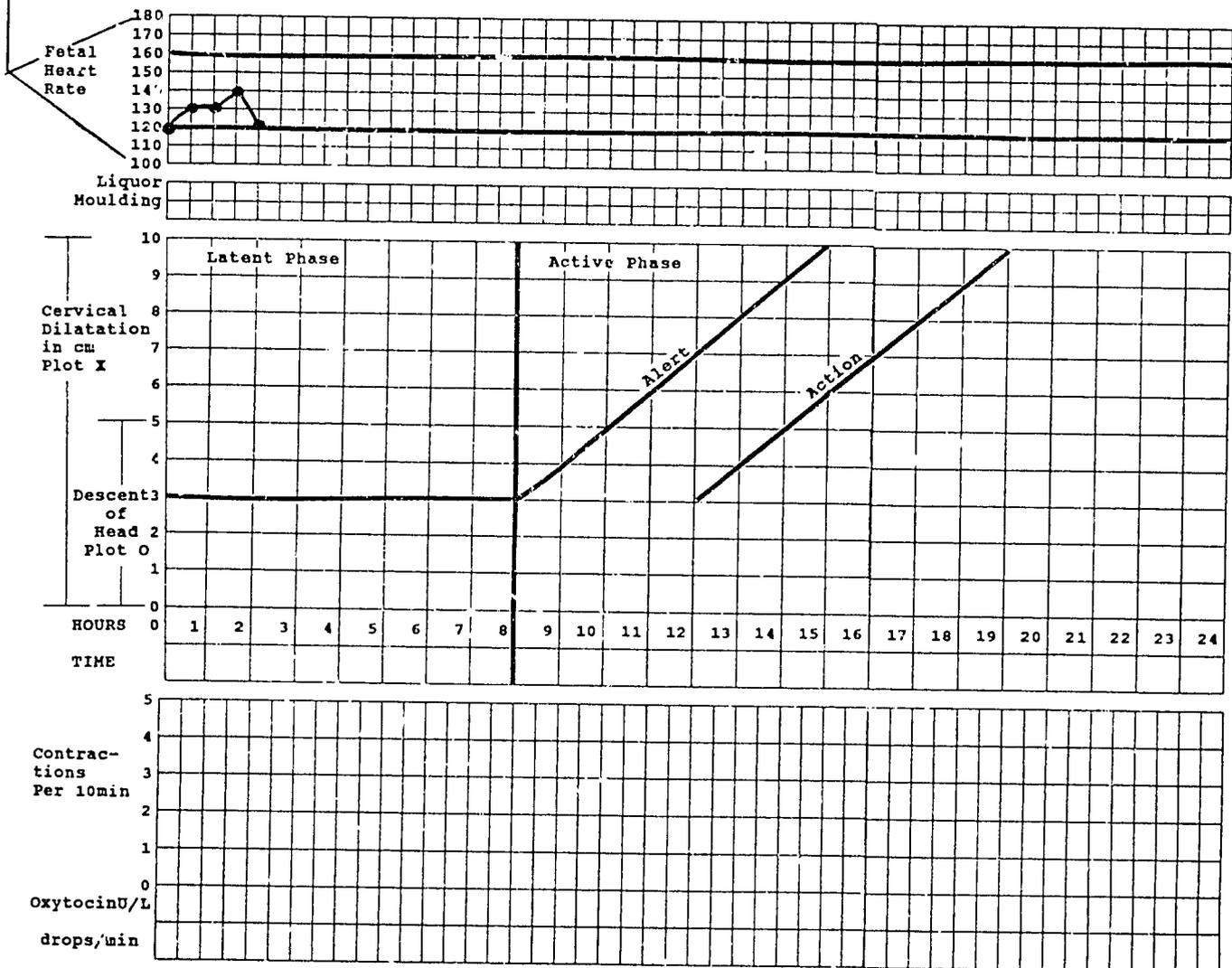


Figure 17

Membranes and Liquor (amniotic fluid)

The state of the liquor or amniotic fluid can assist in assessing the fetal condition.

The following observations are recorded on the partograph immediately below the fetal heart rate recordings, **Figure 18**. The observations are made at each vaginal examination. They are:

- If the membranes are intact:
 - record as the letter "I" for intact.
- If the membranes are ruptured:
 - liquor is clear, record as the letter "C" for clear.
 - liquor is blood stained, record as the letter "B".
 - liquor is meconium stained, record as the letter "M".
 - liquor is absent, record as the letter "A" for absent.

Listen to the fetal heart rate every five minutes if:

- liquor has thick green or black meconium
- liquor is absent at the time membranes rupture

THESE MAY BE SIGNS OF FETAL DISTRESS (baby is in trouble).

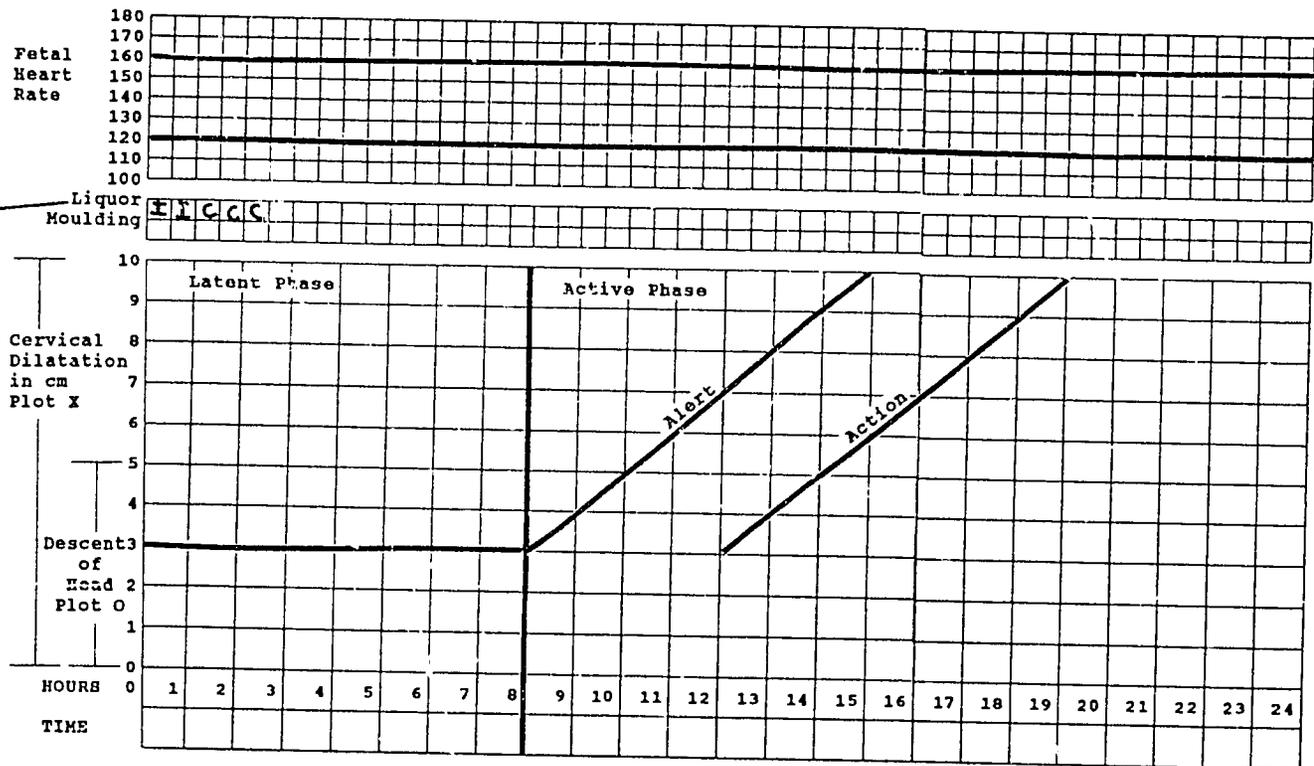


Figure 18

114

Molding of the Fetal Skull Bones

Molding is an important finding as to how well the pelvis will accommodate the fetal head.

Record the molding, look at Figure 19, using the following key:

- o = bones are separated and the sutures can be felt easily
- + = bones are just touching each other
- ++ = bones are overlapping but can be separated easily with pressure from your finger, REFER
- +++ = bones are overlapping but can not be separated easily with pressure from your finger, REFER

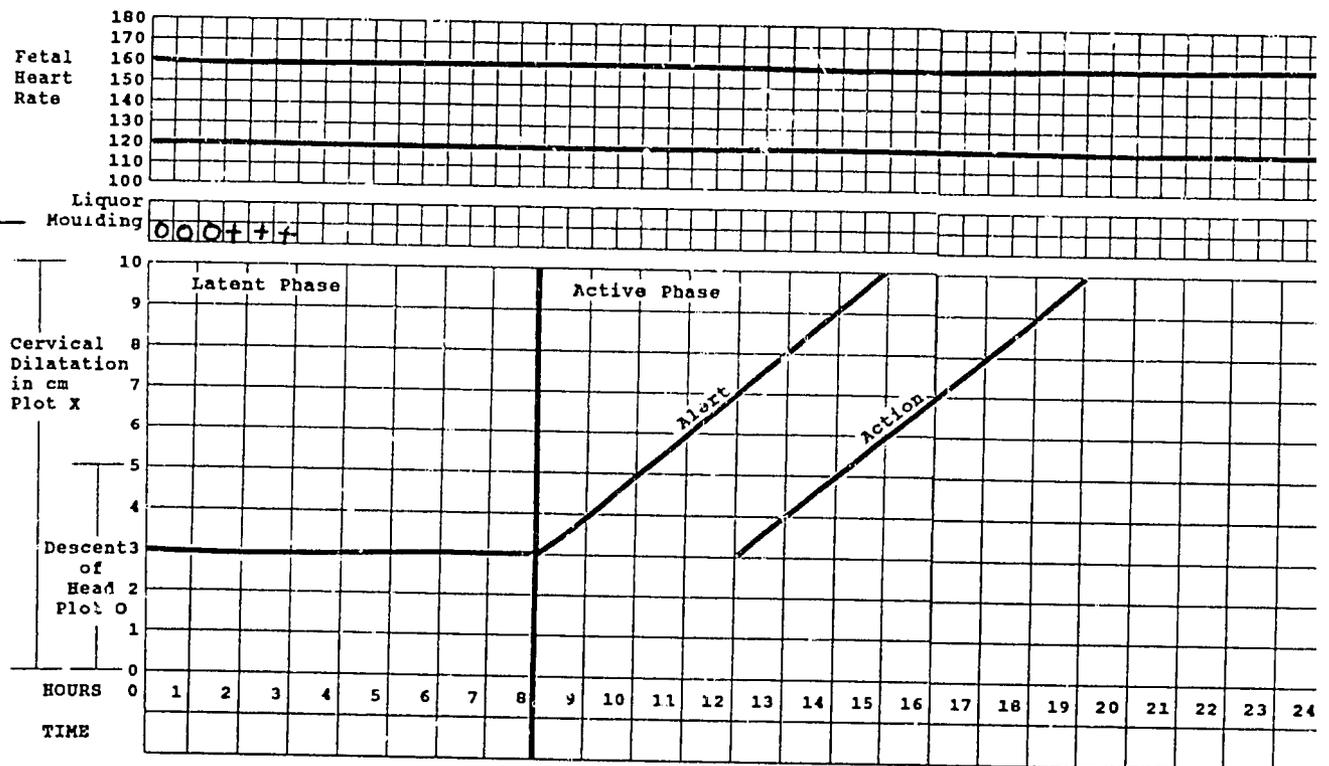


Figure 19

Points to Remember

- Listen to the fetal heart rate immediately after the strongest part of a contraction with the woman lying on her back.
- Recordings of the fetal heart rate are made every half hour in the first stage of normal labor.
- Normally the fetal heart rate is between 120-160 beats/minute.
- Increasing molding with a high head is a sign of disproportion (baby is too big for mothers pelvis). REFER IMMEDIATELY.

3. THE MATERNAL CONDITION

All the observations for the mother's condition are written at the bottom of the partograph. Look at the partograph in Figure 20 .

1. Pulse, blood pressure and temperature

Take the pulse every half hour.

Take the blood pressure and temperature every four hours.

2. Urine

Ask the mother to pass urine every 2-4 hours. Look at the urine for amount and concentration.

The protein and acetone should be tested in hospital and at maternities if possible.

3. Drugs and rehydration fluids

Chart these when you give them.

4. Oxytocin

There is a separate column for oxytocin above the column for rehydration fluids and drugs.

All entries are made on the time line at which the observations are made.

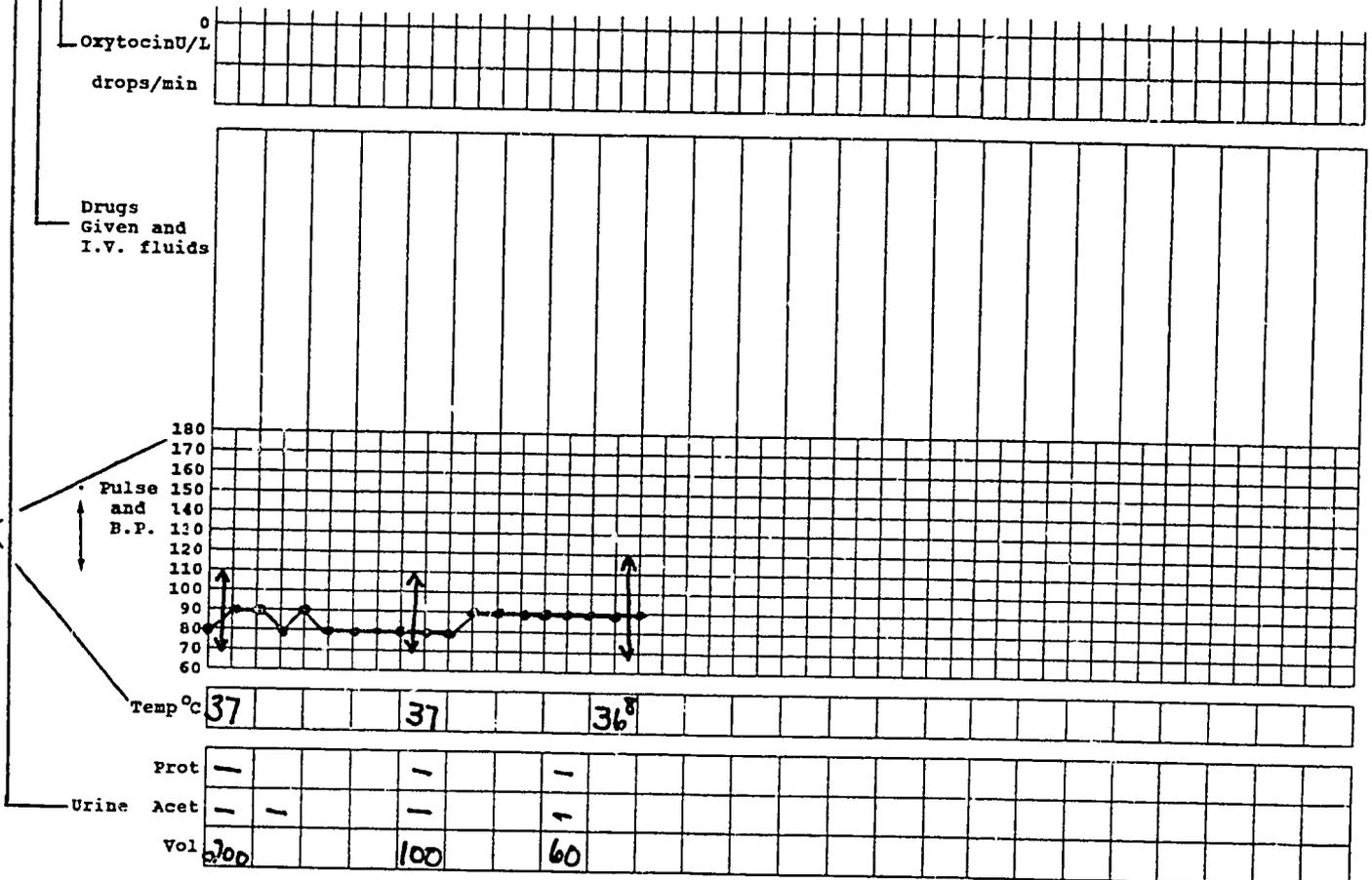


Figure 20

PARTOGRAPH

NAME Mrs. Tubi GRAVIDA 1 PARA 0 HOSPITAL NO. 123
 DATE OF ADMISSION 21-8-90 TIME OF ADMISSION 5 Am RUPTURED MEMBRANES 2 HRS

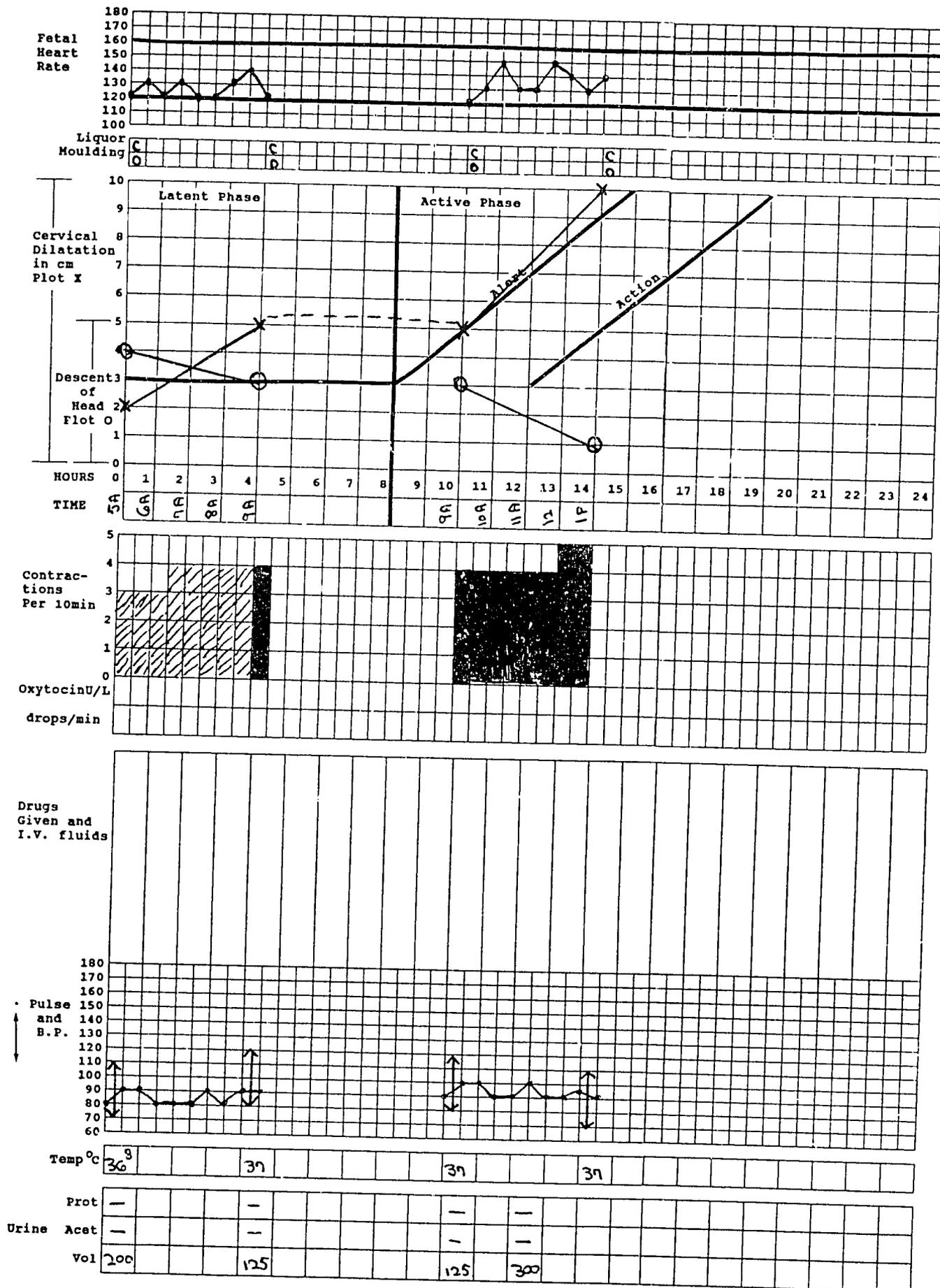


Figure 21

Exercise 6: Look at the completed partograph, **Figure 21**, of a normal first stage of labor. Answer these questions.

1. What was the fetal heart rate on admission?
What was the fetal heart rate at 1 PM?
2. When did the membranes rupture?
What was the condition of the liquor?
3. How much molding of the fetal head was recorded?
4. What was the dilatation of the cervix on admission?
What was the station of the head?
5. What was the dilatation of the cervix when the labor transferred from latent to active phase?
6. Describe the contractions at 9 AM.
7. List the vital signs on admission.
8. How long was the latent phase after admission?
What was the length of the active phase?

Answers to Exercise 6:

1. 120-130, 120-130.
2. 3 AM, 2 hours before admission. Clear
3. no molding was recorded
4. 2 cm, 4/5
5. 5 cm
6. 4 contractions in 10 minutes, strong lasting over 40 seconds
7. B/P 110/70, P 80, T 36.8
8. 4 hours, 4 hours

Points to Remember

- Time of admission is zero time, when the woman comes in the latent phase of labor.
- When the active phase of labor begins all recordings are transferred, plotting the cervical dilatation on the alert line.
- When progress of labor is normal plotting of the cervical dilatation remains on the alert line or to the left of the alert line.

4. ABNORMAL LABOR PROGRESS

The midwife or doctor can use the partograph to identify complications in labor. When the labor is not normal, the midwife must help the woman get to the doctor. The doctor will decide the outcome of a delivery. The doctor will decide if cesarean section, oxytocin drip, analgesia, rehydration, forceps or vacuum extraction is necessary to save the mother and her baby.

Prolonged latent phase

When a woman is admitted in labor in the latent phase (less than 3 cm dilated) and remains in the latent phase for the next 8 hours, progress is **not normal**. She must be transferred to a hospital for further care

The heavy line drawn on the partograph at the end of eight hours of the latent phase means that the care should end at the maternity. The woman needs care from a doctor. **REFER** the woman.

Exercise 7:

Fill in the following information, using the graph in Figure 22 .

On admission at 7 am, the head was _____
 and the cervix was _____.
 There were _____ contractions in 10 minutes, lasting _____.

After 4 hours, at 11 am, the head was _____
 and the cervix was _____.
 In the last ten minutes of that half hour there were _____
 contractions lasting _____.

Four hours later at 3 pm, the head was still _____
 and the cervix was still _____.
 Contractions were _____ in ten minutes lasting _____.

The length of the latent phase was _____.

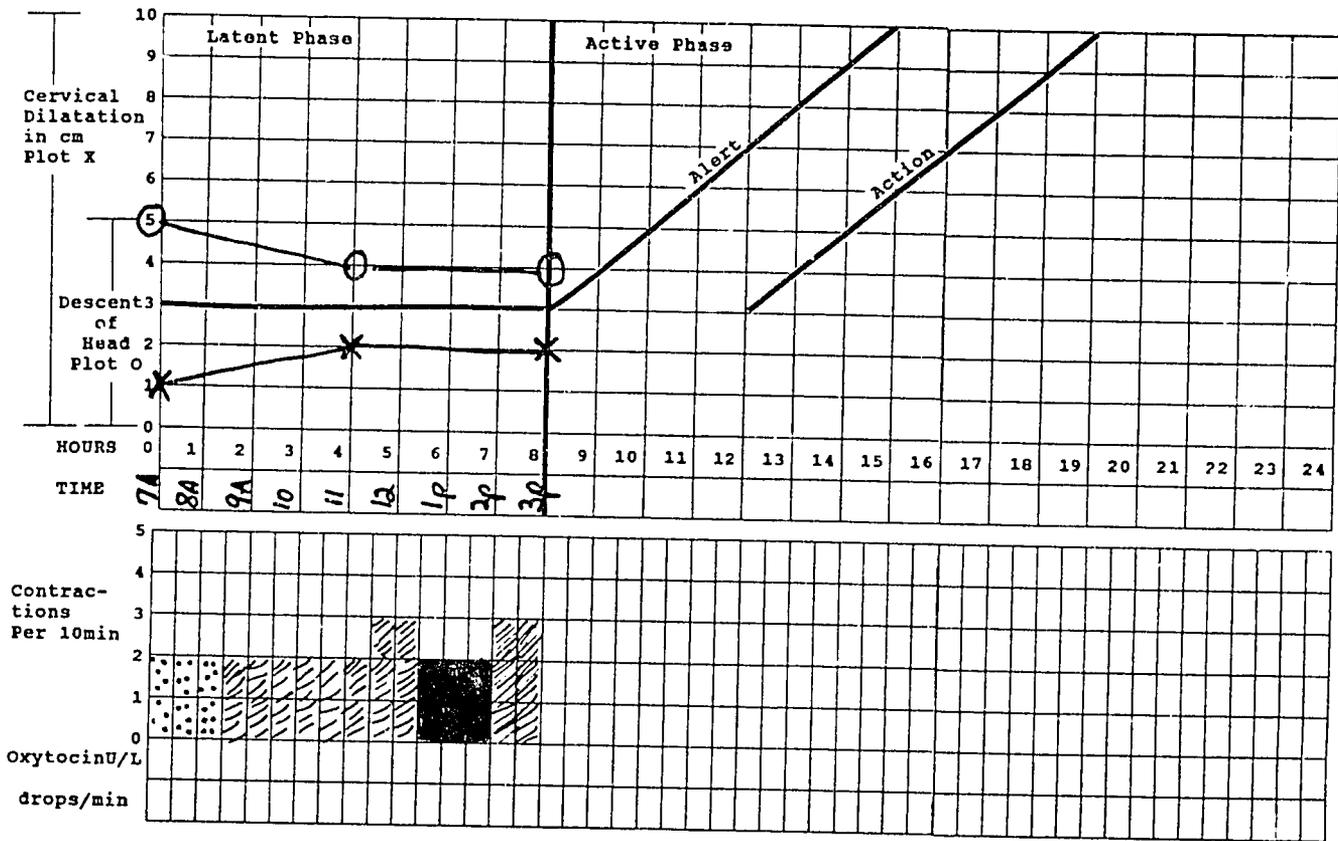


Figure 22

Answers to Exercise 7 on prolonged latent phase:

- On admission at 7 am, the head was 5/5 and the cervix was 1 cm dilated.
There were 2 contractions in 10 minutes, lasting less than twenty seconds.
- After 4 hours, at 11 am, the head was 4/5 and the cervix was 2 cm dilated.
In the last ten minutes of that half hour there were 2 contractions lasting 20-40 seconds.
- Four hours later at 3 pm, the head was still 4/5 and the cervix was still 2 cm dilated.
Contractions were 3 in ten minutes lasting 20-40 seconds.
- The length of the latent phase was 8 hours and not completed.
Referral must be immediate in order to allow for a doctor to make a decision of how to assist the woman in labor.

Moving to the right of the alert line

In the active phase of labor plotting of the cervical dilatation will normally remain on, or to the left of the alert line. When dilatation crosses to the right of the alert line, **this is a warning that labor may be prolonged**.

When the dilatation moves to the right of the alert line, the mother must be transferred to a hospital, unless she is very near to delivering.

At the action line

The action line is 4 hours to the right of the alert line. If a woman's labor reaches this line, a decision must be made about the cause of the slow **progress and action taken**. The decision as to what action to assist the labor must be made with a doctor, usually in the hospital.

Exercise 8 will demonstrate importance of the alert and action lines.
 Look carefully at **Figure 23** and answer the questions.

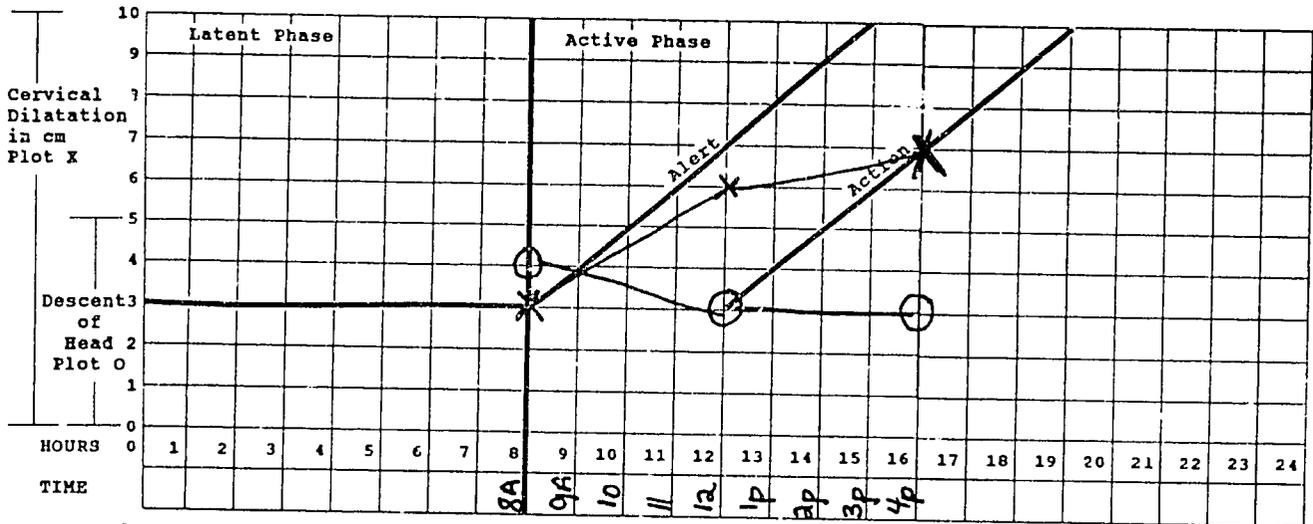


Figure 23

Exercise 8:

- At 8 am, the cervix is 3 dilated on the alert line. The woman may remain in the maternity.
- At 12 noon, the cervix is 6 dilated, crossing the alert line. The woman must be transferred to the hospital.
- At 4 pm, the cervix is 7 dilated, crossing the action line.

A DECISION MUST BE MADE BY THE DOCTOR AS TO WHAT ACTION NEEDS TO BE TAKEN AT THE HOSPITAL.

Answers to exercise 8:

- At 8 am, the cervix is 3 cm dilated on the alert line. The woman may remain in the maternity.
- At 12 noon, the cervix is 6 cm dilated, crossing the alert line. The woman must be transferred to the hospital under the care of a doctor.
- At 4 pm, the cervix is 7 cm dilated, crossing the action line. **A DECISION MUST BE MADE BY THE DOCTOR ON WHAT ACTION NEEDS TO BE TAKEN AT THE HOSPITAL.**

Points to Remember

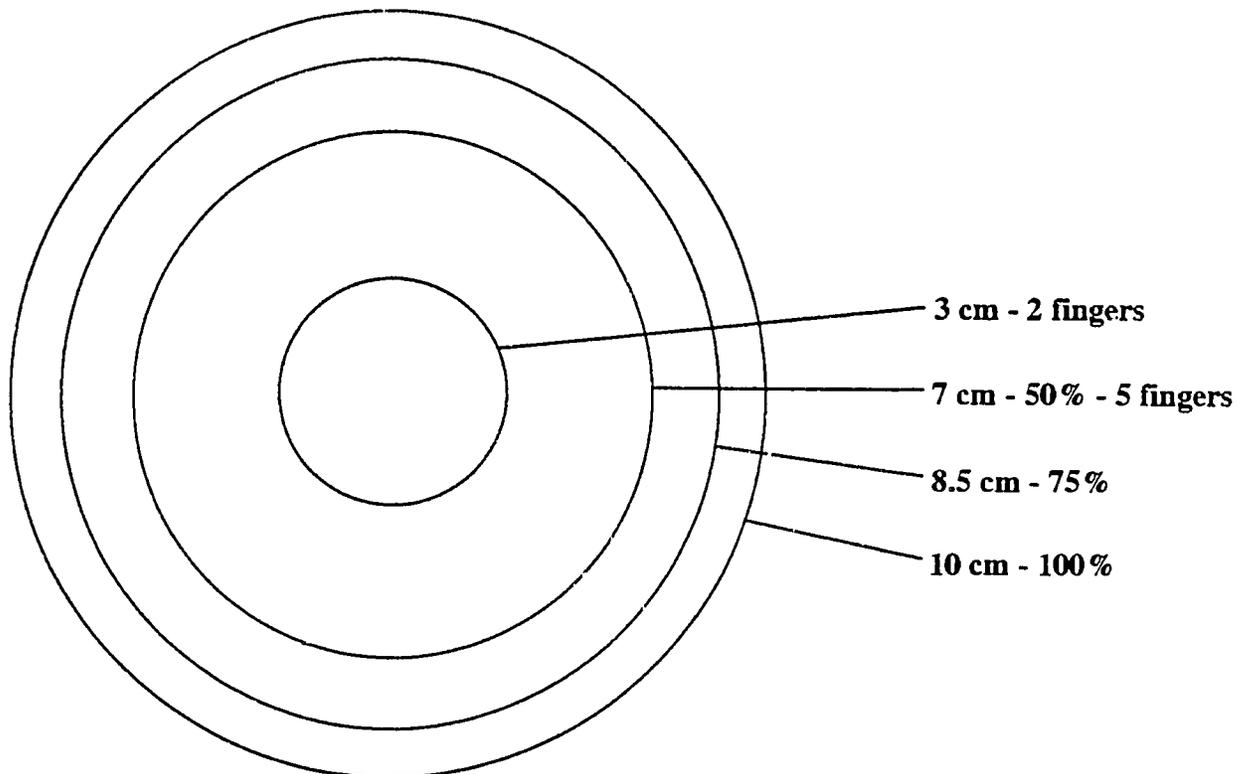
- All women whose cervical dilatation moves to the right of the alert line must be transferred to hospital, unless delivery is near.
- At the action line, the woman must be re-assessed for lack of progress. A decision must be made by the doctor on what action needs to be taken.

Learning Aid - Cervical Dilatation Measurements

The dilatation of the cervical os is measured in cm (centimeters), fingers, percentages and inches. This module refers to cm. If you use another method of measuring, change the cm to your method using the following information:

1 finger	=	1/2 inch or 1.25 cm
2 fingers	=	1 1/4 inches or 3 cm
3 fingers	=	1 3/4 inches or 4.5 cm
4 fingers	=	2 1/4 inches or 5.5 cm
5 fingers	=	50% dilatation = 2 3/4 inches or 7 cm
6 fingers	=	75% dilatation = 3 1/2 inches or 8.5 cm
7 fingers	=	95% dilatation or rim = 3 3/4 inches or 9.5 cm

Once 50% dilatation has been reached, the experienced midwife may think about the amount of cervix remaining during the vaginal examination. For instance, when the dilatation is 75%, the midwife feels only a circle of cervix about the width of a finger remaining. When the dilatation is 95%, the midwife feels only a very thin rim of cervix. She knows that the cervix soon will slip over the fetal head. She knows that second stage will soon begin.



Review Questions

What Did I Learn?

Test your knowledge and understanding of this module by performing the following tasks without the help of the text.

1. Why should a partograph be used? (page 27)

2. List the ten parts of a partograph. (page 28)

3. What is the latent phase of labor? (page 30)

4. What is the active phase of labor? (page 30)

5. List what abnormal signs recorded on the partograph would mean that a referral to a doctor is necessary. (page 46)

Date Date Date Date

<p>f. when the woman last passed stool</p> <p>g. whether the woman has had any medication to either increase or decrease the labor</p> <p>h. name the TBA, whether the TBA knows the woman is in labor and where the TBA can be reached</p> <p>i. whether the woman has bled from her vagina</p>				
<p>4. LOOK and FEEL, RECORD ON LABOR RECORD</p> <p>Help the woman get ready for examination, explain what you are going to do</p>				
<p>5. Ask the woman to pass urine so her bladder will be empty</p>				
<p>6. LOOK at her general condition and do a general examination including:</p> <p>a. vital signs and height</p> <p>b. general appearance: nutrition, illness, tired</p> <ul style="list-style-type: none"> · eyes, ears, nose, mouth, throat, neck · check for thyroid enlargement <p>c. breathing and heart</p> <ul style="list-style-type: none"> · breathing: how fast, breathing sounds · heart: how fast, regular · check for enlarged veins in the neck <p>d. breasts</p> <p>e. arms, legs and back: swelling of veins, deformities</p>				

Comments:

Date Date Date Date

7. Tell the woman that you are now going to do an abdominal examination. Explain to her that you need to feel the baby and find out how the baby is lying in her abdomen				
8. Stand at the woman's side · Look at abdomen and the way the baby is lying				
9. Feel the woman's abdomen a. decide the strength and length of contractions b. count how many contractions in 10 minutes c. start at top of abdomen · feel shape, size, firmness, mobility · decide what part of baby is at top of uterus d. put your hands on lower abdomen · feel for arms, legs, back, head of baby e. ask woman to bend knees · hold the part of baby in lowest part of abdomen · decide what part of the baby you feel f. face the woman's feet · place both your hands on abdomen				
10. Listen to the heart beat over the chest or back of the baby. Count the baby's heart rate.				
11. Record your abdominal examination findings on the partograph. Explain your findings to the woman.				

Comments:

124

Date Date Date Date

12. Explain to the woman that you are going to do a vaginal examination and why. Gather sterile surgical gloves/scrubbed hands, a bowl, antiseptic solution, cotton balls, soap and water.				
13. Ask the woman to lie on her back with her legs apart and her knees bent. Explain each step of the examination as you are about to do it.				
14. LOOK for discharge. Wash the woman's genital area with soap and water. Wash your hands and put on sterile surgical gloves or surgical scrub on your hands. Use cotton balls and antiseptic solution to wipe the woman's vulva clean.				
15. Dip the index and middle fingers of your examining hand into antiseptic solution. Insert these fingers into the woman's vagina. <ul style="list-style-type: none"> · FEEL her vaginal wall · FEEL for any hard scarring or stool in her rectum · FEEL her cervix, checking its thickness (effacement) and firmness · Decide dilatation and effacement of cervix · Note whether her bag of waters has broken · Decide what is the presenting part of the baby and how far the presenting part has come into the pelvis (descent) 				
16. Remove your hand from the vagina. Help the woman to get comfortable. Record all your findings on the partograph. Explain your findings to the woman.				
17. LOOK and FEEL DURING LABOR; RECORD OBSERVATIONS <ol style="list-style-type: none"> a. cervical dilatation every 4 hours or PRN <ul style="list-style-type: none"> · membranes · molding b. descent of head <ul style="list-style-type: none"> · abdominally every hour · vaginally every 4 hours or PRN as needed 				

Comments:

Date Date Date Date

<ul style="list-style-type: none"> c. uterine contractions <ul style="list-style-type: none"> · latent phase every hour · active phase every 30 minutes d. fetal heart rate every 30 minutes <ul style="list-style-type: none"> · every 5 minutes, if <ul style="list-style-type: none"> · thick meconium · no liquor · baby very active · fetal heart rate <ul style="list-style-type: none"> · above 160 · below 120 e. mother's vital signs <ul style="list-style-type: none"> · pulse every 30 minutes · blood pressure and temperature every 4 hours f. urine every 2 - 4 hours or PRN g. medications PRN 				
<p>18. Identify abnormal labor progress and refer</p> <ul style="list-style-type: none"> a. prolonged latent phase b. moving to the right of the alert line c. at the action line 				

Comments:

References

Experience and the following references were used to develop this module. These references will give you additional information about history taking, physical examination, management of abnormal findings and the partograph. You can review all of this information in your own midwifery textbooks too.

Bird, G. C. (1978, April). Cervicographic management of labor in primigravidae and multigravidae with vertex presentations. Tropical Doctor. 8,78-84.

British Medical Journal (1972, October). Graphic records in labor. 4,163-165.

Burgess, H. A. (1986, Jan-Feb). Use of the labor graph in Malawi. Journal of Nurse-Midwifery. 31,4652.

Drouin, P. et al (1978, June). The value of partogramme in the management of labor. Obstetrics and Gynecology. 53,741-745.

Glick, E. & Trussell, R. (1970, November). The curve of labor used as a teaching device in Uganda. The Journal of Obstetrics and Gynaecology of the British Commonwealth. 77,1003-1006.

Grant, H. & Murray, R. (1971). Emergency care. Robert J. Brady Company, Washington DC. 9,265.

Leigh, B. (1986, June). The use of partogram by maternal and child health aides. Journal of Tropical Pediatrics. 32,107-110.

Myles, M. F. (1981). Textbook for midwives, Churchill Livingstone, Edinburgh. 17,270.

Philpott, R. H. et al (1978). Obstetrics, family planning and paediatrics. University of Natal Press, Pietermaritzburg. 9,92.

Studd, J. W. W. (1981, December). A visual method of charting labor: The partograph. Contemporary OB/GYN. 18,25-30.

The Medex Primary Health Care Series. (1983). Basic clinical knowledge and skills, special assessment procedures. Health Manpower Development Staff, John A. Burns School of Medicine, University of Hawaii, Honolulu. 12,177-222.

The Medex Primary Health Care Series. (1983). Maternal and child health, labor and delivery. Health Manpower Development Staff, John A. Burns School of Medicine, University of Hawaii, Honolulu. 21,1-126.

The Nurse Clinician Primary Health Care Series. (1982). Maternal and child health. Ministry of Health, Government of Lesotho, Maseru. 5,12-73.

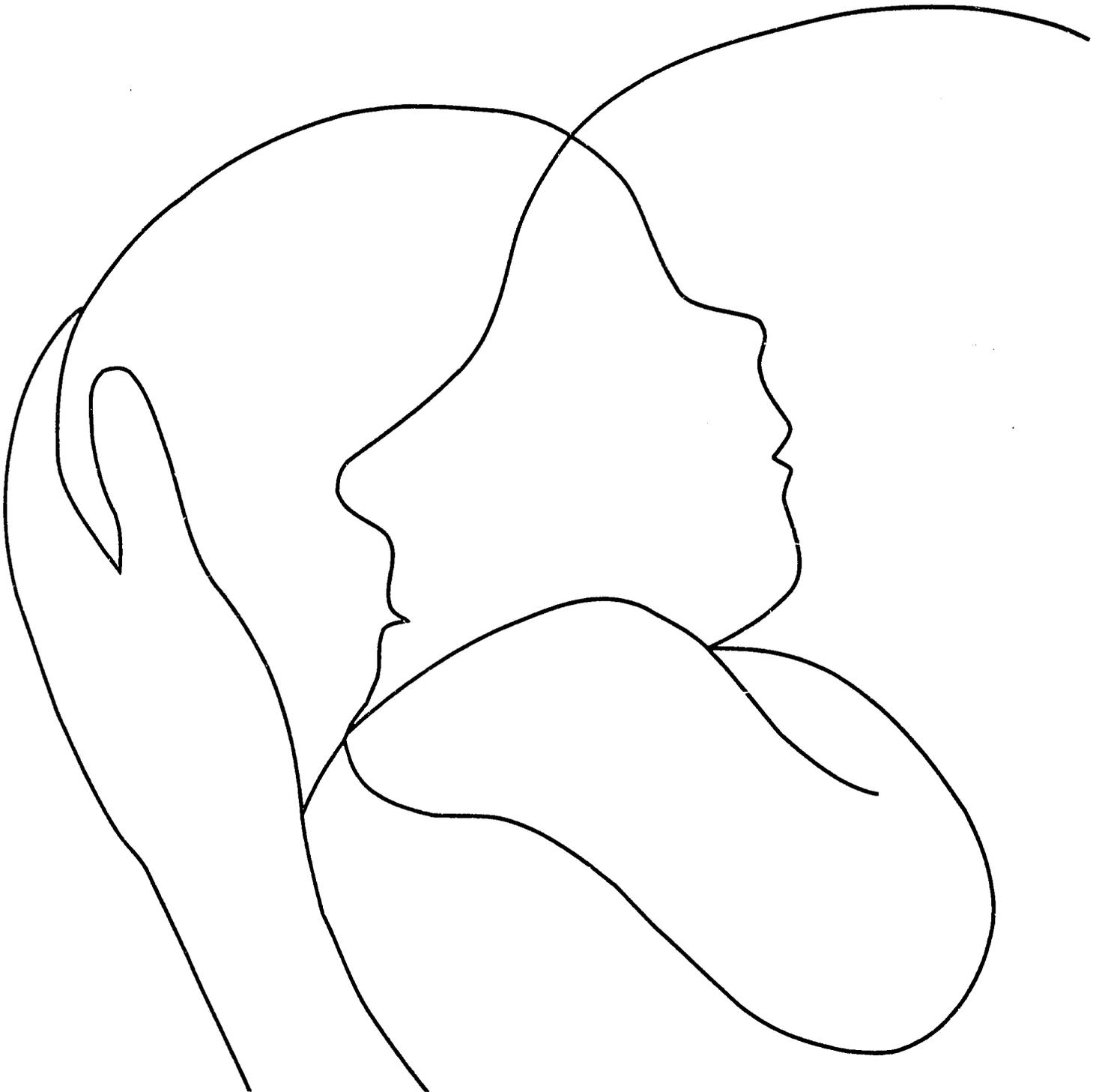
Varney, H. (1987). Nurse-midwifery, Blackwell Scientific Publications, Boston. 14,311.

Webber, R. H. (1987, April). Simplified cervicograph for rural maternity practice. Tropical Doctor. 17,81-84.

World Health Organization. (1986). Maternal mortality rates: A tabulation of available information. 2nd Edition. WHO document FHE/86.3.

World Health Organization. (1988). The partograph: A managerial tool for the prevention of prolonged labor. (1988). WHO document MCH/88.3.

Module 4: EPISIOTOMIES AND REPAIR OF LACERATIONS



Module Contents

REPAIR OF EPISIOTOMIES AND LACERATIONS

	Page
Goal	1
Objectives	1
Common Medical Terms	1
Introduction	2
Equipment	2
Procedures	3
1. Giving Local Anesthesia	3
2. Cutting an Episiotomy	4
3. Cervical and Vaginal Inspection	7
4. Mediolateral Episiotomy Repair	9
5. Repair of Lacerations	14
Learning Aids	17
1. Choosing a Suture	17
2. Principles of Knot Tying	17
Square Knot	18
Procedure for Median Episiotomy Repair	20
Review Questions	24
Case Study	27
Skills Checklist	35
1. Procedure for Giving Local Anesthesia	35
2. Procedure for Cutting an Episiotomy	37
3. Procedure for Cervical and Vaginal Inspection	38
4. Procedure for Episiotomy Repair	41
5. Procedure for Repair of Lacerations	43
References	46

125

EPISIOTOMIES AND REPAIR OF LACERATIONS

Goal

This module will help the midwife to diagnose and repair lacerations. The midwife will learn how to cut and repair episiotomies.

Objectives

The midwife caring for mothers in labor and delivery should be able to:

1. Define genital tract lacerations and the two types of episiotomies.
2. Identify signs and symptoms for cutting an episiotomy.
3. Identify signs and symptoms of vaginal and cervical lacerations.
4. Do (LOOK and FEEL) Perform a complete inspection of the cervix and vagina.
5. Cut and repair episiotomies.
6. Repair a laceration.
7. Explain to mothers the need for cutting an episiotomy, performing a vaginal inspection, and/or repair of a laceration or episiotomy.

Common Medical Terms

Deep muscles - the levator ani and coccygeal muscle groups.

Continuous Suture - This is a method of suturing where the suture is not cut and tied until the end of a row of stitches.

Episiotomy - a cut made in the perineum at the end of the second stage of labor to prevent tears (lacerations) or permit a faster delivery of the baby.

Interrupted suture - This is a method of suturing where each stitch is cut and tied.

Laceration - a wound or irregular tear of the tissue (flesh).

Median (Medial) or midline episiotomy - a cut made in the middle or central part of the perineum from the vagina towards the rectum.

Mediolateral episiotomy - a cut made in the perineum either to the left or right of center at about a 45 degree angle. The cut is made from the vagina angled away from the rectum towards the buttock.

Subcutaneous layer - the layer of tissue lying beneath the subcuticular layer

Subcuticular layer - the layer of tissue lying immediately under the skin (epidermis).

Suture - a thread, wire, or other material used to stitch (sew) parts of the body together. Suture may be absorbable. The thread gradually is dissolved by the body tissues and need not be removed. Suture may be non-absorbable. It is not dissolved by body tissue or body fluids. The suture must be taken out when healing is complete or progressing well. Absorbable suture is used for episiotomy and genital laceration repair.

Introduction

Lacerations and unrepaired episiotomies can lead to heavy blood loss, infection, scarring, unsatisfactory sexual intercourse, and death. A small laceration of the cervix not repaired can cost a woman her life. It is important that midwives know how to suture to reduce both sickness (morbidity) and death (mortality).

In this module the midwife will learn how to:

- Cut an episiotomy if the woman needs one
- Give local anesthesia for repair of episiotomies or lacerations
- Tell if the woman has a laceration of the genital tract by performing a cervical and vaginal inspection
- Repair median (midline) and mediolateral episiotomies
- Repair vaginal and cervical lacerations

For information on how to choose a suture, and the way to tie a knot see the Learning Aids at the back of the module.

Equipment

a good light source such as flash light (torch), lantern, anglepoid lamp or other strong light
soap and water to scrub the genitals

gloves

needle holder or toothed clamp

sharp scissors

2 sponge forceps (ring forceps)

suture with needle

thumb forceps (tissue forceps)

local anesthesia such as 1% lidocaine hydrochloride if available

20 cc. syringe

1 1/2 inch 22 gauge needle is ideal but use whatever you have

gauze (4 x 4s)

Procedure for Giving Local Anesthesia

Put a 22 gauge 1 1/2 inch needle on a ten cubic centimeter (cc) syringe. Longer needles and larger syringes can be used. 1 % lidocaine hydrochloride (Xylocaine) is the most popular local anesthetic, though a number of them are available. Explain to the woman what you are going to do and help her to relax.

1. Fill the syringe with anesthetic.
2. Place your two fingers between the baby's head and the perineum. Injecting anesthetic into the head of the infant can cause death. It is important that your fingers serve as a protection in front of the baby's head.

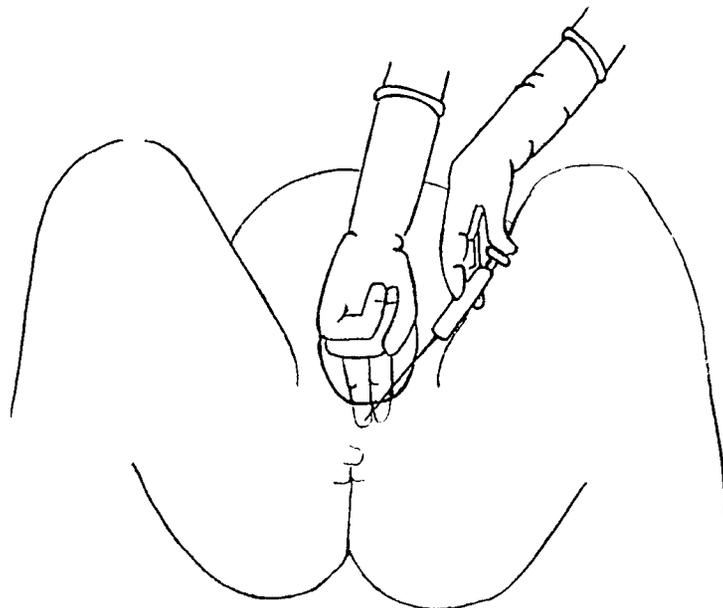


Figure 1. Injecting local anesthetic

3. Insert the whole length of the needle from the fourchette just below the skin down the perineum. Pull back on the plunger of the syringe and check for blood (aspirate). If you inject local anesthetic directly into a blood vessel it could cause heart irregularity. Inject evenly as you **withdraw** the syringe.
4. Now angle the needle to one side of center and repeat the steps in #3. Repeat on the other side.
5. You should have injected about 10 cc of anesthetic by this time. Change the position of the needle again and repeat injecting up the center of the back wall of the vagina. Remember to protect the baby's head with your fingers.
6. Wait a minute or two before cutting your episiotomy if there is time to wait. Otherwise, the thinning and stretching of the perineum will assist you with natural anesthesia. Your anesthetic will have worked (taken effect) by the time you start the repair.
7. During the repair, if the woman is uncomfortable, inject up to 10 more ccs of 1% anesthesia in the area where the woman feels pain. Try to always inject as you withdraw to prevent the solution from concentrating in all one area, and to lessen the chance of injecting into a blood vessel.

Procedure for Cutting an Episiotomy

LOOK and FEEL. When best to cut an episiotomy comes with experience. Two clues that an episiotomy may be necessary are bright red blood from the vagina before the head delivers due to tearing in the vagina, or the perineal skin may look pale (blanched) and shiny in appearance as it is overstretched just prior to tearing.

Reasons for cutting an episiotomy:

1. To prevent a perineal tear or overstretching of perineal tissues as in the case of a very large infant.
2. To protect the baby from damage as in the case of a premature infant whose head is being repeatedly pressed against a thick, firm perineum or speed the birth in the case of fetal distress.
3. To prevent damage to both mother and baby in the case of an abnormal presentation (breech, face, occipital posterior position) by providing more space for a safe delivery.
4. To decrease the length of second stage for women who are ill with heart disease, sickle cell disease, eclampsia, etc.

How to cut an episiotomy:

1. LOOK and FEEL. Is the perineum long or short? Thick or thin? Does it have varicose veins, genital warts, or other problems.
2. If a midwife is not close to a hospital and doctor with obstetrical experience, it is safer to choose a mediolateral episiotomy. This type of episiotomy is less likely to extend into the rectum and bowel. It does take a bit longer to repair and the healing process may be slower and more uncomfortable for the woman. However, the midwife is not creating complications such as recto-vaginal fistulas which may cause great expense and difficulty for the woman in the future.

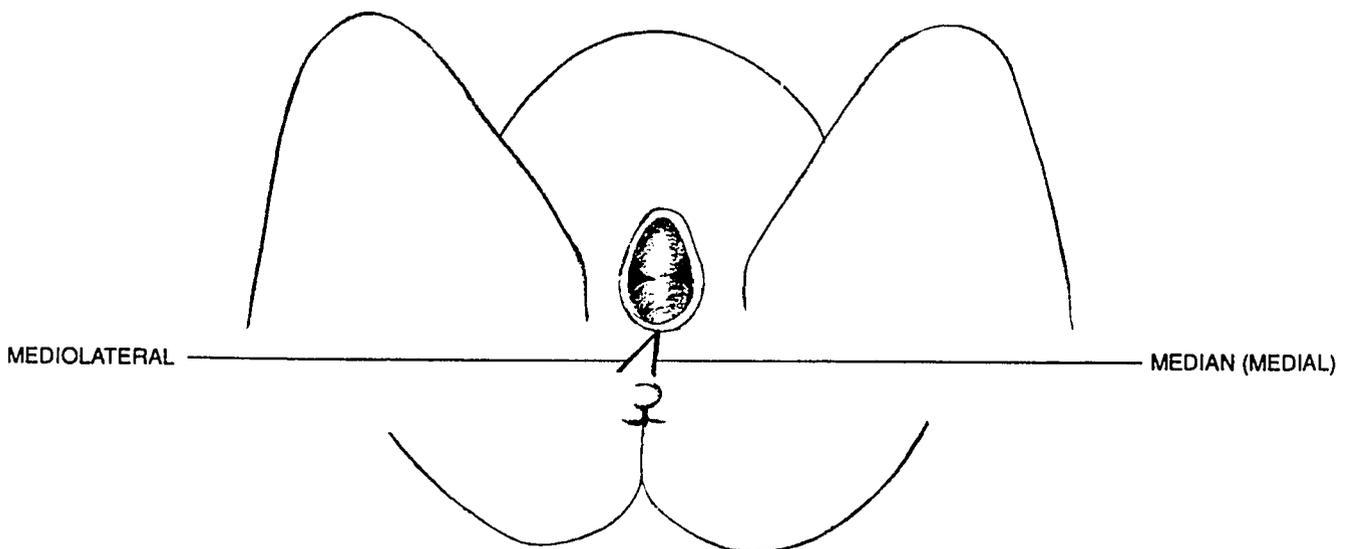


Figure 2. Positions to cut episiotomies

3. Try not to cut an episiotomy before it is time. Remember the best time is when the perineum is thinned and pale or shiny. The blood loss will be greater if you cut too soon.
4. Take a sharp pair of scissors. Place two fingers of your other hand in the vagina between the scissors and baby's head. This is to prevent accidentally cutting the baby. Start at the center of the perineum and angle (slant) your scissors out at a 45 degree angle. If you are right handed cut towards the mother's right buttock. If you are left handed cut towards the mother's left buttock.

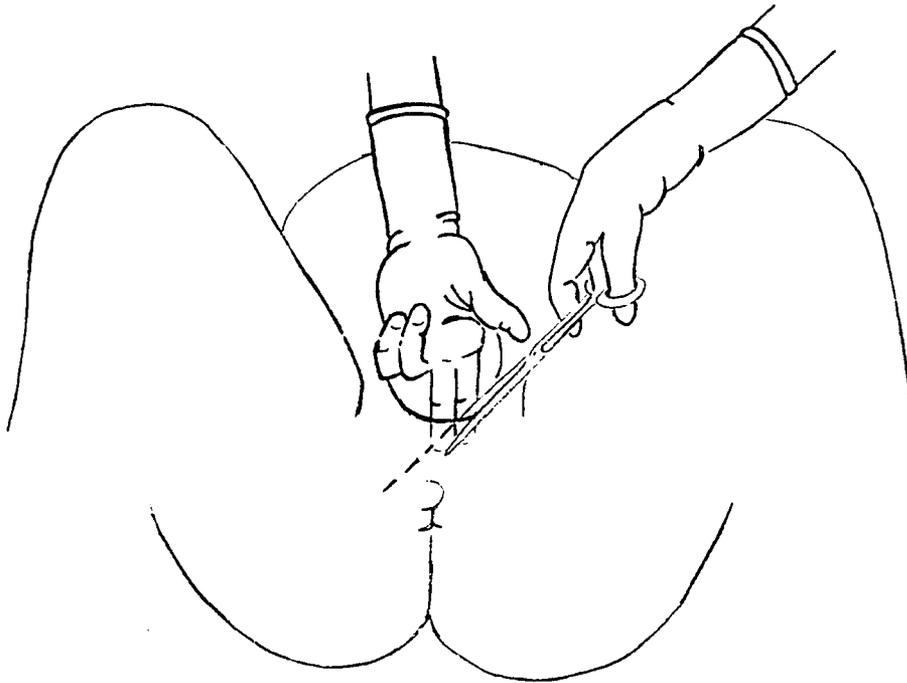


Figure 3. Cutting an episiotomy

5. Make the episiotomy with one or two large cuts. Many tiny cuts may give a ragged edge to the wound making repair and healing more difficult.
6. After the perineal cut has been made, turn your scissors around facing up the vagina. With your other hand protect the baby's head with your fingers. Cut up the center of the vagina 2 to 3 inches (5 to 8 cm.). This cut allows more space in the vagina and helps to prevent tearing up from the perineal cut.
7. Press a gauze firmly over the cut area while the woman continues to push with contractions. This will keep the blood loss as little as possible. Remember good sterile technique. If you lift the gauze off the cut, you will need to take a fresh sterile gauze to place on it. Use care to not get contamination (germs) from the rectal area into the cut.

Diagnose That There is a Laceration (Tear)

ASK AND LISTEN

If the woman delivered at home or with a traditional birth attendant, ASK the patient, TBA, or family member about the delivery.

ASK When did you deliver? Have you noticed bleeding? More than usual? Where is the bleeding coming from? How much?

ASK Did the placenta deliver? Was it all there in one piece? If twins, did you deliver two placentas or one large one with two cords?

ASK Did she take any medicines, herbs, treatments? Has anything been placed in her vagina to stop bleeding or for another purpose?

DO NOT WASTE TIME, YOU DO NOT KNOW HOW MUCH BLOOD THE WOMAN LOST BEFORE YOU SEE HER. SHE MAY BE CLOSE TO SHOCK OR DEATH.

LOOK AND FEEL

LOOK for signs of shock:

- weak fast pulse
- low blood pressure
- cold, clammy skin

LOOK at and FEEL the placenta to make sure the tissue and membranes are completely delivered

FEEL the uterus to make certain that it is well contracted.

LOOK at the woman's clothing and genitals. Try to decide how much blood she has lost.

IDENTIFY THE PROBLEMS/NEEDS AND TAKE APPROPRIATE ACTION

Check to see that the uterus is well contracted.

Perform bimanual compression if it is not well contracted.

Give oxytocics if needed.

Refer to the module called **Prevention and Treatment of Hemorrhage** for a complete discussion of active management of the third stage, bimanual compression of the uterus, and manual removal of the placenta.

Prepare to perform a vaginal and cervical inspection to see where the bleeding has come from. You should perform this procedure for women who are referred to you with problems and on all of the women that you deliver in your maternity.

Procedure for Cervical and Vaginal Inspection

Explain to the woman what you will be doing. Let her know this procedure will cause discomfort, but that you will be as fast and gentle as possible. Let her know that it is important to make certain that she does not have any tears which will cause her to bleed too much.

LOOK and FEEL as you quickly and gently wash off the woman's genitals. With your gloved hand separate the labia (vaginal lips). Have your assistant shine a light into her vagina. Look carefully for any tears or hematomas (collection of blood under the tissue).

Press firmly on the back wall of the vagina with your fingers. Look deep into the vagina. Bleeding from a laceration may be a slow oozing or spurts from a pumping artery.

Slowly pressing against the vaginal wall, move your fingers up the side wall of the vagina, one side at a time LOOK and FEEL. Is the surface smooth? Are there any points where you notice bleeding? Did you feel all the way up the vagina to the cervix?

Next have your assistant press firmly down on the woman's uterus. This will move the cervix lower in the vagina so you can examine it more carefully. Press firmly on the back wall of the vagina with one hand. With your other hand take your sponge forceps (ring forceps) and clamp it on the anterior lip (top lip) of the cervix. Pull gently on the forceps.

WARNING. If you do not place the clamp well onto the tissue, you can tear off a piece of the cervix creating more bleeding.

You should be able to clearly see the cervix now. LOOK at all sides of it carefully. Do you see oozing or spurts of blood? Lacerations occur most frequently on the sides of the cervix at 3 or 9 o'clock (mid-right and mid-left).

If there is blood in the way and it is difficult to see where the bleeding is coming from, take a sterile gauze or cloth and wipe the blood away. LOOK and SEE where the bleeding is coming from. Is it from the uterus, vaginal laceration, or cervical laceration?

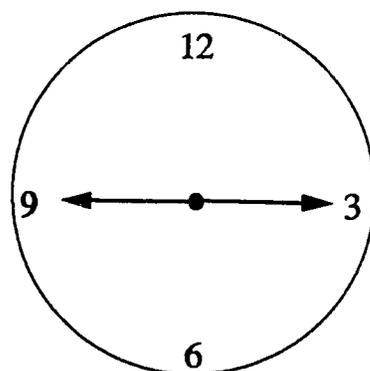


Figure 4. Most common sites for cervical tears

If the bleeding is from the uterus, give an oxytocic medication and massage the uterus. If the bleeding is from a laceration, proceed repairing it as described in the section on laceration repair. If no lacerations or bleeding are noted, remove the sponge forceps, make the woman comfortable, and continue to monitor her vital signs carefully.

If the lacerations seen are so great and so deep, or if the patient does not improve with intravenous rehydration, pack her vagina with a tampon of sterile gauze or cloth and prepare to transport her immediately to a health care facility with surgical capability (operating theater). She may be suffering from a ruptured uterus, laceration of the uterine arteries, or other complications. See the module **Hydration and Rehydration** for more information.

Episiotomies can be repaired using several different ways. The method (way) which will be taught here is called the suture-sparing continuous method. This method has been chosen as it has several advantages. The midwife needs to learn only one type of stitch and one or two types of knots. It also causes the patient less pain after repair as a small amount of suture is left in her tissue. Remember that this basic repair can be changed or modified when needed. If a woman has an unusually deep laceration or extension (tear) of her episiotomy, an additional layer of interrupted (individual) sutures can be used for added strength.

Preparation for Repair

1. Position the woman's buttocks at the edge of the bed or table. Her legs may be supported by stirrups or held by family members.
2. Remove any soiled cloths from under her and wash her genitals.
3. Put on fresh gloves. Place a tampon or gauze into the vagina if needed to keep blood off the area you are suturing.
4. Place a sterile or very clean towel or cloth under her buttocks.
5. Check to see if the local anesthesia you gave to her before cutting the episiotomy is working well by touching the cut areas with the sharp point of a needle. If she feels sharp pain you need to give her some more anesthesia before the repair. If it is a laceration you are repairing, give the local anesthesia now. See the section on local anesthesia.
6. Have your light source adjusted so you can see well into the vagina. This is a very important point. It is easy to miss lacerations or not see the top of your episiotomy if you can not see very well.
7. Sit down and make yourself comfortable. If your body is relaxed and comfortable, you will do a better job.
8. Perform a complete vaginal, cervical, and perineal inspection as described in the previous section called **Procedure for Cervical and Vaginal Inspection**.
9. Open the suture and gently stretch it out straight. Choose 2-0 or 3-0 chromic catgut where available. 2-0 or 3-0 chromic catgut is good for repairing episiotomies and lacerations. It is flexible, strong, lasts long enough for healing to occur, and causes a minimum of tissue reaction. If not available use whatever you have.

10. Place the needle in the needleholder at a right angle. Clamp the teeth of the holder firmly shut. If not clamped well it will twist in the tissue as you sew and be difficult to control.

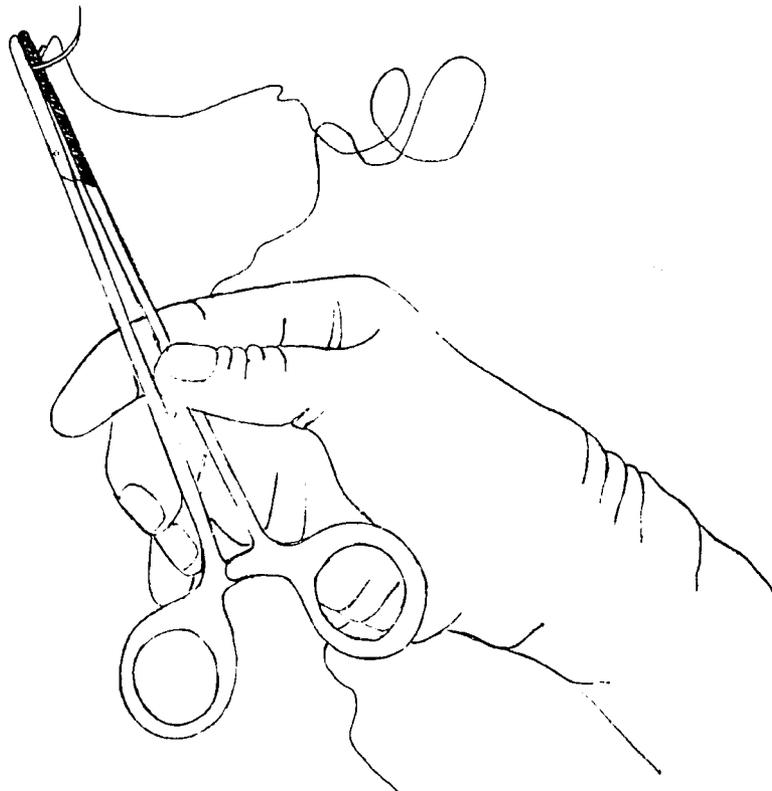


Figure 5. Proper angle of needle in needleholder

Procedure for Mediolateral Episiotomy Repair

The repair of a mediolateral episiotomy is the same as repair of a median episiotomy with a couple of exceptions. You will use the suture-sparing continuous method in both methods. However, when you cut on a slant (as in a mediolateral cut) the tissue retracts unevenly and one side appears thicker than the other. Instead of suturing straight across from side to side as you do with median (midline) episiotomies, you must move your body and your needleholder to the side to line up parallel with the wound. You must take a bigger bite of tissue on one side of the cut in order to make it come out evenly. Hold your needleholder parallel to the wound (cut) when suturing to make the angle of suturing correct.

In Figures 6 and 7 the continuous sutures are the same as for repair of the median episiotomy. Because the perineum has been cut on an angle, the opening leans a bit to the side.

From Figure 8 through Figure 13 you must change the angle of your body and your needleholder to do the repair. Notice how much larger the bite of tissue taken on the one side is in comparison to the other. Notice also that you get the impression that you are suturing "uphill" (upwards).

If the episiotomy is unusually deep or uneven in depth, it is possible to place several or an entire row of interrupted sutures in the deep part prior to doing the rest of the repair as usual. To learn how to do interrupted sutures see the section on repair of lacerations of the cervix later in this module.

1. Run your finger through the whole wound (cut). See clearly where the top of the wound is. Place your first suture about 1/2 inch (or one centimeter) above the top of the wound in the vagina. Tie it off with a square knot (see page 18) and trim off the short thread to about 1/2 inch. See Figure 6.

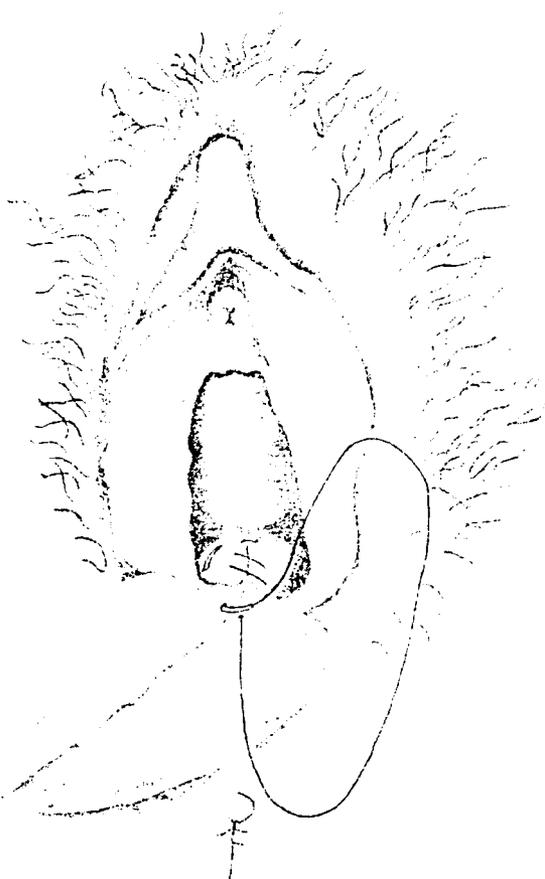


Figure 6. Sew vaginal mucosa

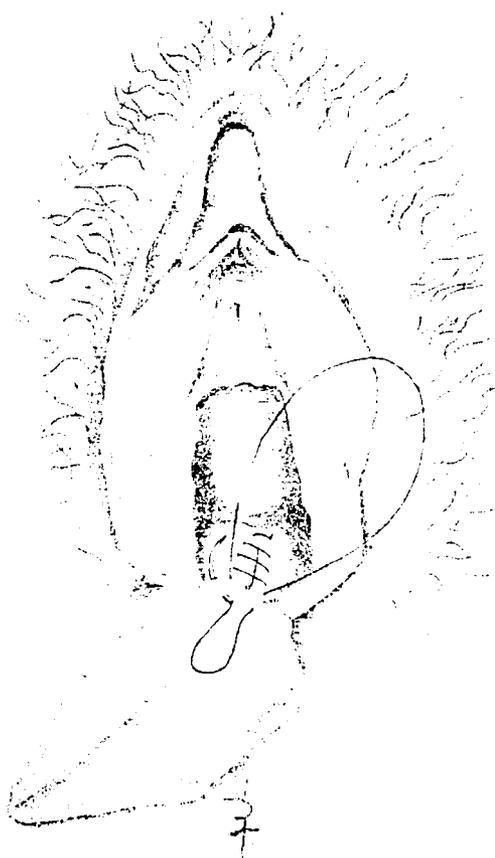


Figure 7. Continuous suturing to hymenal ring

2. Suture the vaginal mucosa using a continuous stitch (continuous suturing) sewing down to the hymenal ring. See Figure 7.

3. The needle then goes through vaginal mucosa behind the hymenal ring and is brought out on the wound of the perineum. See Figure 8. See how close to the top of the wound it is.
4. Now continue using continuous suturing all the way to the bottom of the wound. You have now closed the deep muscle layer.

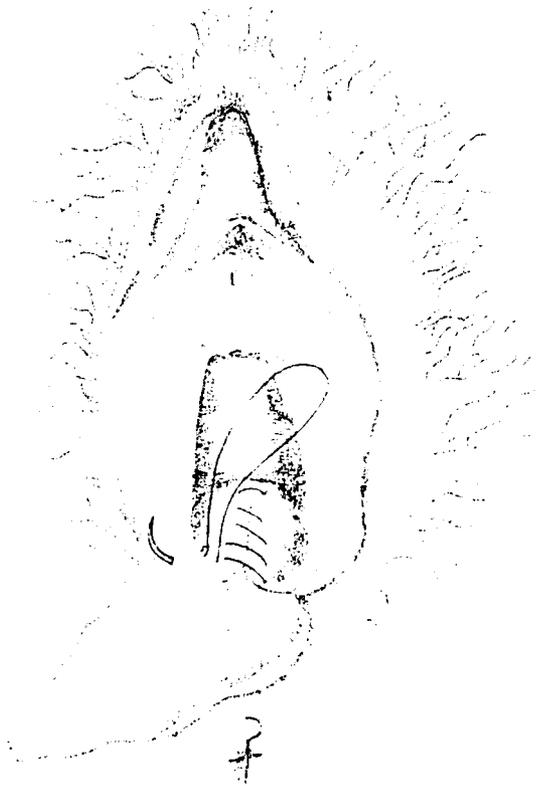


Figure 8. Suture moved to perineum

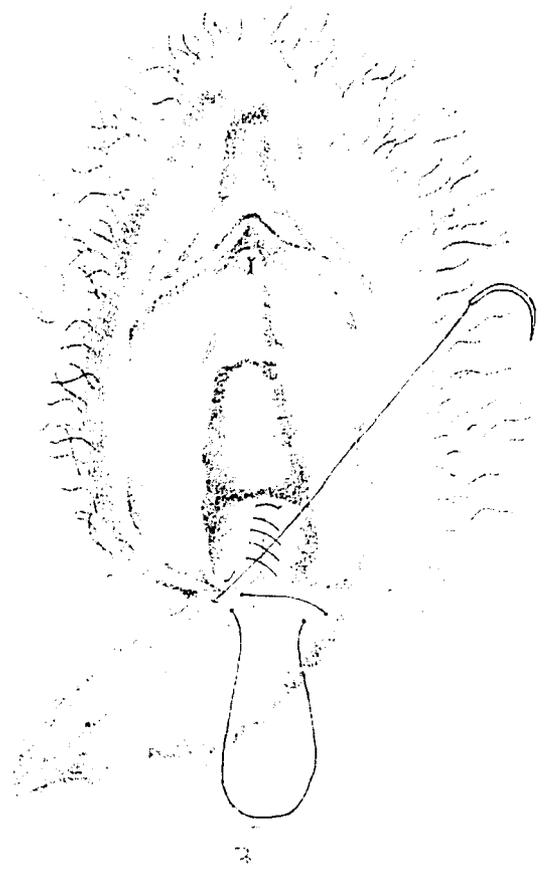


Figure 9. Continuous suturing continues

5. Once you have reached the very tip of the wound just above the rectum, you turn your needle over and start to sew again using continuous stitches to close the subcuticular tissue. See Figure 10. You are now making a second layer of stitches in the same area. Notice the angle of the needle in Figures 10 and 11. This second layer of suture will leave the wound about 1/2 inch open. This will close well by itself as healing occurs.

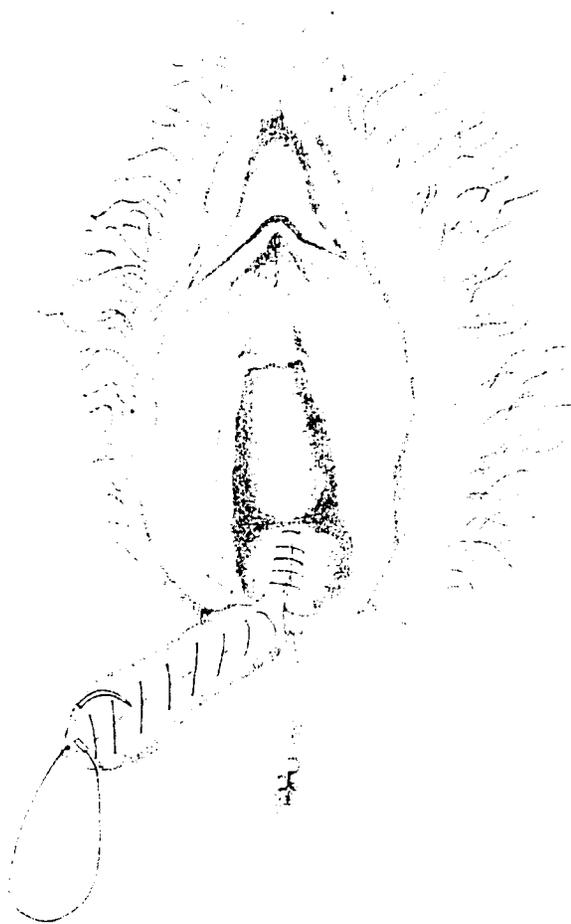


Figure 10. Sew to very bottom

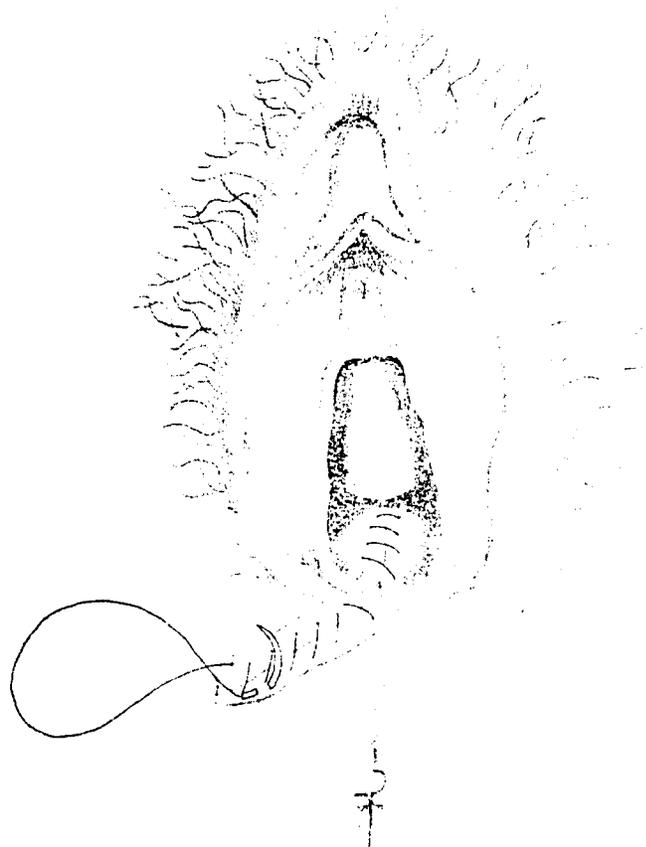


Figure 11. Subcuticular layer starts

6. Now the suture is moved again from the perineal part of the wound back into the vagina to be secured, tied off, and cut. See Figure 12 and 13 to see how the suture comes out behind the hymenal ring.

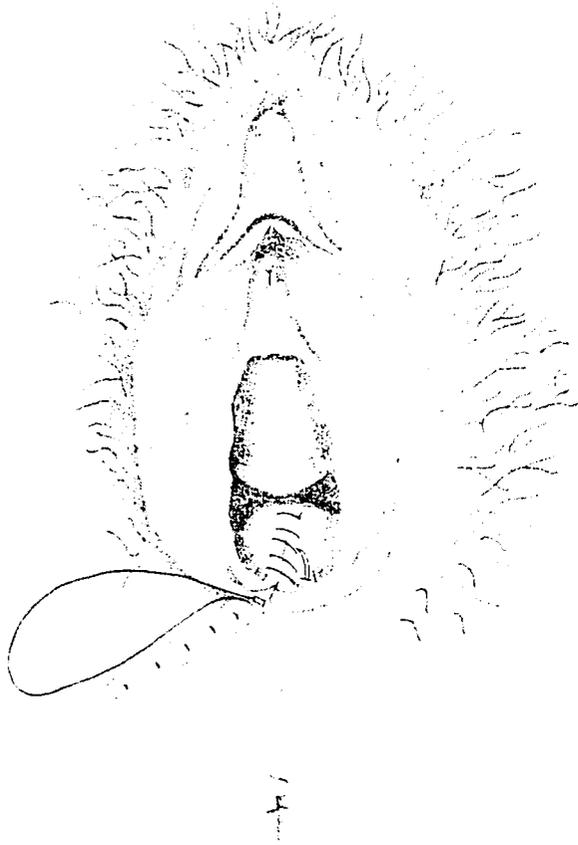


Figure 12. Move needle back into vagina



Figure 13. Tie off in vagina

7. Tie off the suture with a square knot. To make the knot very secure make one and a half square knots. Cut the two ends of suture off leaving about 1/2 inch. If you cut the ends too short, the stitch may pull apart. If this happens, the whole episiotomy becomes loose or pulls apart.
8. Insert finger into rectum. Feel top of rectum for suture. If you feel suture, make certain to repeat the rectal exam 6 weeks post partum. If not fully healed, (vesico-vaginal fistula) refer her to the doctor. Double check to make certain that you have not left any gauze, sanitary pads, or instruments in the woman's vagina. Wash her genitals with soap and water. Make her dry and comfortable.
9. Advise the woman to keep her perineum clean and dry. Discourage native herbs if harmful. Do not use boiling baths. Wash the area well with soap and water 3 - 4 times per day. She should return for a follow-up visit in one week so you can check the healing of the wound.

Procedure for Repair of Lacerations

Women who have very poor nutrition or have had repeated vaginal infections are more likely to get tears. Tears also occur with uncontrolled delivery of the baby, with very large infants, and with extensions (tears) of the episiotomy.

Tears around the clitoris and urethra can bleed very heavily and can be very difficult to repair. If you can refer the patient, pack sanitary pads or other bandage firmly against the vulva and have her keep her legs pressed together. You can tie cloths around her thighs as a reminder to keep her legs firmly together.

If you must repair the laceration yourself:

1. Place a catheter in the bladder. This helps you identify the urethra and keeps you from accidentally sewing the urethra shut or damaging it.
2. Choose the finest (most narrow) suture you have (see the section on how to choose a suture in the learning aids at the end of this module).
3. Press the tissue together. Lacerations are like puzzles. The ragged pieces must go together again so it looks like before. Do not hurry this part. The better job you do pressing the tissue together and planning where to place the suture, the better the healed place will look.
4. Place interrupted (individual) sutures the length of the shallow tear about 1 centimeter apart. To make an interrupted stitch:
 - take a bite of tissue,
 - bring it through to the center of the tear,
 - look for your needle,
 - check that it is not too deep or too shallow,
 - push it through the other side of the tear with the same size bite of tissue.
 - Pull the suture through leaving just enough (5 to 8 centimeters) of an end that you can tie the suture with a square knot. (See how to tie a square knot in the learning aids at the end of this module).
5. Continue making interrupted (individual) sutures for the full length of the laceration. Remember the most important thing is to control the bleeding.
 - If she continues to ooze blood from the laceration, press a gauze firmly over the wound for a couple of minutes.
 - Carefully peel off the gauze.
 - If the tear has stopped bleeding she is fine.
 - If she continues to ooze or bleed, press a gauze over the wound with steady continuous pressure for at least ten minutes - no peeking. Normal clotting time is usually about 7 minutes. If she still continues to bleed, you will need to add one or more stitches to control the bleeding.

For lacerations of the cervix:

Lacerations of the cervix most often occur at the middle left or middle right (3 and 9 o'clock) of the cervix. See the illustration (Figure 4) of common laceration sites earlier in this module. They will be found as you do your vaginal and cervical inspection. **Because the cervix does not contract as the uterus does, giving oxytocics will not stop bleeding from the cervix.** Cervical lacerations can occur in easy deliveries. That is the reason careful cervical and vaginal examinations should be done for every woman. Women die from simple cervical lacerations which could have been repaired with two or three stitches.

- Place your sponge forceps on one side of the laceration. See Figure 14.
- If you have a second sponge forceps, place it on the other side of the laceration.
- Place the handles from both forceps in one hand.
- Pull toward you.

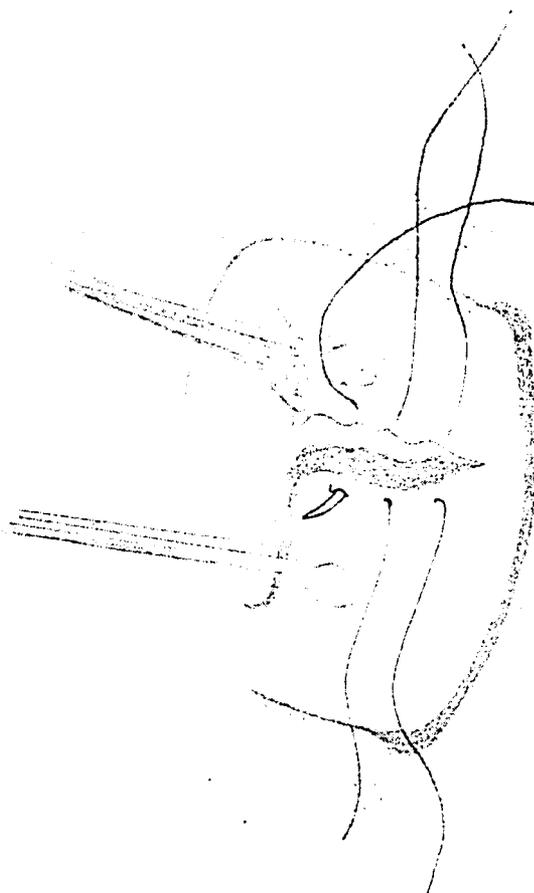


Figure 14. Holding the cervix for laceration repair

This will help you see the laceration better.

Place interrupted sutures the length of the wound about 1 centimeter apart as described in the section above.



Figure 15. Interrupted sutures on the cervix

If you do not have sponge forceps to grasp the cervix, have your assistant put on a pair of gloves. Have her press on the posterior (back) wall of the vagina.

This will help hold it out of the way so you can see the laceration better.

It is quite difficult to sew without the forceps to hold the cervix still; but it can be done in an emergency.

If you use toothed forceps or clamps to hold the cervix steady, you must use great care.

Instruments with teeth can cut the cervix and cause much greater bleeding; or you might accidentally pull off a piece of cervix.

Learning Aid 1 - Choosing a Suture

Suture comes in two types - absorbable and non-absorbable. Absorbable suture which is often called plain catgut is usually made from the connective tissue of the small intestine of sheep. It dissolves within a week. However, catgut which is soaked in chromic oxide resists absorption and retains its strength for 10 to 40 days. It is often called chromic catgut. Because of its strength and slower rate of dissolving, chromic catgut is ideal for repair of episiotomies and delivery lacerations.

Manmade or synthetic suture can also be absorbable. Vicryl or Polyglactin 910 are examples of absorbable suture. It is completely absorbed in 60 to 90 days.

Non-absorbable suture may be made from cotton, silk, plant tissue, metal, or manmade fibers. They tend to cause some tissue reaction (like an inflammation with swelling or redness). If no absorbable sutures are available use non-absorbable suture. Remember, an unrepaired laceration can lead to hemorrhage, anemia, and even death.

Suture material is graded by size. 3-0 means 000. The more zeros in the size the smaller the width of the thread. Therefore, 2-0 or 3-0 is very strong and good for repairing lacerations. 6-0 is very good for repairing wounds on the face. 9-0 is very good for surgery of the eye.

The ideal suture for episiotomies or genital lacerations is 2-0 or 3-0 chromic catgut. It is flexible, strong, lasts long enough for healing to occur, and causes a minimum of tissue reaction.

However, if you are in a situation where this is not available use anything at hand. Strong cotton thread from a tailor on a regular sewing needle can serve in an emergency. Remember, women die from blood loss from simple lacerations which are not found or not repaired.

Learning Aid 2 - Principles of Knot Tying

1. The knot, when complete, must be firmly tied so it can not slip. Therefore, the simplest type of knot is preferred.
2. The knot must be as small as possible to prevent reaction of the tissue (like an inflammation). The ends of the knot should be clipped about one half inch in length.
3. In tying any knot, rubbing between the two strands (sometimes called sawing) should be avoided. This can weaken the suture causing it to break.
4. Be careful not to damage suture when you are handling it. If you clamp onto it with the needleholder or forceps you can weaken or break the threads.

5. When pulling tissue together with your suture, be careful to not pull too tightly. This can cause cut off of circulation to the tissue. Pulling tissue too tightly can also cause suture to break.
6. Square knots and surgeon's knots are the best type of knot. They lie flat, take up a minimum of space, and hold together well. Granny knots (the type of knot children typically use to tie their shoes) frequently pull apart with pressure and should never be used for repair of episiotomies or lacerations.

Square Knot

To learn how to tie knots it is helpful if you tie a dark and light thread together. Then:

1. The white strand or thread is placed over the index finger of the left hand and held in the palm of the left hand. The black thread or strand is held in the right hand.
2. The black thread in the right hand is brought between the left thumb and index finger.
3. The left hand is turned inward and the thumb swung under the white thread to form the first loop.
4. The black strand is crossed over the white and held between the thumb and index finger of the left hand.

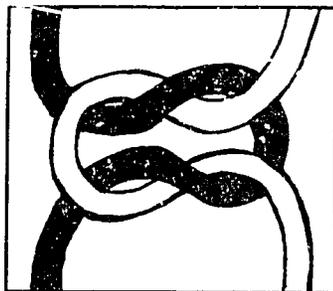


Figure 16. Completed square knot

5. The right hand releases the black strand. Then with the left hand grasp the black strand and bring it through the white loop. Again grasp the black strand with the right hand.
6. With the left hand let go of the black strand and pull with even tension. The first half of the knot is now complete.
7. Wrap the white strand behind your left thumb.
8. Loop the black strand over your left thumb.

9. Bring the black strand back up under the white strand.
10. Pull the black strand through.
11. Pull with equal tension on both strands, one in each hand. The second half of the knot is now complete. For added security tie another half knot.

Procedure for Median Episiotomy Repair

See the section earlier in this module on Repair of Mediolateral Episiotomies to review how to prepare for suturing.

1. Run your finger through the whole wound (cut). See clearly where the top of the wound is. Place your first suture about 1/2 inch (or one centimeter) above the top of the wound in the vagina. Tie it off with a square knot (see page 18) and trim off the short thread to about 1/2 inch. See Figure 17.
2. Suture the vaginal mucosa using a continuous stitch sewing down to the hymenal ring. See Figure 18.

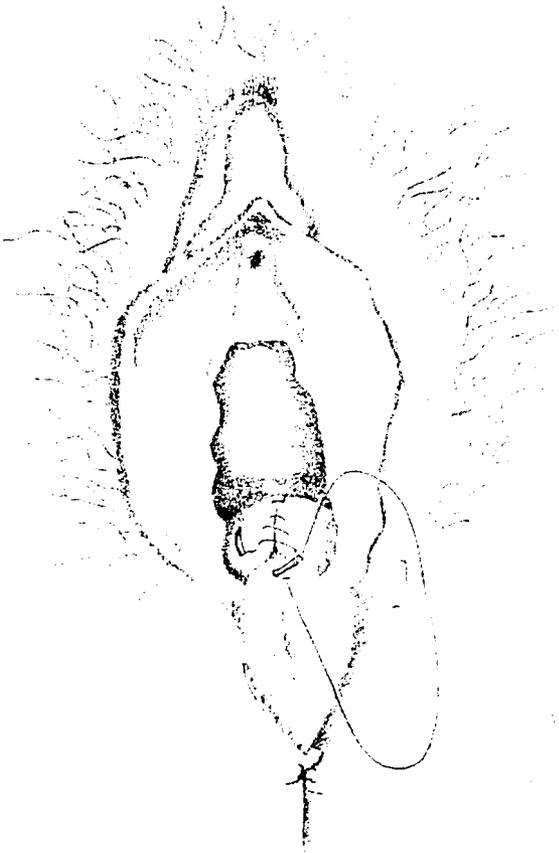


Figure 17. Sew vaginal mucosa

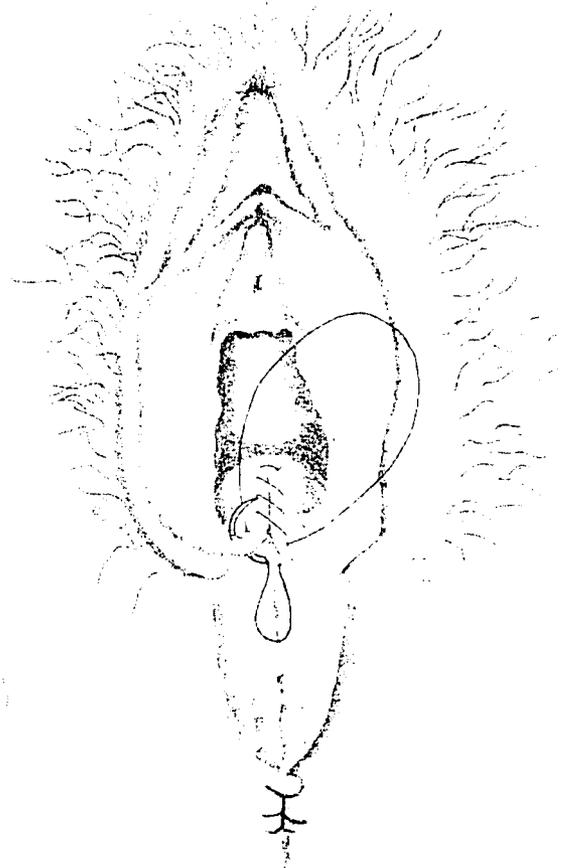


Figure 18. Continuous suturing to hymenal ring

3. The needle then goes through vaginal mucosa, behind the hymenal ring, and is brought out on the wound (cut) of the perineum. Look at Figure 19. See how close to the top of the wound it is.
4. Now continue using continuous suturing all the way to the bottom of the wound. Make sure that the bite taken on each side is equal in size. You have now closed the deep muscle layer.

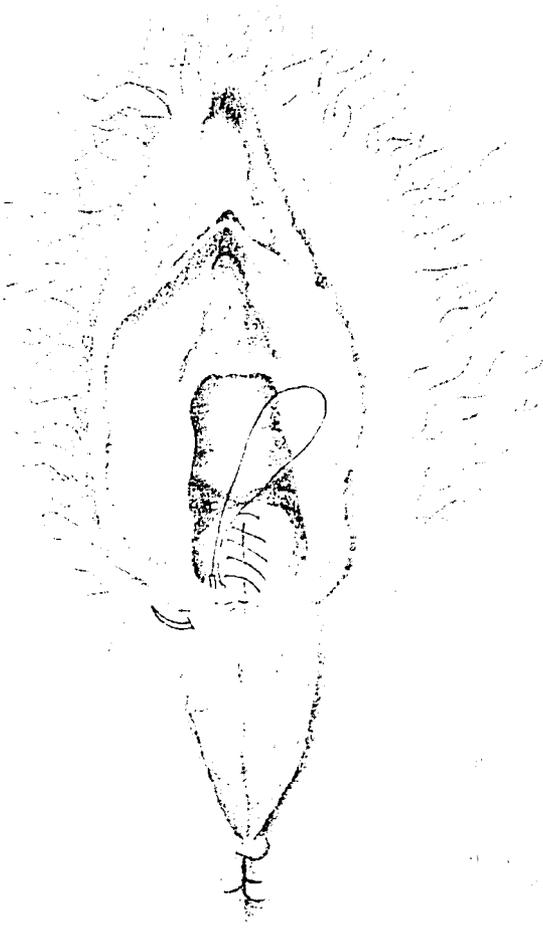


Figure 19. Suture moved to perineum

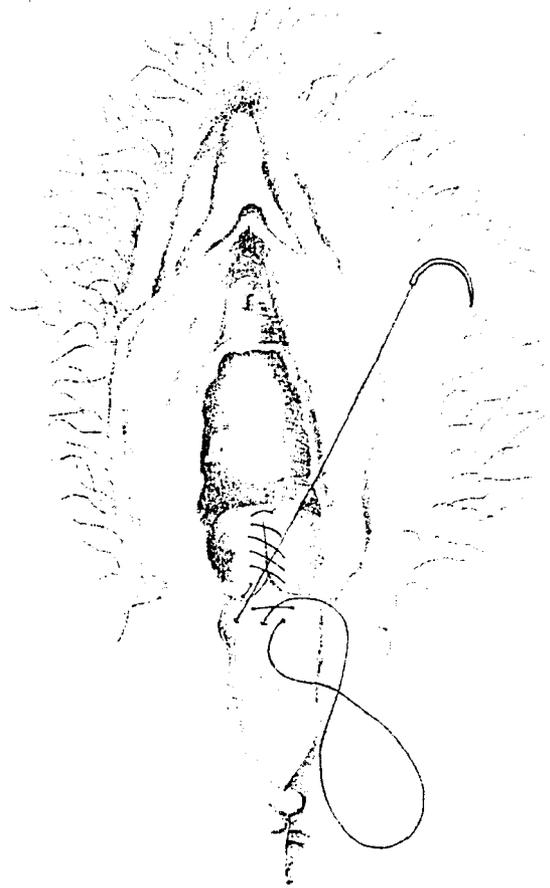


Figure 20. Continuous suturing continues

5. Once you have reached the very end of the wound just above the rectum, you turn your needle over and start to sew again using continuous stitches to close the subcuticular tissue. See Figure 21. You are now making a second layer of stitches in the same area. Notice the angle of the needle in Figures 21 and 22. This second layer of suture will leave the wound about 1/2 inch open. This will close well by itself as healing occurs.

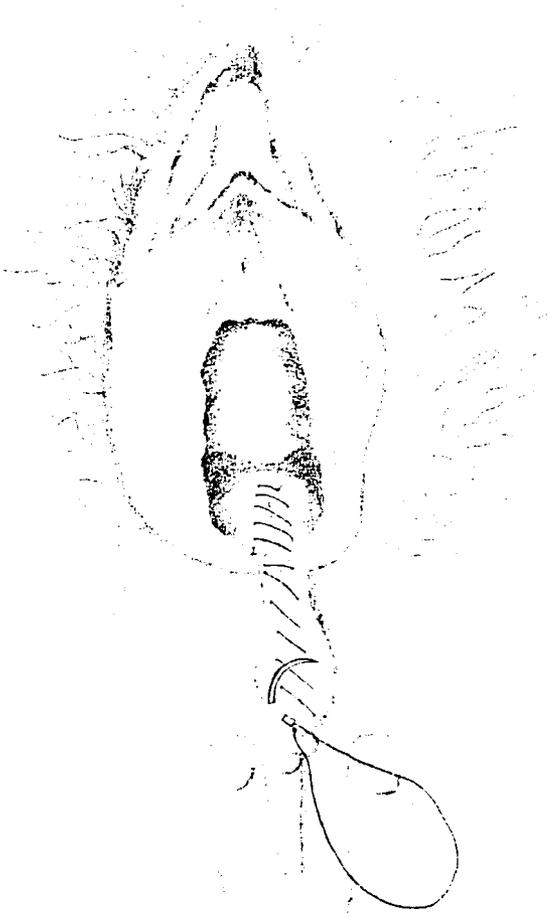


Figure 21. Sew to very bottom

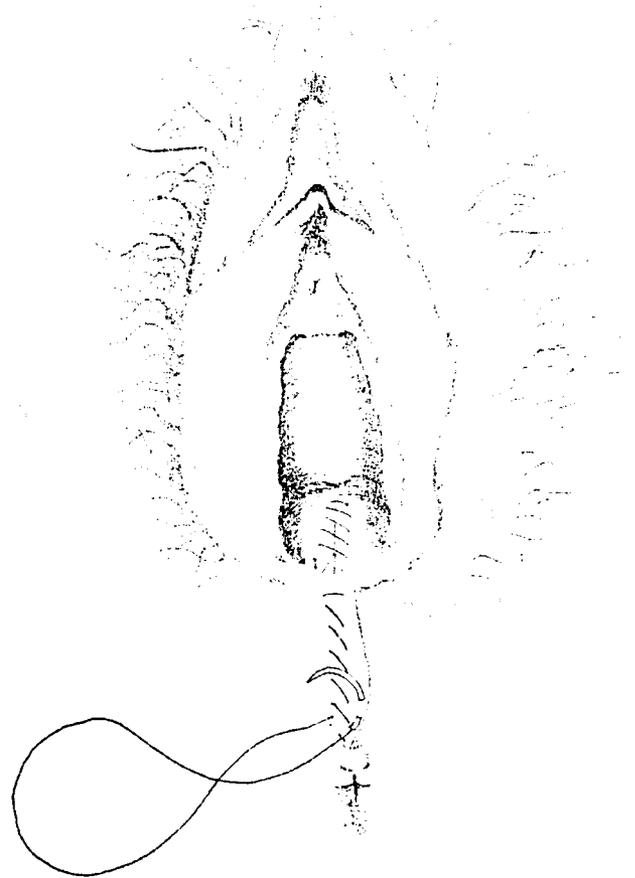


Figure 22. Subcuticular layer starts

6. Now the suture is moved again from the perineal part of the wound back into the vagina to be secured, tied off, and cut. See Figure 23 and 24 to see how the suture comes out behind the hymenal ring.

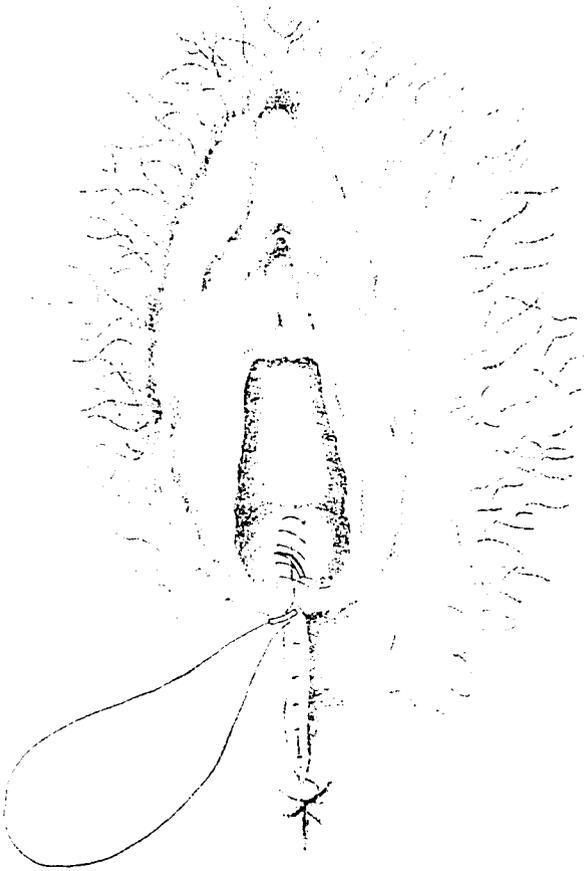


Figure 23. Move needle back into vagina

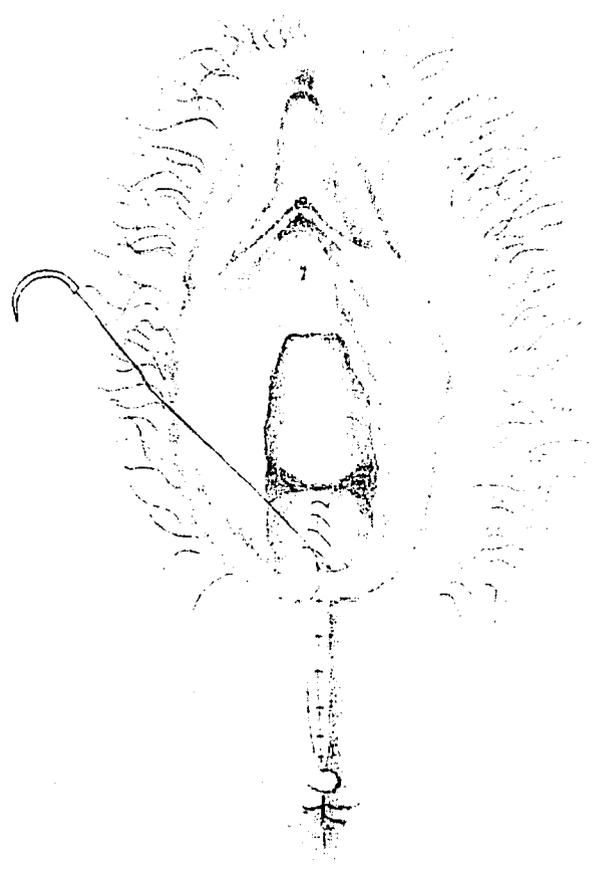


Figure 24. Tie off in vagina

7. Tie off the suture with a square knot. Cut the two ends of suture off leaving about 1/2 inch. If you cut the ends too short, the stitch may pull apart. If this happens, the whole episiotomy becomes loose or pulls apart.
8. Insert finger into rectum. Feel top of rectum for suture. If you feel suture, make certain to repeat the rectal exam 6 weeks post partum. If not fully healed (vesico-vaginal fistula), refer her to the doctor. Double check to make certain that you have not left any gauze, sanitary pads, or instruments in the woman's vagina. Wash her genitals with soap and water. Make her dry and comfortable.
9. Advise the woman to keep her perineum clear and dry. Discourage native herbs if harmful. Do not use boiling baths. Wash the area well with soap and water 3 - 4 times per day. She should return for a follow-up visit in one week so you can check the healing of the wound.

4. What are the steps to perform a vaginal and cervical inspection? (pages 7 and 8)

5. Explain how to inject anesthesia? (page 3)

6. What are the types of suture and what type is preferred to sew genital lacerations and episiotomies?
(page 17)

7. List the steps in the repair of a mediolateral episiotomy. (pages 8 - 13)

PROBLEM SOLVING METHOD CASE STUDY

The Problem Solving Method is an organized way of giving care to women. The Problem Solving Method is a way of thinking about the care you give women. This case study helps you review the Problem Solving Method. You need Modules 1, 4, 5 and 8 for reference.

We all solve problems every day of our lives. We usually do not think about the steps involved with problem solving. 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 four steps of the Problem Solving Method are:

- 1.
- 2.
- 3.
- 4.

(Check your answers by looking in Module 1.)

The Problem Solving Method is used by midwives to identify problems and take appropriate action.

Case Study 1

ASK AND LISTEN

This is the first step that must happen when seeing a woman. Ask questions about the reason she came to see you, the midwife. In an emergency, the midwife may be asking questions, looking, feeling, making decisions and taking actions almost at the same time. It is very important that the four steps of the Problem Solving Method are practiced over and over, so that you do not have to look in a book or stop and say, now what should I do first?. In an emergency, you must know the steps.

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

(Fill in this sentence)

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

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

- 1.
- 2.
- 3.
- 4.

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

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

LOOK AND FEEL

This is the second step that must happen when seeing a woman. Find out where the bleeding is coming from as you prevent shock. What do you do to prevent shock?

Refer to Module 8

Refer to Module 8

As you help her lie down, cover her to keep her warm and dry; give her liquids to drink; talk to her and reassure her so she is not too afraid; you should quickly LOOK and FEEL.

What do you find as you LOOK and FEEL?

1.

2.

3.

4.

5.

You find out that Mrs. C.L. is nervous (anxious) and afraid, respirations are shallow and fast (44 in a minute), pulse is strong but fast (100 beats in a minute), blood pressure is low (70/48). Her skin is cold and wet. The uterus is still firm and contracted. The perineum is intact. There is a tear at the middle left of the cervix.

IDENTIFY THE PROBLEM

This is the third step of the Problem Solving Method. The midwife must find out what the problems are using the information from the first two steps.

What is the problem?

Using the information from ASK and LISTEN (difficult delivery of breech, primip, placenta is delivered, thirsty, nervous, bleeding), the LOOK and FEEL (anxious, respirations shallow and fast, pulse 100 but strong, blood pressure 70/48, skin cold and wet, uterus firm and contracted, tear in cervix), you IDENTIFY

1/1/11

THE PROBLEM that Mrs. C.L. has a cervical laceration and is close to shock.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. The midwife decides what should be done to take care of each problem. Mrs. C.L. has a life threatening problem. She is close to shock and is bleeding from the cervical laceration.

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

Refer to Module 4, 6 and 8.

You make sure the airway is open. The breathing is fast at 44. You stop the bleeding with pressure on the cervix, you ask your assistant to get the suture pack to repair the cervical laceration. You ask your assistant to cover and keep the woman warm, raise the feet and legs, start an IV, check the blood pressure and pulse every ten minutes.

If you know how to repair the cervical laceration, repair it; and then go with Mrs. C.L. to the hospital.

The **EMERGENCY** actions should include treating for shock and repair of the cervical laceration. If you can not repair the cervix well, pack the vagina with sterile gauze, making sure the gauze is against the cervix; and go with the family to the hospital.

Case Study 2

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

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

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

ASK AND LISTEN

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

What do you need to ask her in this situation?

1.

2.

3.

4.

5.

6.

Refer to Module 4.

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

LOOK AND FEEL

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

Refer to Module 4.

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

IDENTIFY THE PROBLEM

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

Refer to Module 4.

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

TAKE APPROPRIATE ACTION

A vaginal laceration can be life threatening. What action will you take?

Refer to Module 4.

(1) Place a catheter in the bladder to help identify the urethra and prevent accidentally damaging the urethra while you suture the laceration.

(2) Repair the laceration (press the ragged tissue together so it looks like before; do not hurry this part; place interrupted sutures the length of the shallow tear about 1/2 centimeter apart for the full length of the laceration, **REMEMBER THE MOST IMPORTANT THING IS TO CONTROL THE BLEEDING**).

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

You press a gauze firmly over the wound for a couple of minutes. If bleeding continues, you will need to add one or more sutures to control the bleeding.

If the bleeding is controlled, what do you do next?

You make sure Mrs. V.L. is comfortable, has something to eat and drink and is not bleeding. Then you take appropriate action after the bleeding is controlled.

TAKE APPROPRIATE ACTION AFTER BLEEDING IS CONTROLLED

Mrs. V.L. had a life threatening problem which had to be taken care of right away. What other action needs to be taken using the following:

Medical Treatment

Education Counselling

Laboratory Tests

Referral Plans for follow-up

Recording

You take vital signs, if temperature is elevated, refer to Module 7 and treat for sepsis. You teach her about care of her laceration, cleanliness of breasts, baby care, and prevention of tetanus. You talk with her about the need for prenatal and postnatal care for mother and baby, family planning and the role of the Traditional Birth Attendant. You check her hemoglobin and refer her if she has a low hemoglobin or if she continues to bleed.

You give her a date to come back to see you depending on her condition. You may want to see her in two weeks if she has a very large laceration, you may ask her to see her Traditional Birth Attendant. It all depends on the condition of Mrs. V.L.

You write in the record that Mrs. V.L., a primip delivered her baby and complete placenta and membranes at the market today at what time. On arrival in a taxi, the baby was crying; the mother was lying in blood soaked cloths (estimated at 200 cc blood), her blood pressure and pulse, skin warm and sweaty, uterus firm and contracted, medial vaginal laceration, cervix intact. Laceration repaired, bleeding stopped. Mrs. V.L. is eating, drinking and walking to the bathroom.

Skills Checklist for Episiotomy and Laceration Repair

This checklist has two purposes:

1. The midwife should use it as a guide for checking her own skills.
2. The supervisors should use it when they evaluate how well the midwife performs.

After observing/performing write a rating:

s = satisfactory

ni = needs improvement

Add any comments in the comments section below.

	Date	Date	Date	Date
Procedure for Giving Local Anesthesia				
Put a 22 gauge 1 1/2 inch needle on a twenty cubic centimeter (cc) syringe.				
1. Fill the syringe with local anesthetic.				
2. Place your two fingers between the baby's head and the perineum.				
3. Insert the needle from the fourchette just below the skin the whole length of the needle down the perineum. · Pull back on the plunger of the syringe.				
· Check for blood.				
· Inject evenly as you withdraw the syringe.				
4. Now angle the needle to one side of center.				
· Repeat the steps in #3.				
· Repeat on the other side.				
· Repeat going up the center of the vagina.				

Comments:

Date Date Date Date

5. Inject about 10 cc of anesthetic.				
6. Wait a minute or two before cutting your episiotomy if there is time to wait.				
7. During the repair, if the woman is uncomfortable, inject up to 10 more ccs of 1% local anesthetic in the area where the woman feels pain.				

Comments:

	Date	Date	Date	Date
Procedure for Cutting an Episiotomy				
1. LOOK and FEEL. · Is the perineum long or short?				
· Thick or thin?				
· Does it have varicose veins, genital warts, or other problems.				
2. If a midwife is not close to a hospital/doctor do a mediolateral episiotomy.				
3. Cut an episiotomy when it is time. · Remember the best time is when the perineum is thinned and pale or shiny.				
4. Take a sharp pair of scissors.				
· Place two fingers of your other hand in the vagina between the scissors and baby's head.				
· Start at the center of the perineum and angle (slant) your scissors out at a 45 degree angle.				
· If you are right handed cut towards the mother's right buttock.				
· If you are left handed cut towards the mother's left buttock.				
5. Make the episiotomy with one or two large cuts.				
6. After the perineal cut has been made, turn your scissors around facing up the vagina.				
· With your other hand protect the baby's head with your fingers.				
· Cut up the center of the vagina 2 to 3 inches. · This cut allows more space in the vagina and helps to prevent tearing up from the perineal cut.				
7. Press a gauze firmly over the cut area while the woman continues to push with contractions. · Use good sterile technique.				

Procedure for Cervical and Vaginal Inspection				
1. Explain to the woman what you will be doing.				
2. Quickly and gently wash off the woman's genitals.				
· With your gloved hand separate the labia (vaginal lips).				
· Have your assistant shine a light into her vagina.				
3. Look carefully for any tears or hematomas (collection of blood under the tissue).				
· Press firmly on the back wall of the vagina with your fingers.				
· Look deep into the vagina.				
4. Slowly pressing against the vaginal wall, move your fingers up the side wall of the vagina, one side at a time.				
· LOOK and FEEL.				
· Is the surface smooth?				
· Are there any points where you notice bleeding?				
· Did you feel all the way up the vagina to the cervix?				

Comments:

172

Date Date Date Date

5. Have your assistant press firmly down on the woman's uterus.				
· Press firmly on the back wall of the vagina with one hand.				
· With your other hand take your sponge forceps (ring forceps) and clamp it on anterior lip (top lip) of the cervix.				
· Pull gently on the forceps.				
· Look at the cervix.				
· LOOK at all sides of it carefully.				
· Take a sterile gauze or cloth and wipe the blood away.				
· LOOK and SEE where the bleeding is coming from. · Is it from the uterus, vaginal laceration, or cervical laceration?				
6. If the bleeding is from the uterus, give an oxytocic medication and massage the uterus.				
· If the bleeding is from a laceration, repair it.				
· If no lacerations or bleeding are noted, remove the sponge forceps, make the woman comfortable, continue to monitor her vital signs.				
7. If the lacerations seen are so great and so deep, or if the patient does not improve with intravenous rehydration, pack her vagina with a tampon of sterile gauze or cloth and prepare to transport her immediately.				

Comments:

174

	Date	Date	Date	Date
Preparation for Episiotomy Repair				
1. Position the woman's buttocks at the edge of the bed or table. Her legs may be supported by stirrups or held by family members.				
2. Remove any soiled cloths from under her and wash her genitals.				
3. Put on fresh gloves.				
4. Place a sterile or very clean towel or cloth under her buttocks.				
5. Check to see if the local anesthesia you gave to her before cutting the episiotomy is working well.				
· Touch the cut areas with the sharp point of a needle.				
· If she feels sharp pain, give her some more anesthesia before the repair.				
· If it is a laceration you are repairing, give the local anesthesia now.				
6. Have your light source adjusted so you can see well into the vagina.				
7. Sit down and make yourself comfortable.				
8. Perform a complete vaginal, cervical, and perineal inspection.				
9. Open the suture and gently stretch it out straight.				
10. Place the needle in the needleholder at a right angle.				
· Clamp the teeth of the holder firmly shut.				

Comments:

Date Date Date Date

Procedure for Episiotomy Repair				
1. Run your finger through the whole wound (cut).				
· See clearly where the top of the wound is.				
· Place your first suture about 1/2 inch (or one centimeter) above the top of the wound in the vagina.				
· Tie it off with a square knot and trim off the short thread to about 1/2 inch.				
2. Suture the vaginal mucosa using a continuous stitch (continuous suturing) sewing down to the hymenal ring.				
3. The needle then goes through vaginal mucosa behind the hymenal ring and is brought out on the wound of the perineum.				
4. Now continue using continuous suturing all the way to the bottom of the wound.				

Comments:

174

Date Date Date Date

5. Once you have reached the very tip of the wound just above the rectum, you turn your needle over and start to sew again using continuous stitches to close the subcuticular tissue.				
· This second layer of suture will leave the wound about 1/2 inch open. This will close well by itself as healing occurs.				
6. Now the suture is moved again from the perineal part of the wound back into the vagina to be secured, tied off, and cut.				
7. Tie off the suture with a square knot.				
· Cut the two ends of suture off leaving about 1/2 inch.				
8. Double check to make certain that you have not left any gauze, sanitary pads, or instruments in the woman's vagina.				
· Perform rectal exam checking for a stitch into the rectum.				
· Wash her genitals with soap and water.				
· Make her dry and comfortable.				

Comments:

Date Date Date Date

Procedure for Repair of Lacerations				
1. If your laceration is periurethral (around the urethra), place a catheter in the bladder. This helps you identify the urethra and keeps you from accidentally sewing the urethra shut or damaging it.				
2. Choose the finest (most narrow) suture you have (see the section on how to choose a suture in the learning aids at the end of this module).				
3. Press the tissue together. · The ragged pieces must go together again so it looks like before. Do not hurry this part.				

Comments:

4. Place interrupted sutures the length of the shallow tear about 1/2 centimeter apart. · To make an interrupted stitch:				
· Take a bite of tissue				
· Bring it through to the center of the tear				
· Look for your needle				
· Check that it is not too deep or too shallow				
· Push it through the other side of the tear with the same size bite of tissue.				
· Pull the suture through leaving just enough (5 to 8 centimeters) of an end that you can tie the suture with a square knot.				
5. Continue making interrupted (individual) sutures for the full length of the laceration. Remember the most important thing is to control the bleeding.				
· If she continues to ooze blood from the laceration press a gauze firmly over the wound for 10 minutes - no peeking.				
· Carefully peel off the gauze.				
· If the tear has stopped bleeding she is fine.				
· If she continues to ooze or bleed actively, you will need to add one or more stitches to control the bleeding.				

Comments:

Date Date Date Date

For lacerations of the cervix:				
· Place your sponge forceps on one side of the laceration.				
· If you have a second sponge forceps, place it on the other side of the laceration.				
· Place the handles from both forceps in one hand.				
· Pull toward you.				
· Place interrupted sutures the length of the wound about 1 centimeter apart.				
· If you do not have sponge forceps to grasp the cervix, have your assistant put on a pair of gloves.				
· Have her press on the posterior (back) wall of the vagina. This will help hold it out of the way so you can see the laceration better.				

Comments:

References

Experience and the following references provided information for this module.

Anderson, M. (1975). Episiotomy repair. Unpublished document.

Douglas, R. G. and Stromme, W. B. (1976). Operative obstetrics. 3rd Edition. Appleton, Century, and Crofts, New York.

Fleming, N. (1990, Jan/Feb). Can the suturing method make a difference in postpartum perineal pain? Journal of Nurse-Midwifery. 35(1),19-25

Gass, M. S, Dunn, C. and Stys, S. J. (1986). Effect of episiotomy on the frequency of vaginal outlet lacerations. Journal of Reproductive Medicine. 31(4), 240-4.

Knot Tying Manual. (1986). Ethicon, Inc. Somerville, New Jersey.

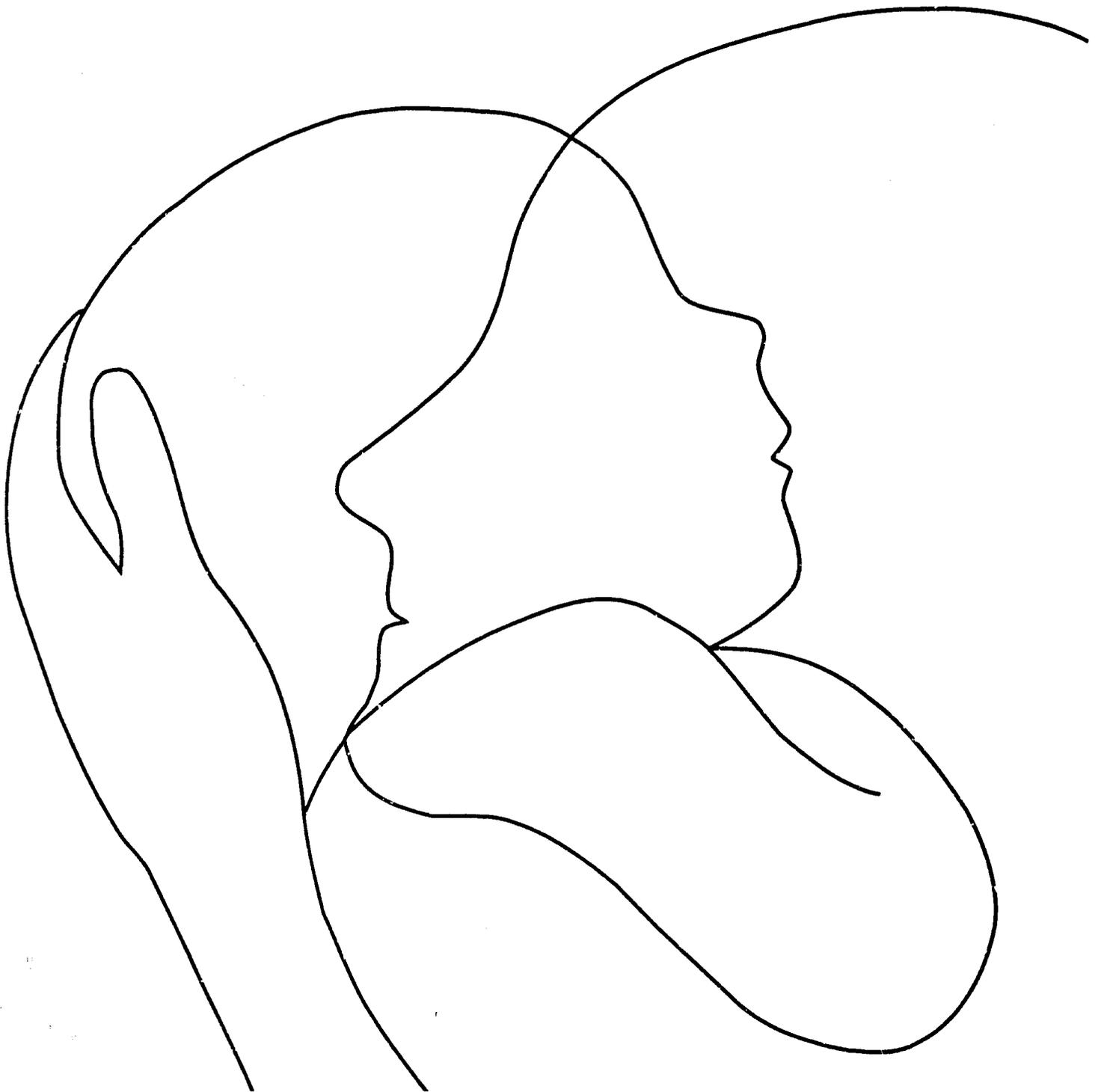
Medex Primary Health Care Series. (1983). Patient care procedures. University of Hawaii.

Oxorn, H. (1986). Human labor and birth, 5th Edition. Appleton, Century, and Crofts, Norwalk.

Urbanus, P. (1976). Mediolateral episiotomy repair instructional package. Office of Educational Resources, University of Illinois.

Varney, H. (1987). Nurse-midwifery. 2nd Edition. Blackwell Scientific Publications, Boston.

Module 5: PREVENTION AND TREATMENT OF HEMORRHAGE



Module Contents

PREVENTION AND TREATMENT OF HEMORRHAGE

	Page
Overview	1
ACTIVE MANAGEMENT OF THIRD STAGE	2
Goal	2
Objectives	2
Common Medical Terms	3
Introduction	3
Diagnose Cause of Bleeding	4
ASK and LISTEN (history)	4
LOOK and FEEL (physical examination)	5
IDENTIFY THE PROBLEM and TAKE ACTION RIGHT AWAY	6
Skill - Active Management of Third Stage	8
Equipment	8
Procedure	8
Intraumbilical Oxytocin Injection	9
Review Questions	10
Skills Checklist	12
References	13
MANUAL REMOVAL OF A PLACENTA	14
Goal	14
Objectives	14
Common Medical Terms	14
Introduction	14

PREVENTION AND TREATMENT OF HEMORRHAGE (cont'd)

Diagnose Retained Placenta	15
ASK and LISTEN (history)	15
Look and Feel (physical examination)	15
Identify Problems and Take Needed Action	16
Skill: Manual Removal of the Placenta	17
Equipment	17
Procedure	17
Review Questions	23
Skills Checklist	24
References	27
BIMANUAL COMPRESSION OF THE UTERUS	28
Goal	28
Objectives	28
Common Medical Terms	28
Introduction	28
Diagnose Uterine Atony	29
Skill: Bimanual Compression of the Uterus	30
Equipment	30
Procedure for External Bimanual Compression	30
Procedure for Internal Bimanual Compression	31
Learning Aid 1 - Digital Evacuation of the Uterus	33
Review Questions	35
Case Study 1	37
Case Study 2	43
Skills Checklist	48
References	52

PREVENTION AND TREATMENT OF HEMORRHAGE

Overview

Hemorrhage in labor and the early post-partum period is a major contributor to maternal mortality worldwide. Hemorrhage is one of the top three causes of death in virtually every maternal mortality study. The sorrow is that this is an area where improved maternal care could save many many lives.

This module will emphasize methods by which midwives in rural or urban settings, with available technology, can make a large contribution to saving mother's lives. This module includes active management of the third stage, bimanual compression of the uterus (internal and external), and manual removal of the placenta.

Other modules which also deal with ways to decrease maternal blood loss are **Episiotomies and Repair of Lacerations**, and early recognition of obstructed labors thereby preventing uterine rupture found in the module entitled **Monitoring Labor Progress**. Early detection and treatment of anemias with its importance in building up a mother to endure the blood loss at delivery is dealt with in the **Antenatal Risk Assessment and Treatment** module. Treatment of blood loss is also included in the module **Hydration and Rehydration**.

ACTIVE MANAGEMENT OF THE THIRD STAGE

Goal

This module will help the midwife learn how to decrease the blood loss of the third stage by actively managing the woman's third stage.

Objectives

The midwife caring for women during labor and delivery should be able to:

1. Take the medical history which will alert her to possible problems with hemorrhage (**ASK and LISTEN**)
2. Do an abdominal and vaginal examination to get findings which would alert her to the possibility of problems with hemorrhage (**LOOK and FEEL**).
3. **IDENTIFY PROBLEMS/NEEDS and TAKE NEEDED ACTION.**
4. Deliver the placenta using active management.
5. Explain the procedure to mothers and others so they understand what you are doing.

Common Medical Terms

Active management of third stage - a treatment routine which attempts to decrease post-partum blood loss by giving oxytocics with delivery of the anterior shoulder or whole body, early clamping and cutting of the cord, and assisted delivery of the placenta through cord traction while supporting or holding the uterus.

Brandt-Andrews Maneuver - This is a method of delivering the placenta from the uterus. The cord is held with one hand. The other hand is placed on the abdomen over the uterus and pushed gently backward and upward. The cord is pulled carefully. If the placenta is separated, it slides out easily.

Crede Maneuver - This is a method of expressing the placenta from the uterus. The placenta is forcefully pushed out of the uterus by squeezing and pressure on the fundus of the uterus. **This is a harmful procedure and is not recommended.** It can cause tearing or rupture of the uterus. It may also cause a partially separated placenta to tear and be pushed out of the uterus.

Oxytocics - substances which stimulate uterine contractions. They are secreted naturally by the posterior pituitary (for example when the baby nurses) or can be synthetic (man made).

Post-partum hemorrhage - the loss of 500 cubic centimeters (ccs), or half a liter of blood, from the genital tract after the delivery of the baby. Remember that very small women or women who are anemic may go into shock with less than a 500 cc. blood loss.

Primary Post-Partum Hemorrhage - bleeding from the genital tract within 24 hours of the delivery of the baby.

Retained placenta - the placenta has not been delivered within one hour of the birth of the baby. This is the WHO definition. However, when using active management of third stage, attempt is made to deliver the placenta within 15 minutes.

Secondary Post-Partum Hemorrhage - bleeding from the genital between 24 hours after delivery of the baby and six weeks post-partum.

Introduction

In clinical studies done up until now, it has been found that active management of the third stage can decrease post-partum hemorrhage by forty per cent (40%). This can be a great help to midwives working in rural settings who practice far from hospitals and blood transfusion services.

Diagnose Cause of Bleeding

ASK and LISTEN

There are risk factors for hemorrhage that you may become alert to during the antenatal period, or during labor if you are caring for a woman who did not come for antenatal care. It is important that you ASK her questions which will help you to recognize that she is high risk.

Find out if she has ever had any of the following:

- a previous post-partum hemorrhage
- previous rupture of the uterus or inverted uterus
- surgery on her uterus- fibroids, cesarean section, dilatation and curettage
- previous history of retained placenta
- blood clotting problems
- five or more previous pregnancies
- anemia
- placenta previa
- placenta abruptio
- preeclampsia/eclampsia
- fetal death in utero
- multiple pregnancy
- hepatitis
- polyhydramnios

This pregnancy:

- induced labor (herbs or medications to start contractions)
- prolonged labor
- chorioamnionitis (foul smelling vaginal discharge and fever)
- precipitate labor (3 hours or less)
- genital tract bleeding for any reason during the antenatal period
- how much bleeding does the woman, TBA, and family report that she has had before coming to the maternity?

LOOK and FEEL

Based on your ASK and LISTEN information, you will check the laboring woman carefully and prepare for her delivery knowing that she is at high risk for a post-partum hemorrhage. You are now ready to do a physical examination of the woman, LOOK and FEEL.

Abdominal Examination

First perform an abdominal examination. What is the position of the baby?

See the module on **Monitoring Labor Progress** for a full description of how to perform the abdominal exam. Things that you will be LOOKING and FEELING for are:

If the presenting part is high or if it is a breech or transverse lie, think of placenta previa.

What are the uterine contractions like? Are the contractions of normal rhythm and strength? If the contraction is continuous, think of ruptured uterus. If the uterus is irritable and tender and sometimes with sharp back pains think of placenta abruptio.

Is it easier than usual to feel the parts of the baby? If so, think of possible uterine rupture.

Is the shape of the uterus normal? If there is a Bandl's ring or constriction ring in the lower third of the uterus, think of possible uterine rupture.

Perineal Examination

LOOK at the perineum. Do you see any blood, mucus, or amniotic fluid? How much bleeding do you see?

If the blood is dark brown or bright red and mixed with mucus and not more than 5 to 15 cc., it is most likely bloody show, and you may safely proceed to do a vaginal examination.

If the blood is bright red, with some blood clots think about what you found on abdominal examination. It may be light bleeding to very heavy. Think of placenta previa or uterine rupture. **Do not perform a vaginal examination.** Start intravenous fluids and quickly arrange to transfer the woman to a hospital where cesarean section and blood transfusion are possible. Have family members find blood donors to travel with you.

If the bleeding is dark red, does not clot, and may be small to large in amount, think of what you found on abdominal examination. She may have placenta abruptio or uterine rupture. You may do a very gentle vaginal examination to see if delivery is very close. Start intravenous fluids and quickly arrange to transfer the woman to a hospital where cesarean section or hysterectomy and blood transfusions are possible. Have family members get blood donors to travel with you.

If the woman has already delivered, think of where the bleeding might be coming from. It could be from a ruptured uterus, vaginal or cervical lacerations, or uterine atony sometimes with retained pieces of placenta or membranes. Feel if the uterus is well contracted. Do a careful vaginal and cervical inspection. See the module **Episiotomies and Repair of Lacerations** for a full description of how to do this.

IDENTIFY THE PROBLEMS/NEEDS AND TAKE THE NEEDED ACTION

In the case of bleeding in labor or post-partum, how quickly and correctly the midwife acts determines if the woman will live.

If the woman has continuous bright red vaginal bleeding, no abdominal pains or contractions and no tenderness when FEELING the uterus, think about placenta previa. **SHE MUST BE REFERRED FOR SURGICAL TREATMENT.**

If the woman has had dark red bleeding or has some when you LOOK, has abdominal pain and abdominal tenderness, think about abruption placenta. **SHE MUST BE REFERRED FOR SURGICAL TREATMENT.**

If the woman has excruciating (very strong) abdominal pain, uterine contractions stop, may or may not have vaginal bleeding and signs of shock (refer to the **Hydration and Rehydration module**), think about ruptured uterus. **SHE MUST BE REFERRED IMMEDIATELY FOR SURGICAL TREATMENT.**

	PLACENTA PREVIA	ABRUPTIO PLACENTA	RUPTURED UTERUS
LOOK FOR VAGINAL BLEEDING	Bright Red	None or little dark red	Yes or No
FEEL FOR ABDOMINAL CONTRACTIONS OR PAIN	No	Yes	Very Strong
FEEL FOR ABDOMINAL TENDERNESS	No	Yes	Rigid and Difficult to Feel
MAY HAVE SIGNS OF SHOCK	Yes	Yes	Yes

If you think that a woman has placenta previa, placenta abruption, or ruptured uterus she must be referred for surgical treatment. As soon as you anticipate an emergency, send a family member to arrange for transport. Go with the family to the hospital so that you can keep the intravenous fluids going, deliver the baby in route if that should occur, and keep the family from panicking.

If you think that a woman has retained placenta, treat her as outlined later in this module under **Manual Removal of the Placenta**.

If her uterus is boggy, poorly contracted, treat her as outlined later in this module under **Bimanual Compression of the Uterus**.

If you note lacerations of the genital tract, treat her as outlined in the module **Episiotomies and Repair of Lacerations**.

If there is no abnormal bleeding as discussed above, proceed with active management of the third stage.

For all women who do not fall into the high risk bleeding categories discussed above, the midwife in a rural maternity with little equipment can play an important role in decreasing the amount women bleeding. This is called **active management of the third stage**.

Skill: Active Management of Third Stage

Equipment

regular delivery pack

oxytocics- Pitocin, Syntocinon, ergometrine, Syntometrine, or others used locally

syringe and needle

Procedure

1. An oxytocic is given either with the delivery of the anterior shoulder or as soon as all of the baby is delivered. It is important that the medication be drawn up into the syringe before the delivery. Pitocin 10 international units (IU) intramuscularly is the best choice.

Which oxytocic you chose will depend on what is available locally.

You may give any of the following: Pitocin, Syntocinon (manmade oxytocin), or Syntometrine (1 ml which contains 5 units synthetic oxytocin plus 0.5 mg. ergometrine maleate). If you have none of these you can give Methergine 0.2 mg. (methyletergonovine maleate) either by injection or in tablet form by mouth. Remember that this takes longer to act than the other oxytocics. It will take 2 to 5 minutes by injection and 5 to 10 minutes by mouth to get the tetanic (continuous) contractions that Methergine produces. Remember that Methergine should not be given to women with hypertension. Methergine given on a prolonged basis may interfere with lactation. Put the baby to breast as soon as possible within the first hour after delivery to decrease blood loss and promote breastfeeding.

Oxytocics may lose their strength (potency) in hot climates. It is important that they be stored in a cool place and kept out of the sun. Keep them in the refrigerator if you have one.

2. The cord is clamped and cut.
3. The side of one hand is placed against the lower half of the uterus. The other hand pulls with firm, steady tension on the cord until the placenta delivers. This is called controlled cord traction.

Intraumbilical Oxytocin Injection

In some cases the placenta will be retained for more than half an hour without visible bleeding from the vagina. In this situation try controlled cord traction again. If this does not work, help the woman to a squatting position and have her push. If this does not work, you may give oxytocics through the umbilical cord to help the placenta separate from the wall of the uterus. To do this:

1. If the woman is bleeding, proceed directly to manual removal of the placenta as described in this module.
2. If the woman is **not** bleeding, mix a solution of 10 units (IU) of pitocin or syntocinon in a syringe of 20 mls. of normal saline, water for injection, or other sterile intravenous fluid.
3. Inject the solution into the umbilical vein (the larger vessel found with two smaller umbilical arteries).
4. With an artery forceps/hemostat/fingers clamp or pinch the cut end of the cord closed so the fluid will not leak out.
5. In five minutes try controlled cord traction again and deliver the placenta.
6. If the placenta still does not deliver easily, manually remove the placenta as described in this module.

3. List at least three risk factors a woman might have had during her current pregnancy which would indicate she is at higher risk of having a hemorrhage. (page 4)

4. List the steps in active management of the third stage. (page 8)

References

Experience and the following references provided information for this module.

Bullough, C.H.W, (undated), Early suckling and postpartum haemorrhage: A controlled trial in deliveries attended by traditional birth attendants. unpublished report.

Hall, M.H, Halliwell,R. and Carr-Hill, R. (1985, July). Concomitant and repeated happenings of complications of the third stage of labour, British Journal of Obstetrics and Gynaecology, Vol. 92. pp. 732-8.

Howe, C.L. (1986). Hemorrhage during late pregnancy and the puerperium. 2nd edition. March of Dimes.

Mud, H.J. et al (1987). Nonsurgical treatment for pelvic hemorrhage in obstetric and gynecologic patients. Critical Care Medicine. 15(5). 534-5.

Prendiville, W., Elbourne, D., and I. Chalmers (1988). The effects of routine oxytocic administration in the management of the third stage of labour: an overview of the evidence from controlled trials. British Journal of Obstetrics and Gynaecology, Vol. 95, 3-16

Reed, B.D. (1988, March). Postpartum hemorrhage. American Family Physician, Mar:37(3).111-120.

Thornton, S, Davison, J.M., and P.H. Gaylis (1988). Piasma oxytocin during third stage of labour: comparison of natural and active management. British Journal of Medicine, July 16, 167-9.

World Health Organization, (1989, July). The prevention and treatment of postpartum hemorrhage: Report of a technical working group, Geneva 3-6, July, 1989. WHO/MCH/90.7.

MANUAL REMOVAL OF A PLACENTA

Goal

The purpose of this module is to help the midwife diagnose a retained placenta and learn the skill of manually removing a placenta.

Objectives

The midwife caring for mothers during labor and delivery should be able to:

1. Define postpartum hemorrhage
2. Recognize postpartum hemorrhages signs and symptoms of uterine inertia (tired uterus), retained placenta, and vaginal and cervical lacerations
3. Record observations
4. Recognize the need for action and referral
5. Manually remove a placenta
6. Explain to the mother and others the need for manual removal of a placenta and dangers of postpartum hemorrhage.

Common Medical Terms

Manual removal of placenta - taking the placenta out of the uterus using your hand

Postpartum hemorrhage - vaginal bleeding of 500 cc or more after delivery. The blood loss may be less than 500 cc however when the woman shows serious signs of shock.

Retained placenta - placenta staying in the uterus, placenta not delivering soon after second stage

Uterine atony - tired uterus, soft and boggy uterus, uterine muscles do not contract (squeeze) and retract (shorten)

Introduction

A retained placenta may cause postpartum hemorrhage, shock and death. Manual removal of a retained placenta is an emergency procedure to prevent the death of a mother.

Referral of women with retained placenta and resulting postpartum hemorrhage to the hospital is best. In cases where referral is difficult to impossible, the midwife should be prepared to decide the placenta must be manually removed before the mother dies. The midwife must be able to manually remove the placenta.

Diagnose Retained Placenta

A retained placenta may cause postpartum hemorrhage. Postpartum hemorrhage is defined as vaginal blood in excess of 500 cc loss following delivery. A blood loss of less than 500 cc can be important if it affects the general condition of the mother. Uterine inertia (tired uterus), retained placenta, vaginal or cervical lacerations can cause postpartum hemorrhage.

In order to stop the hemorrhage, you must find out what is the cause of the bleeding and decide what to do. You must **ASK** and **LISTEN**, **LOOK** and **FEEL**, **IDENTIFY THE PROBLEM AND TAKE APPROPRIATE ACTION**.

ASK AND LISTEN

If the woman delivered at home or with a Traditional Birth Attendant and comes to you, or you go to her,

- **ASK** when did you deliver? When did you start bleeding?
- **ASK** how much have you bled?
- **ASK** about trying to deliver the placenta?
- **ASK** whether she took any medicines?

Do not waste time. You do not know how much blood the woman lost before you see her. She may be close to death.

LOOK and FEEL

- **LOOK FOR SIGNS OF SHOCK**
 - low blood pressure
 - cold and clammy skin
 - weak and fast pulse

As soon as you see the blood,

- **FEEL** the uterus to make sure it is firm and contracted.
- **LOOK** at the genitalia for tears of the cervix or vagina.
- **LOOK** at the placenta, if delivered, very carefully to make sure all of the placenta and membranes are present.

IDENTIFY the PROBLEM

Severe continuous blood loss leads to shock, coma and death.
IDENTIFY THE PROBLEM, find out the cause of the bleeding.

This chart can help you find out the cause of the hemorrhage:

	Uterine Atony	Retained Placenta	Lacerations
1. Feel Uterus	soft	sometimes soft then hard	firm and contracted
2. Check Placenta	complete	incomplete or parts retained in uterus	complete
3. Inspect Genitalia	normal	normal	vaginal or cervical tear

TAKE APPROPRIATE ACTION

This is a life threatening emergency. Take ACTION IMMEDIATELY.

- If there is SHOCK, raise the woman's feet, keep her covered and warm, ask your assistant to start an intravenous infusion. See the module **Hydration and Rehydration** for prevention and treatment of shock.
- If the uterus is soft and boggy, rub up a contraction, massage the uterus until it contracts. In this module, see **Bimanual Compression of the Uterus**.
- If the placenta is out of the uterus, ask your assistant to check it for completeness.
- If the placenta, part of the placenta, or membranes are NOT OUT OF THE UTERUS, call someone to help you remove the placenta. If you are not able to get help, get ready for manual removal of the placenta, see **Manual Removal of the Placenta** in this module.
- If you see a vaginal or cervical tear, get ready to stop the bleeding from the tear, see the module **Episiotomies and Repair of Lacerations**.

Skill: Manual Removal of the Placenta

Manual removal of the placenta is an emergency action taken by the midwife to manage postpartum hemorrhage and prevent death of the woman. Time is important. Cleanliness is critical. If at all possible, change gloves/scrub hands before starting the procedure.

Equipment

intravenous supplies	analgesia or anesthesia
sterile gloves or well scrubbed hands	disinfectant
antiseptic lubricant	delivery pack.

Procedure

1. Give analgesia intramuscularly (IM), (such as Pethidine 25 mg., Talwin 50 mg.) and a sedative IM, (such as diazepam 10 mg. IM, phenobarbital 30 mg., or Phenergan 50 mg.) to relax the woman.

If medications and anesthesia are not available, continue with the manual removal of the placenta. The woman may not be able to relax and she may be uncomfortable, but you may save her life.

2. Start an IV of 5% Dextrose in Normal Saline or whatever IV is available. The IV will replace some of the fluid lost by the bleeding. It will help prevent shock.
3. Tell the woman what you are going to do. Help the woman to lie on her back with her knees bent. If unable to void, catheterize and empty the bladder. A full bladder can prevent the delivery of the placenta.
4. Try to rub up a contraction. Attempt to remove the placenta with a firm, steady pull on the cord. Do not pull too hard. If this fails continue with step 5.
5. Put on sterile gloves. Time is very important, proceed with the most sterile/clean gloves/hands available.

If you **do not have gloves**, smear your examining hand with antiseptic lubricant (such as Hibitane or Dettol cream) or use soap and water.

If you **have sterile gloves**, lubricate the examining hand with clean water.

6. The other hand (nonexamining hand) holds the umbilical cord firmly. Place the examining hand, with the thumb in the palm into the vagina. Follow the cord up to the placenta. **Once you have put your hand into the uterus, do not bring your hand out until you have separated the placenta and are bringing out the placenta.** Do not go in and out of the uterus, as this increases the risk of infection.

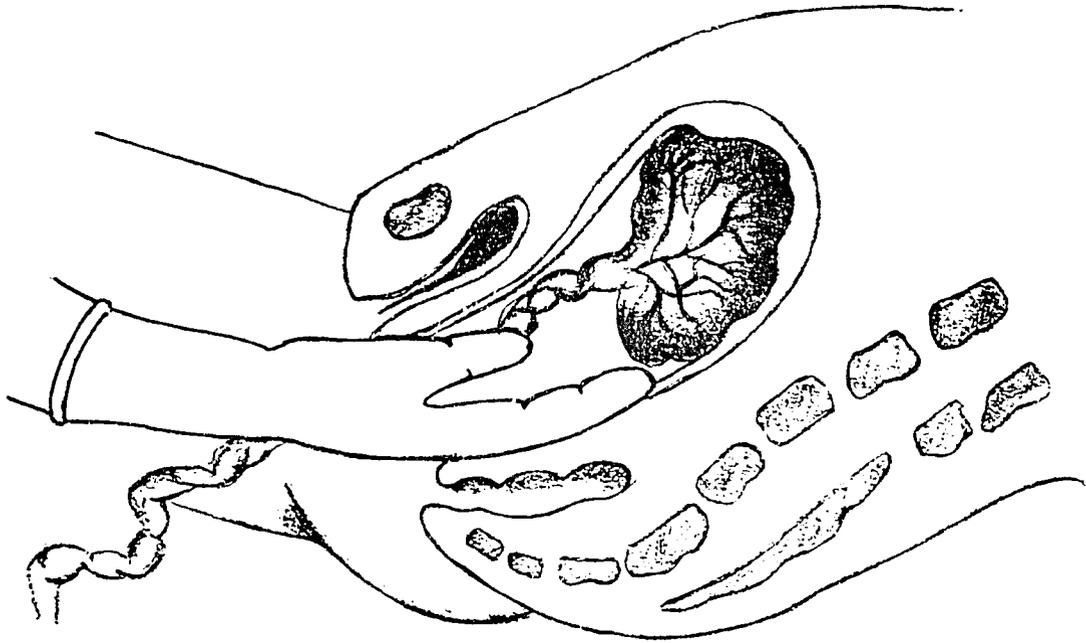


Figure 1. Put your hand in the uterus

7. Let go of the cord with your hand and hold the uterus through the abdomen. This will stop the uterus from moving and helps keep the uterus contracted.

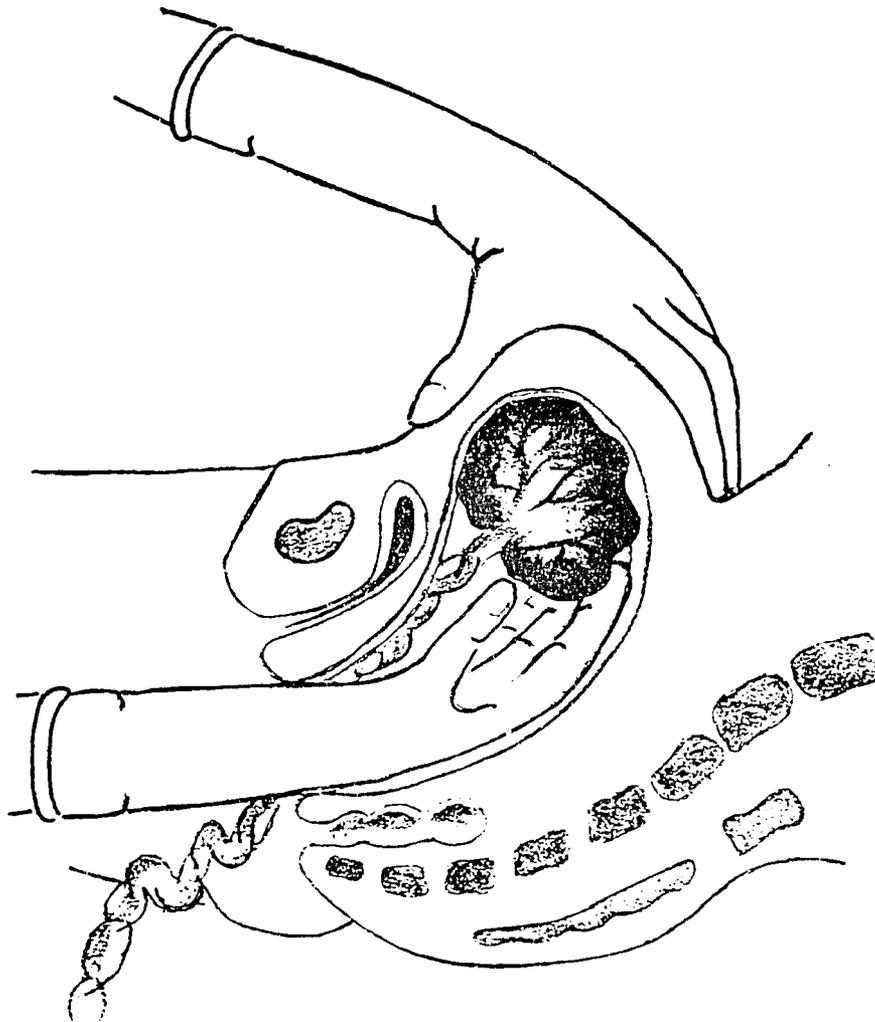


Figure 2. Hold the uterus and find the placenta

8. Feel the placenta to figure out where it is in the uterus. Find the edge of the placenta.
9. Slip the fingers of your hand between the edge of the placenta and the uterine wall. With your palm facing the placenta, use a sideways slicing movement to gently detach the placenta. You will feel a spongy tissue which will let go as the placenta separates from the uterus.

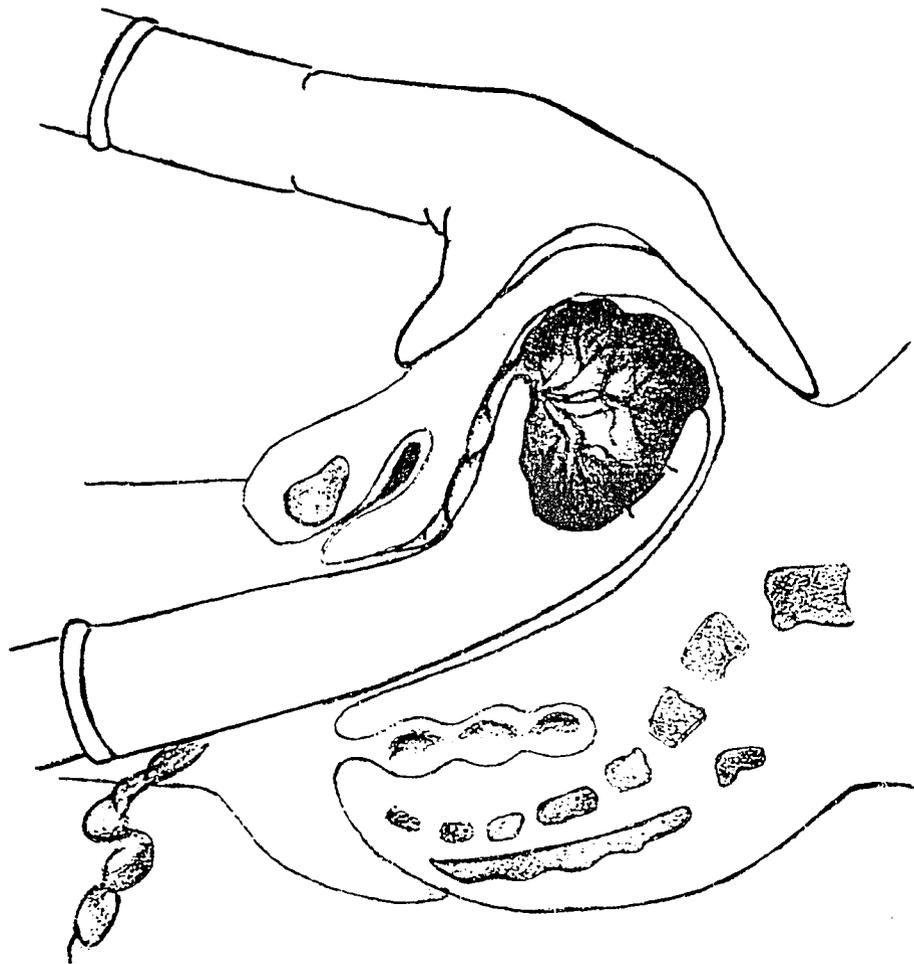


Figure 3. Placenta in palm of hand

10. When all of the placenta is separated and in the palm of your examining hand, rub up a contraction with your other hand.

11. Gently remove the placenta with your examining hand during the contraction. Do not pull on just a piece of the placenta for it may tear from the rest of the placenta. The membranes may need to be slowly and carefully pulled out, which is the same way as for any delivery of the placenta and membranes. Remember, even a small amount of membranes left in the uterus may cause postpartum hemorrhage and/or infection.
12. Rub the uterus to make sure it is contracted.
13. Examine the placenta well. If you think some of the placenta or the membranes are missing, transfer the woman to hospital. She may need a curettage to remove the remaining pieces.
14. Give the woman an oxytocic (such as Ergometrine 0.5 mg. IM, Syntocin or Pitocin 10 IU, IM or IV) to help the uterus contract.

If you do not transfer the woman, continue with Step 15.

15. Give the woman a broad spectrum antibiotic such as Ampicillin 1 Gram stat (immediately) and 500 mg every 6 hours for five days. Intramuscular medication may be used but oral treatment is just as successful if the woman can take medicines by mouth. OR give Benzyl Penicillin 1.2 mega or million units IM every 6 hours for 24 hours and follow with Procaine Penicillin 1.2 mega (million) units and Streptomycin 1 Gram IM daily for 5 days. This is to prevent serious infection of the uterus.
16. Check for vaginal bleeding, contracted uterus, full bladder and vital signs every hour until normal. Then continue to check three times a day for three days.
17. Give a total of 3 liters of IV in 24 hours to replace fluids lost from bleeding and prevent shock. Stop IV after 24 hours, if the woman is eating and drinking. Refer to the module **Hydration and Rehydration**.
18. Give oral tablets of an oxytocic (such as Ergometrine 0.5 mg. or Methergine 0.2 mg. three times a day for three days) to make sure the uterus stays contracted.
19. Give analgesia (such as Paracetamol or Panadol) to lessen abdominal or perineal pain.
20. Give perineal care three times a day for three days. Teach the mother the importance of this care and the need to continue when she goes home.
21. Nutrition is important for healing and strength. Eight glasses of fluids and easily digested food must be offered daily. Activity may be increased as tolerated.
22. If fever develops check for the cause. You may need to treat for an acute attack of malaria and refer as soon as possible. Give an antipyretic (such as Paracetamol or Panadol), plenty of fluids (see the module on **Hydration and Rehydration**) and a sponge bath to reduce the fever. See **Prevention and Treatment of Sepsis** module for management of malaria.

23. Allow the woman to go home when she has completed her medications and feels well enough to go home. If she does not feel like going home by 5 days after the delivery, refer her to the doctor, to make sure she does not have another problem.
24. Give her an appointment for a two week check up for both mother and the baby.
25. Send a message to the Traditional Birth Attendant, so that she will visit the mother and baby at home weekly for at least six weeks.

Review Questions

What did I learn?

Test your knowledge and understanding of this module by performing the following tasks without the help of the text.

1. List the signs of uterine atony, retained placenta, lacerations. (page 16)
2. List dangers of a retained placenta. (page 14)
3. Describe the procedure for manually removing a placenta. (pages 17 - 22)

	Date	Date	Date	Date
8. Lubricate gloves/hands				
9. Insert hand into vagina, while holding umbilical cord with other hand				
10. Let go of umbilical cord and steady uterus through the abdomen				
11. Find the edge of placenta				
12. Separate placenta with slicing motion				
13. When placenta is separated, rub up contraction				
14. Remove placenta and membranes slowly during the contraction				
15. Rub the uterus to make sure it is contracted				
16. Examine the placenta				
17. Give oxytocic medicine to keep uterus contracted				
18. Transfer to hospital if at all possible				

Comments:

	Date	Date	Date	Date
19. If unable to transfer				
· give broad spectrum antibiotic for five days				
· monitor for every hour until normal, then three times a day for three days				
· vaginal bleeding				
· contracted uterus				
· empty bladder				
· vital signs				
· IV				
· give oxytocic orally for 3 days				
· give perineal care three times a day for 3 days				
· teach mother perineal care				
· encourage 8 glasses of water and adequate food daily				
· encourage activity as tolerated				
· fever, treat for malaria and refer				
20. Allow mother and baby to go home after five days of medicines are completed and the mother is feeling like going home.				
21. Send information to Traditional Birth Attendant.				
22. Give mother an appointment to come for a check up at two weeks after delivery for the mother and the baby.				

Comments:

References

Experience and the following references provided information for this module.

Manual for Health Centres, (1986). Clinical reference. Ministry of Health, Maseru. 212.

Medical directives, (1980). Frontier Nursing Service, Hyden. 8,304.

Midlevel Health Worker Training Modules, (1983). Prenatal care, labor and delivery, postnatal care. MEDEX Health Manpower Development Staff, Honolulu. 102.

Midlevel Health Worker Training Modules, (1983). Patient care procedures. MEDEX Health Manpower Development Staff, Honolulu. 137.

Philpott R.H., Sapire K.E. & Axton J.H.M. (1978). Obstetrics, family planning and paediatrics. University of Natal Press, Pietermaritzburg. 9,111.

Physicians desk reference , (1989). Medical Economics Company Inc., Oradell. 43,2237-8.

Myles, M. F.(1981). Textbook for midwives. Churchill Livingstone, Edinburgh. 25,423.

Varney, H (1987). Nurse-midwifery. Blackwell Scientific Publications, Boston. 57,789.

Wingeier, R. and Griggs, R. (1991, July/August). Management of retained placenta using intraumbilical oxytocin injection. Journal of Nurse-Midwifery, 36,4,240-244.

BIMANUAL COMPRESSION OF THE UTERUS

Goal

This module will help the midwife diagnose uterine atony (tired uterus) and perform bimanual compression of the uterus to prevent or treat post-partum hemorrhage.

Objectives

The midwife and physician caring for mothers during delivery should be able to:

1. Define and recognize uterine atony.
2. Define and recognize post-partum hemorrhage.
3. Identify signs and symptoms of uterine atony and lacerations.
4. Record observations and actions.
5. Identify the need for referral and refer.
6. Perform bimanual compression.
7. Explain to mothers and others the need for bimanual compression and the dangers of post-partum hemorrhage.

Common Medical Terms

Bimanual compression - a procedure to control post-partum hemorrhage where the midwife applies pressure to the uterus with her hands to stimulate the uterus to contract.

Post-partum hemorrhage - loss of 500 cubic centimeters (half of a liter) or more from the reproductive organs after the completion of the third stage of labor (delivery of the placenta). **Note that while this is the official definition from the World Health Organization, women who start labor quite anemic may go into shock and suffer greatly from a hemorrhage of much less than 500 ccs.**

Uterine atony - the muscles of the uterus do not contract properly.

Introduction

Uterine atony (tired uterus) may cause post-partum hemorrhage, shock, and death. Bimanual compression of the uterus is an emergency procedure to prevent the death of the mother.

Usually in cases of uterine atony there is no time to refer the woman to the hospital, or if in hospital there is not time to wait for the doctor to come. The midwife should move quickly to start bimanual compression.

Diagnose Uterine Atony

Uterine atony may cause post-partum hemorrhage. Post-partum hemorrhage is defined as bleeding from the reproductive organs of 500 cubic centimeters (cc) (one half liter) or more following delivery. Women with very long labors, grandmultiparous uterus, or overstretched uterus from hydramnios, twins, or large infant are at high risk of developing uterine atony.

As soon as you see the blood coming from the vagina, feel the uterus to make sure it is firm. Remember she might also be bleeding from lacerations of the uterus (ruptured uterus), vagina, cervix, or perineum.

This chart will help you find out the cause of the hemorrhage:

	Uterine Atony	Retained Placenta	Lacerations
1. Feel Uterus	soft	sometimes soft then hard	firm and hard
2. Check Placenta	complete	incomplete or parts retained in uterus	complete
3. Inspect Genitalia	normal	normal	vaginal or cervical tear

If the placenta is incomplete or retained in the uterus, the woman needs immediate treatment. If you are not able to get a doctor, get ready to manually remove the placenta.

Skill: Bimanual Compression of the Uterus

Bimanual compression of the uterus is an emergency procedure performed by the midwife to stop postpartum hemorrhage. Time is important. Cleanliness is important. If at all possible change gloves/scrub hands before starting the procedure.

Equipment

Sterile gloves or well scrubbed hands
intravenous fluids
intravenous fluids giving set (tubing)
needles, butterfly needles, or intracatheters
adhesive tape
a straight urinary catheter
an assistant to help set up intravenous fluids and go for assistance if needed.

Procedure for External Bimanual Compression

1. Call to your assistant for help.
2. Place your one hand on the abdominal wall and try to rub up a contraction. Check to see if the bladder is full.
3. If the bladder is very full rub up a contraction and then catheterize the mother.
4. If the bleeding does not stop, first place one hand on the abdomen pressing down behind the uterus (see Figure 4). Put your other hand low on the abdominal wall. Then press your hands together. This compresses the blood vessels at the placental site as the uterus contracts.

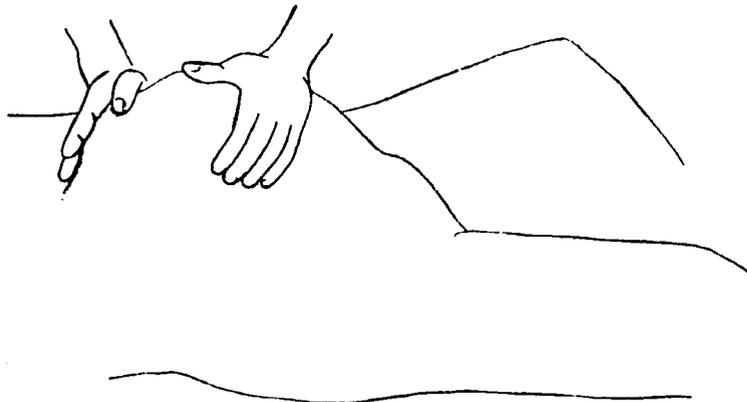


Figure 4. Hand positions for external compression

5. Ask your assistant to give the mother 10 units of oxytocin (Syntocinon) intramuscularly or intravenously if she is able. Then give ergometrine 0.2 mg. (Methergine) intramuscularly unless the mother had severe hypertension in labor. Or you can give 0.5 mg. of Syntometrine intramuscularly if the woman is not hypertensive. When the bleeding slows or stops, put the baby to breast.
6. If this has not stopped the bleeding and the uterus does not remain well contracted when you rub up a contraction, ask your assistant to set up an intravenous infusion. Start to do internal bimanual compression.

Procedure for Internal Bimanual Compression

1. Ask your assistant to start an intravenous infusion. Have her also take the pulse and blood pressure of the mother every five minutes until the hemorrhage stops. Then have her take it every fifteen minutes for half an hour. If they are normal check the vital signs every half hour for two more hours.
2. Place a fresh glove on your examining hand or quickly scrub your hands.
3. If the bleeding has not stopped or slowed to a trickle, insert your freshly gloved or freshly scrubbed examining hand into the vagina.
4. Form your hand into a fist.

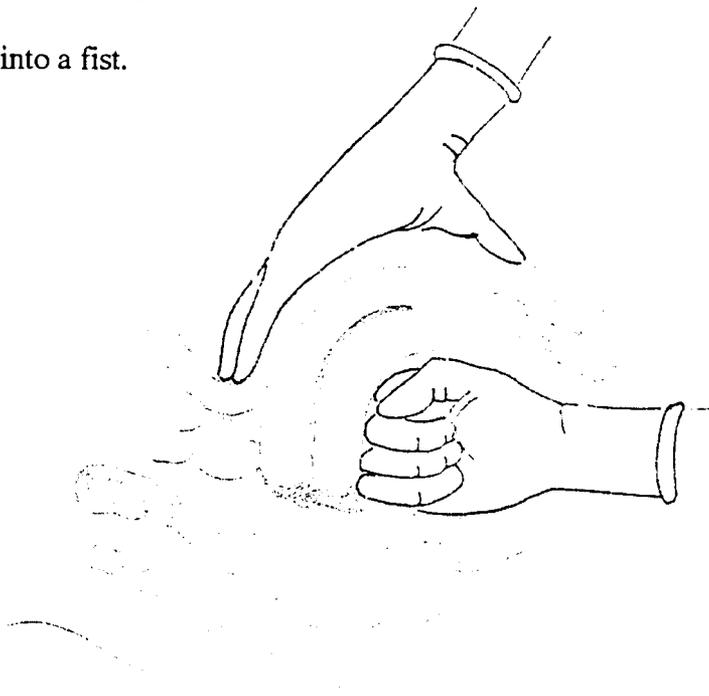


Figure 5. Hand positions for internal compression

5. Press your vaginal hand firmly against the lower portion of the uterus. Note that in grandmultiparas there is often a flabby cervix in the way. Pressing on the flabby cervix is not effective in stimulating the uterus to contract.
6. Move your fist above and in front of the cervix. Note that occasionally the cervix is difficult to move out of the way. If this happens, open your fist and use your fingers to massage the lower anterior part of the uterus. This direct massage will frequently stimulate a contraction.
7. Put constant downward and forward pressure with the abdominal hand.
8. Continue pressure with both hands for 10 minutes to let the oxytocic take effect and to allow for clotting time to take place at the placental site.
9. If this is not successful, inspect the placenta. Retained pieces of placenta or membranes may cause the uterus to contract incompletely. If parts are missing, proceed to manually remove the pieces (see section in this module on manual removal of the placenta) or transfer the mother to the hospital if the distance is reasonable and the mother is stable.
10. Continue to take her vital signs every half hour for two hours once she is stable. Allow her intravenous fluids to run another three to six hours until you are confident the hemorrhage is controlled. She may then eat and drink normally.

Learning Aid 1 - Digital Evacuation of the Uterus

In 20% of all pregnancies the first trimester will be complicated by vaginal bleeding, and in half of these the fetus will spontaneously abort. The woman will first complain of vaginal bleeding. A serious mistake is to treat the vaginal bleeding and send the woman home. It is very important to always find out why the woman is bleeding. It may be she is losing a pregnancy, is having a little break through bleeding at the time of her period, has sepsis or an ectopic pregnancy.

Definition - removal of any retained products of conception (fetus, placenta, and membranes) or clot that may be felt in the cervix and vagina with your fingers in a pregnancy less than 16 weeks.

Diagnose Vaginal Bleeding in Early Pregnancy

ASK and LISTEN

Are you pregnant? When did you see your last menses?

Do you have any pain? Where is the pain?

When did you start to see blood? How much? Clots?

Any fever, chills, foul smelling discharge?

LOOK and FEEL

Take the blood pressure, pulse and temperature.

FEEL for low abdominal tenderness, rebound tenderness.

LOOK for vaginal bleeding, clots, or foul smelling discharge

LOOK for signs of shock.

Refer to module on **Hydration and Rehydration**.

Do a gentle vaginal examination, if less than 16 weeks pregnant.

IDENTIFY PROBLEMS AND TAKE ACTIONS

Losing a pregnancy is something a woman will always remember. A woman often will blame the lost pregnancy on her actions, a death in the family, or other chance happenings. The midwife should reassure the woman.

Help her understand that sometimes a pregnancy does not grow normally. The woman's body can tell this and knows that the baby will not live. The body causes the vaginal bleeding to remove the not normal pregnancy. Explain to her that she will be able to have another pregnancy and that losing the pregnancy usually does not happen again.

Make sure that you always explain to the woman what you are going to do. Give her an analgesic such as Pethidine 50 -100 mg IM and fluids for hydration. Refer to module on **Hydration and Rehydration**. **Save all blood clots and blood stained cloths** so that you can look for products of conception and estimate the amount of bleeding. Clean the vulvar area with soap and water. Use a very clean technique for vaginal examination. Use sterile gloves for vaginal examination, if available.

FINDINGS: No periods for 6-8 weeks, slight or no vaginal bleeding, pain and tenderness in the lower abdomen, backache, abdomen may be distended and **very tender**, abdominal mass felt on vaginal examination, shock may be present. Treat for **Ectopic Pregnancy**.

ACTIONS: Refer right away. Ask assistant or family to arrange transport and blood donors. Treat for shock as described in module on **Hydration and Rehydration**. Go with the woman to the hospital.

FINDINGS: Less than 16 weeks pregnant, vaginal bleeding with or without clots, labor-like abdominal cramps, no or very little low abdominal tenderness.

Vaginal Examination

- Cervix soft and closed, slight vaginal bleeding. Make sure the woman does not have an ectopic pregnancy.

ACTIONS: The pregnancy will probably continue. Tell the woman that she must get extra rest and eat nutritious foods. She should not have sexual intercourse until the bleeding has stopped. Tell her to come back if the bleeding does not stop in 3 days or if she starts to bleed again.

- Cervix soft and closed, moderate to heavy vaginal bleeding.

ACTIONS: Go with the woman to the doctor right away. Watch her for shock and help the woman stay calm.

- Cervix soft and open, clots/tissue in vagina and cervix.

ACTIONS: Hold the uterus so it does not move with your abdominal hand. Slide vaginal hand past the clots you feel. Gently push your middle finger in the cervix. Carefully go around the inside of the uterus to gather all clots or tissue. Remove the clots as you slowly remove your hand.

If some of the clots are stuck, use a gauze. Wrap the gauze around your finger and gently put your finger past the clots in the vagina and cervix. Wipe under and around them with your gauzed finger until they become loose. Remove them with your finger.

Give oxytocic to help the uterus contract and stop the vaginal bleeding.

Give broad spectrum antibiotic, such as Ampicillin 1 Gram, right away and 500 mg every six hours for 7 days.

LOOK at the cloths and blood removed from the vagina to make sure that you have removed the products of conception. The bleeding will stop if all of the products of conception are removed.

If fever and foul smelling vaginal discharge, treat for infection. Refer to module on **Prevention and Management of Sepsis**.

If bleeding is heavy or continues for more than 3 days, refer to hospital.

4. What are the steps of external bimanual compression? (page 30)

5. What are the steps of internal bimanual compression? (page 31)

PROBLEM SOLVING METHOD CASE STUDY

The Problem Solving Method is an organized way of giving care to women. The Problem Solving Method is a way of thinking about the care you give women. This case study helps you review the Problem Solving Method. You need Modules 1 and 5 for reference.

We all solve problems every day of our lives. We usually do not think about the mental steps involved with 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 four steps of the Problems Solving Method are:

- 1.
- 2.
- 3.
- 4.

Check your answers by looking in Module 1.

The Problem Solving Method is used by midwives to identify problems and take appropriate action.

Case Study 1

ASK and LISTEN

This is the first step that must happen when seeing a woman. Ask questions about the reason she came to see you, the midwife.

Read the following example:

Mrs. R.P. is brought to you by the TBA, her husband and her father-in-law. The TBA tells you Mrs. R.P. delivered a baby girl 8 hours ago. The TBA is holding the baby. The TBA also tells you that Mrs. R.P. is bleeding and has pain in her belly. Mrs. R.P. did register with you in her 4th month of pregnancy. You know that she has a boy 6 years old and a girl 4 years old. You know that this pregnancy developed normally to term as she came for regular antenatal clinic visits.

After you help the TBA and family get the woman into the maternity, you ask the following questions listening very carefully to the answers. Write your questions below.

- 1.
- 2.
- 3.
- 4.

Refer to Module 5.

You find out that Mrs. R.P. began bleeding as soon as the baby was born. The TBA brought two large cloths soaked with blood and fluid from the delivery. The TBA tells you the placenta will not come out. She says, she did not pull on the cord, but did rub the womb to make it stay hard. Mrs. R.P. has taken some weak tea with sugar for strength. She has not taken any medicines.

You do not waste any time writing down the above information at this time. You know that 8 hours is a long time to be bleeding and you must continue with the Problem Solving Method to find out what is causing the bleeding and take appropriate action to stop the bleeding.

LOOK and FEEL

This is the second step that must happen when seeing a woman. Do an examination on the woman's body depending on the information you got in step one, ASK and LISTEN. What examination will you do on Mrs. R.P.?

- 1.
- 2.
- 3.

Refer to Module 5.

You find out that Mrs. R.P.'s skin is warm and dry, her pulse is 68 and B/P is 96/50. The uterus is soft but contracts as soon as you rub it. The cervix and vagina are free of tears. The cord is presenting at the vagina and dark red blood is running from the vagina.

IDENTIFY THE PROBLEMS

This is the third step of the Problem Solving Method. The midwife must find out what are the problems using the information from the first two steps. It is important that all problems found are treated; not just the problem that brought the woman to you.

Mrs. R.P. may need information on family planning, good nutrition after delivery, how to relieve hemorrhoid pain and where to go for immunizations for her small children. Mrs. R.P. came with an **EMERGENCY PROBLEM**, you must take appropriate action for this **EMERGENCY** first. Later you can write in her record all of your findings, the problems and take appropriate action for them.

Identify the cause of the emergency problem of bleeding. You know that continuous blood loss leads to shock, coma and death.

What is the cause of the bleeding?

How did you decide the cause of bleeding?

Refer to Module 5.

Using the information from **ASK** and **LISTEN** (delivered a normal baby, abdominal pain, placenta has not come out), the **LOOK** and **FEEL** (uterus sometimes soft, then hard, cord of placenta presenting in vagina, no genital tears, dark bleeding, B/P 96/50, P 68), you **IDENTIFY THE PROBLEM** that Mrs. R.P. has a retained placenta. She is not in shock, but is feeling somewhat weak.

TAKE APPROPRIATE ACTION

This is the fourth step of the Problem Solving Method. The midwife decides what should be done to take care of each problem. The following areas should be considered for each problem.

- Medical Treatment
- Education
- Counselling
- Laboratory tests
- Referral
- Plans for follow-up
- Recording

Mrs. R.P. has a life threatening problem. Take **ACTION IMMEDIATELY**. The **EMERGENCY** problem will need action right away. What **EMERGENCY** action will you take; why take each action?

The placenta and membranes are complete and you do not transfer her to the hospital, what else will you do?

Refer to Module 5.

The **EMERGENCY** actions should include (1) Make sure there is no shock because Mrs. R.P.'s condition may change from the first pulse and blood pressure reading, remember she is losing blood. (2) Call someone, if available, to help you manually remove the placenta, so they can help watch the woman. (3) Give analgesia if available, to relax the woman. (4) Start an IV, to replace some of the fluids lost by the bleeding and to prevent shock. (5) Explain to the woman and her family what you are going to do so that they will cooperate and not be afraid. (6) Manually remove the placenta after emptying the bladder. (7) Give Mrs. R.P. an oxytocic to help the uterus contract once the placenta has been removed. (8) Examine the placenta well to make sure that all of the placenta and membranes have been removed. (9) If some of the placenta or membranes are missing, transfer Mrs. R.P. to hospital. She may need a curettage to remove the remaining pieces.

If the placenta and membranes are complete and **YOU DO NOT TRANSFER HER TO THE HOSPITAL**, (10) Give broad spectrum antibiotic to prevent serious infection of the uterus, (11) Check for vaginal bleeding, contracted uterus, full bladder and vital signs every hour until normal to make sure the bleeding stops. (12) Continue the IV a total of 3 liters in 24 hours to replace fluids lost from bleeding and to prevent shock. Stop the IV once the woman is eating and drinking normally. Nutrition, fluids and activity are important for healing and strength. (13) Put the baby to each breast for 3 or 4 minutes, as soon as the woman is strong enough; and give an oral oxytocic to make sure the uterus stays contracted. (14) Give analgesia to lessen abdominal or perineal pain. (15) Give perineal care at least three times a day, teach the mother the importance of this care and the need to continue when she goes home. (16) Treat for fever according to findings. (17) Allow the woman to go home when she has completed the medications. She should feel like going home in five days after the delivery. If she does not, refer her to the doctor to make sure she does not have another problem. (18) Give an appointment for a two week check up for both mother and the baby. (19) Send a message to the TBA so that she will visit the mother and baby at home weekly for at least six weeks.

Case Study 2

Read the following example and use the Problem Solving Method.

Mrs. U.A. has just delivered a large baby girl at your maternity. This is her fifth delivery. The placenta is delivered very soon after the baby. The placenta and membranes are complete. The labor and delivery have progressed without any problems. As you are caring for Mrs. U.A., you see a continuous stream of blood from the vagina.

You immediately feel the uterus to see if the uterus is contracted. The uterus is not firm.

You immediately call to your assistant for help. You ask your assistant to put the baby to the breast and take Mrs. U.A.'s blood pressure and pulse.

As you try to rub up a uterine contraction, you feel to see if the bladder is full. Tell Mrs. U.A. that she is bleeding too much and you are going to help get the bleeding stopped. It is very important not to waste time, but do talk with Mrs. U.A. in a calm, reassuring voice. Ask Mrs. U.A. how she is feeling.

Mrs. U.A. is a little thirsty and doesn't like you holding and rubbing her uterus. You find the bladder is full.

Explain to Mrs. U.A. that you must rub her uterus to stop the bleeding and that you will try to be as gentle as you can. Ask your assistant to give Mrs. U.A. something to drink. Catheterize Mrs. U.A., looking at the condition of the genitalia, and try to rub up a contraction.

The bleeding does not stop. The placenta and membranes are complete. There are no lacerations of the genitalia. The blood pressure is 100/66 and the pulse is 88. What is Mrs. U.A.'s EMERGENCY bleeding problem? What do you do now?

Using the Problem Solving Method, you decide what is wrong and how to help Mrs. U.A. Continue reading and write in your answers.

ASK AND LISTEN

What do you ask Mrs. U.A.?

There is not too much to ASK and LISTEN. Before the delivery or during antenatal clinic visits you will have found out from the woman if she has had a problem with bleeding after a delivery. You may ask the woman how she is feeling (feelings of thirst, weakness or nervousness may be signs of shock). Tell her that she is bleeding a little too much. Reassure her that you want to find out where the bleeding is coming from and stop the bleeding as quickly as possible.

LOOK AND FEEL

Mrs. U.A. is feeling fine but would like something to drink. She is very excited about her baby girl. You ask your assistant to put the baby to Mrs. U.A.'s breast. The blood pressure is 100/66 and the pulse is 88. As soon as you see the bleeding, you felt the uterus to make sure it is firm and contracted. What else do you do?

Refer to Module 5.

You LOOK for signs of shock (low blood pressure, cold and wet skin, weak and fast pulse). You check the bladder and catheterize her if full. You LOOK at the placenta very carefully to make sure all of the placenta and membranes are present. You LOOK at the genitalia for tears of the cervix or vagina. The uterus is still not firm and contracted.

IDENTIFY THE PROBLEM

What is Mrs. U.A.'s problem?

Refer to Module 5

Using the information from ASK and LISTEN (delivered normal baby, thirsty), the LOOK and FEEL (vaginal bleeding, uterus not firm and contracted, placenta and membranes complete, no genital lacerations, bladder now empty, B/P 100/66 and P 88), you IDENTIFY THE PROBLEM that Mrs. U.A. has uterine atony. She is not in shock, but is thirsty. Uterine atony is an emergency and APPROPRIATE ACTION must be taken as soon as you know what the problem is. When the emergency is over, you can take care of any other problems you find.

TAKE APPROPRIATE ACTION

Mrs. U.A. has a life threatening problem. Take ACTION IMMEDIATELY. The EMERGENCY problem will need action right away. What EMERGENCY action will you take, why take each action?

Refer to Module 5.

If bleeding does not stop,

Refer to Module 5.

You have already called to your assistant for help, rubbed the uterus, checked the bladder, catheterized the woman, reassured and explained to the woman what is happening.

You review for yourself, that uterine atony may cause post-partum hemorrhage and must be taken care of right away. There is no time to refer the woman to a doctor. You must take ACTION right away.

(1) External compression of the uterus (place one hand on abdomen dipping behind uterus, place other hand flat and low on abdomen, press hands together to squeeze blood vessels at the placental site in the uterus and stop the bleeding.)

(2) Ask assistant to give an oxytocic while you hold the uterus to help the uterus contract.

(3) Look to see if bleeding has slowed or stopped.

- If bleeding has stopped, record vital signs and estimated blood loss; check for bleeding every 15 minutes for one hour then every 30 minutes for two more hours to make sure the uterus stays firm and contracted; put the baby to each breast for 4 - 5 minutes every 4 hours to help the uterus contract; nourish the baby with the colostrum and establish mother/child bonding.
- If bleeding has not stopped, continue holding uterus and ask your assistant to take vital signs and write in record; prepare for internal bimanual compression; have your assistant prepare to start an intravenous infusion; prepare to perform internal bimanual compression.

(4) Ask assistant to start IV infusion to prevent shock while you continue to hold the uterus.

(5) Ask assistant to check vital signs while you put on fresh gloves or quickly scrub your hands.

(6) Internal Bimanual Compression (place your freshly gloved or scrubbed examining hand into the vagina; form your hand into a fist; press vaginal hand firmly against the lower portion of the uterus moving any flabby cervix out of the way; press your abdominal hand and your vaginal fist together, hold firmly).

(7) Watch for the vaginal bleeding to stop.

(8) If BLEEDING CONTINUES open fist and massage lower part of uterus above (in front of) the cervix. Prepare to transfer to hospital with IV running.

(9) If BLEEDING CONTINUES, inspect the placenta again. If membranes or pieces of placenta are retained in the uterus, prepare for manual removal of placenta. Prepare to transfer to hospital with an IV running.

(10) If **BLEEDING STOPS**, take vital signs every 30 minutes for two hours once she is stable. Allow her IV to run another three to six hours until you are confident the hemorrhage is controlled. She may eat and drink normally as she feels like it.

PREPARATION FOR EMERGENCY

So that a midwife can be ready for an emergency such as uterine atony, the maternity home or ward must always be **READY FOR AN EMERGENCY**. What must be done to prepare for an emergency?

Refer to Module 5.

So that a midwife may be always ready for an emergency the following should be available:

- 2 liter bottles/bags IV fluids
- 2 giving sets/tubing
- needles/butterfly needles or intracatheters
- arm board to keep arm from moving
- tape or strips of cloth
- BP cuff and stethoscope
- pulsometer or watch with second hand
- emergency transport system worked out locally with bus union, neighbors, or other source.
- midwife and assistant both trained to start intravenous infusions.

Date Date Date Date

Procedure for External Bimanual Compression				
1. Call to your assistant for help.				
2. Check to see if bladder is full.				
3. Try to rub up contraction				
4. Catheterize if necessary.				
5. Place one hand on abdomen dipping behind uterus.				
6. Place other hand flat and low on abdomen.				
7. Press hands together.				
8. Give oxytocics while you hold uterus for ten minutes.				
9. Look to see if bleeding has slowed or stopped.				
10. If stopped: <ul style="list-style-type: none"> · take vital signs and record in record · estimate blood loss and record · check for bleeding every 15 minutes for one hour then every 30 minutes for two more hours · put baby to breast 				
11. If bleeding not stopped: <ul style="list-style-type: none"> · continue holding uterus and ask assistant to take vital signs and record in record · prepare for internal bimanual compression · have assistant prepare to start intravenous infusion · prepare to perform internal bimanual compression 				

Comments:

	Date	Date	Date	Date
Procedure for Internal Bimanual Compression				
1. Start IV infusion.				
2. Check vital signs.				
3. Put on fresh glove or quickly scrub your hands.				
4. Place your freshly gloved or freshly scrubbed examining hand into the vagina.				
5. Form your hand into a fist.				
6. Press vaginal hand firmly against the lower portion of the uterus.				
7. Use care to move any flabby cervix out of the way before pressing.				
8. Press your abdominal hand and your vaginal fist together.				
9. Hold firmly.				
10. Observe for stopping of vaginal bleeding.				
11. If bleeding continues open fist and massage lower part of uterus above the cervix.				
12. If bleeding continues, inspect placenta.				
13. If membranes or pieces of placenta are retained in the uterus prepare for manual removal of placenta.				
14. Prepare to transfer mother with IV running to hospital if a reasonable distance.				
15. If not practical to transfer the mother, perform manual removal of placenta according to procedure set out in the module dealing with that.				

Comments:

Date Date Date Date

Record Findings				
1. Record progress of vital signs throughout procedure.				
2. Record type and amount of IV fluids and time started.				
3. Record appearance and completeness of placenta and membranes.				
4. Record estimated blood loss.				
5. Record time, type, and dose of oxytocics given.				

Comments:

12/2

References

Experience and the following references provided information for this module.

Boyd, M.E. (1989, July). Spontaneous abortion. Canadian Journal of Surgery, 32,4,260-24.

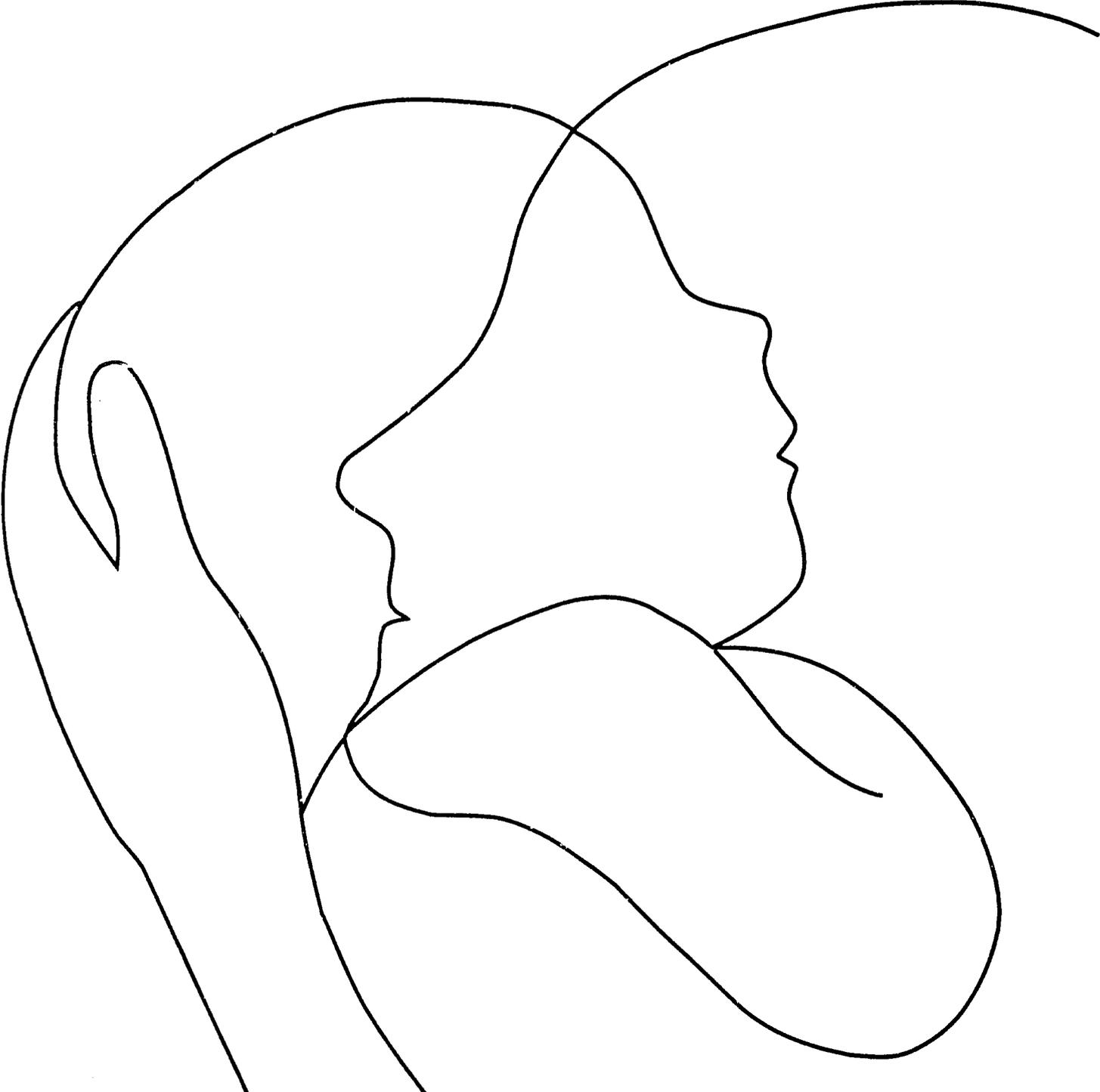
Douglas, R. G, and Stromme, W. B. (1976). Operative obstetrics, Third Edition. Appleton-Century-Crofts, New York.

Howe, C. L. (1986). Hemorrhage during late pregnancy and the puerperium. 2nd Edition. March of Dimes.

Oxhorn, H. (1986). Human labor and birth. 5th edition. Appleton-Century-Crofts, Norwalk, Connecticut.

World Health Organization. (1989, July). The prevention and management of postpartum hemorrhage. Report of a technical working group Geneva 3-6 July, 1989. WHO/MCH/90.7.

Module 6:
RESUSCITATION



Module Contents
RESUSCITATION

	Page
INFANT RESUSCITATION	1
Goal	1
Objectives	1
Common Medical Terms	1
Introduction	1
Skill - Infant Resuscitation	3
Equipment	3
Procedure	3
Learning Aids	8
1. Apgar Scoring Chart	8
2. Care of the Baby at Birth	10
Review Questions	11
Case Study	13
Skills Checklist	16
References	18
ADULT RESUSCITATION	19
Goal	19
Objectives	19
Common Medical Terms	19
Introduction	20

21

ADULT RESUSCITATION (Cont'd)

Equipment	21
Procedure	21
Review Questions	26
Skills Checklist	28
References	32

PREVENTION OF DEATH BY CHOKING (HEIMLICH MANEUVER)

Goal	33
Objectives	33
Common Medical Terms	33
Introduction	34
Equipment	34
Procedure	34
Review Questions	39
Skills Checklist	40
References	42

INFANT RESUSCITATION (HELP A BABY LIVE!)

Goal

This module will help the midwife recognize the important signs and symptoms of a baby having trouble living. This module will help the midwife learn how to resuscitate a baby.

Objectives

The midwife caring for the mother and baby should be able to:

1. Describe care of the baby at birth
2. Describe the steps (ABCS) of finding out when a baby is having trouble living.
3. Look and describe the signs and symptoms when a baby is having trouble living.
4. Describe and demonstrate how to resuscitate the baby.
5. List emergencies in the newborn that the midwife must refer to the doctor.

Common Medical Terms

Resuscitation - clear the airway, get air (oxygen) into the baby by breathing into the baby (respiratory resuscitation) and gently moving the heart (cardiac resuscitation) until the baby breathes on its own and until the heart beats regularly on its own.

Emergency - a time when action must be taken right away to save a person's life; for instance, if someone is not breathing you must help the person to breathe right away so that she will not die.

Meconium - A dark greenish, sticky stool (feces or bowel movement) in the intestine of a full term baby. This is the first stool passed by the baby. If the baby does not have enough oxygen during the pregnancy, labor or delivery, the baby will pass some of the meconium stool. The midwife may see the stool come from the mother's vagina and know that the baby is having some problem. The meconium stool may be mixed with liquor (amniotic fluid) and look yellowish or light green in color.

Introduction

Breathing is the first function of the newborn. The mouth, nose and air passages must be clear to stop fluid, mucus or meconium from being sucked into the lungs when the newborn gasps for air. If the baby breathes anything into the air passages he will have trouble breathing, he may get pneumonia, or he may die. Careful listening to the fetal heart rate during labor can help the midwife know the baby is having trouble getting enough oxygen and will probably need resuscitation (see **Monitoring Labor Progress** module).

It can not be stressed enough that the immediate responsibility of the midwife is to clear the mouth and nose as soon as the mouth and nose are delivered over the perineum. Wipe the mouth and nose with dry, clean gauze. Wipe the mouth and throat with your fingers or with a dry, clean gauze or cloth to remove anything in the air passages. If you have a bulb syringe, suck out the air passages.

The process of delivery is usually enough stimulation to start the baby breathing. Normally the loud and clear cry of the newborn gives those at the delivery a joy hard to describe.

When the baby begins to cry, anything still in the air passages usually comes out. The midwife should be watching so that she can wipe away any fluids coming from the air passages.

Important:

As soon as the baby is delivered, hold the baby with his head down to help any fluids in the air passages to drain out of his body.

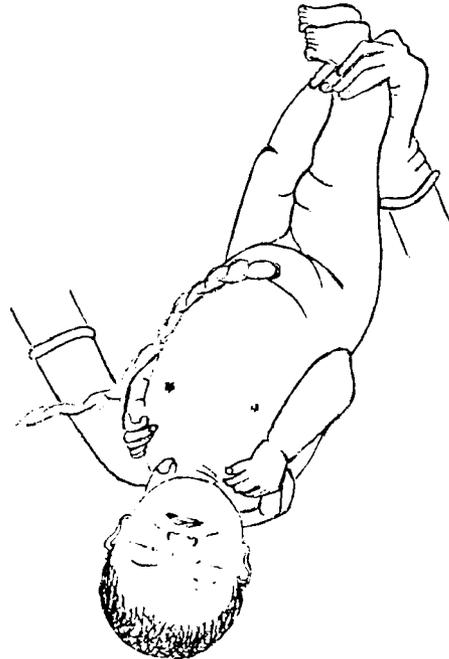


Figure 1. Baby with head down

Because the head is lower than the rest of the body, any fluids in the mouth and nose will not run into his lungs or the stomach. They will run out his nose and mouth. Study Learning Aids 1) Apgar Scoring Chart and 2) Care of the Baby at Birth before you continue with ABCS of Resuscitation.

ABCS of Resuscitation

The abnormal or emergency situation causes different reactions. Panic has no place in an emergency. A prepared and skilled midwife has a cool head and a steady hand. A skilled midwife remembers the life saving steps (ABCS) of helping a baby who has trouble living.

- Airway** - make sure the airway is open
- Breathing** - make sure the baby is breathing
- Cardiac Function** - make sure the heart is beating
- Shock** - make sure the baby is warm and dry

24

Skill: Infant Resuscitation

The purpose of infant resuscitation is to help and keep the newly delivered baby's nose and mouth clear, lungs breathing, and the heart beating so that the blood can carry oxygen all around the baby's body. This is done by the midwife and/or assistant doing the delivery. **This is a life saving skill.**

Resuscitation must be started as soon as the midwife identifies the need. If the baby is not breathing by the time it takes to clear the fluids from the baby's mouth and nose, or if the baby is born limp and not breathing, the problem must be identified. The baby is not going to live unless the midwife does something **right away**. As mentioned before, careful monitoring of the fetal heart rate during labor can alert the midwife to a probable need for resuscitation.

Equipment

Mucus suction catheter (DeLee)	Clean dry cloths to keep baby warm
Suction bulb	Oxygen, if available. If not available, continue anyway
Clean dry cloth or gauze	

Procedure

1. Keep the baby warm. Cover with a dry cloth.
2. **LOOK** to make sure the airway is open. Clear the nose and mouth as soon as they are visible.
3. **LOOK** to see if the baby is breathing. If the baby is not breathing, **act fast**. Help the baby to breathe.
4. Put your hand on the chest over the heart. **FEEL** how regular, strong, and fast the heart is beating. If the heart is not beating, **act fast**. Help the heart to start to beat.
5. **LOOK** at the color of the baby. Dry the baby quickly and keep the baby warm.
6. Handle the baby gently. If there is no problem with the baby, place the naked baby on the mother's chest. Cover both of them with dry cloths. Complete the delivery and care of the newborn.

If there is any problem with the baby, look in this module for: **Actions According to Signs and Symptoms.**

Actions According to Signs and Symptoms

FINDINGS: Airway is clear;
Breathing is irregular, no cry;
Cardiac - heart has strong beat;
Shock - body is pink, hands and feet pale.

ACTIONS: Hold baby with head a little lower than body, cover with a cloth, gently rub the back and clean out the nose and mouth using your fingers or a suction bulb.

FINDINGS: Airway is clear;
Breathing is irregular, grunting, no cry;
Cardiac - heart beat is strong;
Shock - baby is pale and limp.

ACTIONS: Handle gently; dry quickly and cover; lay flat; suction nose and mouth with mucus extraction catheter (such as DeLee if available) or suction bulb.

FINDINGS: Airway is clear;
Breathing is shallow, flaring nostrils, slow breathing, no cry;
Cardiac - heart beat is weak. 100 or above beats in a minute;
Shock - baby is blue and limp.

ACTIONS: Lay flat; make sure airway is straight (neck not bent); dry quickly and cover; suction nose, mouth, and throat with mucus extraction catheter; continue until condition improves or you can refer.

FINDINGS: Airway is clear;
Breathing - no;
Cardiac - weak heart beat, less than 100 beats in a minute;
Shock - cold and pale.

ACTIONS: Lay flat on hard surface. Keep airway straight and open;
Dry quickly and cover; Start mouth to mouth resuscitation
(place your mouth over baby's mouth and nose, blow shallow,
soft breathes 20/minute); keep baby warm; keep blowing air until
baby breathes on its own.

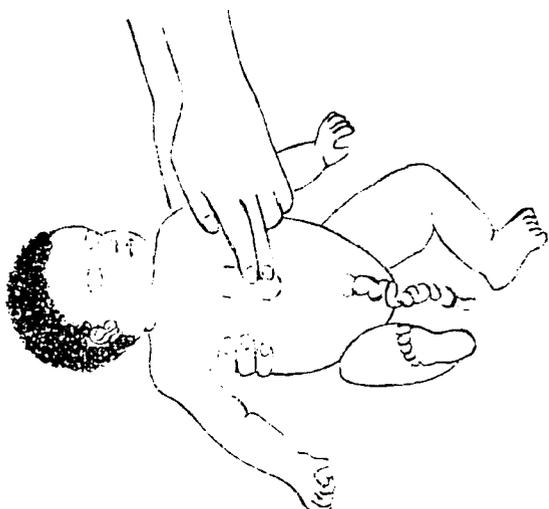
FINDINGS: Airway is clear;
Breathing - no;
Cardiac - no heart beat;
Shock - cold and pale.

ACTIONS: Lay flat;

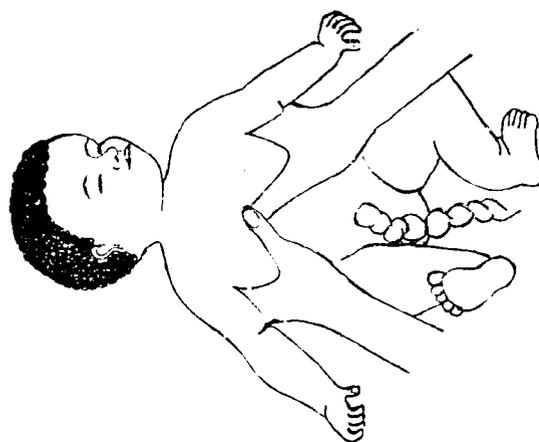


Figure 2. Lay baby flat. Breathe into the baby's mouth with a gauze or a cloth.

Cardiac Massage - Use two finger or thumb technique;



Two-finger technique



Thumb technique

Figure 3. Cardiac Massage

Place fingers, just below the nipple line, in the center of the chest, just above the xyphoid process (tip of the sternum). Do not lift your fingers off the chest between presses to save time. Push down the sternum 1/2 - 3/4 inches at 100-120 times per minute. The baby's sternum bends easily. You will not need much pressure to compress the heart.

Coordinate heart compression with breathing mouth to mouth. Count while compressing the heart "one and two and three and breathe." Repeat with three heart compressions while counting, and then blow gently in nose and mouth. Continue repeating. Have assistant feel femoral or precordial pulse.

Make sure breathing and compressions are coordinated by counting. First do 3 heart compressions, then 1 breath, then repeat all. If you compress the heart and breathe in the baby at the same time, the baby may die of ruptured internal organs or have other serious problems.

Stop heart compression when the pulse is 80/minute. Mouth to mouth breathing may be needed for a longer time until the baby starts to breathe on his own.

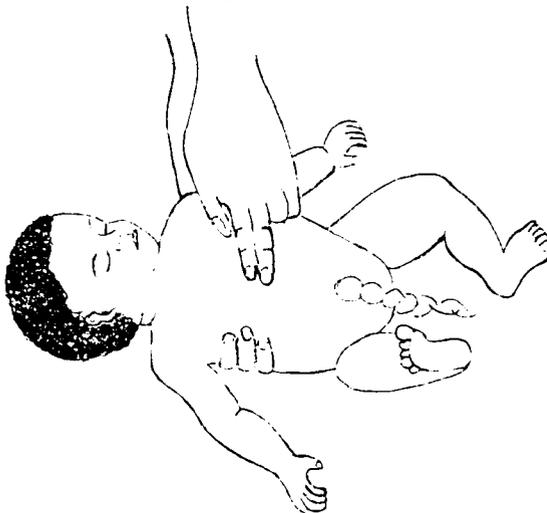


Figure 4. Assistant feeling for pulse

FINDINGS: Airway is blocked with meconium or fluid,
Breathing - irregular,
Cardiac - heart is beating strong and regular,
Shock - body is pink, hands and feet pale.

ACTIONS: Get the meconium or fluid out of the airway (nose, mouth, and throat). Use your fingers or dry, clean cloth or gauze to clear the airway. Hold the baby with his head lower than the body. Suck the nose, mouth and throat with a suction bulb or mucus extraction catheter.

Caution: Hard slapping of feet or back, hot or cold water on baby, rough rubbing or bending should never be done. A newborn baby can get broken bones or injuries to soft tissue if slapped, rubbed or treated roughly. Hot water may burn the baby's skin. Cold water can lower the temperature and may cause death in the baby.

7. Care for the cord. Keep the baby warm, watch every hour for 8 hours, and every 4 hours for 3 days. Make sure the baby takes the colostrum (express it from the mother's breast and give with a spoon if the baby is not strong enough to suck). If the temperature of the baby is low, let the baby sleep with the mother to keep warmer. Cover both the mother and baby with cloths.

Emergencies

If any of the following are found, the newborn baby should be referred to the hospital/doctor as soon as possible:

- no opening in the anus
- lips and skin blue in color
- repeated vomiting
- jaundice
- irregular breathing, grunting or sternal retractions after delivery
- any unusual actions such as: eyes rolling, extreme irritability, stiffness, convulsions.

Learning Aid 1 - Apgar Scoring Chart

The Apgar Scoring Chart is a simple test to help you decide if a newborn needs help. You give the test by looking at the baby right after he is born and again in five minutes. You need to do this quickly, for if the scoring is low the baby needs your help. This test was developed by Dr. Virginia Apgar. The signs you need to look at are easy to remember by using Dr. Apgar's name.

You LOOK, LISTEN and FEEL for:

A - Appearance or color of the baby

P - Pulse or heart beat of the baby

G - Grimace of face or response of baby when you touch his feet

A - Activity or muscle tone of arms and legs

R - Respirations or breathing of the baby

This test gives you an APGAR score. The highest APGAR score for a healthy newborn is 10; the lowest is 0, but in that case, the baby is not breathing. You decide the baby's APGAR score by giving him 0 points, 1 point, or 2 points on each of the five parts of the test: appearance, pulse, grimace, activity and respirations. The total number of points is the baby's APGAR score.

A baby who has breathing problems or his heart is not beating well needs help **right away**. If you can, take any baby who scores less than 7 five minutes after birth to the doctor/hospital.

Procedure

- A - Appearance.** Look at the color of the baby's skin.
- P - Pulse.** Listen to the baby's heart with a stethoscope if available, or feel the pulse with your fingers. Count the number of beats per minute.
- G - Grimace.** Rub back and forth on the soles of the baby's feet with one of your fingers. Observe the reaction on his face. Or, notice the baby's reaction when you suck the mucus from his mouth and throat.
- A - Activity.** Watch the newborn move his arms and legs. Or, pull an arm or a leg away from his body. Note how his arms and legs move in response to the stimulation.
- R - Respirations.** Look at the newborn's chest and abdomen. Watch him breathe.

Total the **APGAR** score. Record the score on the mother's Labor Chart.

Normal Signs (Score of 7 - 10)

Abnormal Signs (Score of 0 - 6)

	2 Points	1 Point	0 Points
A	Completely pink body and face	Pink body, blue arms and legs Pale body and face	Pale or blue body and face
P	More than 100 beats per minute Strong heart rate	100 beats per minute or less Weak heart beat	No heart beat
G	Crying, coughing or sneezing	Grimace or puckering of face	No response
A	Active movement Waving arms and legs	Some movement in response to stimulation	Limp arms and legs No movement in response to stimulation
R	Strong cry	Slow, irregular breathing Retracting of chest wall Grunting or weak cry	No breathing No cry

Learning Aid 2 - Care of the Baby at Birth

- a. Wipe mouth and nose as soon as you see them during delivery.
- b. Hold baby with head down to drain fluids from air passages.

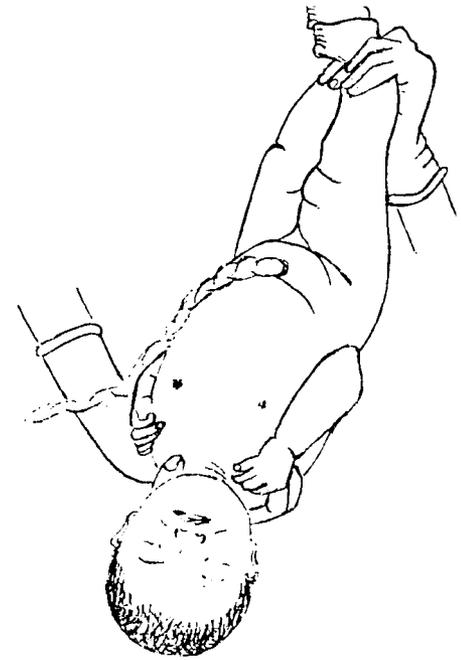


Figure 5. Position to Drain Mucus

- c. Wipe mouth, nose and throat with finger or gauze to make sure everything is out of the air passages.

- d. If you have a suction bulb use it to clear the air passages.



FIRST SQUEEZE BULB

THEN INSERT BULB INTO EACH NOSTRIL AND MOUTH

RELEASE SYRINGE AND REMOVE FROM NOSE. SQUEEZE MUCUS OUT OF BULB SYRINGE AND REPEAT WHOLE PROCESS UNTIL ALL MUCUS AND FLUIDS ARE REMOVED

Figure 6. Bulb Syringe Suctioning of Nose and Mouth

- e. After air passages are clear, lay baby down, dry the baby well, cover with a dry cloth, tie and cut the cord.
- f. Keep the baby warm by placing it on the mother's abdomen skin to skin or with the baby well wrapped with a dry cloth.
- g. The baby can be put to breast to encourage sucking as soon as he is able.
- h. Keep careful watch on the baby while preparing to deliver the placenta.

3. Describe and demonstrate respiratory resuscitation for a newly delivered baby with these findings: Airway - Clear, Breathing - No, Cardiac - Weak Heart Beat, less than 100 beats in a minute, Shock - Cold and Pale. (page 5)

4. Describe and demonstrate cardiac massage for a newly delivered baby with these findings: Airway - Clear, Breathing - No, Cardiac - No Heart Beat, Shock - Cold and Pale. (page 5)

5. List emergencies in the newborn that the midwife must refer to the doctor. (page 7)

PROBLEM SOLVING METHOD CASE STUDY

The Problem Solving Method is an organized way of giving care to women. The Problem Solving Method is a way of thinking about the care you give women. This case study helps you review and learn to modify the Problem Solving Method in the case of infant resuscitation.

The four steps of the Problem Solving Method are:

- 1.
- 2.
- 3.
- 4.

Check your answers by looking in Module 1.

The purpose of infant resuscitation is to help keep the newly delivered baby's nose and mouth clear, lungs breathing, and the heart beating so that the blood can carry oxygen all around the baby's body. **This is a life saving skill.**

Resuscitation must be started as soon as the midwife identifies the need. If the baby is not breathing by the time it takes to clear the fluids from the baby's mouth and nose, or if the baby is born limp and not breathing, the problem must be identified. The baby is not going to live unless the midwife does something **right away**. Remember, careful monitoring of the fetal heart rate during labor can alert the midwife to the probable need for resuscitation.

ASK AND LISTEN

You just delivered Mrs. I.R., a primip, who had a latent phase of 7 hours, active phase of 10 hours, with an episiotomy, of a baby girl.

What do you ASK and LISTEN?

Refer to Module 6.

This is some of the modification of the problem solving method. You gather the ASK and LISTEN (history taking) information during the labor and delivery. This is the reason it is so very important to always get information as soon as you see someone. In case of an emergency, you do not have to go back and start to ask questions.

You know that Mrs. I.R. is a primip with a long labor. She needed an episiotomy to deliver her baby. You also know that the baby passed meconium before delivery, indicating that the baby was having some trouble with the long labor process. The FHT was strong and steady during the labor.

LOOK AND FEEL

What do you do as soon as the baby is delivered? What do you LOOK and FEEL?

Refer to Module 6.

You clear the airway, LOOK that the breathing is irregular, grunting and there is no cry, FEEL the heart which is beating strong, LOOK at the general condition of the baby and see she is pale and limp.

IDENTIFY THE PROBLEM

What is the problem with the baby?

See Module 6.

You decide that the baby is having trouble breathing (irregular, grunting and there is no cry); and she is close to shock (body pale and limp).

TAKE APPROPRIATE ACTION

What action do you take?

See Module 6.

You handle the baby gently, dry quickly and cover to keep her warm, lay her flat so she can rest, suction to make sure the airway is open. You remember that hard slapping of the feet or back, hot or cold water on the baby, rough rubbing or bending should never be done.

List the emergencies found in the baby that should be referred to the hospital.

See Module 6.

Emergencies found in the baby that should be referred are no opening in the anus, lips and skin blue in color, repeated vomiting, jaundice, irregular breathing after delivery, any unusual actions such as eyes rolling, extreme irritability, stiffness, or convulsions.

Describe the ABCs of Resuscitation?

See Module 6.

Airway, make sure the airway is open; **Breathing**, make sure the baby is breathing; **Cardiac Function**, make sure the heart is beating; **Shock**, make sure the baby is warm. A skilled midwife remembers the life saving steps (ABCS) of helping a baby who has trouble living.

	Date	Date	Date	Date
6. CARDIAC - FEEL on the chest for heart beat. · If no heart beat ACT according to signs & symptom				
7. SHOCK - Handle baby gently. · Dry quickly · Keep warm				
8. Do APGAR scoring at 1 & 5 minutes · Appearance - LOOK · Pulse - FEEL & LISTEN · Grimace - FEEL & LOOK · Activity - LOOK & FEEL · Respirations - LOOK · TOTAL THE SCORE & RECORD				
9. Care for the cord.				
10. LOOK at condition of the baby · keep warm · sleep with mother · cover with dry cloth · air passages clear · wipe fluids · sleep on side · nutrition · colostrum sucking or expressed				

Comments:

References

Experience and the following references provided information for this module.

Apgar, V., et al. (1958). Evaluation of the newborn infant - second report. Journal of American Medical Association, Dec. 13, 1958, Vol.168, No.15.

Frontier Nursing Service. (1980). Medical directives. Frontier Nursing Service Incorporated, Hyden. 326-9.

Gomez, G.E., Hord, E.V. (1988). Fundamentals of clinical nursing skill. John Wiley & Sons, New York. 19.426-7.

Grant, H., Murray, R.(1971). Emergency care. Robert J. Brady Company, Washington DC. 9,278-9.

Kanto Jr., W.P. (1977,Oct.). Dealing with respiratory distress. Emergency Medicine, Vol.9, No.10, 67-75.

Manual for Health Centres. (1986). Clinical reference. Ministry of Health, Maseru. 275-282.

Myles, M.F. (1981). Textbook for midwives. Churchill Livingstone, Edinburgh. 32,546 & 35,640.

Shah, P.M. (1990). Birth asphyxia: A crucial issue in the prevention of developmental disabilities. Midwifery, Vol.6,99-107.

Silverman, W.A., Parke, P.C. (1965) The newborn: Keep him warm. American Journal of Nursing, Vol.65, No.10, 81-84.

Varney, H. (1987). Nurse midwifery. Blackwell Scientific Publications, Boston. 22,423.

ADULT RESUSCITATION

Goal

This module will help the midwife recognize the signs and symptoms of an adult having trouble living. This module will help the midwife learn life saving skills to help the person live.

Objectives

The midwife caring for the person should be able to:

1. Describe and demonstrate the appropriate actions to take when helping the person who is not breathing but does have a heart beat.
2. Describe the signs and symptoms of a person who has no heart beat and is not breathing and demonstrate the appropriate actions to save her life.

Common Medical Terms

Choking - blocking the breathing passage or tightening about the neck. This stops breathing and keeps oxygen from getting to the brain and other vital organs. The blocking of the airway may also be caused by spasm of the larynx from an irritating gas.

Emergency - a time when action must be taken right away to save a person's life, for instance if someone is not breathing you must help the person breathe right away so that he will not die.

Heart Attack - when the heart muscle needs more blood (oxygen) than the supply. It usually is caused by severe narrowing or complete blockage of the coronary artery and causes the muscle of the heart to die from lack of oxygen. The usual signal or symptom of a heart attack is a pressure or pain in the chest that lasts for two or more minutes. The pressure or pain does not get better when the person stops to rest. Another term for heart attack is myocardial infarction.

Larynx - the large upper end of the trachea below the back of the tongue. It is the organ of voice.

Resuscitation - helping to live, helping to get air (oxygen) into the person by breathing into the person (respiratory resuscitation) and gently moving the heart (cardiac resuscitation) until the person breathes on his own and until the heart beats regularly.

Trachea - the wind pipe or tube which connects the larynx and the two bronchial tubes of the lungs.

Xiphoid process - the lowest part of the sternum and made up the cartilage. Some abdominal muscles are also attached to it.

Introduction

The midwife may meet a person in the market, on the street, or in her own maternity or clinic who needs resuscitation. Resuscitation is necessary when a person is unable to breathe and/or his heart is not beating.

There are many reasons why an adult might not be able to breathe:

1. **Blockage of the airway.** If the airway is completely blocked air (oxygen) can not get into the lungs and into the blood. The lungs will stop and a couple of minutes later the heart will stop.
2. **Injury to the brain.** Injury from an accident (car accident, falling, and so on), overdose of street drugs and other drugs, stroke, or severe shock can depress the respiratory center in the brain and it stops working.
3. **Injury to the chest.** Injury from accidents can cause serious injury to the lungs and ribs. The lungs may collapse (pneumothorax).
4. **Some types of drugs can depress the respiratory center in the brain and stop breathing.** Many of the drugs used for psychiatric patients as well as narcotics have this side effect.
5. **Electrocution with paralysis of the breathing muscles or drowning or suffocation from lack of oxygen to be breathed.**
6. **Cardiac arrest (heart attack, myocardial infarction).**

There are also many reasons why the heart might not beat and therefore there is no circulation of blood throughout the body:

1. **Cardiac arrest (heart attack, myocardial infarction).**
2. **Severe shock due to a large hemorrhage.**
3. **Injury to the heart.**
4. **Drugs which have the side effect of decreasing the contractions of the heart.**
5. **Respiratory arrest.** Breathing stops for any of the reasons listed in the section above. The heart will stop after a couple of minutes. The heart muscle slowly dies from lack of oxygen.

An adult who is unable to breathe or keep his heart beating is in an emergency situation. If he does not receive help quickly he will die. **In four minutes he will start to get brain damage. In 10 minutes he will die.** A skilled midwife remembers the life saving steps (ABCS) for helping a person who is having trouble living.

Airway- make sure the airway is open

Breathing- make sure the person is breathing

Cardiac Function- make sure the heart is beating

Shock- make sure the person is kept warm

Equipment

You are all that is needed!

Procedure

Airway- make sure the airway is open

1. Speak to the person. **ASK** are you alright. This way you are certain he is not just sleeping. If there is anyone else around call for help.
2. Roll him onto his back on a hard surface (floor). If the person is an accident victim and may have damage to his spine, neck, or head it is important that you roll him over as a unit (so his whole body rolls at the same time). Ask for help from anyone who may be close by.
3. Look into his mouth to make sure the airway is open.
4. Clear the nose and mouth with your fingers of anything you can see or feel.

5. Move the head into a position that will prevent the tongue from falling into the throat and cutting off the air (oxygen) supply to the lungs. Place one hand on the person's forehead and press firmly backward. With your other hand, press the fingers under the jaw near the chin; lift the chin forward until the teeth are almost closed. This position will keep the tongue out of the throat. Remember that until the airway is clear, no resuscitation efforts will be successful. If the person has loose dentures (false teeth) remove them.

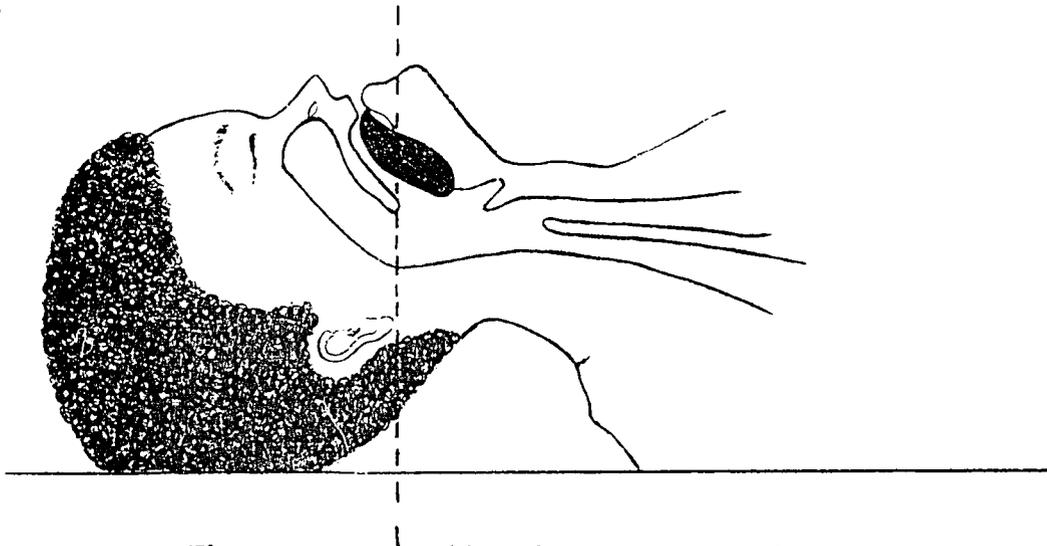


Figure 7. Proper position of the head to open the airway

Breathing- make sure the person is breathing

6. Look at the person's chest. Now that the head is in a position that the tongue is not blocking the airway, the person may begin to breathe on his own.
7. If he is not breathing quickly kneel at his side. Place a gauze or cloth over the person's mouth before breathing into the person. This will decrease your risk of getting AIDS. Pinch his nose closed with your fingers and breathe into his mouth. Does the air enter his chest easily? If not, you still have an obstructed airway. Adjust the position of his head and try again. Does the air enter his chest easily? If not, try the **Heimlich Maneuver** to remove any object that might be blocking his throat. See in this module **Heimlich Maneuver** to learn the correct steps for this procedure. Try to breathe into the person again. Take a breath after each time you breathe into the person. You should see his chest rise with each breathe.

Cardiac Function- make certain the heart is beating

8. After giving two quick breaths, check to see if the heart is beating. Feel for the person's pulse (heart beat) on his neck at the carotid pulse. This is the easiest pulse to feel and will still be able to be felt when the person is in shock, and the peripheral (arm and leg) pulses can no longer be felt. On the person's throat locate his thyroid (Adam's apple). Slide your fingers towards you off the thyroid into the groove on the side between it and the neck muscles. You should feel the carotid pulse there.
9. If the person has a pulse, do not do cardiac (chest) compressions. You can seriously damage a heart that is already beating by doing cardiac compressions.
10. If the person has a pulse (heart beat), but is not breathing, do only respiratory resuscitation. Breathe into the person's mouth approximately 12 times per minute (once every five seconds).



Figure 8. Position for mouth to mouth resuscitation

11. If the person does not have a pulse, you will need to both breathe for him and help his heart to contract.

12. Feel on the person's chest for the bottom of his rib cage (bottom of the sternum or xiphoid process). Place the palm (heel) of your hand above the bottom of the rib cage. Good placement of the hands is important to give effective compressions of the chest and for avoiding damage to internal organs.

The heel of the hand is on the lower half of the sternum. Place your other hand on top (either made into a fist or with fingers stretched out). Keep your arms straight with your elbows locked.

Press straight down over your hands. If the arms are not straight and the thrusting is done at an angle, the compressions of the heart will not be effective and you will tire easily. Do not rock as you perform compressions.

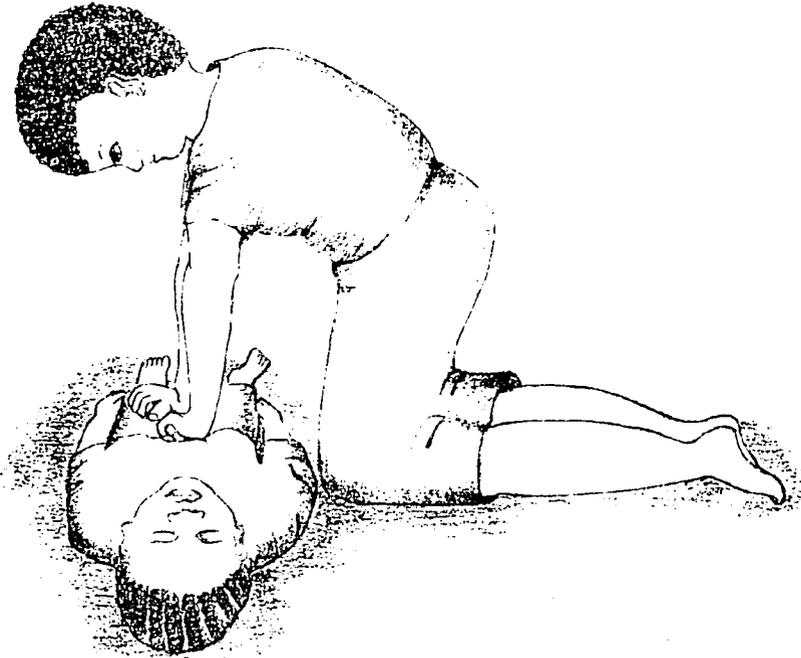


Figure 9. Position to do chest compressions with one hand placed on top of the other

13. As you lean forward, press the chest 1 1/2 to 2 inches. The time to press down and release should be equal. Do not stop (pause) between compressions.

Do not lift your hands up off the chest. This will make you lose time and you may change the position of your hands and cause damage to the internal organs. Your movements should be smooth and continuous. Jerky movements or bouncing on the chest wall will cause damage and will not give effective compression of the heart.

Compress the heart at 80 to 100 beats per minute. Count one and two and three and four and five up to fifteen. This helps to give you the proper rhythm and pace.

14. After 15 compressions, stop and give the person two breaths. Remember to pinch the nose and keep the head in its slightly tipped back position so that the tongue does not block the airway.

15. After the two breaths, locate the proper hand position on the chest and give 15 more compressions. Keep repeating the pattern of 15 compressions followed by 2 breaths. You should be able to do four or five complete cycles in one minute.
16. After a minute or so stop and recheck the person's carotid pulse. If he has a heart beat, look to see if he is breathing on his own.

If there is no heart beat and no breathing, continue with the cycle of 15 compressions and 2 breaths.

If there is a heart beat but no breathing, continue with the breathing at the rate of about 12 times per minute. Remember: you can cause serious damage to the heart if you do compressions on a heart that is beating on its own.

17. It takes a lot of energy to do cardiopulmonary (breathing and compressions) resuscitation for very long. If anyone around you is trained in the procedure, get them to help relieve you. Get someone around you to organize transportation. After you have successfully resuscitated the person, you will need to travel with him to the hospital for further care.
18. Continue to resuscitate the person until you are successful or so exhausted that you can not do it anymore. You might be able to perform resuscitation in the back of a truck on the way to the hospital or in an ambulance. You will need to do it on a hard surface. If the person is on a mattress or other soft object, the compressions of the heart will not be effective.

Shock- make certain the person is kept warm

19. Wrap him in a blanket or dry cloths, after resuscitating him. This is especially important if he is wet or cold.

4. What are the steps you use if the person does not have a pulse? (page 23)

5. What is the proper hand position for chest compressions? (page 24)

6. Why must you never do chest compressions on a person who has a pulse? (page 23)

	Date	Date	Date	Date
Breathing- make sure the person is breathing				
6. Look at the person's chest. · Now that the head is in a position what the tongue is not blocking the airway, the person may begin to breathe on his own.				
7. If he is not breathing quickly kneel at his side. · Pinch his nose closed with your fingers and breathe into his mouth. · If air does not enter, adjust the position of his head and try again. · Does the air enter his chest easily? · If not, try the Heimlich maneuver. · Try to breathe into the person again. · Take a breath after each time you breathe into the person.				
Cardiac Function- make certain the heart is beating				
8. After giving two quick breaths, check to see if the heart is beating. · Feel for the person's pulse (heart beat) on his neck at the carotid pulse.				
9. If the person has a pulse, do not do cardiac compressions.				
10. If the person has a pulse (heart beat), but is not breathing, do only respiratory resuscitation. · Breathe into the person's mouth approximately 12 times per minute (once every five seconds)				
11. If the person does not have a pulse, you will need to both breathe for him and help his heart to contract.				

Comments:

	Date	Date	Date	Date
<p>12. Feel on the person's chest for the bottom of his rib cage (bottom of the sternum or xiphoid process).</p> <ul style="list-style-type: none"> Place the palm (heel) of your hand above the bottom of the rib cage. The heel of the hand is on the lower half of the sternum. Place your other hand on top (either made into a fist or with fingers stretched out). Keep your arms straight with your elbows locked. Press straight down over your hands. 				
<p>13. As you lean forward, press the chest 1 1/2 to 2 inches. The time to press down and release should be equal. Do not stop (pause) between compressions.</p> <ul style="list-style-type: none"> Do not lift your hands up off the chest. Compress the heart at 80 to 100 beats per minute. Count one and two and three and four and five up to fifteen. 				
<p>14. After 15 compressions, stop and give the person two breaths.</p> <ul style="list-style-type: none"> Pinch the nose and keep the head in its slightly tipped back position. 				
<p>15. After the two breaths, locate the proper hand position on the chest and give 15 more compressions.</p> <ul style="list-style-type: none"> Keep repeating the pattern of 15 compressions followed by 2 breaths. You should be able to do four or five complete cycles in one minute. 				

Comments:

	Date	Date	Date	Date
16. After a minute or so stop and recheck the person's carotid pulse. <ul style="list-style-type: none"> · If he has a heart beat, look to see if he is breathing on his own. · If there is no heart beat and no breathing, continue with the cycle of 15 compressions and 2 breaths. · If there is a heart beat but no breathing, continue with the breathing at the rate of about 12 times per minute. 				
17. Get someone around you to help relieve you. <ul style="list-style-type: none"> · Get some one around you to organize transportation. · Travel with him to the hospital for further care. 				
18. Shock- make certain the person is kept warm				
19. Wrap him in a blanket or dry cloths, after resuscitating him.				

Comments:

References

Experience and the following references provided information for this module.

Albarran-Sotelo, R., Flint, L.S., and Kelly, K.J. (Eds) (1988).

Healthcare providers manual for basic life support . American Heart Association.

Effron, D.M. (1988). Cardiopulmonary resuscitation CPR, Third Edition. CPR Publishers, Inc., Tulsa.

PREVENTION OF DEATH BY CHOKING (HEIMLICH MANEUVER)

Goal

This module will help the midwife recognize the signs and symptoms of choking in an adult, child, or infant. This module will help the midwife to save the life of a person who is choking by using the Heimlich maneuver.

Objectives

The midwife caring for a choking person should be able to:

1. Describe the signs and symptoms of a person who is choking.
2. Describe and demonstrate the appropriate actions to take when helping the choking person.

Common Medical Terms

Choking - a blockage of the breathing passage or tightening about the neck. Choking stops breathing and keeps oxygen from getting to the brain and other vital organs. Blockage of the airway may also be caused by spasm of the larynx from an irritating gas.

Heimlich maneuver - an action used on a choking person to prevent death. The object caught in the throat is pressed up into the mouth by pressing on the abdomen below the xiphoid process.

Larynx - the enlarged upper end of the trachea below the back of the tongue. It is the organ of voice.

Trachea - the wind pipe or tube which connects the larynx and the two bronchial tubes of the lungs.

Xiphoid process - the lowest part of the sternum made up of cartilage. Some abdominal muscles are also attached to it.

Introduction

If a foreign body is blocking the airway (trachea or larynx) the Heimlich maneuver can be used to remove it. This action can be used in an adult, child, or infant. It can be used on a person who is unconscious or one who is still conscious.

Adults tend to choke most commonly on bites of food. It may be that they inhale or laugh while eating. They suck a piece of food into the airway. Children may choke on food in the same way. They often choke on nuts, fish bones, fruit pits, pieces of toys, or small objects found around the home. Infants may choke on milk when using a bottle. They often choke when taking a bottle while lying on their backs unattended.

Signs and symptoms: If you are with the person when they choke you will notice the person grabs his throat. **The person is unable to speak. The person may become agitated and move his arms wildly. The face may become purple. The person gradually loses consciousness and dies from lack of oxygen to the brain.**

Equipment

Your own two hands are all that is needed!

Procedure

ASK and LISTEN

Ask the person if they can speak. If they shake their head no, or make crowing sounds when they try to breathe, or grasp their throat, they may be choking.

If the person is coughing or making crowing sounds when they breathe the airway may be only partially obstructed (blocked).

If the person is unconscious do not waste time trying to speak to them.

LOOK and FEEL

If the person is unconscious open his mouth and look in. Sweep the mouth with your fingers to remove anything in the mouth.

If you were not with the person when he became unconscious, also check the pulse. You may need to prepare to perform complete cardiopulmonary resuscitation. See the section of this module on **Adult Resuscitation** for a complete review of how to do this.

IDENTIFY the PROBLEM

It is important that you react quickly. Do not waste time checking with family and neighbors to obtain a complete history. Save the person's life. Later you can find out what happened before the choking.

TAKE APPROPRIATE ACTION

Conscious Person Choking

1. In the conscious patient encourage the patient to cough out the object by himself. If a partial obstruction occurs from fish bone or other small object, have the person swallow or eat some food. If this does not dislodge the object, refer the person to hospital/doctor for removal.
2. If the person is conscious and unable to speak, stand behind him where he sits or stands. Keep telling the person that you are there to help them. This will help control their feelings of panic.
3. Place your arms around the person holding your hands together on his upper abdomen just below the xiphoid process and above his navel (umbilicus).



Figure 10. Make a fist

4. Make a fist with your hand against the abdomen.
5. Grab your fist with your other hand.

6. Press your fist into the choking person's abdomen with a quick inward and upward thrust. Note the **thrusting action is made with your hands**, not your arms pressing against the person's ribs. There is little chance of damaging the person's ribs or internal organs if your hands are placed properly.
7. Continue to make the quick thrusting movements with your fist until you have loosened the object from the throat.
8. If the person loses consciousness, help the person to the floor or ground, lying on his back.

Unconscious Person Choking

1. Open the person's mouth and see if you can see what is blocking the throat. Wipe the mouth with your fingers and try to take it out
2. Tip the person's head back with the jaw brought forward. This will prevent the tongue from blocking the airway.

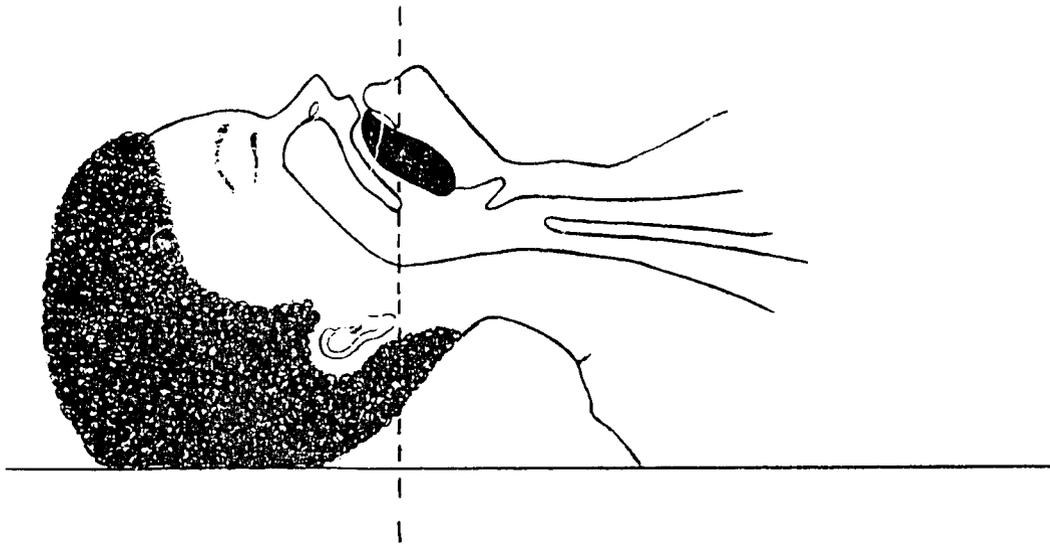


Figure 11. Head Position to Move the Tongue Out of the Airway

3. Kneel at the feet of a small child or over the thighs of an adult.

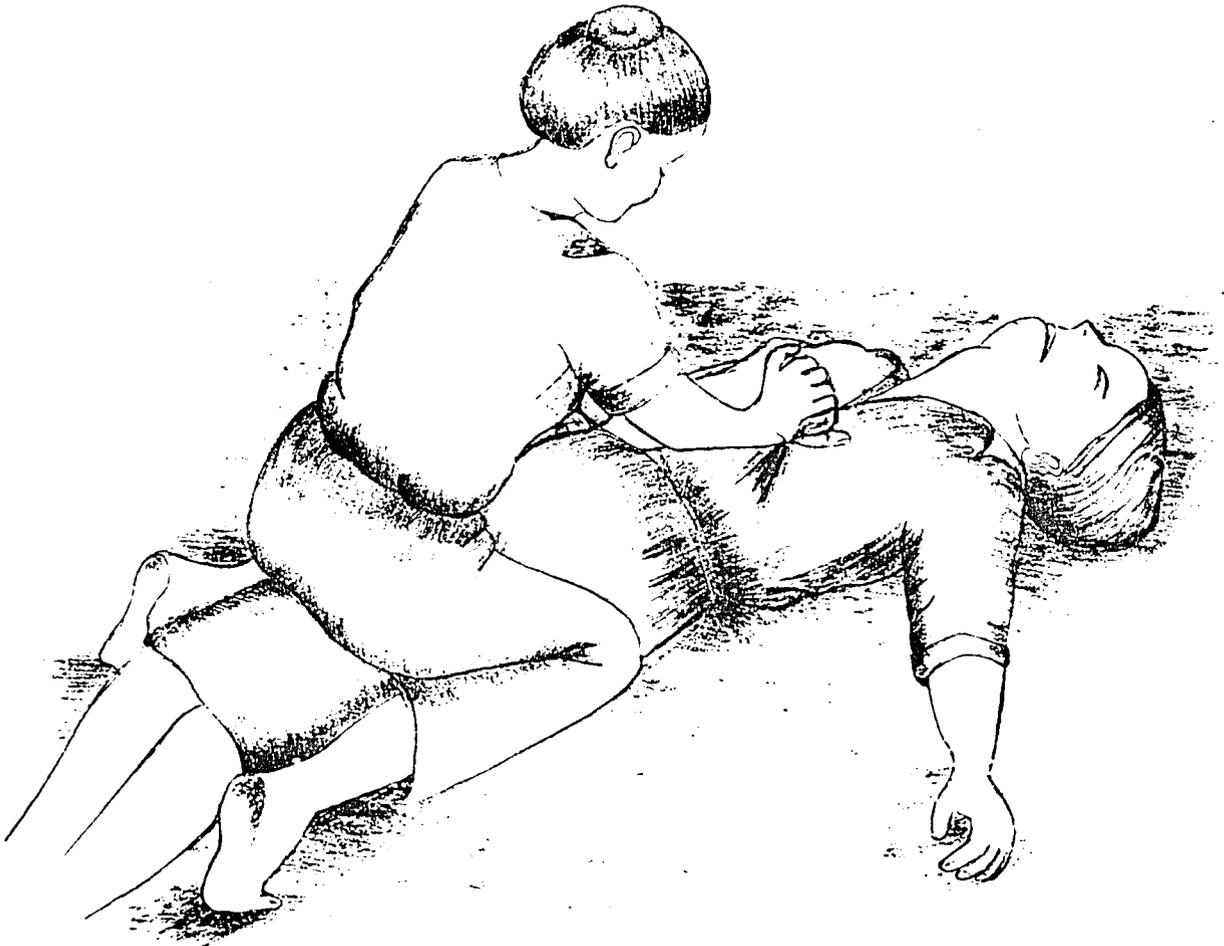


Figure 12. Position of Hands

4. Place your hands over one another. Press the heel (palm) of the lower hand in the middle of the person's abdomen a little above the navel (umbilicus). In a pregnant woman, place your hands higher up on the abdomen than the uterus.

WARNING: Make certain that your hands are not placed too high where you might be pushing on the tip of the xiphoid or the ribs.

5. Press quickly into the abdomen and upward toward the head. The force of the push (thrust) should be right in the center of the body.
6. If necessary, you may thrust (push inward and upward) 6 to 10 times one after the other. Thrust more gently in an infant or child. You can also turn children upside down and loosen the blockage in the throat. Sometimes you need to gently bump the center of the back with the palm of your hand. Adults can also be rolled to their side and be given a series of bumps (blows) to the center of their back with the palm of your hand.

7. The person may be coughing or making a crowing sound now. Have them spit the object out if they can. Look into the mouth again and see if you can help to remove the object. If the person continues to crow (partial blockage of the airway) or no response, repeat the series of thrusts again.

REMEMBER: You must have an open airway before you can perform cardiopulmonary resuscitation. If you try the cardiopulmonary resuscitation procedure before you have cleared the person's airway you will fail. You can not put air into a blocked airway. Remember the ABCS steps for all resuscitation. See the modules on **Infant and Adult Resuscitation**.

Review Questions

What Did I Learn?

Test your knowledge and understanding of this module by performing the following tasks without the help of the text.

1. List the signs and symptoms of a person who is choking. (page 34)
2. Describe the Heimlich maneuver if the person is conscious. (pages 35 - 36)
3. Describe the Heimlich maneuver if the person is not conscious. (pages 36 - 37)
4. Why must you have an open airway before you try cardiopulmonary resuscitation on the person? (page 38)

Skills Checklist - Heimlich Maneuver

This checklist has two purposes:

1. The midwife should use it as a guide for checking her own skills.
2. The supervisor or tutor (teacher) should use it to evaluate how well the midwife performs.

After observing/performing write a rating: s = satisfactory
ni = needs improvement

Add any comments in the comments section below.

	Date	Date	Date	Date
Heimlich Maneuver				
A. In a conscious person				
1. Stand behind him where he sits or stands. Keep telling the person that you are helping them. Help control the person's feeling of panic.				
2. Place your arms around the person holding your hands together on their upper abdomen just below the xiphoid process and above their navel (umbilicus).				
3. Form your hand against the abdomen into a fist.				
4. Grab your fist with your other hand.				
5. Press your fist into the victim's abdomen with a quick inward and upward thrust.				
6. Continue to make the quick thrusting movements with your fist until you have loosened the object from the throat.				

Comments:

	Date	Date	Date	Date
7. If the person loses consciousness, help the person to the floor or ground lying on his back.				
B. In an unconscious person				
1. Open the person's mouth and see if you can see the obstruction. Sweep the mouth and try to take it out.				
2. Position the person's head back to move his tongue out of the way.				
3. Kneel at the feet of a small child or over the thighs of an adult.				
4. Place your hands over one another. Press the heel (palm) of the lower hand in the middle of the person's abdomen a little above the navel (umbilicus).				
Make certain that your hands are not placed too high where you might press on the tip of the xiphoid or the ribs.				
5. Press quickly into the abdomen and upward toward the head. The force of the thrust should be right in the center of the body.				
6. Thrust (press inward and upward) 6 to 10 times one after the other. Thrust more gently in an infant or child.				
7. The person may be coughing or making a crowing sound now. Have him spit the object out. You may look into the mouth again and see if you can help with removal of the object.				
8. If the person continues to crow (partial blockage of the airway) or there is no response, repeat the series of thrusts again.				

Comments:

References

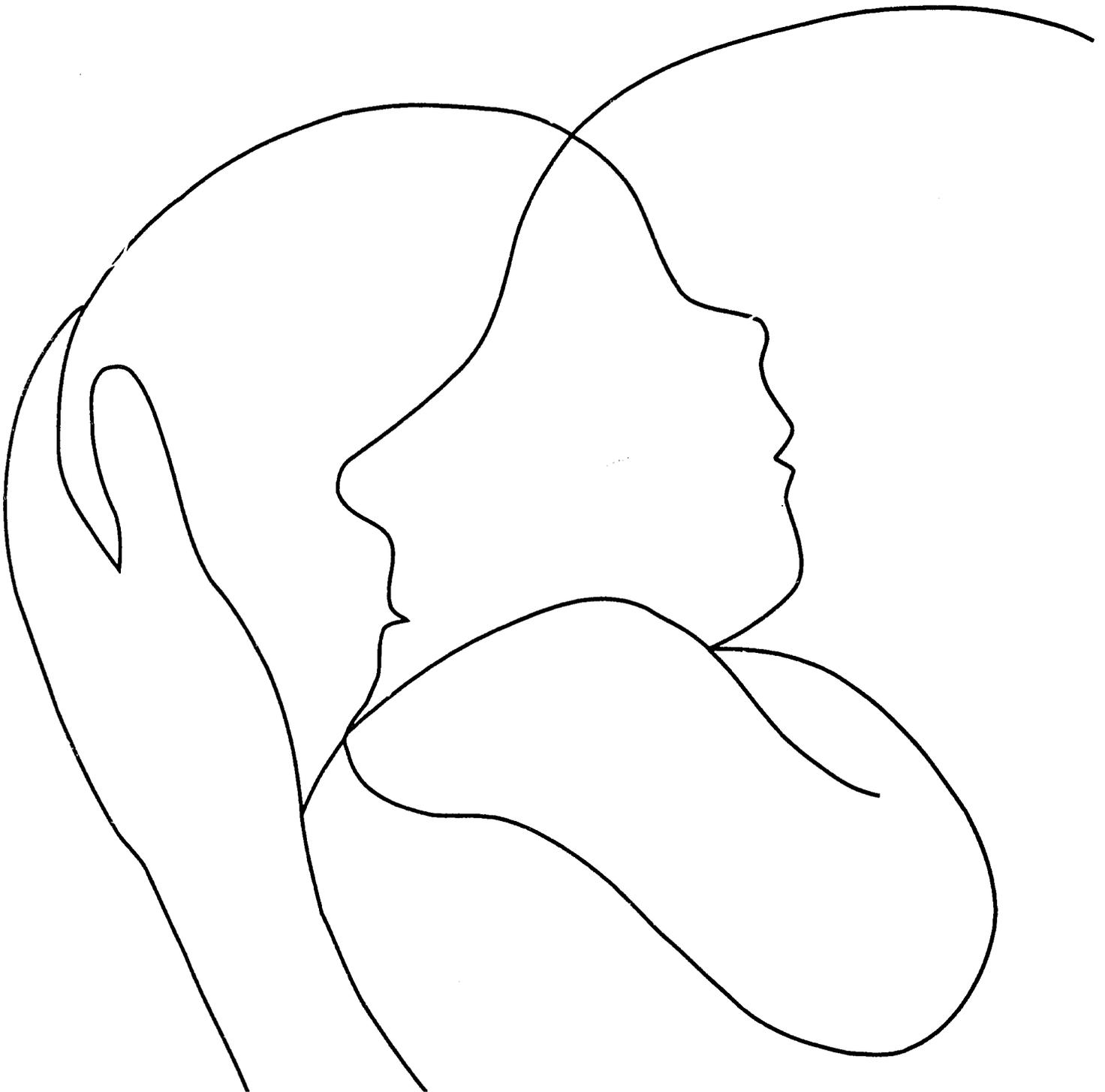
Experience and the following references provided information for this module.

Albarran-Sotelo, R., Flint, L.S, and Kelly, K.J. (Eds) (1988). Healthcare providers manual for basic life support. American Heart Association.

Effron, D. M. (1988). Cardiopulmonary resuscitation CPR, Third Edition. CPR Publishers, Inc., Tulsa.

Module 7:

PREVENTION AND MANAGEMENT OF SEPSIS



Module Contents

PREVENTION AND MANAGEMENT OF SEPSIS

Goal	1
Objectives	1
Common Medical Terms	1
Introduction	3
Cause of Sepsis	3
Prevent Sepsis	4
Treat Sepsis	4
ASK and LISTEN (history)	5
LOOK and FEEL (examination)	6
IDENTIFY THE PROBLEMS and TAKE ACTION	8
Postpartum Infection Associated with Incomplete Abortion	8
Postpartum Infection Associated with Complete Abortion	9
Chorioamnionitis	11
Postpartum Infection	12
Dehydration	13
Malaria	13
Mastitis	14
Thrombophlebitis	14
Upper Respiratory Infection	15
Urinary Tract Infection	15
Ophthalmia Neonatorum	16
Septicemia	18
Postpartum Tetanus	19
WHO Tetanus Immunization Schedule	20

PREVENTION AND MANAGEMENT OF SEPSIS (cont'd)

Learning Aid 1 - Incision and Drainage of Breast Abscess	21
Learning Aid 2 - Examine the Baby	23
Learning Aid 3 - History of Puerperal Infection	26
Review Questions	27
Case Study	33
Skills Checklist	37
References	39

PREVENTION AND MANAGEMENT OF SEPSIS

Goal

This module will help the midwife learn the important signs and symptoms of a woman and/or baby with sepsis (infection). This module will help the midwife learn life saving skills to help the mother and/or baby live.

Objectives

The midwife caring for women and babies during and after pregnancy should be able to:

1. define sepsis in mother and baby.
2. ASK and LISTEN (history) and LOOK and FEEL (physical exam) according to signs and symptoms of mother and baby.
3. recognize signs and symptoms of chorioamnionitis, postpartum infections, and postpartum infection associated with lost pregnancy.
4. recognize signs and symptoms of sepsis and tetanus in the newborn and mother.
5. take the necessary action to help the woman and/or baby live which includes prevention, giving treatment, and referring to a doctor when needed.

Common Medical Terms

Amnion - the inside layer of membranes (bag of waters) covering the fetal side of the placenta and the chorion.

Chorioamnionitis - inflammation (swelling and redness) of the chorion and amnion. It is the inflammation of all of the amniotic sac (bag of waters).

Chorion - the outside layer (mother's side) of placenta and membranes (bag of waters) holding the amniotic fluid (liquor) and the baby.

Chronic pelvic infection - swelling, pain, redness, foul smelling discharge in the reproductive tract for a long time. Sometimes the infection has not been adequately treated, or has not been treated for a long enough time. A long term or chronic infection will make the woman very weak, malnourished and not able to carry on the normal functions of life. A chronic infection is very serious and can lead to infertility. It can become acute again leading to death.

Ectopic pregnancy - the fertilized egg becomes implanted (attached) outside the uterus. It can be called an extrauterine pregnancy (outside of the uterus). The fertilized egg implants (attaches) in the abdominal cavity, ovary, fallopian tube, or even to the cervix.

Infertility - The inability of a couple to conceive despite regular and unprotected sexual intercourse for a period of at least one year.

Mastitis - infection of the breast.

Postpartum Fever (puerperal morbidity) - The woman has a fever of 38.0 C (100.4 F) on any two successive days after delivery, not including the first 24 hours; and where other causes of fever (such as malaria) are not present. (ACOG, 1972)

Postpartum Infection (puerperal sepsis) - swelling, pain, redness, foul smelling discharge in the reproductive tract during labor or after delivery. The germs (usually bacteria) enter the body through an opening or a tear (wound). Germs may go from the infected reproductive tract through the lymph or blood stream to cause infection of the breasts, fallopian tubes, ovaries, peritoneum, blood vessels and the whole body.

Reproductive tract - the female pelvis and the generative organs including pelvic bones, joints, pelvic floor, vulva, vagina, uterus, fallopian tubes and ovaries.

Sepsis (infection) - a serious problem which happens when germs go into a person's body and multiply (grow) causing sickness. Fever (temperature of above 100.4 F or 38.0 C) and chills are signs of sickness. Pain and swelling at the place in the body where the germs go in and grow will cause other signs and symptoms (for instance if the germs are in the uterus, the woman may have abdominal pain or cramping, foul smelling vaginal discharge and so forth).

Septic Abortion - associated with loss of pregnancy (abortion) - foul smelling vaginal bleeding, abdominal cramping, backache following delivery during first 28 weeks of pregnancy followed by fever, chills and possibly signs of shock including elevated pulse, low blood pressure, cool and clammy skin. The germs (usually bacteria) go into the body through the vagina or other opening in the body. The germs may enter one or many organs.

Septic Shock - a very serious infection of the blood stream, which causes high fever, low blood pressure, fast heart rate and fast breathing. Untreated septic shock leads to coma and death.

Tetanus Infection - caused by a bacterium (bacillus) which produces a deadly poison. The bacteria grow in dirty conditions. The tetanus bacteria can be carried on unwashed hands and unclean equipment. A newborn may get tetanus infection if the umbilical cord is cut with an unclean instrument (such as knife, blade, scissors, glass) or is touched with dirty hands. Tetanus infection causes fever, repeated convulsions, and death within two weeks.

Introduction

Sepsis (infection) can lead to shock, failure of the kidneys and death. In developing countries, sepsis is a major cause of death of mothers. If the woman does not die, sepsis can cause chronic pelvic infection, ectopic pregnancy and infertility.

Cause of Sepsis

Germ (bacteria) causing sepsis most often come from (1) germs normally found in the lower genital tract or bowel or (2) germs from the nose and mouth, or hands of those caring for the woman and baby.

Sepsis can happen anytime germs go into a woman's or child's body. Sepsis can happen anytime something not clean (hands, instruments, cloth, medicines, herbs, and so forth) touches an opening in the body. The opening may be a wound (tear), a natural opening to the body (uterus or bladder), or an injection. The opening may be a newborn's umbilical cord, circumcision or scarification.

Sepsis can happen if there is:

- prolonged and premature (early) rupture of membranes
- prolonged (more than 24 hours) labor or traumatic labor
- poor hand washing technique (method)
- frequent or not clean vaginal examination
- improper perineal care during or after pregnancy
- a not clean delivery
- **anything put into** the birth canal such as hands, instrument to rupture membranes, medicines or herbs, gauze or pads
- **anything put on** the perineum after membranes have ruptured
- sexual intercourse after rupture of the membranes
- episiotomy or laceration
- retained tissue of placenta, membranes or a lost pregnancy (abortion)
- hemorrhage
- sickness of mother before or during pregnancy such as malnutrition, diabetes, toxemias, and vaginal infections.
- **anything not clean** put on newborn's cord, circumcision or scarification before completely healed

Prevent Sepsis

It is important that midwives know that sepsis can be prevented with cleanliness such as:

- keep very clean method when doing a vaginal examination
- do a vaginal examination only when it is necessary
- make sure to wash your hands very well before and after taking care of each woman or baby
- teach all pregnant women to come to the midwife/doctor as soon as the membranes rupture
- teach pregnant women not to have intercourse after rupture or leaking of the membranes
- keep the perineal area clean
- teach women good perineal care before and after delivery
- be an example of good hygiene and teach all people in the community the importance of cleanliness

It is very important that midwives teach others about the importance of cleanliness to prevent sepsis.

Treat sepsis

Sepsis can be treated. Medicines (antibiotics) used to kill the germs will help the person get better. Hydration will lower the fever. Surgery may be needed to empty the uterus or to drain abscesses. The midwife should help arrange transport and go with the woman and/or baby. It is very important that sepsis be treated as soon as possible. Remember that sepsis can lead to death. Even with treatment, sepsis may cause serious problems.

Remember: sepsis can be prevented.

You must **ASK** and **LISTEN**,
LOOK AND FEEL,
IDENTIFY THE PROBLEM, and
TAKE APPROPRIATE ACTION.

Decide What is Causing the Fever in the Mother

Depending on the situation, you may not be able to take the time to find out the cause of the infection before you have to act. For instance, if the woman comes to you and is very, very hot (high fever) or is in shock (pulse weak and above 90 beats in a minute and/or respiration shallow and above 40 breaths in a minute) you must do something **right away**. Review the module on **Hydration and Rehydration**.

The following problem solving steps are here for you to know what to do, in case the woman is not an emergency when you first see her. You must figure out how to take care of the woman and help her go to the doctor as soon as possible.

ASK and LISTEN

When you first see the woman,

ASK how long has your body been hot (fever)? Do you have chills?

ASK are you having pain? Show me where you have the pain.

ASK when was your last menstruation (period)? Was it a normal menstruation?

ASK have you seen any fluid, mucus or pus (discharge) from your birth canal? Have you seen any blood?

ASK when did you deliver/lose the pregnancy? When did your membranes start to leak/rupture?

ASK did you deliver your placenta (afterbirth)? Did you pass any tissue or clots from abortion?

ASK did you use any medicines or herbs?

What did you use? What happened after using the medicine or herb?

ASK do you urinate often?

Is there pain when you pass urine?

Is there any backache or back pain?

ASK is there any pain, swelling, bleeding or discharge in your breast?

ASK do you have pain in your leg(s) or thigh(s)?

ASK do you have catarrh (runny nose), cough or sore throat?

Do not waste time, you do not know how long the woman has had fever before you see her, she may be close to shock.

LOOK and FEEL

LOOK for SIGNS of SHOCK

If the woman is in or near to shock, she will **LOOK** restless and nervous (anxious). She will have:

- low blood pressure (below 90/60)
- weak and fast pulse (above 90 beats in a minute)
- shallow and fast respirations (above 40 breaths in a minute)
- cold and wet skin

LOOK and FEEL the woman using the information she told you.

For example if the woman has delivered, **FEEL** the uterus for tenderness, firmness and **LOOK** for vaginal bleeding.

OR if she is pregnant, **FEEL** the uterus for the baby, tenderness, contractions, **LISTEN** for the baby's heart beat and **LOOK** for vaginal discharge or bleeding.

As soon as you **FEEL** the skin is hot, take her temperature. (oral temperature above 100.4 F or 38.0 C)

FEEL the breasts for temperature, tenderness, swelling and **LOOK** for redness.

FEEL the uterus

- if not delivered **FEEL** for tenderness, the baby and **LISTEN** to the baby's heart rate.
- if delivered or spontaneous abortion **FEEL** for size, tenderness, softness (not contracting)

FEEL the lower abdomen for tenderness

FEEL the lower legs for tenderness

FEEL (tap) the back for kidney tenderness. (See Figure 1). If the client feels pain when you tap over the kidney area, it is a sign of kidney infection.

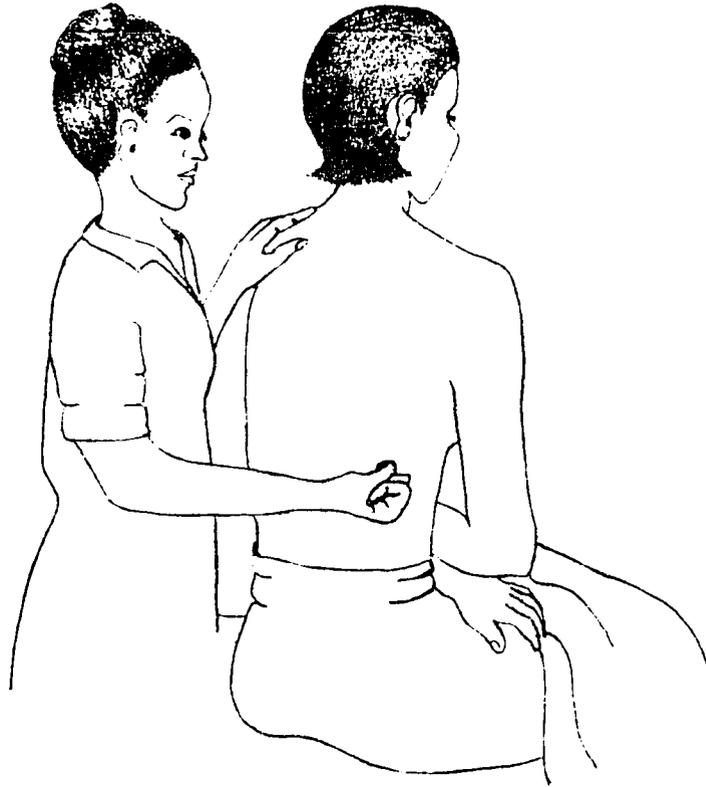


Figure 1. Tap the lower back over each kidney using your fist.

LOOK at the genitalia

- if not delivered **LOOK** for bleeding or foul smelling vaginal discharge, foul smelling amniotic fluid (liquor), and dilatation of the cervix.
- if delivered **LOOK** for bleeding or foul smelling vaginal discharge, tears of the perineum, vagina or cervix, or dilatation of the cervix.

LOOK at the placenta/tissue very carefully to make sure all of the placenta and membranes are present.

Refer to **History and Physical Examination in Monitoring Labor Progress** module.

IDENTIFY THE PROBLEM AND TAKE ACTION RIGHT AWAY

Find out what is the cause of the fever and take action.

Talk to the woman as you are taking care of her. Help her feel that you are trying to make the situation better. Have one member of the family stay with her if at all possible.

Postpartum Infection Associated with Incomplete Abortion

FINDINGS: The woman has fever, weak and fast pulse (above 90 beats per minute), expelled (passed) pregnancy tissue before 28 weeks of pregnancy, uterine tenderness, lower abdominal pain and foul smelling vaginal discharge. The cervix is open with or without vaginal bleeding.

ACTIONS: The woman is very sick.

1. Ask someone to arrange transport and go with her to the hospital. Surgery may be needed to remove any remaining tissue in the uterus. While you are waiting or if transport is delayed,
2. Lower the fever by giving fluids and sponge bath. Refer to the **Hydration and Rehydration** module for advice on how to hydrate the woman.
3. Give an oxytocic (such as Ergometrine 0.5 mg. IM, Syntocinon or Pitocin 10 IU IM or IV) to help the uterus contract.
4. Give a broad spectrum antibiotic (such as Ampicillin 1 Gram (1000 mg.) stat (right away) and 500 mg. every six hours for 7 days. IM may be used but oral treatment is just as good if the woman can take medicines by mouth.

If you do not have Ampicillin you may use Benzyl Penicillin 1.2 mega or million units IM every 6 hours for 24 hours and follow with Procaine Penicillin 1.2 mega or million units and Streptomycin 1 Gram IM daily for 7 days; OR you may use another broad spectrum antibiotic you have available.

5. **Also give** Flagyl 400 mg. stat (right away) and three times a day for seven days to treat **Postpartum Infection associated with Incomplete Abortion.**
6. **LOOK** for shock while you wait for the transport. Refer to the **Prevention and Treatment of Hemorrhage** module to review signs and management of shock and how to remove any tissue which may be left in the cervix or uterus causing hemorrhage or infection.
7. Remember to go with the woman to the doctor/hospital. It is very important that you watch the condition of the woman and help her on the way to the doctor. You can also help the woman and family to keep calm during the trip.

Postpartum Infection associated with Complete Abortion

FINDINGS: The woman has fever, expelled (passed) pregnancy tissue before 28 weeks of pregnancy, lower abdominal tenderness and foul smelling vaginal discharge. The cervix may be closed, with or without vaginal bleeding.

ACTIONS: The woman is very sick.

1. Ask someone to arrange transport and go with her to the hospital. While you are waiting or if transport is delayed,
2. Lower the fever by giving fluids, sponge bath and fanning.
Refer to the **Hydration and Rehydration** module.
3. Give an oxytocic (such as Ergometrine 0.5 mg. IM, Syntocinon or Pitocin 10 IU IM or IV) to help the uterus contract.
4. Give a broad spectrum antibiotic (such as Ampicillin 1 Gran. (1000 mg.) stat (right away) and 500 mg. every six hours for 7 days. IM may be used or another broad spectrum antibiotic may be used if Ampicillin is not available) **AND** Flagyl 400 mg. stat and three times a day for seven days to treat **Postpartum Infection associated with Complete Abortion.**
5. LOOK for shock while you wait for the transport and on the way to the doctor.

PREVENTION: of Postpartum infection associated with Lost Pregnancy

The mother and father should allow at least two or three years between children. This time helps the mother's body to recover from her last pregnancy and to prepare for a new baby. This time also helps the last child to grow and develop before the mother is pregnant again.

When a mother gets pregnant too quickly or too often she may not be strong enough to carry the pregnancy and will lose the baby (abortion). There is the danger that she may not be ready or prepared for the pregnancy. Anytime the woman loses a pregnancy, she is putting herself through a serious experience. The bleeding and exposure to infection can cause the woman to become sick. Having children too close together and too many can also cause a woman to become sick or die. Acceptable and available health care services are a necessity to prevent this loss of life and cause of so much tiredness and sickness in women.

During or after an abortion, the mother can get an infection. Remember that even though infection can be treated to prevent death, sometimes infection can cause chronic pelvic infection, future ectopic pregnancy or infertility.

Couples can prevent pregnancy by using family planning methods. Teach people in the community about family planning. Provide health education and counseling about human reproduction, child spacing and family planning methods.

Teach people in the community about cleanliness including bathing, clean clothes and clean homes. Advise all pregnant women to come to you as soon as their membranes rupture or are leaking liquor. Advise all women to come to you as soon as they see any unusual vaginal bleeding or discharge.

Make your maternity, your home and surroundings an example of cleanliness. Keep everything in your maternity clean and ready for use.

Protect yourself from exposure to infection including AIDS by reducing the way germs can get into your body. Wash your hands before and after helping any person. Keep your skin in very good condition. Keep your nails trimmed and treat any small cuts or sores right away. When you use gloves, make sure they do not have any holes and that they are sterilized or disinfected between patients. If gloves are not available, clean plastic (polyethylene) bags which have been washed in disinfectant can be used as hand covers.

Chorioamnionitis

FINDINGS: The woman has fever, fast pulse (above 90 per minute), baby has fast heart beat (above 160 per minute), tender uterus, foul smelling, purulent amniotic fluid.

ACTIONS: The woman must get to the doctor as quickly as possible. The woman and her baby are both in danger of losing their lives. Delivery should take place as soon as possible. Be prepared for a delivery on the way to the doctor. The baby will be sick and may need resuscitation. Review the **Resuscitation** module. Get transportation arranged very quickly.

Lower the fever by giving IV fluids, sponge bath and fanning.

Give Ampicillin 1 Gram stat and 500 mg. every six hours for 7 days to treat **Chorioamnionitis**.

LOOK for shock while you wait for transport and on the way to the doctor.

PREVENTION: of Chorioamnionitis

Early rupture of the membranes is a break or tear in the bag of waters before regular contractions start. The cervix is opened a little because of the fluid coming out of the uterus. The danger is that the fluid remaining in the uterus will get infected and infect the membranes, placenta, baby and mother. Chorioamnionitis is a very serious problem and must be prevented if at all possible. If the membranes are ruptured and the woman is not having contractions, **do not do a vaginal examination**.

If labor starts soon after the rupture of the membranes and the baby delivers within 15 hours, no special treatment is necessary.

If labor does not begin within eight hours after the membranes rupture, treat the mother with a broad spectrum antibiotic (such as Ampicillin 1 Gram stat and 500 mg. every six hours for 7 days).

Watch the mother for fever or signs of shock. Watch the baby carefully for increased heart beat (more than 160 beats per minute). If any of these signs are found, arrange transportation and take the mother to the doctor right away. Be prepared for a delivery and infant resuscitation when you travel to the doctor.

If the woman has a fever or if the fluid has a foul odor, give her a stat dose of Ampicillin 1 Gram and go with her to the doctor. Be prepared for a delivery and infant resuscitation.

Advise all pregnant women to come to you as soon as they have any fluid or discharge from their birth canal. Help them to understand that they and their babies could get very sick.

Postpartum Infection

FINDINGS: The woman has recently delivered a baby and has fever, fast pulse (above 90 per minute, if above 120 per minute the woman is seriously ill) delivered a baby, lower abdominal pain with uterine tenderness and foul smelling, blood tinged and sometimes purulent (pus) vaginal discharge. The woman may be flushed, have chills and look very sick.

ACTIONS: The woman is very sick.

1. Ask someone to arrange transport and go with her to the doctor.
2. While waiting for the transport, help her rest in a semi-seated position.
3. Keep her pelvis low to help drain discharge from the uterus and vagina.
4. Give a broad spectrum antibiotic (such as Ampicillin 1 Gram stat and 500 mg. every six hours) for 7 days.
5. Lower her fever and hydrate by giving at least one glass (8 ounces) of water or other liquid every hour. She may not be able to drink this much water if she is too sick. If she cannot take this much fluid by mouth or if she is vomiting, start intravenous fluids. Refer to the **Hydration and Rehydration** module for the type and amount of fluid.
6. **LOOK** for shock as you take the woman to the doctor.

Remember untreated postpartum infection (sepsis) can spread from the uterus into the abdomen. An abscess may form in the abdomen. The infection may go into the blood stream, causing septic shock (shock due to infection) and death. Refer to the Hydration and Rehydration module for the management of shock.

PREVENTION: of Postpartum Infection

Postpartum infection may start with the premature (early) rupture of membranes, during prolonged or traumatic delivery or even after the delivery.

Clean equipment, surroundings and aseptic technique before and during a delivery will prevent (stop) almost all cases of postpartum infection.

The midwife must teach others about germs and infection (sepsis). Include in your teaching why

1. a pregnant or laboring woman must bathe,
2. all persons caring for a pregnant woman must be clean and wash their hands often,
3. all equipment and materials used for the pregnant woman must be very, very clean and
4. those who use traditional delivery practices must use this information to help prevent sepsis in a woman.

The midwife must remember the importance of cleanliness and hand washing. The midwife should try to evaluate labor progress using as few pelvic examinations as possible. Review the **Monitoring Labor Progress** module.

Other Causes of Postpartum Fever

Dehydration

Loss of water from the body. Fever caused by decreased intake of fluids during labor especially if prolonged labor.

FINDINGS: Low fever (99.6 F or 38.0 C) after delivery, mouth and lips may be dry, urine may be strong (concentrated) and small in amount.

ACTIONS: Give one glass (8 ounces) or more of water or locally available fluids every hour. Refer to the **Hydration Rehydration** module if unable to take fluids. **LOOK** for signs of infection.

PREVENTION: Give water and locally available fluids to woman during labor.

Malaria

This is a serious illness with chills, fever, anemia, an enlarged spleen, caused by the bite of an infected Anopheles mosquito.

FINDINGS: Chills, sweating, high fever (104 F or 40 C), headache.

ACTIONS: Treat for an acute attack of malaria. Make sure the protocol you use is up to date, as research continues to provide new information on the treatment of malaria. The Centers for Disease Control in Atlanta, Georgia, USA recommends the following schedule:

Give large first dose of chloroquine 1 gram = 600 mg. base

Give second dose in six hours of chloroquine 500 mg. = 300 mg. base

Then give once in a day, for two days of 500 mg. = 300 mg. base.

A total of 1500 mg. chloroquine base in 3 days is necessary for effective treatment of malaria not resistant to chloroquine. If no improvement after 24 hours, help the woman go to the doctor/hospital. She may have a chloroquine resistant type of malaria. She may need a different medicine.

PREVENTION: Malaria prophylaxis (Chloroquine 500 mg. weekly) to prevent acute malaria during pregnancy and labor are very necessary. Teach all pregnant women and their families the importance of preventing malaria.

Teach the people in the community to take protective measures to reduce contact with mosquitoes especially during dusk to dawn when mosquitoes are feeding. Explain that at night they should stay in well screened areas, use mosquito nets when sleeping, and wear clothes to cover your body if they must be outside. All health care providers should practice what they teach and set an example of how to protect themselves from the risk of malaria.

Mastitis

Infection of the breast must be treated to prevent breast abscess. Breast infection may be caused by milk staying in the breast (stasis), breast not empty after nursing or bruising of breast tissue by rough or prolonged expression of milk. A cracked nipple will also let germs into the breast.

FINDINGS: Fever slight at first but may increase to 103-104 F (39.5-40 C). Increased pulse (above 90 beats per minute), chills, headache, pain usually in only one breast, area of breast red and very tender.

ACTIONS: Prevent breast abscess through early treatment.

1. Give antibiotic (such as penicillin V 500 mg. or erythromycin 400 mg. four times a day for 10 days or co-trimoxazole (Bactrim, Septra) 2 tablets twice a day for 7 days).
2. Apply wet, warm compresses to the painful area for thirty minutes four times a day.
3. Support breasts with a loose fitting brasserie or sling.
4. If breast feeding is too painful for the mother, wait 24 hours after beginning antibiotic treatment and try breast feeding again.
5. If she has a high fever for 48 hours and red/bluish area of breast showing location of pus filled abscess, drain out the pus. Refer to Learning Aid 1, **Incision and Drainage of Breast Abscess**.
6. Continue the antibiotic and give analgesics as needed for pain.
7. Reassure the mother that the pain will lessen after the incision and drainage of the breast abscess.

PREVENTION: is the best treatment for a breast infection. Prevent breast infection through very good hand washing with soap, breast care which includes gentleness, cleanliness with special attention to the nipples, good support for the breasts and watching the baby for skin, eye or cord infection.

Thrombophlebitis

Hormonal changes during pregnancy may cause blood vessels to relax. Then the blood may not move well through the vessels allowing blood clots to form or infection in the blood vessels.

FINDINGS: Fever, pain and tenderness in the leg or thigh.

ACTIONS: Help the woman get to the doctor. Give analgesia and wrap the entire leg with a bandage or cloth. Start wrapping around the foot and wrap all of the way to the groin using even pressure to give a little support to the leg. **Do not wrap too tightly to cause edema or stop circulation.**

Upper Respiratory Infection

An upper respiratory infection may cause fever. Most upper respiratory infections (common cold) are caused by a virus and are contagious. Antibiotics will not help a common cold caused by a virus.

FINDINGS: Headache, fever, nonproductive (dry) cough, sore throat and runny nose.

ACTIONS: Paracetamol or Tylenol and cough mix will help the woman feel better. Encourage her to drink plenty of liquids.

If cough is productive with purulent sputum treat her with a broad spectrum antibiotic (such as Ampicillin 500 mg. four times a day for 10 days).

Urinary Tract Infection

Infection of the urinary tract is usually caused by germs from outside the body going into the urethra.

FINDINGS: Fever and frequent, painful urination usually with lower abdominal tenderness or back tenderness.

ACTIONS:

1. Start broad spectrum antibiotic (Ampicillin 500 mg four times a day for 10 days or co-trimoxazole (Bactrim or Septra) - take one double strength (DS) tablet every 12 hours for 10 days).
2. Have the woman drink 1 glass (8 ounces) of water or other fluid every hour.
3. Advise the woman to empty her bladder every hour.
4. If she does not start to feel much better in one or two days, refer her to the doctor.

PREVENTION: Cleanliness during pregnancy, labor and delivery. Good perineal care after delivery. Teach women the importance and how to wipe their bottoms after toilet. Women should always wipe (clean) their bottoms after toilet from front to the back so that they do not bring germs from the anus to the urethra.

Ophthalmia Neonatorum is an infection of the eyes caused by several kinds of germs. The most dangerous is gonococcus for it can cause blindness. A pregnant woman with gonorrhoea will infect her baby during birth.

FINDINGS: Thick, greenish, yellowish discharge usually in both eyes of the baby, eyelids may be swollen and red.

ACTIONS:

1. Boil one half liter (500 cc) of water with a pinch of salt if available. Cool the solution. Use a syringe filled with the solution to wash the baby's eyes. Wash the eyes from the nose outward toward the ear. Wash the eyes until all of the discharge is gone. Wipe eyes with dry cotton or gauze.
2. Put antibiotic eye drops or ointment (tetracycline or Chloroptic or penicillin G) in both eyes. **Never use eye medications that contain steroids as this can cause blindness in the baby.**
3. Wash eyes and put antibiotic medicine every 15 minutes for the first hour. Then treat every hour for 24 hours. Frequent treatment is needed because the infection washes out the eye medicine quickly. After the first 24 hours, treat the eyes three times a day for three days or until the eyes are normal.
4. Give antibiotic intramuscular (IM) such as, crystalline (aqueous) penicillin G 50,000 units per kg. of body weight every 12 hours for 7 days. Give IM in the anterior (front) lateral (side) part of the thigh. This is the largest and most developed muscle in children under 2 years of age.
5. Treat the mother and father of the baby for gonorrhoea. The Centers for Disease Control, Atlanta, Georgia, USA recommends 4.8 million units of procaine penicillin IM plus Probenecid 1 gram orally all given at the same time or tetracycline 500 mg. orally four times a day for 5 days. Streptomycin 2 grams IM may be given if no response to the above treatment or if unable to give the penicillin or tetracycline. **Remember that tetracycline and streptomycin should not be given to pregnant women.**

Remember to wash your hands before and after taking care of the baby. The baby requires a great deal of care. However, the complication of life long blindness can be prevented.

Case Study

A mother and father bring their 4 day old baby to you. The baby has a thick, greenish discharge in both eyes since they woke up today. It is now mid-morning. The baby weighs 3 kg.

1. Boil one half liter (500 cc) of water with a pinch of salt. Cool the salt water solution.
2. While waiting for the solution. Give the baby crystalline penicillin G.

The baby weighs 3 kg. Give 50,000 units of crystalline penicillin G for each kg of weight. You figure $3 \times 50,000 = 150,000$ units. Give 150,000 units of crystalline penicillin right away, it is now 12 noon and again at 12 midnight. Remember babies of different weights will require different dosages.

3. After giving the first dose of crystalline penicillin G, clean the eyes with the cooled solution, wipe dry and put in the eye ointment. Help the mother breast feed the baby and keep the baby comfortable. Clean the eyes and put in eye ointment at 12:15, 12:30, 12:45 and 1:00 PM.
4. Explain to the parents the importance of cleaning the eyes and using the medicines. Teach the parents the need for them to wash their hands and be careful not to touch their own eyes.
5. Give both of the parents, procaine penicillin 4.8 million units IM and Probenecid 1 Gram orally. Give 2.4 million units in one injection, so each parent gets two injections.
6. After the first hour, clean the baby's eyes and put in antibiotic eye ointment every hour for 24 hours.
7. At 12 noon on the second day, give the baby crystalline penicillin IM, 150,000 units. Continue giving every 12 hours for 7 days.

How much crystalline penicillin G will you give to a 3.5 kg baby?

How much crystalline penicillin G will you give to a 4 kg baby?

PREVENT: gonorrhea by teaching parents and others about the dangers of the gonorrhea infection to everyone. Teach women the importance of care during pregnancy so that all sickness can be treated before time of delivery. Routine use of 1% silver nitrate put into each eye of the baby after delivery will prevent ophthalmia neonatorum due to gonorrhoea. Antibiotic eye ointments (erythromycin or tetracycline) may be used if silver nitrate is not available.

Septicemia is an infection of the whole baby. The infection is caused by germs in the blood. The germs may get into the baby if membranes rupture too early. The germs may get into the baby through the umbilical cord, respiratory tract, circumcision or scarification. The baby may be very sick and may die.

FINDINGS: The mother may say that the baby is not sucking well, has been vomiting or just looks sick. The temperature may be **above** or **below** normal. The baby may be limp, sleepy, irritable, bleeding spots on skin, jaundice, grayish or have convulsions. The cord may be smelly and draining pus. The circumcision or scarification may be swollen and draining pus. The baby may be coughing and the nostrils flaring.

ACTIONS:

1. Explain to the family the baby is very sick and needs a doctor's care. Ask someone to get transport right away.
2. Go with the family to the doctor/hospital. The doctor will give antibiotics to the baby for 10 days or longer.
3. Give antibiotics right away. Give antibiotics intramuscular (IM) (Ampicillin 50 mg/kg or crystalline penicillin G 25,000 units/kg) every six hours until you can get the baby to the doctor.
4. Keep the baby warm. Babies with septicemia have trouble keeping warm.
5. Continue to feed the baby. If he is too weak to suck, help the mother express her breast milk. Give the milk with a spoon if the baby can swallow. Use a nasogastric feeding tube if the baby can not take the milk from a spoon. The newborn baby needs 40 - 50 ml (cc) of fluid every three hours. If the mother does not have enough breast milk, add to the feeding with sugar water or plain water. Always boil the water for the baby, add three tablespoons of sugar to one half of a liter of boiled water. Cool the boiled water before feeding to the baby.

PREVENTION: Septicemia can be caused by getting germs on the cut and open cord. Make sure the delivery area is very clean. Teach anyone helping with a delivery to tie the cord with very clean string, to cut the cord with a very clean instrument and to keep the cord as clean as possible. The cord should be open to the air to stay dry. Teach the mother to clean the cord two times in a day with soap and water.

If circumcisions and scarification are done in your area, teach the importance of using very clean instruments and how to care for the baby afterwards.

Watch babies who have had a difficult delivery or who have a low birth weight. Babies who are born more than twelve hours after the bag of waters has ruptured are much more likely to become infected

than are other babies.

Postpartum Tetanus is an infection of the baby (tetanus neonatorum) or the mother. The tetanus germs get into the baby through the umbilicus. The tetanus germs get into the mother through the genital tract. Tetanus almost always comes from the use of not clean cutting instruments when cutting the cord, unclean herbs or using cow dung to dress the cord. Tetanus is more likely to happen when a baby is delivered or cared for in an unclean place. The mother may get tetanus when unclean hands, cloths, herbs or instruments are put into the genital tract.

FINDINGS: The mother usually says the baby can not suck. The baby has spasms and stiffness of the neck and jaw, and is unable to swallow.

Spasms and stiffness spread to all muscles of the body. The most frequent complaint is of stiffness in the jaw (lockjaw) in adults.

ACTIONS: The most important treatment is prevention of tetanus by making sure every pregnant woman gets tetanus toxoid immunizations during the pregnancy. This protects both the mother and baby from getting tetanus infection.

1. Take the mother and baby to the doctor/hospital right away.
2. While waiting for transport give the baby sedation **IM** (such as diazepam 1 mg. or 15 mg. of amobarbital sodium every four hours) to lower the chance of convulsions.
3. Give the mother sedation for tetanus spasms **IM** such as diazepam (Valium) 20 mg or amobarbital sodium 200 mg. to lower the chance of convulsions.

Sometimes the baby or mother will have a convulsion before the sedation. Give the sedation to lower the chance of continuous convulsions. Do not expect all of the convulsions to stop, they will just be less. Remember that light, touching and moving of the baby or mother may cause the tetanus convulsions to increase. Do not worry. Keep the airway open. Keep the baby or mother turned to the side so that any fluids in the mouth will run out of the mouth and not choke her. Go with the family to the doctor/hospital right away.

4. Tetanus is a very difficult sickness to treat. It can not be stressed enough that the midwife **must get the baby and mother to the doctor/hospital** for care. The patient with tetanus will need feeding, temperature monitoring, urinary and bowel care, turning, bathing, protection from direct lights, noise and unnecessary touching, and protection during severe tetanus convulsions. This care is beyond what can be offered without the help of a doctor.

Feeding can usually be done with a nasal gastric feeding tube. Sometimes an eye dropper is used, but experience has shown that aspiration occurs more often than with a feeding tube. Force feeding with the hand or a spoon should never be tried. It is very important to always make sure that the tube is in the stomach before feeding the patient. Many tetanus patients die because of aspiration during feeding.

The temperature must always be taken under the arm. The strong tetanus convulsions may break a thermometer when used in the mouth or the rectum. Adults with tetanus usually are catheterized. Babies must be kept clean and dry after they urinate. Enemas may be needed to keep the bowels functioning. Bathing and frequent turning are important to prevent the skin from becoming sore and ulcerating. The patient must be kept in a darkened, quiet place. Try to plan all of the care at one time so that the patient will not need to be touched too often. Everytime you touch a tetanus patient you may cause a tetanus convulsion.

PREVENTION: Give tetanus toxoid to every woman. Tetanus toxoid can be given safely to a pregnant woman. Tetanus toxoid protects mother and baby. At least two doses are required for protection.

WHO TETANUS TOXOID IMMUNIZATION SCHEDULE

DOSE	WHEN TO GIVE	PERCENT PROTECTION	DURATION OF PROTECTION
TT-1	at first contact or as early as possible in pregnancy	Nil	None
TT-2	at least four weeks after TT-1	80	3 years
TT-3	at least 6 months after TT-2 or during subsequent pregnancy	95	5 years
TT-4	at least one year after TT-3 or during subsequent pregnancy	99	10 years
TT-5	at least one year after TT-4 or during subsequent pregnancy	99	Throughout childbearing years

Experience has shown that pregnant women receiving one injection of tetanus toxoid are more likely to survive when they become infected. **It is the responsibility of every health worker to make sure every woman is immunized against deadly tetanus.**

Teach all who do or help with deliveries to wash their hands carefully and to use very clean equipment at deliveries. Teach those who do circumcisions or scarification to use very clean instruments.

Learning Aid - 1

Incision and drainage of breast abscess

A breast abscess is a localized collection of pus which at first is a painful, hard, red swelling in the breast. The swelling softens and looks bluish-red. The swelling (abscess) must be opened and drained of the pus to help healing and relieve the pressure and pain.

Equipment

Scalpel, size 11 blade if possible
Soap and water
Sterile gloves or artery forceps (hemostat)
Gauze squares and bandage
Analgesia/anesthesia
Container for waste

Procedure

1. Start the woman on a broad spectrum antibiotic such as penicillin V 500 mg, or erythromycin 400 mg four times per day for 10 days or co-trimoxazole 2 tablets twice a day for 7 days.
2. Get all the equipment ready.
3. Tell the woman what you are going to do. Help the woman sit on a chair with her breast resting on a table.
4. **Very gently** wash the breast with soap and water. **LOOK** and **FEEL** to know where the pus (soft, most painful & tender to touch) area is on the breast.
5. Give analgesia intramuscular (IM), (such as Pethidine 50 mg., Talwin 50 mg.) or anesthesia (spray EthylChloride on the soft and painful part of the breast).

If analgesia or anesthesia are not available, continue with the incision and drainage. The woman may not be able to relax. She will have pain and be uncomfortable. Explain to her that the pus must be taken out of her breast so that she will be able to breast feed her baby. Help her to understand that the pus in the breast can spread to other parts of her body and make her more sick than she is right now.

6. Wash your hands. Put on sterile gloves if you have them.
7. Cut the abscess with the point of the blade. Make sure the cut is big enough to put your finger into the opening. Make the cut all at one time. Thick yellow, green, blood stained, foul smelling drainage (pus) will usually run out of the opening.

8. If you have on sterile gloves, gently push your finger into the opening so that you will break up pockets (sections) of the abscess and the pus will drain out.



Figure 2. Breaking up the pockets of the abscess

- If you do not have sterile gloves, gently push the hemostat (artery forceps) into the opening. Open the hemostat to break up the pockets of the abscess so that it will drain. Let the pus drain until it stops. **Do not press or squeeze the breast**, this will be too painful for the woman.
9. Open a 4 X 4 gauze square. Start with one corner and gently push the gauze into the opening as far as it will go. Let a little of the gauze stick out of the opening. The gauze packing will help the pus drain.
 10. Cover the opening with gauze and wrap with a bandage. Help the woman put on a loose fitting brassiere. If she does not have a brassiere, use a sling, head tie or other cloth to support the breast.
 11. Change the dressing every day. Pull the gauze out a little each day to help the pus drain. Take the gauze all of the way out in 4 days. Continue antibiotics for an entire 10 days. If breast feeding was stopped start again as soon as the woman can tolerate it.
 12. Continue to see the woman until there is no pus drainage and the opening is closed.

Learning Aid - 2

Examine the Baby

As soon as you finish with the mother, take a little time to LOOK and FEEL and care for the baby to make sure the baby is normal.

LOOK and FEEL (Examine) the baby

Review (revise) in your midwifery text the general examination of the baby after delivery. It is a good practice to always LOOK and FEEL in exactly the same order each time so that you know everything about the baby.

You can follow this list, starting at the head of the baby.

1. The skull. LOOK and FEEL the fontanelles, molding and any swelling or depressions (sunken places).
2. The spine. LOOK and FEEL for swellings, depressions or openings.
3. The eyes. LOOK for swelling and discharge.
4. The mouth. LOOK and FEEL the lips and palate (top part or roof of inside the mouth). Look for any holes or growths.
5. The limbs. LOOK and FEEL the limbs to see that they move and are smooth (not broken). Count the number of fingers and toes.
6. The skin. LOOK at the color and if there are any lumps (growths) or birth marks (stains).
7. The anus. Make sure there is an opening. You can check by taking the rectal temperature or seeing the meconium stool.
8. The cord. LOOK to make sure there is no oozing (leaking) of blood. Retie the cord if you see fresh blood.

General Care of the Newborn

For nine months the baby has lived in a warm, clean and protected place receiving all of the necessary nourishment. Now the baby must be kept warm, clean and protected by the mother and the family. The baby must suck well to receive the needed nourishment. The baby must be well and strong in order to do all this.

1. The **cord** should be kept as dry as possible. It may be dabbed (swabbed) with spirits of alcohol or soap and water to help it dry. It can be covered or left uncovered depending on the practice in your area. **It is important that the cord is kept very clean.** Teach the mother to tell you about any discharge or foul smell (odor) of the cord right away. Teach the mother that normally the cord falls off in 5 to 7 days.
2. Wipe the baby's **eyes** with dry cotton or gauze. This prevents infection from bacteria which may cause blindness. If it is your practice to use eye drops, put the solution or ointment into the corners of the eyes.
3. The **temperature** may be a little above normal at birth but will quickly go down to about 99.6 F (37.5C), rectally. The normal **pulse** is between 120 and 130 beats in a minute. The **respirations** are around 40 breaths in a minute.
4. Babies come in all sizes. A baby **weighing** under 5 1/2 pounds (2.5 kg) should be treated as a premature baby. Premature babies need more care to keep them warm. Give them enough breast milk. Help mothers with premature babies to go to the doctor/hospital for this extra care.

Give the breast to all babies immediately after birth. This way the baby receives infection protection from the mother's colostrum. Babies who drink mother's colostrum have fewer infections during the first six months of life. Breast feeding right away after delivery helps the uterus contract. It is normal for a baby to lose a few ounces of weight in the first 4 to 6 days, then he should gain gradually.

5. The **skin** of the baby is normally pinkish or dusky pink in color. At birth there may be a sticky cream called vernix over the skin. Opinions vary about removing the vernix. It may be removed very gently with a little oil on the second day. It may be left to come off gradually during bathing.

The skin should be kept clean. It may be washed with clear, warm water and patted dry gently. The baby may be immersed in (put into) water after the cord is healed. **Make sure the baby does not get chilled.**

A slight yellowing of the skin is normal around the third or fourth day (physiological jaundice). It disappears within a week. It should not be confused with the more serious form of jaundice which starts on the first or second day. The baby with serious jaundice must be taken to the doctor right away. Jaundice is often an early sign of sepsis.

6. The first stools (bowel movements) the baby passes are blackish in color. The color of the stools changes to yellow within two or three days.

If the stools become watery, dark green, contain mucus and are explosive (gas), the baby is very sick and should go to the doctor right away. Refer to the **Hydration and Rehydration** module for care on the way to the doctor.

7. The baby should be fed (put to breast) at regular intervals from the time of birth, starting with a few minutes and gradually increasing. For the first few days, the breasts secrete colostrum, a thick, colorless fluid. The colostrum is rich in protein and antibodies from the mother. It is important that the baby take this rich, protective fluid. Teach the mother and family about the importance of the colostrum to help protect the baby and make the meconium (first stools) come out of the baby.

Emergencies

If any of the following are found, the baby should be referred to the doctor/hospital as soon as possible:

- no opening in the anus
- lips and skin blue in color
- repeated vomiting
- jaundice
- irregular breathing after delivery
- any unusual actions such as: eyes rolling, extreme irritability, stiffness, convulsions.

Learning Aid - 3

History of Puerperal Infection

Puerperal infection (postpartum infection) was well known throughout written history. Hippocrates, for example, wrote that puerperal infection was caused from the slowing down of discharge from the vagina in the weeks after delivery. Its true cause was not known until Louis Pasteur found germs (bacteria) using a microscope. Puerperal infection continues to be a common cause of maternal death even though we know how to prevent the infection.

In 1847, Dr. Ignaz Semmelweiss while working at a maternity hospital in Vienna, noticed the very low mortality (deaths) from puerperal infection in a ward managed by midwives, compared to the high mortality in a ward managed by doctors. The doctors went directly from dissecting cadavers to examining patients who were recovering from childbirth. He decided that the doctors were spreading this fatal infection on their unwashed hands. He got real proof of this when he saw a co-worker die of septicemia (infection) after accidentally cutting himself with a scalpel used during autopsy of a woman who had died of puerperal infection. Because of this accident, Semmelweiss required his staff to wash their hands with an antiseptic solution before examining maternity patients.

During the first year of hand washing by doctors, mortality from puerperal infection at Semmelweiss' hospital dropped sharply from almost 12% to 3.8%. Even with this demonstration, most doctors did not believe that invisible bacteria could do such a thing. Twenty years later Pasteur's studies with the microscope and Lister's research with aseptic methods made doctors take note and believe what Semmelweiss had been telling them.

3. How can a midwife prevent sepsis? (page 4)

4. List four findings that will help you decide if a woman has postpartum infection after a spontaneous abortion. (page 8)

5. Describe what action you would take to help a woman who has postpartum infection after a spontaneous abortion.

a. prevention (pages 4 and 10)

b. giving treatment (page 8)

c. refer (page 8)

6. List findings that will help you decide if a woman has chorioamnionitis. (page 11)

7. How will you decide to cut and drain a breast abscess? (page 14)

8. How does tetanus infect a newborn? (page 19)

12. Ophthalmia neonatorum can cause blindness in the new baby. Describe the actions you will take to care for a baby with ophthalmia neonatorum. (page 16)

THE PROBLEM SOLVING METHOD CASE STUDY

The Problem Solving Method is an organized way of giving care to women. The Problem Solving Method is a way of thinking about the care you give women. This case study helps you review the Problem Solving Method.

We all solve problems every day of our lives. We usually do not think about the steps involved with problem solving. 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 four steps of the Problem Solving Method are:

- 1.
- 2.
- 3.
- 4.

Check your answers by looking in Module 1.

The Traditional Birth Attendant sees you at the market and asks you to visit Mrs. P.I. She delivered just before dark last night. This morning she feels very hot, does not feel like bathing or eating.

ASK AND LISTEN

What do you ask the traditional birth attendant on the way to see the woman?

You find out that Mrs. P.I. received antenatal care at the hospital, this is her second delivery, the baby girl is sucking, moving around and looks healthy, the labor was about 1/2 day, perineum is intact, placenta and membranes complete.

What do you **ASK** Mrs. P.I.?

You find out that she has abdominal pain, foul smelling bloody vaginal discharge and has chills. She has taken a little tea, but does not feel like taking any food. She has not taken any medicine.

LOOK AND FEEL

What examination do you do on Mrs. P.I. using the ASK and FEEL information?

Refer to Module 7.

You find out that she is very hot to touch, her pulse is 108 beats in a minute, she is flushed, looks sick, and has foul smelling, blood tinged purulent vaginal discharge. The uterus is firm, contracted and very tender.

IDENTIFY THE PROBLEM

Using the information from ASK, LISTEN, LOOK and FEEL what is the problem with Mrs. P.I.?

Refer to Module 7.

You **IDENTIFY THE PROBLEM** that Mrs. P.I. has an infection. You know that untreated postpartum infection (sepsis) can spread from the uterus into the abdomen. An abscess may form in the abdomen. The infection may go into the blood stream, causing septic shock (shock due to infection) and death.

TAKE APPROPRIATE ACTION

What **ACTION** will you take to help Mrs. P.I.?

Refer to Module 7.

Refer to Module 7.

You explain to the traditional birth attendant, the woman and the family that the woman is very sick and must get to the hospital as soon as possible. Ask the family to arrange transport and go with her to the hospital. While waiting for transport, help her rest in a semi-seated position. Keep her pelvis low to help drain discharge from the uterus and vagina.

Since you were called from the market, you do not have any antibiotics with you, **IF** you had antibiotics with you, give her a broad spectrum antibiotic.

Lower her fever and hydrate her by giving at least one glass (8 ounces) of water or other liquid every hour. If she is very sick, feed her the liquid with a spoon. If she begins to vomit, wait a little while and begin giving her liquids again, reassure and explain to her that the fluids will help her get better and she must try to take them.

If it is at all possible to get intravenous fluids from your maternity, what intravenous fluid do you give and in what amounts?

Refer to Module 8.

Give Ringer's Lactate when a woman is in or near shock. If you do not have Ringer's Lactate, choose Dextrose, 5% in Water or any other fluid you may have.

Give 500 ml of fluid as fast as it will go. Watch the woman very carefully for swelling of the face. You should stay beside the woman while the intravenous is running in so fast. Take the blood pressure and pulse every 5 minutes. When the blood pressure begins to go up and the pulse comes down, slow the intravenous fluid. Give 100 ml every hour. Mark the intravenous solution container, with the hour for each 100 ml. Watch the solution going in so that you regulate it to 100 ml in each hour.

Always watch carefully for swelling, especially around the eyes when you are giving intravenous solution. If you see swelling, slow the intravenous down and watch the woman very carefully. If the swelling increases, stop the intravenous solution.

Look for shock as you take the woman to the doctor.

What signs of shock will you LOOK for as you go with the woman to the doctor?

Refer to Module 8.

If Mrs. P.I. is in or near shock she will LOOK restless and nervous (anxious). The respirations will be shallow and fast (above 40 per minute). The pulse may be hard to feel (weak) and fast (above 90 per minute). The blood pressure will be low (below 90/60). The skin will FEEL cold and wet. If the fever is very high, the hands and feet may feel cold and the whole body wet.

What do you do when you reach the hospital?

Help the hospital staff move Mrs. P.I. and make her comfortable. Introduce the family to the staff and explain that the staff will now be caring for Mrs. P.I. You write down everything that you have done for Mrs. P.I. including any medicines given and explain to the staff.

Skills Checklist for Incision and Drainage of Breast Abscess

This checklist has two purposes:

1. The midwife should use it as a guide for checking her own skills.
2. The supervisors should use it when they evaluate how well the midwife performs.

After observing/performing write a rating:

s = satisfactory

ni = needs improvement

Add any comments needed in the comments section.

	Date	Date	Date	Date
When doing an incision and drainage of a breast abscess:				
1. Start the woman on a broad spectrum antibiotic.				
2. Collect all equipment.				
3. Prepare the woman <ul style="list-style-type: none"> · explain what you are going to do · help her sit on a chair, with her breast resting on a table 				
4. Gently wash the breast.				
5. LOOK and FEEL for the soft place on the breast.				
6. Give analgesic/anesthesia if available.				
7. Wash your hands. <ul style="list-style-type: none"> · Put on sterile gloves if available 				

Comments:

	Date	Date	Date	Date
8. Cut the abscess. <ul style="list-style-type: none"> · using point of blade · make cut big enough to put one finger in · cut all at once 				
9. Break up the pockets of the abscess. <ul style="list-style-type: none"> · with gloved finger or · with hemostat or artery forceps · DO NOT PRESS OR SQUEEZE BREAST 				
10. Keep the cut open to drain pus. <ul style="list-style-type: none"> · open 4X4 gauze square · start with one corner · push gauze into opening · let a little gauze stick out of opening 				
11. Change the dressing every day. <ul style="list-style-type: none"> · until no pus drainage · pull the gauze out a little more each day · remove gauze packing on 4th day 				
12. Follow up. <ul style="list-style-type: none"> · continue to give antibiotics for 10 days · continue to see the woman until no more pus drains from the cut and the opening is closed · help the woman with breast feeding if she has stopped 				
13. Record what you have done.				

Comments:

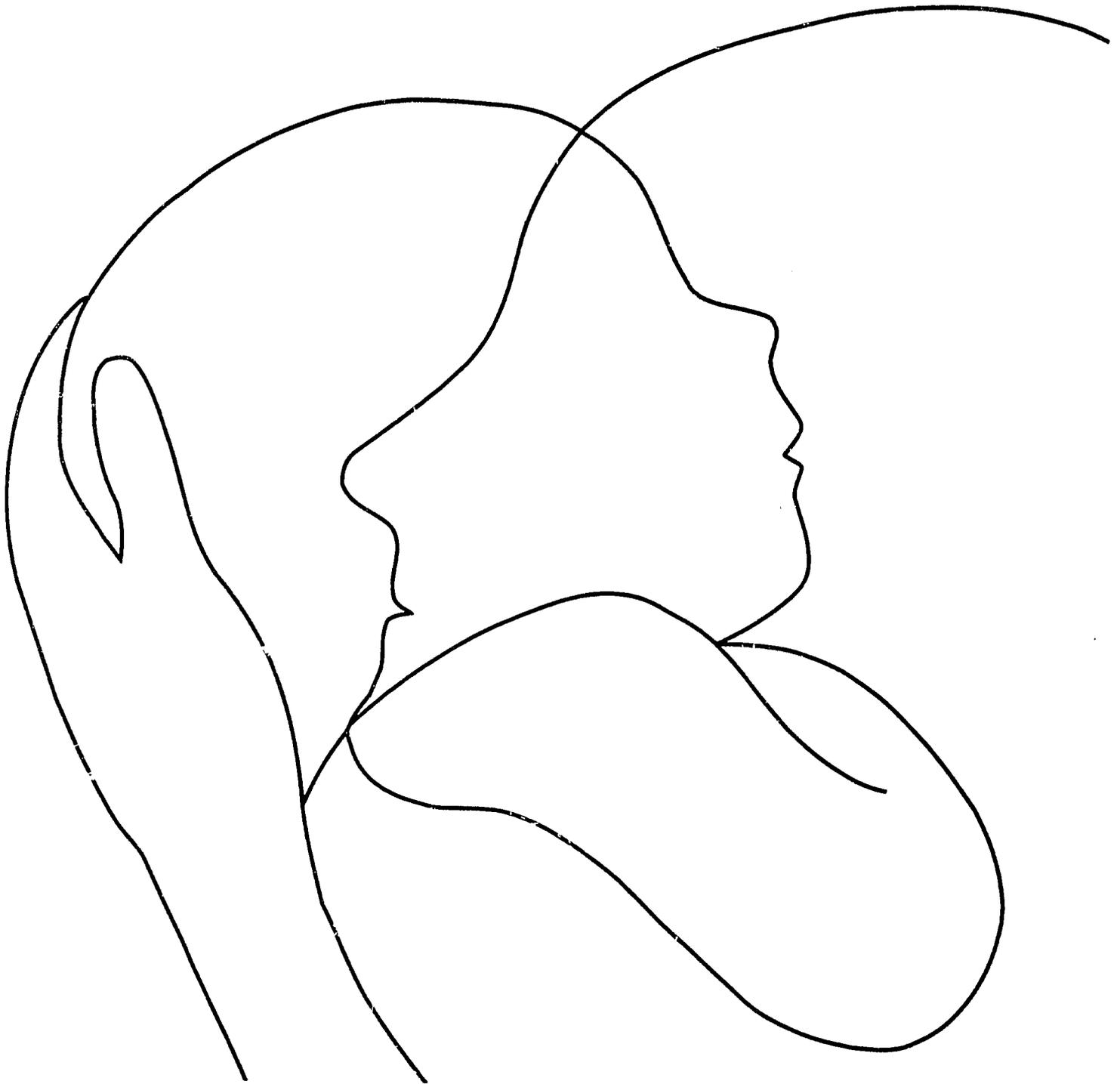
References

Experience and the following references were used to develop this module.

- Benson, Edward A.(1989), Management of breast abscess, World Journal of Surgery, 13,753-759.
- Boyd, M.E.(1989), Spontaneous abortion, Canadian Journal of Surgery, Volume 32, Number 4, 260-264.
- Cox, Helen (1971), Midwifery manual, McGraw-Hill For Eastern Publishers (S)Ltd, Jurong, Singapore. 110-130.
- Ledger, William J.(1989, April), Infection and premature labor, American Journal of Perinatology, Volume 6, Number 2,234-236.
- Lee, Wesley, et al (1989, June), Management of septic shock complicating pregnancy, Obstetrics and Gynecology Clinics of North America, Volume 16, Number 2, 431-447.
- Manual for Health Centres, (1986), Clinical reference, Ministry of Health, Maseru. 118-236.
- Martens, Mark G. et al (1990, April), Ampicillin/Sulbactam versus clindamycin in the treatment of postpartum endometritis, Southern Medical Journal, Volume 83, Number 4, 408-413.
- Morbidity Mortality Weekly Review, (1990, March), Recommendations for the prevention of malaria among travelers, MMWR, Volume 39, Number RR-3,1-8.
- Myles, M.F. (1981), Textbook for midwives, Churchill Livingstone, Edinburgh. 27, 472.
- Protocols for patient care, (1989), Frontier Nursing Service, Hyden. 318-335.
- The Medex Primary Health Care Series, (1983), Maternal and child health problems of women, diseases of infants and children, Health Manpower Development Staff, John A. Burns School of Medicine, University of Hawaii. 34, 63-70.
- Varney, H. (1987), Nurse-midwifery, Blackwell Scientific Publications, Boston. 25, 517.

Module 8:

HYDRATION AND REHYDRATION



Module Contents

HYDRATION AND REHYDRATION

	Page
Goal	1
Objectives	1
Common Medical Terms	1
Introduction	2
Life Saving Steps to Prevent Shock	3
Find Out the Cause of Shock	4
ASK and LISTEN	4
LOOK and FEEL	4
IDENTIFY THE PROBLEM and TAKE ACTION RIGHT AWAY	5
Skill - Starting an Intravenous Infusion in a Peripheral Vein	6
Equipment	6
Procedure	6
Dangers of Giving Fluids in the Vein	11
Skill - Giving Fluids in the Rectum	12
Equipment	12
Procedure	12
Skill - Giving Fluids into the Peritoneal Cavity (Intraperitoneal)	14
Equipment	14
Procedure	14
Learning Aids	16
1. Intravenous Solutions Types and Dosage	16
2. Preparing Oral Rehydration Salts (ORS) Solution from a Sachet (Packet)	18
3. Preparing Sugar and Salt Solution from Locally Available Materials	19

HYDRATION AND REHYDRATION (cont'd)

Review Questions	20
Case Study	23
Skills Checklist	27
1. Starting an Intravenous Fluid in a Peripheral Vein	27
2. Giving Fluids in the Rectum	29
3. Giving Fluids into the Peritoneal Cavity	31
4. Preparation and Giving of Oral Solutions	33
References	35

HYDRATION AND REHYDRATION

Goal

This module will help the midwife find out about pregnant women's normal daily needs for fluids. This module will help the midwife find out when a woman needs fluids and learn how to give the fluid.

Objectives

The midwife caring for mothers should be able to:

1. define normal daily fluid needs
2. define shock and dehydration
3. identify common causes of shock and dehydration in mothers
4. record observations
5. identify the need for referral
6. explain the differences in the actions of some intravenous solutions
7. list the dangers of giving fluids in the vein (intravenous)
8. describe and demonstrate how to give an intravenous fluid
9. describe and demonstrate how to give fluid in the rectum
10. describe and demonstrate how to give intraperitoneal fluid
11. describe and demonstrate how to give oral rehydration therapy (ORT)

Common Medical Terms

Anaphylactic shock - reaction from taking in to the body a substance to which a person is allergic such as a toxin (poison) from a bee sting, or from a medicine.

Dehydration - dryness of the body when the output of water and salts is greater than the intake of water and salts.

Hemorrhage - abnormal bleeding (bleeding too much), blood running out a ruptured (torn) blood vessel. Abnormal bleeding may be external (outside of the body such as abnormal bleeding from the vagina), internal (into the body such as abnormal bleeding into the abdominal cavity), into the skin (such as a bruise), or into other tissues (such as into the muscle causing a deep bruise).

Infiltration - fluid going into tissue (such as intravenous fluid going into the tissue under the skin instead of into the vein)

Infusion - a liquid being put into the body through a vein for medical treatment

Intraperitoneal - in the peritoneal cavity (area)

Intravenous - into a vein

Peripheral vein - vessels away from the center of the body (such as veins on the arms and legs)

Peritoneal cavity - area (sack) lined by a membrane covering the abdominal organs (intestines, stomach, liver and spleen)

Shock - a time when important organs of the body do not get enough oxygen to carry on their normal activities, for example when a woman is bleeding too much, there is not enough blood to carry the oxygen to the important organs of the body so that the organs stop or do less of their normal activities (such as the heart can not pump as much so the blood pressure is very low)

Thrombophlebitis - infection of wall of the blood vessel due to an irritation to the vessel wall

Introduction

A person normally takes in the water and salts he needs through drinks and food. A person normally loses water and salts through stools, urine, breathing, and sweating.

The midwife must help a pregnant woman drink and eat to supply her body and baby with all of the nutrients (growing, energy, and protective), salts and water necessary. LOOK in your midwifery text for a review of nutrition and fluid intake during pregnancy.

When the person is healthy, water and salts pass from the bowel (intestines) into the blood. When there is sickness, the bowel does not work normally and less water and salt go into the blood. More than the normal amount of water and salts may be lost through sicknesses such as fever, vomiting, hemorrhage, diarrhea and so on.

This larger than normal loss of water and salts from the body causes **dehydration**. Dehydration happens when the output of water and salts is more than the intake of water and salts. The more the loss of fluids because of sickness, the more water and salt is lost.

The most important parts of treating dehydration are to **prevent dehydration** and **rehydrate** quickly if dehydration happens.

Prevent dehydration by helping the pregnant woman drink plenty of fluids during pregnancy and early labor. Advise her to drink locally available fluids such as rice water, fruit juice, weak tea or drinking water. During early labor help the woman to drink fluids for rehydration and energy. Fluids such as fruit juice and weak tea with sugar are good. Add the fluids that women in your area like to take during early labor for energy and strength.

Rehydrate if signs of dehydration (dryness) are seen. Rehydrate if signs of sickness are seen. The best treatment for dehydration once it has happened is oral rehydration therapy using a solution made with oral rehydration salts (ORS). This treatment is successful when started early. This treatment will be explained later in this module.

Life Saving Steps to Prevent Shock

When a mother needs to be given fluids it is usually because she is very sick. She may be in or nearly in shock. The most common causes of shock are severe bleeding (hemorrhage), fluid loss (diarrhea), infection, heart attack, or allergic reaction (anaphylactic shock).

In a midwife's practice, shock most often happens during the third stage of labor when the mother bleeds too much (see module on **Prevention and Treatment of Hemorrhage**). When blood loss is fast and too much (severe), the mother may die. The midwife must act quickly to prevent this from happening.

Shock is a life threatening emergency! Before you find out what is causing the shock, you must make sure you keep the woman alive. The importance can never be stressed enough, that the immediate responsibility of the midwife is to identify (low blood pressure and/or fast, weak pulse and/or cool, wet skin) as signs of shock and **take action right away**. Follow these life saving steps (ABCS) of helping a woman;

Life Saving Steps (ABCS)

1. **Airway** - make sure the mouth and nose are clear and open
2. **Breathing** - do mouth to mouth breathing if the woman is not breathing
3. **Cardiac** - stop bleeding (see module on **Prevention and Treatment of Hemorrhage**).
4. **Shock** - cover and keep warm, raise feet and legs about 10 cm (3 to 4 inches), do not give anything to eat or drink
5. **Give fluids** - Do not wait for severe shock which will end in death. Start intravenous fluids, if they are available (see intravenous skill). If you do not have intravenous fluids or if you can not start the intravenous fluids, give drinking water in the rectum (see rectal fluids skill).
6. **Take blood pressure and pulse** - Ask your assistant to take and record the blood pressure and pulse every 10 minutes. This will help you follow the progress of shock or the woman's recovery from shock.
7. **Transport** - Take the woman to the doctor as soon as you can. Keep her warm, but do not let her get so hot that she sweats and loses more fluid. Keep her feet and legs a little higher than her head. Continue the intravenous fluids if this is possible. Remember to take the woman's record so that the doctor will know as much as possible about the woman. Help the woman and family understand what is happening so that they will not be too afraid and nervous.

Find Out the Cause of Shock

In order to stop the shock, you must find out what is the cause and decide what to do. You must **ASK** and **LISTEN**, **LOOK** and **FEEL**, **FIND OUT THE PROBLEM**, and **TAKE APPROPRIATE ACTION**. Depending on your situation, you may not be able to take the time to find out the cause of the shock. For example, you may just be able to try to stop bleeding from the vagina and help get the woman to the doctor, or if you think the woman is allergic to a medicine, you may be able to give her some antihistamine and help get her to the doctor. The following problem solving steps are here for you to know what to do, in case you must wait for any reason in getting the woman to a doctor.

ASK and LISTEN

You can ask how she feels. If she is in or near to shock, she may tell you that she is weak, nervous or afraid. She may be thirsty. She may say she can not breathe enough air (short of breath). She may say her skin itches. Ask about pain in her chest.

LOOK and FEEL

If she is in or near to shock, the mother will **LOOK** restless and nervous (anxious). The respirations will be shallow and fast (above 40 per minute). The pulse maybe hard to feel (weak) and fast (above 90 per minute). The blood pressure will usually be low (below 90/60). The skin will **FEEL** cold and wet. The skin may be raised in places (welts) and the mother may be scratching the skin. The nails and lips may look pale. The face and lips may be swollen. **LOOK** for bleeding. **FEEL** the uterus to make sure it is contracted.

IDENTIFY THE PROBLEM and TAKE ACTION RIGHT AWAY

Find out what is the cause of the shock and take action.

Talk to the woman as you are taking care of her. Help her feel that you are trying to make the situation better. Try to look calm and show that you know what you are doing. This will help the woman not be too afraid. Have one member of the family stand beside her if at all possible.

If the woman is bleeding from the vagina; try to stop the bleeding, give fluids, and refer as soon as possible. If there is a delay in the transportation, and the blood pressure is continuing to fall (go lower), firmly wrap the lower limbs (from the feet to the thighs) with a bandage or other cloth and keep the legs elevated to direct more blood to the brain, heart and lungs (refer to the module on **Prevention and Treatment of Hemorrhage**).

If the woman is losing fluids from diarrhea; replace fluids quickly, and refer.

If the woman is having a severe infection (may have foul smelling vaginal discharge, fever, and so forth); give fluids slowly and refer (refer to the module on **Prevention and Management of Sepsis**).

If the woman had a heart attack; give intramuscular analgesic if available (such as Morphine Sulfate 1/6 grain, Demerol 50 mg) or by mouth Aspirin or Tylenol with Codeine, and refer.

If the woman has an allergic reaction; give an injection of 1:1000 solution of epinephrine subcutaneous (0.5 cc for adults and children over 40 kg), if the signs of shock continue repeat the injection in 10 minutes, if there is swelling and itching of the skin give an antihistamine (such as Benadryl 25 mg intramuscularly or Phenergan 25 mg intramuscularly), give fluids and refer.

It is important that the midwife always goes with the woman to the doctor/hospital. The midwife can take care of the woman during the trip. The midwife can help the woman and family so that they do not become too afraid. The midwife is the best person to tell the doctor what is wrong with the woman.

Skill: Starting an Intravenous Infusion in a Peripheral Vein

This skill of placing a needle into a vein and making a steady flow of fluid into the woman's blood stream can help you prevent shock and death. Start intravenous fluid when body fluid is lost because of bleeding, infection, dehydration or shock. Use Learning Aid, Number 1, found in the this module as a guide for you to choose the type of intravenous fluid and the amount of the fluid to be given.

Equipment

Adhesive tape
Padded arm board
Sterile intravenous tubing
Clamp for intravenous tubing
Intravenous fluid (see Learning Aid, Number 1)
Antiseptic solution (such as alcohol, Savlon, or soap & water) Cotton
Sterile needle (20 Gauge if you have one)
Rubber tourniquet
Intravenous stand or nail in the wall
Clean or sterile gloves

Procedure

1. Collect equipment. Put them so you can reach them easily.
2. Cut a 3 cm piece of tape and a 8 cm piece of tape. Stick the tape to your clothes where you can get it when you need it.
3. Wash your hands with soap and water.
4. Explain to the woman what you are going to do.
5. Ask the woman to lie in a comfortable position.
6. Connect the intravenous fluid to the tubing.
7. Hang the intravenous fluid on the stand or nail.
8. Fill the tubing with the intravenous fluid from the bottle to make sure there is no air in the tubing. Clamp the tubing. Leave the sterile plastic end on the tubing until you are ready to use it.

9. Look for a vein. Placement of veins vary somewhat with each person. Veins are usually easiest to see on the back of the hand, the forearm and the ankle. You should look for a vein as far from the heart as possible. Then if your attempt fails, you can select a new place further up the arm or leg. Do not use a vein that crosses a joint (such as a knee or elbow), as a needle placed over or at a joint will move every time the joint moves and may come out.

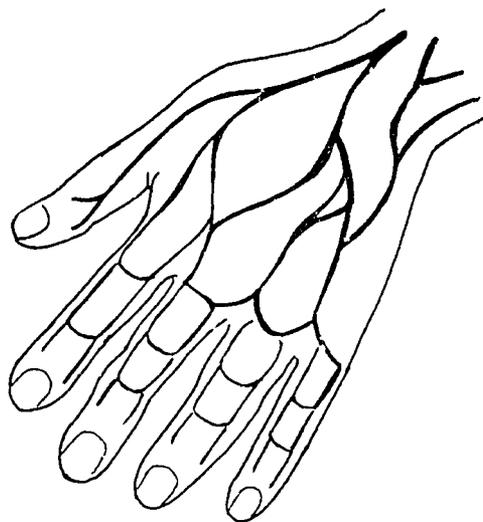


Figure 1. Veins in the hand

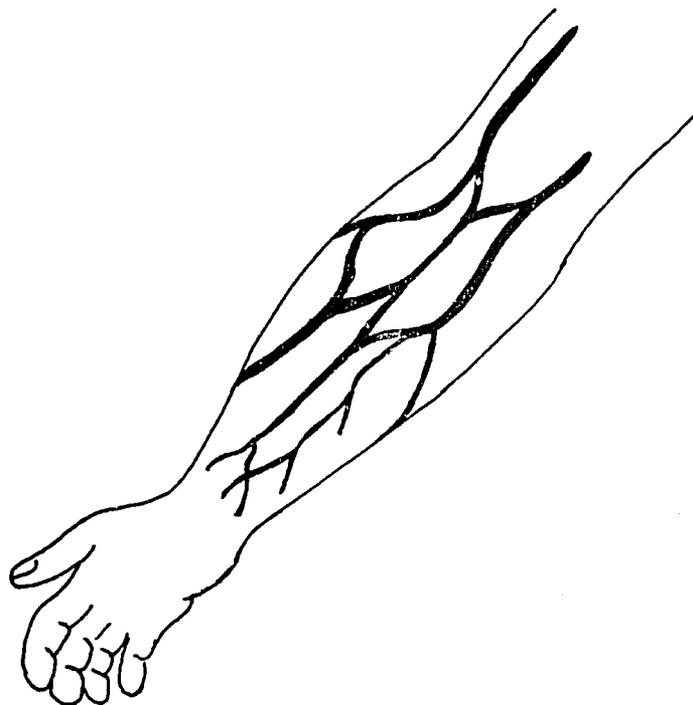


Figure 2. Veins in the forearm

10. If the veins are still hard to see, place the rubber tourniquet around the upper arm. This will stop the flow of blood in the veins. The veins will puff up. If the woman has very low blood pressure or is losing too much blood, you may not even feel the veins. Place a warm cloth over the veins and pat the area gently to make the veins fill up.

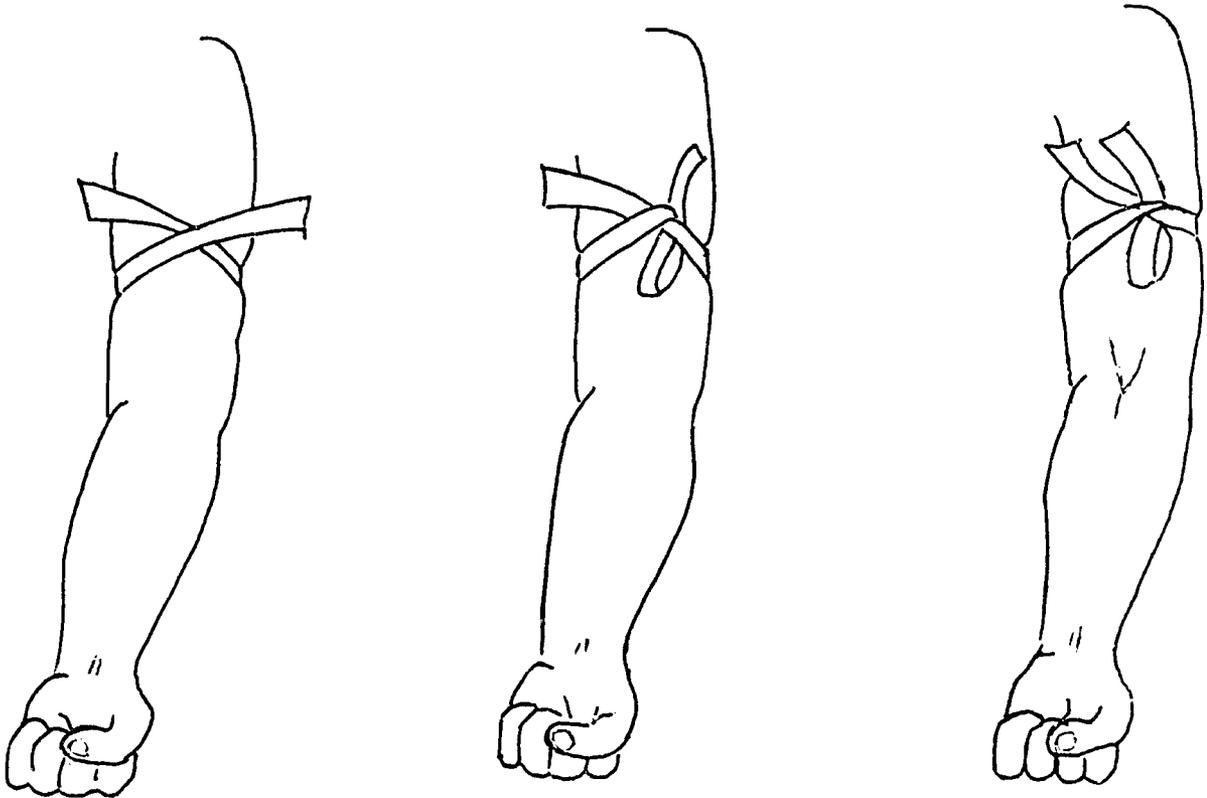


Figure 3. Applying a tourniquet to find a vein

11. Once you have found a vein, loosen the tourniquet. Wash your hands. Put on clean or sterile gloves to protect yourself if the woman is in a high risk category or has AIDS.
12. Scrub the skin over the area where you found a vein with soap and water or antiseptic solution.
13. Reapply the tourniquet.
14. Make sure the skin is dry to prevent pushing soap or antiseptic solution into the vein.
15. Hold the needle with the hand you use for giving injections.

16. Use the thumb of your other hand to gently pull or stretch the skin over the vein and hold the limb still. This prevents the woman from moving and the stretched skin will hold the vein so that it does not move. Remember not to touch the area you have scrubbed.

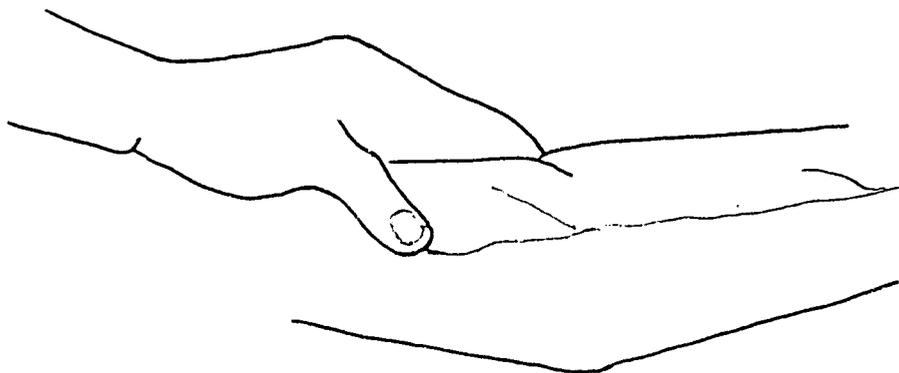


Figure 4. Pulling or stretching the skin

17. Push the needle through the skin, about 1 cm below the point where you want the needle to go in and beside the vein.

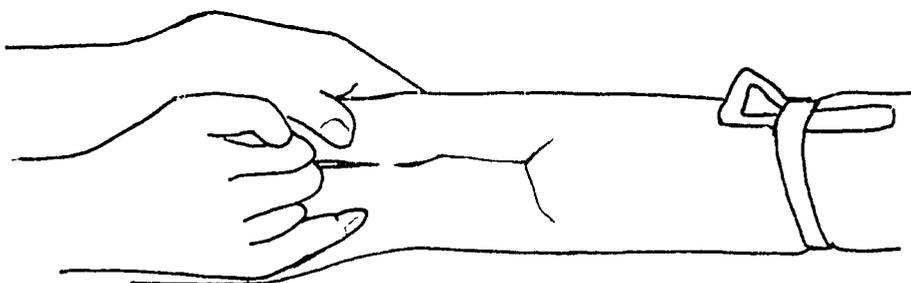


Figure 5. Push the needle through the skin

18. Gently push the needle into the vein. Use a quick, steady push. Blood should come back into the needle. If you see no blood, gently turn the needle or push it a little more into the vein.
19. When you see blood, carefully loosen the tourniquet. Attach the intravenous tubing to the needle.

20. Slowly run intravenous fluid into the vein to check that the needle is in the vein. If the area around the needle swells, stop the flow of fluid and remove the needle. Apply pressure with a cotton swab to the area where the needle was. Continue pressure until the bleeding stops. Start the procedure again further up the arm or in a different location.
21. If the area around the needle does not swell use the 3 cm piece of tape to fasten the needle where it enters the skin.
22. Loop the 8 cm piece of tape, with its adhesive side up, under the needle. Fold each end of the tape diagonally across the needle to hold the needle in place.

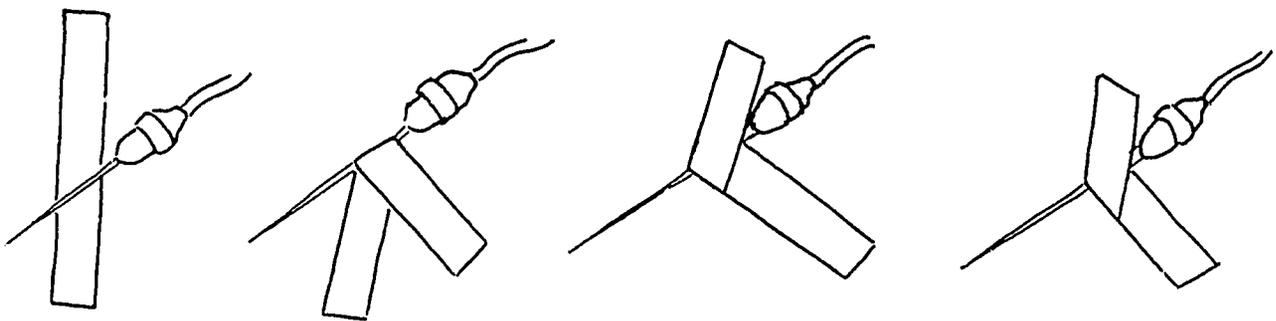


Figure 6. Tape the needle in place

23. Check again to make sure that the needle is still in the vein.
24. Use an arm board to keep the joint nearest the vein from moving. Place adhesive tape around the limb and board above and below the joint. Make sure the board does not stop circulation. Loop the tubing once or twice. Fasten the tubing to the limb. Do not wrap the tape all the way around the limb.
25. Regulate the flow. (see Learning Aid, Number 1) Check the needle every hour to make sure the fluid is running in the vein. If you see swelling, lower the intravenous solution container below the woman. You will see blood come into the tubing. This means that the needle is still in the vein. Watch the swelling carefully, there could be a leak of fluid from the needle.

26. Make sure the woman is comfortable and that someone is with her in case she needs help.
27. Clean up all the equipment.

Dangers of Giving Fluids in the Vein

Dangers of intravenous therapy can be either local (at the site of the injection) or systemic (throughout the body).

Local (site of injection) problems happen more often and must be taken care of right away to prevent serious problems. An irritation to the wall of the vein can cause infection of the vein (thrombophlebitis). The midwife can prevent this by (a) avoiding many needle sticks into the vein, (b) avoiding veins in the lower limbs (legs), and (c) avoiding veins that are small and crooked.

A second local problem is infiltration of the intravenous fluid. This happens when the intravenous fluid leaks into the tissue either because the vein is cut or the needle gets moved. This can be prevented by careful and frequent checks of the needle and the intravenous fluid. If there is a swelling at the injection area, clamp the fluid and remove the needle right away. The intravenous fluid will need to be restarted in another place.

Systemic (whole body) problems are a more serious threat to the life of the woman. They happen less often than the local problems, but the midwife must know about them and watch carefully to prevent them.

Infection of the blood (pyrogenic reaction) happens when germs are allowed to go into the bloodstream. This can be prevented by using sterile needles, tubing and intravenous fluids.

Giving too much intravenous fluids too fast can cause the heart to not work as it should (heart failure) and the lungs to fill up with fluids (pulmonary edema). This can be prevented by giving intravenous fluids according to the rate needed. The midwife must also remember to watch for swelling of the face and eyelids when giving intravenous fluids. These are signs of too much fluid.

Skill: Giving Fluids in the Rectum

If the midwife is unable to give intravenous fluids for any reason, drinking water may be given rectally. The woman with severe bleeding will be dehydrated and will absorb the water. It is not advisable to give fluid by mouth, even if the woman is thirsty, for she may vomit and aspirate. This water, given rectally, may save the woman's life, it is a life saving skill.

Equipment

Enema can with tubing
600 cc or ml of tepid drinking water
Cloth for under pad

Procedure

1. Gather the equipment.
2. Tell the woman what you are going to do.
3. Wash your hands.
4. Ask or help the woman to lie on her left side if at all possible. This helps the water to flow into the sigmoid and descending colon, helping the absorption of the fluid. The woman will also have the lower part of her body a little higher than her head because of the shock.
5. Lubricate the end of the tubing with water so that it will slide through the anus without irritation.
6. Put on clean gloves.
7. Run water to the end of the rectal tube and clamp off. Insert the rectal tube into the anus slowly and firmly. Ask the woman to take a deep breath and let the air out slowly. This will help her to relax and not try to push the rectal tube out.
8. Push the rectal tube about 10 cm (3 - 4 inches) in the rectum.
9. Hold the enema can just high enough so the water runs into the woman. The water should run very slowly, so that the woman does not get abdominal cramping or feel the urge to push the water out. It usually takes about 30 minutes for the water to run into the woman.
10. When the 600 ml has run in, remove the rectal tube gently.

11. Help the woman to breathe deeply and relax. Remind her to try not to let the water come out. The water will absorb soon and she will not have the urge to push or go to toilet at all.
12. Remove your gloves.
13. Clean and dry the woman.
14. Clean up the equipment.
15. Wash your hands.
16. Record the fluid intake.

Note that the procedure can be repeated after 2 hours, if the woman is still in shock and can not take oral rehydration salts (ORS) solution by mouth. Try very hard to organize transport and take the woman to a doctor for continued care.

Skill: Giving Fluids into the Peritoneal Cavity (Intraperitoneal)

If the midwife is unable to give intravenous fluids or clean water in the rectum, or if the woman is unable to keep the fluid in the rectum, intravenous fluids may be given into the peritoneal cavity. It is not advisable to give fluids by mouth, even if the woman is thirsty, for she may vomit and aspirate. Once she has absorbed some fluids from the peritoneal cavity and the signs of shock are less, oral rehydration therapy can be started (see the learning aid, oral rehydration therapy in this module). This intravenous fluid, given in the peritoneal cavity, may save the woman's life; it is a life saving skill. Use this method only after the woman has delivered and is in shock.

Equipment

Intravenous fluid, (see learning aid, intravenous fluids in this module)

1 giving set (IV tubing with clamp)

Sterile needle, 18 or 19 gauge is best, smaller needles will take longer giving the fluid

Antiseptic or soap and water

Adhesive tape

Gauze pads (2" X 2")

Procedure

1. Gather the equipment.
2. Tell the woman what you are going to do.
3. Wash your hands.
4. Attach the giving set and needle to the intravenous fluid container. Fill the giving set and needle with fluid. Clamp the tube. Put needle cover over needle to keep it sterile.
5. Help the woman to lie on her back.
6. Cleanse the abdomen well with antiseptic or soap and water.
7. FEEL the abdomen to make sure it is soft. If the abdomen feels hard or tender to touch, do not give the fluid in the peritoneal cavity.
8. Pinch the skin of the abdomen just below the navel (umbilicus) in the midline with your noninjecting hand.
9. Push the needle through the skin.

10. Ask your assistant to unclamp the tubing.
11. With the tubing open (unclamped), push the needle into the peritoneal cavity. Once the needle is in the peritoneal cavity the fluid will run very fast.
12. Tape the needle to the abdomen so that it does not move.
13. Run 600 ml of intravenous fluid into the peritoneal cavity in 10 minutes. The fluid will absorb through the intestines and pass into the blood stream at a slow rate. Remember that you are running the fluid into the peritoneal cavity. The rate of flow can be fast because of the method of absorption.
14. Remove the needle after the 600 ml has run into the peritoneal cavity.
15. Cover the puncture site with a dry gauze dressing.
16. Help the woman get comfortable.
17. Clean up your equipment.

Note that the danger of the woman getting peritonitis is very low when compared to the woman dying from dehydration. Clean and sterile procedure is very important.

Note that the procedure can be repeated after 2 hours, if the woman is still in shock and can not take oral rehydration salts (ORS) solution by mouth. Every effort must be made to get the woman to a doctor for continued care.

Learning Aid - 1. Intravenous Solutions Types and Dosages

Intravenous solutions are given directly into a blood vessel to help replace fluids lost by the body. Use the suggested intravenous solution for the problem identified if you have that solution. If you do not have the suggested intravenous solution, choose Dextrose, 5% in Water or any other you may have. Try to keep a supply in case you have an emergency case so that you will be able to care for the woman.

a. Dextrose, 5% in Water

Give this solution to provide some energy for the body.

Give 2500 ml (milliliters) in 24 hours.

b. Dextrose, 5% in 1/2 Normal Saline

Give this solution to provide some energy for the body and to help maintain the body's water and salts balance.

Give 2500 ml in 24 hours.

c. Normal Saline (Sodium Chloride 0.9%, Isotonic Saline)

Give this solution to replace blood loss and in fluid loss during diarrhea, when the woman is not able to take enough oral rehydration fluids by mouth.

Give 1000 ml of Normal Saline first and follow with 1500 ml of Dextrose, 5% in Water, or Dextrose 5% in 1/2 Normal Saline in 24 hours.

d. Ringer's Lactate

Give this solution to replace fluid loss due to diarrhea or when a woman is in shock.

Give 1000 ml of Ringer's Lactate first and follow with 1500 ml of Dextrose 5% in Water or Dextrose 5% in 1/2 Normal Saline in 24 hours.

Add any intravenous solutions to this list, that your doctor may want you to use.

Remember that too much intravenous solution can cause heart failure because there is too much fluid in the blood vessels.

Make sure the fluid is running at the speed (as fast or slow) you want it to run.

If the woman is near shock or bleeding very much, run 500 ml of fluid into her vein as fast as it will go. Watch the woman very carefully for swelling of the face. You should stay beside the woman while the intravenous is running in so fast. Check her blood pressure and pulse every 5 minutes.

When the first 500 ml has been given, slow the fluid down. Give the remaining 2000 ml at the rate of 100 ml every hour. Mark the intravenous solution container, with the hour for each 100 ml. Watch the solution going in so that you regulate it to 100 ml in one hour.

Always watch carefully for swelling, especially around the eyes when you are giving intravenous solution. If you see swelling, slow the intravenous down and watch the woman very carefully. If the swelling increases, stop the intravenous solution.

Learning Aid - 2. Preparing Oral Rehydration Salts (ORS) Solution from a Sachet (Packet).

Look at your ORS sachet. Read the directions. Find out how much clean drinking water you must measure into a clean container. Use the cleanest drinking water possible.

Pour all the ORS powder from one sachet into the water and mix well until the powder is completely dissolved. Taste the solution before giving to the woman. **Remember the solution should never taste saltier than tears.**

Mix fresh ORS solution each day in a clean container. Throw away any unused solution remaining from the day before.

An adult should take at least 2000 ml (2 liters) of ORS solution in a day. Advise the adult to take other fluids or ORS solution as much above 2000 ml as she wants in a day.

Sometimes while giving an intravenous infusion, the woman will ask for something to drink. ORS solution is an ideal drink while the woman is recovering from dehydration because she needs the salts and water.

If the woman does not like the taste of the ORS solution, add some citrus juice (orange, lime, lemon) to change the taste. If the woman vomits the ORS solution while the intravenous infusion is running, give her any locally available liquids she will drink (such as coconut water, light soup, weak tea, or water from cooking starches such as rice, yam, potato, maize and so forth).

Learning Aid - 3. Preparing Sugar and Salt Solution from Locally Available Materials

There may be times when the woman can take fluids by mouth and you do not have any locally available liquids or the ORS sachet (packet). You can make sugar and salt solution for the woman to drink. There are different ways of making sugar and salt solution. If your way is not written in this module add it at the bottom of the page. As long as the solution **does not taste more salty than tears**, the solution can be used for hydration and rehydration.

You will need drinking water, sugar, salt, a container to measure (such as soft drink or beer bottle), container for mixing, a cup and a teaspoon.

Wash your hands. Wash all utensils so they are clean. Take the measuring container and measure 1000 cc of drinking water. Pour this water into the container for mixing.

Add 8 level teaspoons of sugar and 1 level teaspoon of salt to 1000 cc of drinking water.

Stir the mixture well. Taste the mixture. **Sugar and salt solution should never taste more salty than tears.** Pour the mixture into a cup. Give the solution to the woman to drink. She can drink as much as she wants.

Mix fresh solution every day in a clean container. Throw away any unused solution remaining from the day before.

Review Questions

What Did I Learn?

Test your knowledge and understanding of this module by performing the following tasks without the help of the text.

1. List the life saving steps used to help a woman who is in shock. (page 3)

2. List three common dangers of giving fluids in the vein. (page 11)

3. Describe and demonstrate how to give an intravenous fluid. (pages 6 - 11)

4. Describe and demonstrate how to give fluid in the rectum. (pages 12 - 13)

5. Describe and demonstrate how to give fluid in to the peritoneal cavity. (pages 14 - 15)

6. Why is it important to prevent dehydration in a woman during labor? How can you prevent dehydration during labor? (pages 2 - 3)

PROBLEM SOLVING METHOD CASE STUDY

The Problem Solving Method is an organized way of giving care to women. The Problem Solving Method is a way of thinking about the care you give women. This case study helps you review the Problem Solving Method.

The four steps of the Problem Solving Method are:

- 1.
- 2.
- 3.
- 4.

Check your answers by looking in Module 1.

Case Study - Refer to modules 5, 7, and 8

You see Mrs. C.A. at your maternity. She tells you she is bleeding and has abdominal pain. What do you ASK AND LISTEN?

See Module 5.

You find out she had her last menses 14 weeks ago, has lower abdominal pain, started bleeding three days ago, passed clots and tissue, and says she feels cold and nervous.

What do you LOOK AND FEEL?

See Module 5.

You find her B/P 80/40, P 120 and weak, T 102, lower abdominal tenderness with a contracted tender uterus, foul smelling bloody purulent vaginal discharge, closed cervix, skin hot, hands and feet cold and moist.

What PROBLEM DO YOU IDENTIFY?

Refer to Module 7.

You decide the woman has a postpartum infection associated with complete abortion (expelled clots and tissue, contracted and tender uterus, foul smelling bloody purulent vaginal discharge, T 102). She is close to shock (B/P 80/40, P 120 and weak, feels nervous and weak, hands and feet cold and moist). She is very sick. You ask someone to arrange transport right away.

While you wait for transportation, what action will you take?

See Module 7.

You lower the fever by giving a sponge bath and starting an IV.

What intravenous solution will you give and how much will you give to Mrs. C.A.?

See Module 8.

Give Ringers Lactate when a woman is in or near shock. If you do not have Ringers Lactate, choose Dextrose, 5% in Water or any other fluid you may have.

Give 500 ml of fluid as fast as it will go. Watch the woman very carefully for swelling of the face. You should stay beside the woman while the intravenous is running in so fast.

Take the blood pressure and pulse every 5 minutes. When the blood pressure begins to go up and the pulse comes down, slow the intravenous fluid.

Then give 100 ml every hour. Mark the intravenous solution container, with the hour for each 100 ml. Watch the solution going in so that you regulate it to 100 ml in each hour.

Always watch carefully for swelling, especially around the eyes when you are giving intravenous solution. If you see swelling, slow the intravenous down and watch the woman very carefully. If the swelling increases, stop the intravenous solution.

You are not able to get the intravenous started in Mrs. C.A. Her B/P is now 50/30, her pulse is difficult to count, she is very weak and dehydrated. You know it is not advisable to give fluids by mouth, even if she is thirsty, for she may vomit and aspirate the fluids.

What EMERGENCY ACTION will you take?

See Module 8.

You know that Mrs. C.A. is dehydrated and must have fluids quickly to increase her blood pressure and lower her temperature. You quickly prepare 600 ml of drinking water and give to Mrs. C.A. rectally. You know that when someone is dehydrated, absorption can take place in the rectum.

What do you do after giving the 600 ml of water in the rectum?

See Module 8.

Five minutes after giving the fluids, the B/P is 70/34, P 118 but a little stronger, Mrs. C.A. is looking around and asking for water.

What do you do?

See Module 7 and 8.

In 15 minutes after giving the fluids by rectum, the B/P is 72/36, P 110 and still a little stronger. You give an oxytocic to help the uterus remain contracted. Give a broad spectrum antibiotic. Give Mrs. C.A. oral rehydration solution if you have it or any other available drinking fluid.

What do you do on the way to the hospital?

You continue to give Mrs. C.A. fluid to drink, take B/P, P; watch for bleeding; and tell her and her family what is happening.

	Date	Date	Date	Date
10. Wash your hands, put on gloves to protect you from AIDS if woman is at risk for AIDS.				
11. Clean the skin with soap and water or antiseptic				
12. Tighten the tourniquet				
13. Hold needle in hand you use for injections				
14. Use the other hand to stretch the skin with the thumb, push in the needle through the skin and parallel (beside the vein) to the vein				
15. Push the needle gently and quickly into the vein. Blood will flow out of the needle				
16. When you see blood in the needle, attach the needle to the tubing and loosen the tourniquet.				
17. Let the fluid run into the vein. If the area around the needle swells, clamp off the tubing, remove the needle and put pressure on the area until the bleeding stops. Restart the intravenous in another place				
18. When fluid is going in the vein, tape the needle to the skin. Loop the tubing and attach it to the arm with tape				
19. Tape the arm to an armboard so it cannot bend and move the needle				
20. Pegulate the fluid rate and check for infiltration every hour to make sure that the fluid is not running into the skin				

Comments:

Skills Checklist - Giving Fluids in the Rectum

This checklist has two purposes:

1. The midwife should use it as a guide for checking her own skills.
2. The supervisors should use it when they evaluate how well the midwife performs.

After observing/performing write a rating: s = satisfactory
ni = needs improvement

Add any comments in the comments section below.

Date Date Date Date

	Date	Date	Date	Date
When you give fluids in the rectum:				
1. Gather the equipment				
2. Tell the woman what you are going to do				
3. Wash your hands				
4. Ask woman to lie on her left side				
5. Lubricate end of tubing with water				
6. Put on clean gloves				
7. Run water to the end of the tube and clamp off				
8. Ask the woman to take a deep breath				
9. Push the rectal tube about 10 cm in the rectum				

Comments:

Date Date Date Date

10. Hold the enema can just high enough so the water runs in. Run 600 ml of water very slowly				
11. Remove the rectal tube				
12. Help the woman breathe and relax				
13. Remove your gloves				
14. Clean and dry the woman				
15. Clean up the equipment				
16. Wash your hands				
17. Record the fluid intake				

Comments:

	Date	Date	Date	Date
12. With the fluid running, push needle into peritoneal cavity.				
13. Tape needle to abdomen so it does not move				
14. Run 600 ml fluid into peritoneal cavity.				
15. Remove needle after fluid has run in				
16. Cover puncture site				
17. Help the woman get comfortable				
18. Clean up the equipment				
19. Remember only give when woman is not pregnant				
20. Clean and sterile procedure important to prevent peritonitis				
21. Repeat procedure in 4 hours if still in shock, unable to transfer, or unable to take ORS.				
22. Transfer as soon as possible				

Comments:

Skills Checklist - Preparation and Giving of Oral Solutions

This checklist has two purposes:

1. The midwife should use it as a guide for checking her own skills.
2. The supervisors should use it when they evaluate how well the midwife performs.

After observing/performing write a rating: s = satisfactory
ni = needs improvement

Add any comments in the comments section below.

	Date	Date	Date	Date
When you give fluids by mouth:				
1. Gather the equipment				
2. Tell the woman what you are going to do				
3. Wash your hands				
4. Wash the containers, cup and spoon				
5. Help the woman to get comfortable				
6. Review the recipe				
7. Measure the drinking water				
8. Pour into a clean mixing container				
9. Add the ORS sachet or the 8 teaspoons of sugar and 1 teaspoon of salt				
10. Mix well with a spoon				

Comments:

Date Date Date Date

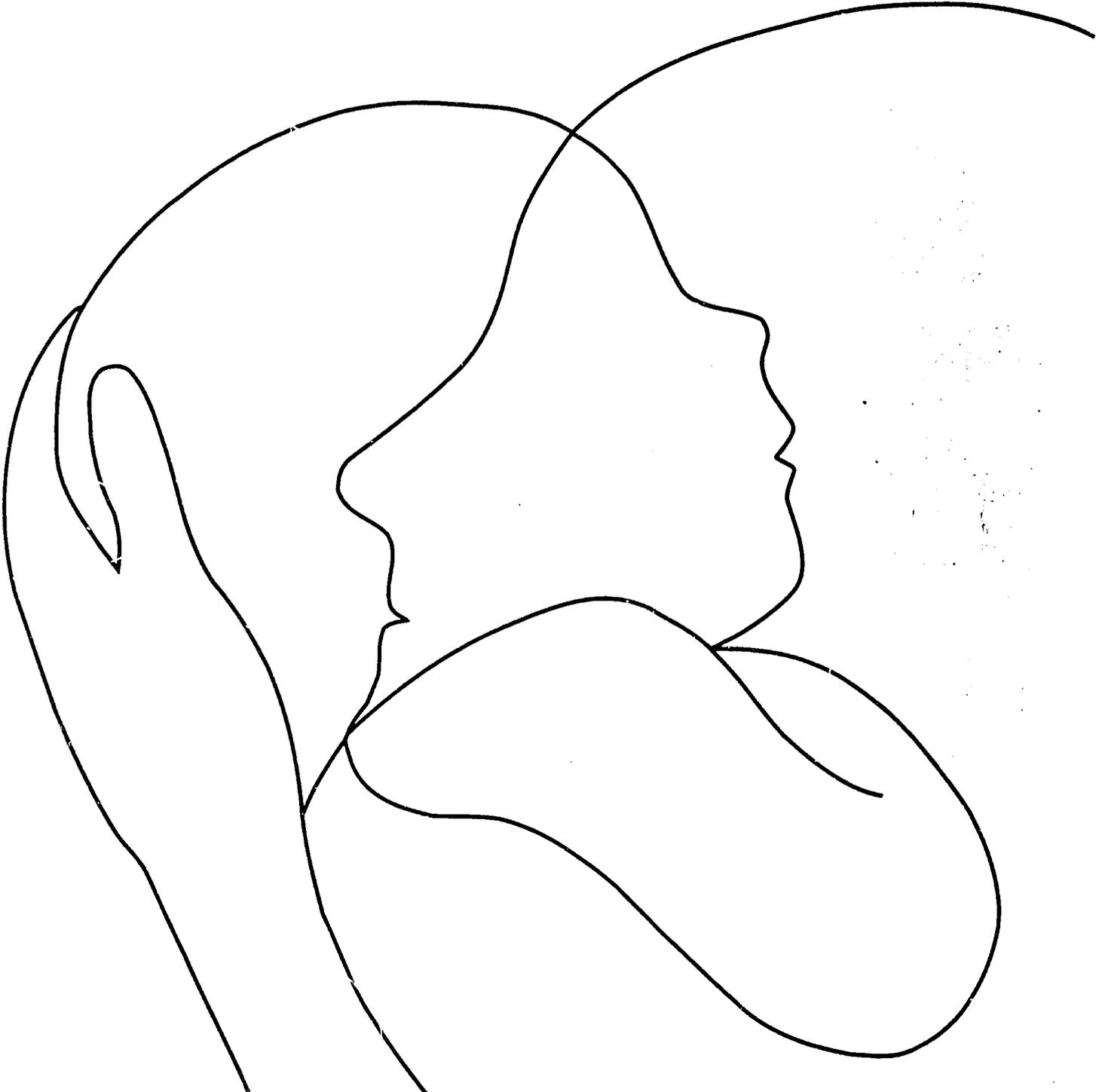
11. Taste the mixture. Remember the mixture should not taste saltier than tears.				
12. Give to the woman to drink, at least 2000 cc (2 liters) in one day.				
13. Help the woman to take other fluids or more rehydration solution than 2 liters as she wants in a day.				
14. Give to the woman to drink, if she is thirsty while she is getting intravenous infusion.				
15. Throw away any unused solution remaining from the day before.				
16. Mix fresh solution every day				
17. Clean up the equipment				
18. Teach the woman and family how to make the rehydration solutions				
19. Teach the woman and family to use locally available fluids to prevent dehydration.				

Comments:

References

- Gomez, G. E & Hord, E. V. (1988). Fundamentals of clinical nursing skills. John Riley & Sons, New York. 234.
- King, M. (1966). Medical care in developing countries. Oxford University Press, London. 15:4-16.
- Manual for Health Centres (1986). Clinical reference. Ministry of Health, Maseru. 342.
- Manual for Health Workers in CCCD (1985). Target disease control of diarrhoeal disease. Ministry of Health, Maseru. 42.
- Midlevel Health Workers Training Modules (1983). Formulary, diagnostic and patient care. MEDEX Health Manpower Development Staff, Honolulu. 74,78.
- Midlevel Health Workers Training Modules (1983). Patient care procedures. MEDEX Health Manpower Development Staff, Honolulu. 59.
- Myles, M. F. (1981). Textbook for midwives. Churchill Livingstone, Edinburgh. 431, 640.
- Nurses Reference Library (1983). Procedures. Intermed Communications, Inc., Pennsylvania. 6,249.

Module 9:
VACUUM EXTRACTION



Module Contents

VACUUM EXTRACTION

	Page
Overview	1
Goal	2
Objectives	2
Common Medical Terms	2
Introduction	3
Skill - Using a Vacuum Extractor	8
Equipment	8
Procedure	8
Learning Aids	13
1. Metal Cup Extractor (Malmstrom)	13
2. Pump Gauges and Measures	14
3. Cleaning and Care of the Vacuum Extractor	15
Review Questions	16
Skills Checklist	18
References	21

VACUUM EXTRACTION

Overview

A midwife must know how to identify and manage delivery of women with problem presentations. It is important to identify a problem and help the woman get to a doctor as soon as possible. Prevention of the problem is the **BEST** management there is to help the woman. When you see a woman during antenatal clinic or labor, you will be able to find the problems and refer her to a doctor.

Once in a while, a woman without any antenatal care may come to you in active labor. She may even have been in labor for a while at home. When you take the history (**ASK** and **LISTEN**) and examine the woman (**LOOK** and **FEEL**), you **IDENTIFY** a problem. Review identification of abnormal presentations in your midwifery textbook. **Look at Learning Aid - Abnormal presentations and positions** in the **Symphiotomy** module which mean a woman must deliver at the hospital.

As you wait for transportation and on the way continue to help the woman. Make sure to explain everything happening to the woman and to her family. Encourage the woman and tell her that you are trying to help her. Refer to the module on **Hydration and Rehydration**.

Remember that if the woman has been in labor for a while before coming to the maternity, the presenting part may be impacted (stuck). The presenting part may have been forced down into the pelvic brim. The membranes may be ruptured. The uterus either gets exhausted and contractions stop, or the uterus may go into a tonic (continuous) contraction. Fetal heart tones may be weak or gone and the mother in a state of shock. The outcome without **fast and skilled management** will usually be rupture of the uterus and a stillbirth infant. Internal or external version is dangerous and may rupture the uterus. A symphiotomy or vacuum extraction may be the solution to the emergency. Action must be taken quickly!

If you can not do the emergency procedure safely, try to stop the contractions and make the woman as comfortable as possible. An intramuscular analgesic (such as Pethidine, Demerol or whatever is available) and a relaxant (such as Phenergan) will help the contractions stop. Always start an intravenous infusion. Give a broad spectrum antibiotic (See the module on **Prevention and Treatment of Sepsis**). Helping to get the woman to a doctor quickly is **very important**.

Prevention

With antenatal care and skilled supervision during labor, abnormal presentations should never be a problem for the midwife. The midwife must always remember that abnormal presentations and positions during labor is a **dangerous emergency**. Refer to the doctor right away.

VACUUM EXTRACTION

Goal

This module will help the midwife learn how to use a suction cup applied to the scalp of a baby to assist in the delivery of the baby from the mother.

Objectives

The midwife caring for a mother during delivery should be able to:

1. List and recognize indications for using the vacuum extractor
2. Describe how to prepare the vacuum extractor for use
3. Explain to the mother and others the need for vacuum extraction
4. Explain situations in which vacuum extractions are not to be used
5. Describe dangers to mother and baby when using the vacuum extractor
6. Explain the procedure for performing vacuum extraction
7. Use the vacuum extractor to help a mother deliver her baby
8. Demonstrate how to clean and care for the vacuum extractor.

Common Medical Terms

Caput Succedaneum - a swelling on the fetal skull, serum and blood infiltrate into the scalp tissue.

Cephalhematoma - (subperiosteal hemorrhage) a swelling on the fetal skull, the periosteum tears from the bone causing the bleeding.

Periosteum - a membrane covering a bone.

Subperiosteal hemorrhage - see cephalhematoma

Vacuum - suction

Introduction

The vacuum extractor assists the mother, in her efforts to deliver her term, vertex baby vaginally. A vacuum inside the vacuum extractor cup pulls against the skin of the baby's head and attaches to the baby's scalp.

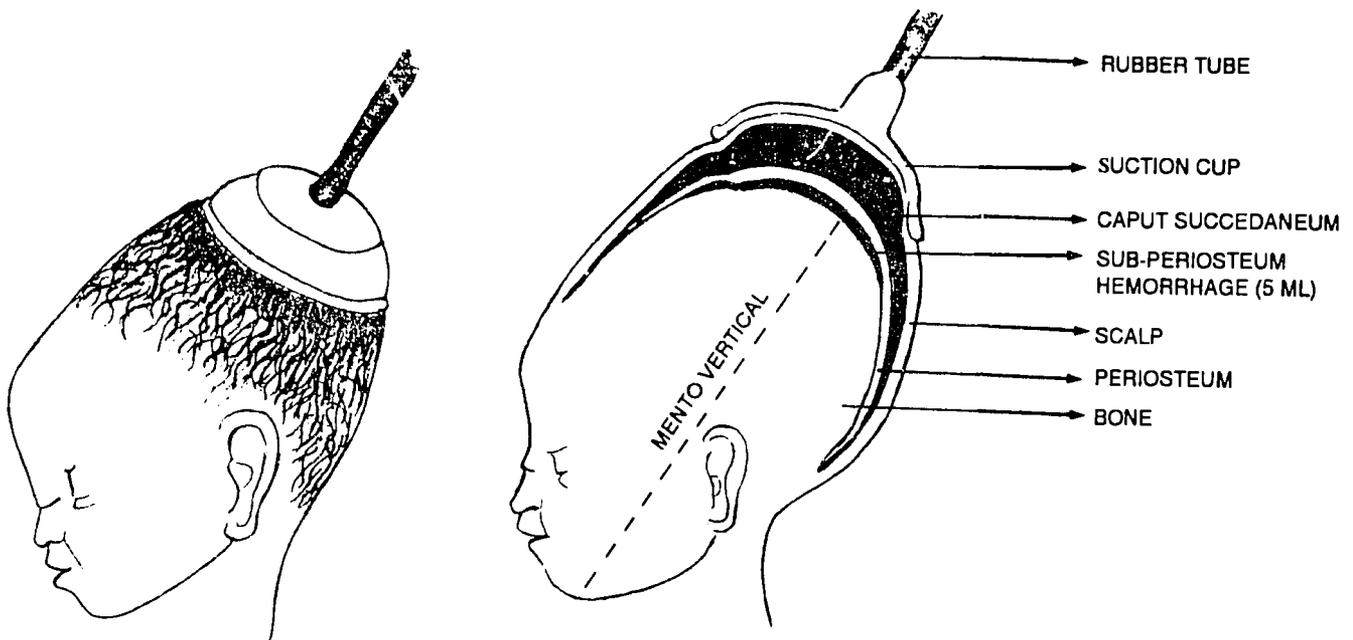


Figure 1. Effect of vacuum extractor cup

In 1706, James Yonge M.D. attempted a delivery with a type of vacuum extractor. Many doctors continued the search for a vacuum extractor to deliver babies. Tage Malmstrom, M.D. introduced the metal cup extractor in 1953. The vacuum extractor is used in Europe and other areas of the world as a safer method to assist delivery than forceps. The later development of the soft plastic cup extractor offered another choice of the delivery instrument.

Types of Vacuum Extractors

Metal Cup Extractor (Malmstrom)

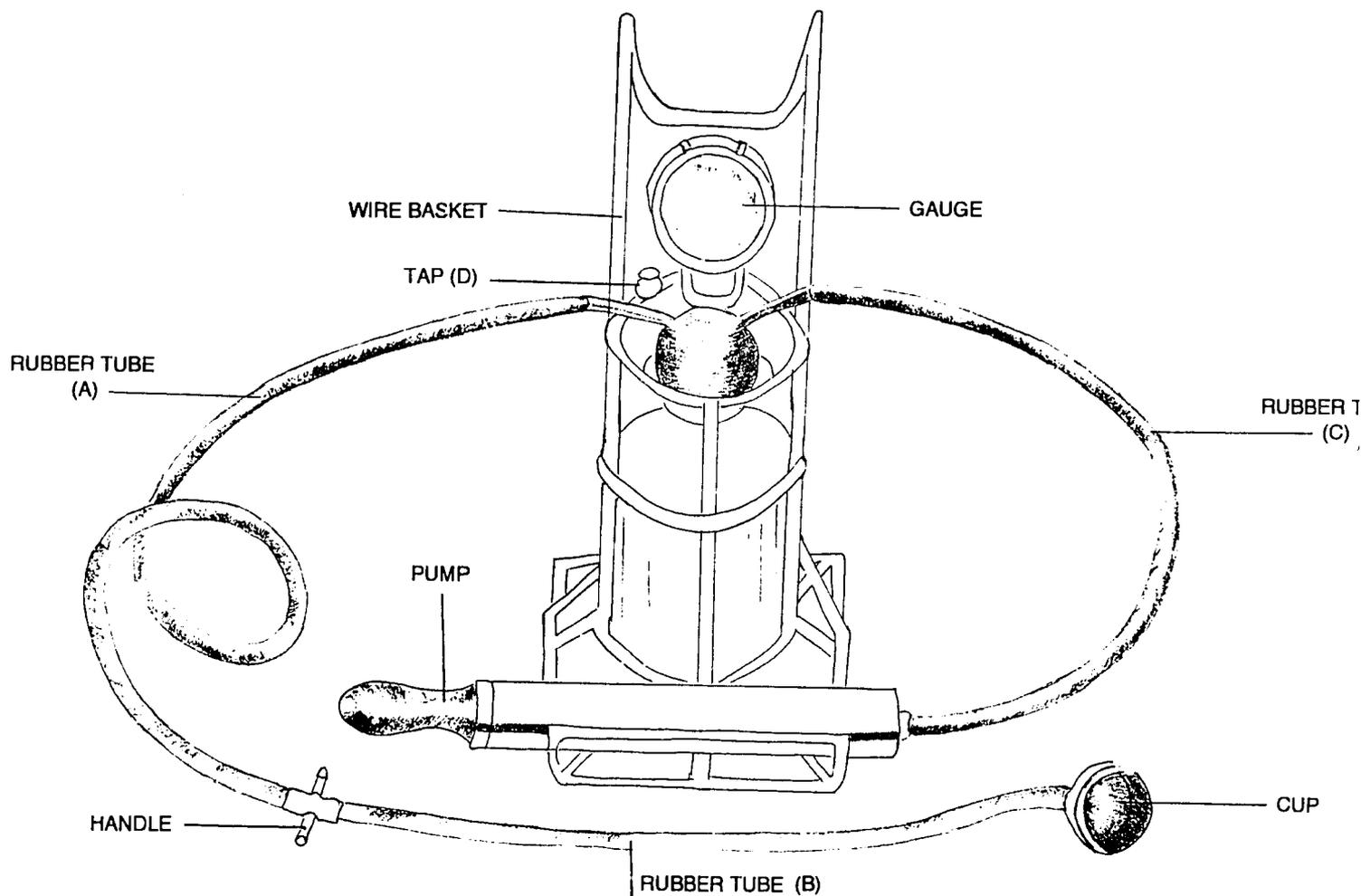


Figure 2. The Malmstrom Vacuum Extractor

The metal cup extractor includes a rubber tubing (B) containing a metal chain that ends in a handle connected to the cup. The rubber tubing (A) goes through the handle and into a glass container which is fitted with a pressure gauge. A hand pump that takes out air and makes the vacuum is attached to a short piece of rubber tubing (C) and the glass container. A wire basket supports and protects the vacuum bottle. The pump (hand or electric) pulls air from the glass bottle creating a vacuum. Loosen the tap (D) to reduce the vacuum pressure. Use the handle to pull with the contraction. Look at the Learning Aids for more about the metal cup extractor.

Soft Cup Extractors (Mityvac, Silastic, CMI)

The soft cup extractors include a rubber vacuum tubing (B) connecting the cup to the mucus trap. The rubber vacuum tubing (A) connects the mucus trap to the pump. Squeeze the pump handles together to create a vacuum. To reduce vacuum pressure, pull the vacuum release trigger (D) toward you and hold until you get the pressure you need. Use the traction handle to pull with the contraction(E).

The Silastic cup, which can be fitted to various pumps, is slightly longer and wider than the Mityvac extractor cup.

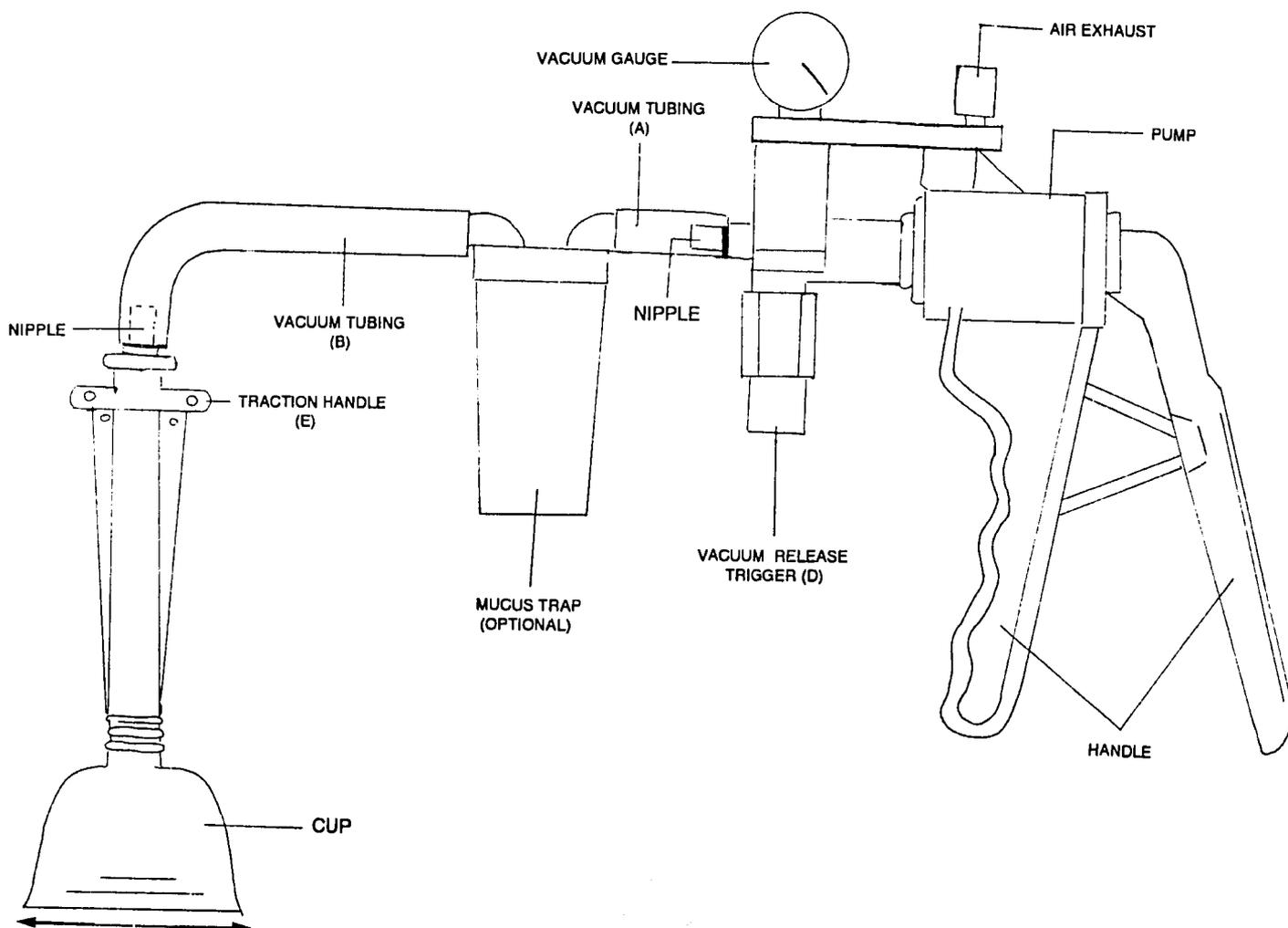


Figure 3. The Mityvac Vacuum

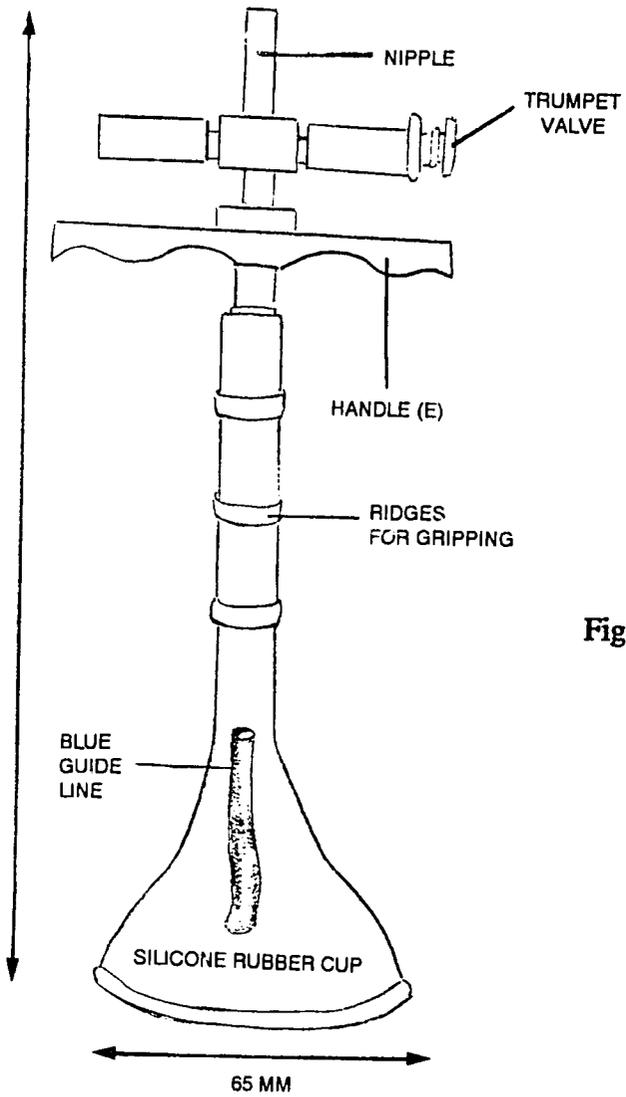


Figure 4. The Silastic Obstetrical Vacuum Cup

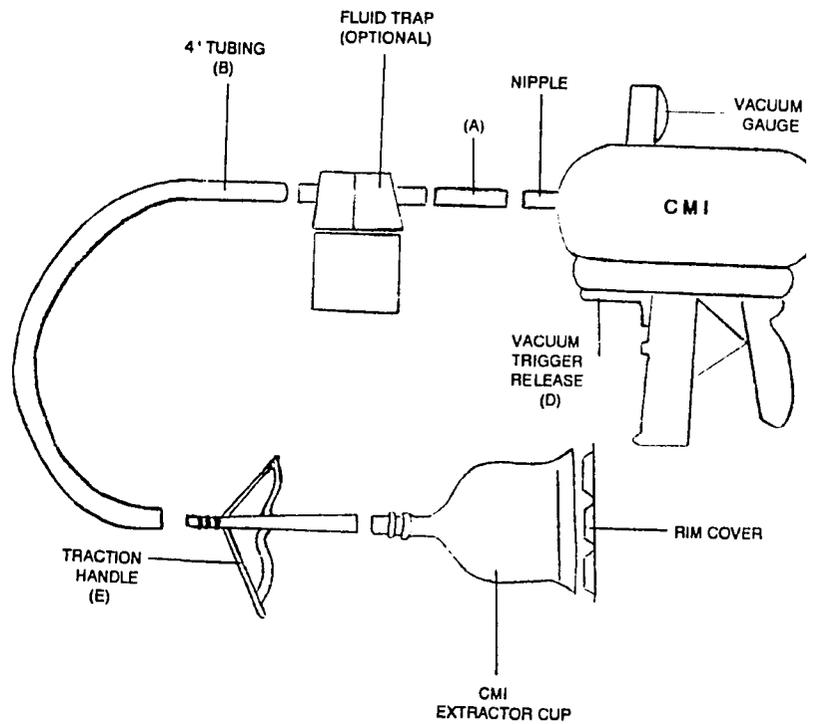


Figure 5. CMI Vacuum Pump

Indications and Conditions for Use of Vacuum Extractor

1. The head can not be felt, through the abdominal palpation. On vaginal examination, the largest presenting skull diameter is below the level of the ischial spines and the cervix is fully dilated. The head is distending the perineum. The mother is exhausted and the urge to push has slowed or stopped.
2. Delay in second stage. This means longer than 30 minutes in the primigravida and 20 minutes in the multigravida. The anterior shoulder can be palpated just above the symphysis pubis when you palpate the abdomen. On vaginal examination, the head (not only caput), has passed the ischial spines and is distending the perineum. The head may be in a transverse arrest, persistent occipito-posterior position or the baby may be in trouble. (See the section on **Infant Resuscitation** in the module on **Resuscitation**)
3. Help the mother deliver the baby if she has a heart problem, hypertension, asthma, malnutrition or tuberculosis.
4. The fetus is experiencing distress; but the baby is alive or newly dead (not mascerated).

Contraindications for Use of Vacuum Extractor

Do not try a vacuum extraction if any one of the following is present:

1. Cephalopelvic disproportion/fetal pelvic disproportion (large infant)
2. All non-vertex presentations
3. Delivery requiring unusual amounts of traction or rotational forceps
4. Incomplete cervical dilation
5. Gestational age less than 37 weeks
6. Unengaged presenting part
7. Disengagement of the vacuum extractor (the cup pops off) three times
8. Failure of efforts after 30 minutes or 15 contractions, whichever comes first
9. Failure of efforts after 10 minutes (total) at maximum vacuum setting

Skill: Using a Vacuum Extractor

The midwife should use the vacuum extractor on 5 to 8 normal deliveries to get experience. The midwife should choose primiparas at the end of first stage when the cervix is fully dilated and the baby begins descend through the pelvis. This will help the midwife practice the vacuum extraction procedure before attempting more difficult deliveries.

Equipment

Delivery set up
Vacuum Extractor

Procedure

1. Evaluate the woman abdominally and vaginally, to make sure the following **conditions are present for a vacuum extraction**.
 - Term (full size) baby
 - Full dilatation and effacement of the cervix (anterior lip may be an exception)
 - Engaged vertex presentation
 - Ruptured membranes
 - No cephalopelvic disproportion
 - Infant is alive or fresh stillborn (if the infant is macerated the vacuum will not work well).
2. Explain to the mother what you are going to do.
3. Prepare equipment. In addition to routine delivery supplies add vacuum extractor. Connect pump tubing, mucus trap and cup. Test vacuum on the palm of your hand by squeezing the pump handle to start the vacuum. Hold the cup on your hand. You will feel the suction on your hand. Release the pressure.
4. The mother should lie on her back with her legs bent. If a split delivery bed is not available, help the woman to put her buttocks at the edge of the bed/table. Her feet should be supported by assistants on the backs of chairs.
5. If she is not able to urinate, catheterize to make sure that a full bladder is not delaying second stage.
6. A vaginal examination should be done to determine the baby's position and presentation. Find the posterior fontanelle. You place the cup on a well flexed head. If the head is not well flexed, apply the cup anyway. With correct direction of pull, the head will flex.
7. Wipe the baby's scalp clean with dry gauze.

8. Apply the cup

- Insert extractor cup gently into the vagina.
- Hold the cup with your fingers.
- Separate the labia with the fingers of your other hand.
- Remember the position of the posterior fontanelle, press the cup downward and inward into the vagina until the cup touches the scalp.
- Pass a finger gently around the edge of the cup to be sure no maternal tissue has been caught under the cup.

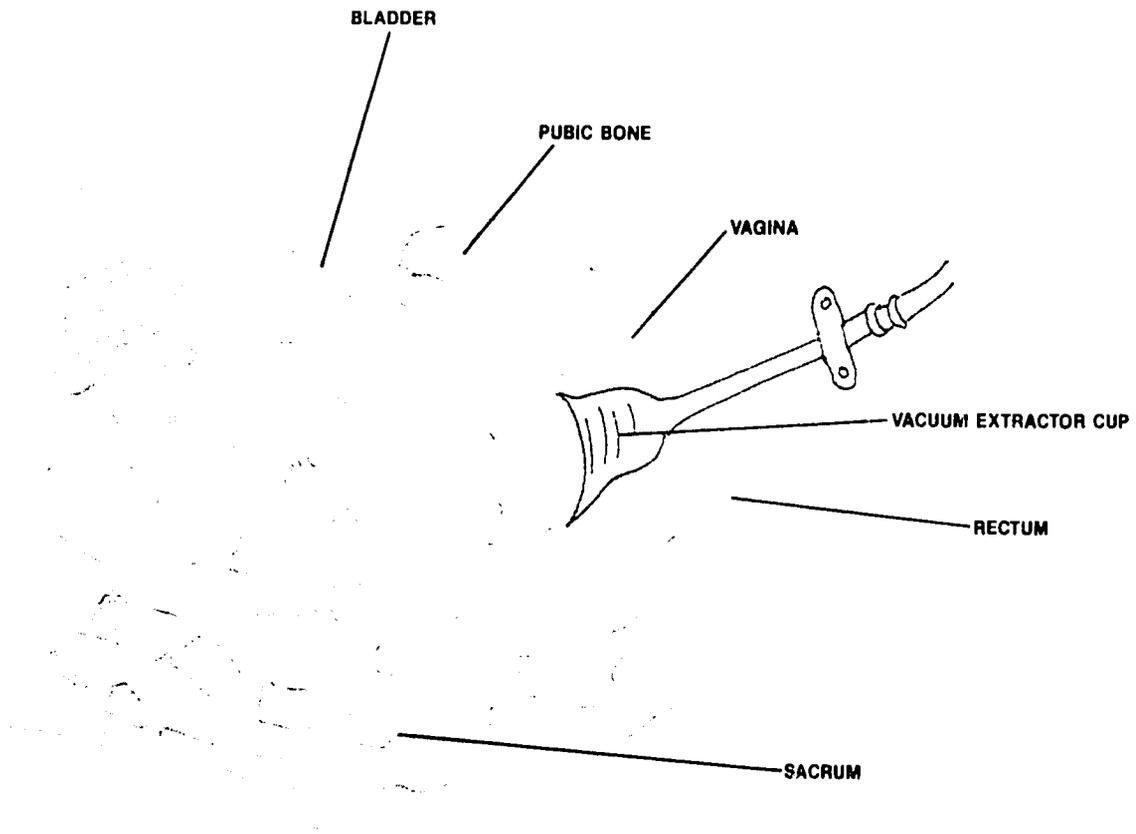


Figure 6. Apply the cup

9. Raise the pressure

- Squeeze the pump handle to raise the pressure to 100 mm Hg. (millimeters of mercury) or 5 inches Hg.
- Recheck to make sure no maternal tissue has been drawn under the edge of the cup for this will cause the cup to pull off and will damage the mother's tissues.
- Wait for the next contraction.
- As the next contraction begins, raise the vacuum pressure to 400 mm Hg. (15 inches Hg.) The maximum pressure of 600 mm Hg. (22 inches of Hg.) should never be exceeded.

Note: If you have a metal cup vacuum extractor, look at the Learning Aid number 1. This will tell you how to raise the pressure when using a metal cup vacuum extractor.

10. Bring the fetal head down

With a contraction:

- encourage the mother to push long and steady.
- At the same time, the midwife will pull on the handle firmly and straight. Do not twist and turn the cup or the handle for this will cause the cup to pop off. The baby's scalp can be injured (bruising, bleeding, swelling) when the cup pops off.
- The baby's head will rotate at the speed and direction just like a normal delivery.

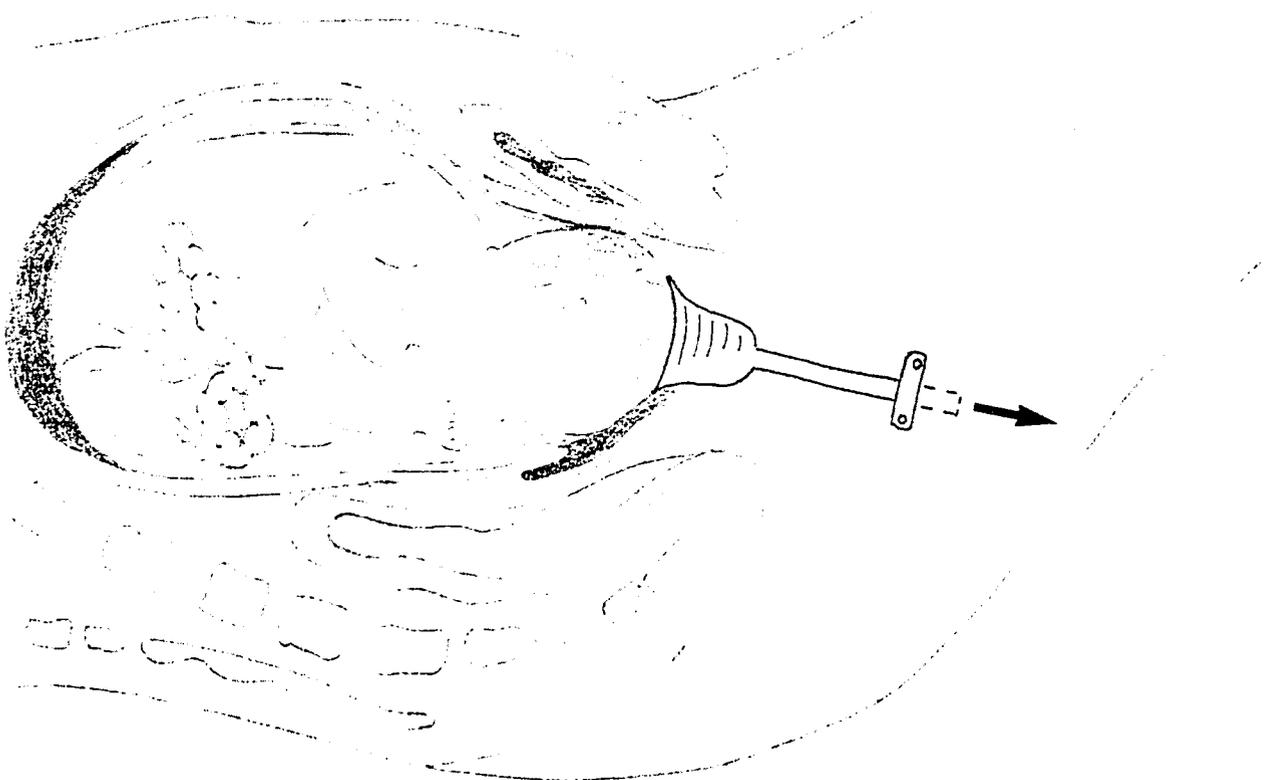


Figure 7. Correct direction of pull before the vertex clears the symphysis pubis

clears the symphysis pubis

When a contraction stops:

- reduce the pressure to 100 mm Hg.
- **Do not pull.**
- Encourage the mother to breathe deeply and relax.
- Have assistant take FHT and mother's BP between contractions.

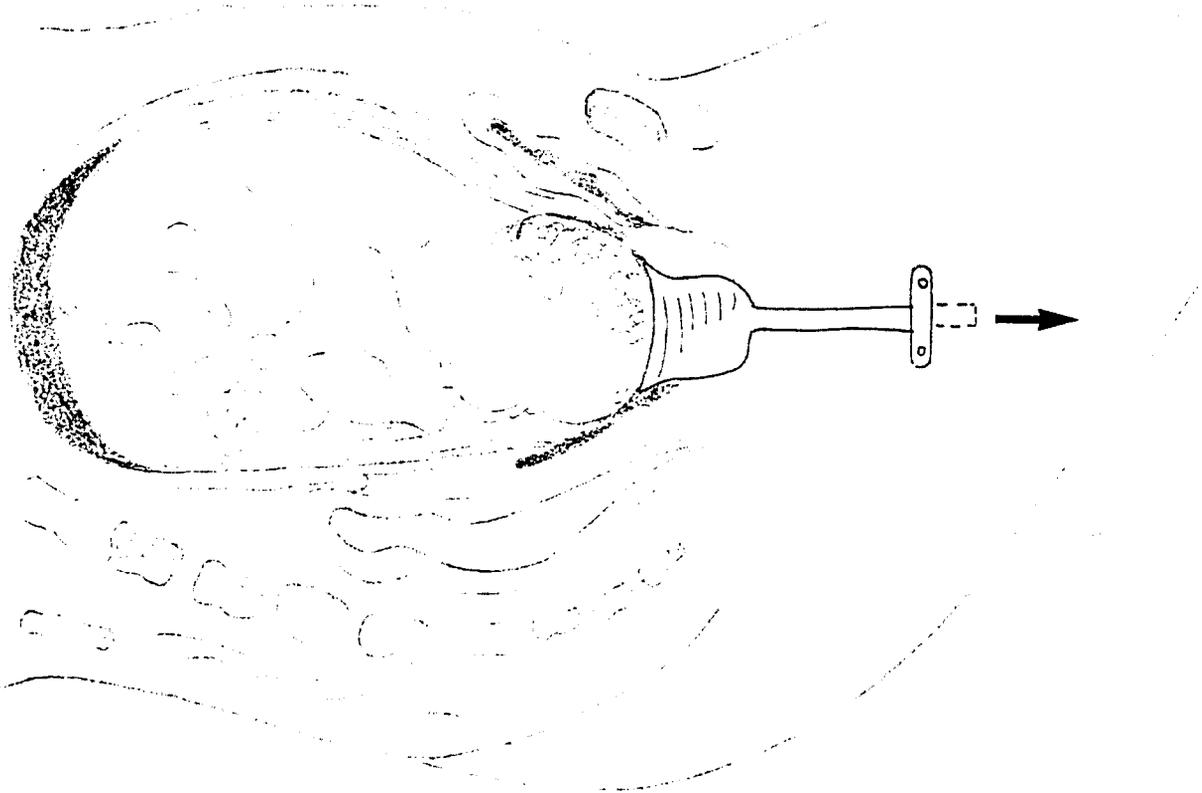


Figure 8. Correct direction to pull when the vertex clears the symphysis pubis

11. Repeat step 10 until the head begins to crown. Usually 2 or 3 times is sufficient. With each contraction, the head should progress over the perineum. Do not allow pressure to remain at maximum levels (600 mm Hg) for more than 10 total minutes. Excessive pressure can cause fetal hemorrhage into the skull or serious scalp damage. See Sub-periosteal hemorrhage shown in Figure 1.
12. Deliver the baby
 - In the primipara, an episiotomy to decrease resistance of the perineum may be necessary before the baby's head has crowned. Review the module on **Episiotomies and Repair of Lacerations**.
 - When the head begins to crown, during another contraction, with the pressure at 600 mm Hg, pull upward, **Figure 9**.

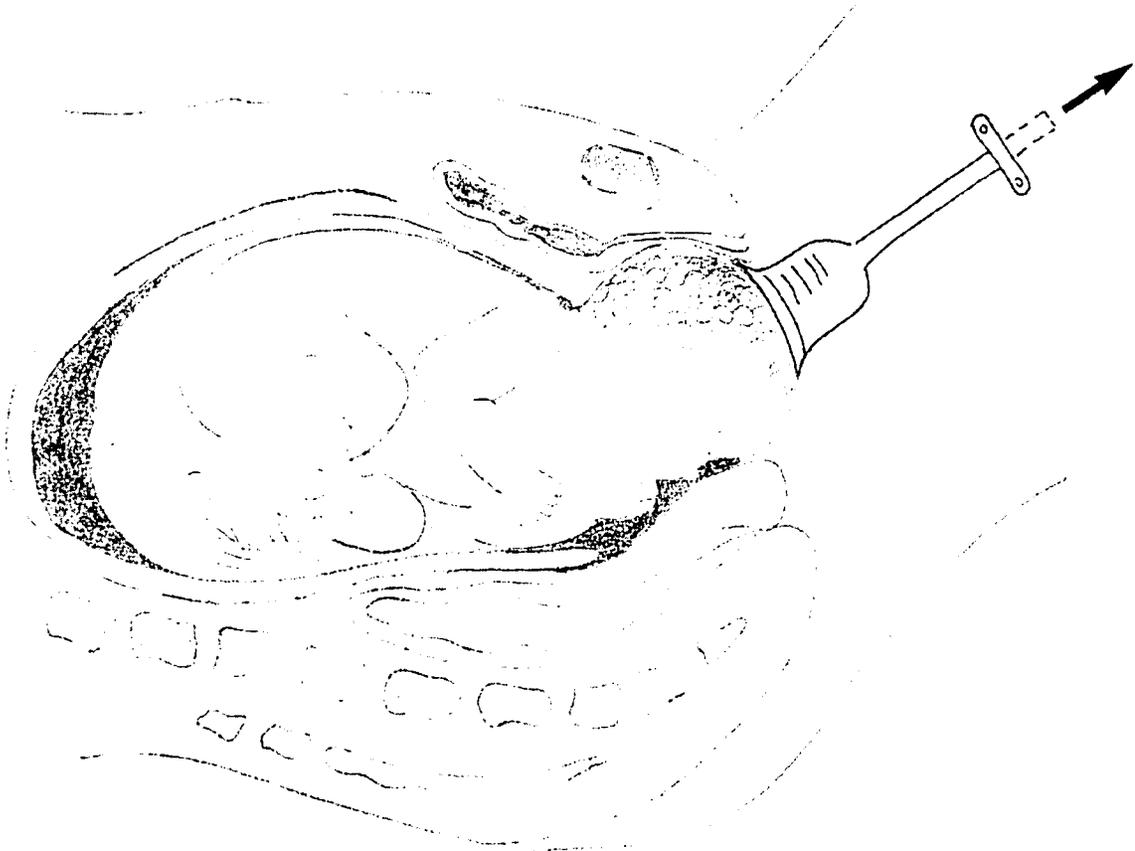


Figure 9. Pull upward as the head crowns

- After the head has delivered, release the pressure and continue with the delivery.

A vacuum extractor in capable hands is much safer for both the mother and child than a long delay in the delivery and/or a long journey to hospital.

Learning Aid 1 - Metal Cup Extractor (Malmstrom)

The Malmstrom Vacuum extractor is used with continuous pressure in the cup. The plastic cup extractors use intermittent pressure. The procedure described here is for use **only** with the Malmstrom type of extractor.

Procedure

- Close pressure release valve.
- Ask your assistant to pump the pressure, watching the gauge.
- Raise the pressure to 200 mm Hg.
- Recheck to make sure no maternal tissue has been caught under the cup.
- After 2 minutes, raise the pressure to 300 mm Hg, increase the pressure 100 mm Hg, every 2 minutes until the pressure reaches 600 mm Hg. Recheck to make sure no maternal tissue has been caught under the cup. At this time the scalp is sucked into the cup and a caput succedaneum is produced. If the pressure is increased too quickly with the metal cup, the suction will be poor and the cup will pull off.
- **Maximum pressure of 600 mm Hg should never be exceeded.**
- Bring the fetal head down with a contraction as the mother pushes long and steady. Pull on the handle firmly and straight. Do not twist or turn the cup or handle for this will cause the cup to pop off. **Look** at the illustrations in the text that show the correct direction of pull with a contraction.
- When a contraction stops, do not pull, however, continue the pressure at 600 mm Hg.
- Encourage the mother to breathe deeply and relax.
- Have assistant take the fetal heart tones and the mother's blood pressure between contractions.
- Repeat the pulling with contractions until the head begins to crown. **Do not allow pressure to remain at maximum levels (600 mm Hg) for more than 10 total minutes.**
- Deliver the baby

Study the entire skill of Vacuum Extraction to learn all of the life saving procedure.

Learning Aid 2 - Pump Gauges and Measures

Some pump gauges will show the safe pressure zones with colors. Red means the pressure is too high and is dangerous - **Not Safe**. On this chart the **Maximum pressure line** is marked to remind you that this is the highest pressure you can use with a vacuum extractor

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

VACUUM CONVERSION TABLE				
mm Hg	inches Hg	lb/in squared	kg/cm squared	
760	29.9	14.7	1.03	
700	27.6	13.5	0.95	
600	23.6	11.6	0.82	MAXIMUM PRESSURE LINE
500	19.7	9.7	0.68	
400	15.7	7.7	0.54	
300	11.8	5.8	0.41	
200	7.9	3.9	0.27	
100	3.9	1.9	0.13	

Learning Aid 3 - Cleaning and Care of the Vacuum Extractor

- The vacuum extractor is a delicate instrument. Handle with care. Avoid dropping on hard surfaces. Store the vacuum extractor in a clean, dry and covered area.
- After finishing a delivery using the vacuum extractor, clean it so that you are ready for the next time. Wipe all of the pump, tubes and dial with a clean, soft, damp cloth.
- If fluids go into the pump during a delivery, you must clean the fluids out.
- **Do not allow fluids or water to dry inside the pump.** This may stop your pump from working.
- If you are using a reusable cup, wash the cup with soap and water. Rinse very well and dry completely.
- If you are using a reusable cup, soak the cup and tubing in antiseptic solution (such as Dettol, Savlon, Germicide, or other) for 20 minutes before using for a delivery.

3. Describe how to set up the vacuum extractor. (pages 4 - 6 and 8)

4. Describe the vacuum extractor procedure for assisting a mother deliver. (pages 8 - 12)

Date Date Date Date

6. Do vaginal examination to decide position of baby				
7. Dry baby's scalp				
8. Apply the cup				
· check for maternal tissue under cup				
9. Raise the pressure				
· check for maternal tissue under cup				
· never exceed recommended maximum for your type of vacuum extractor				
10. Pull fetal head through pelvis with contraction				
use correct direction of pull depending on level of head				
· before clears symphysis pubis				
· clears symphysis pubis				
· head crowns				
11. When contraction stops				
· reduce pressure (if not using Malmstrom vacuum extractor)				
· Do not pull				
· encourage mother to relax				
· check FHT & mother's BP				
12. Repeat 10 & 11 until head crowns				

Comments:

	Date	Date	Date	Date
13. Deliver head of baby				
· release pressure				
· complete delivery				
14. Care for mother and baby				
15. Care for vacuum extractor				
· use clean, soft, damp cloth to wipe off vacuum extractor				
· if fluids in pump, clean by pumping warm water through pump. Clean pump quickly after birth so blood does not clot in pump.				
· dry pump by pumping air until equipment dry inside				
· if reuseable cup, wash with soap and water, rinse & dry				
· store assembled vacuum extractor in clean, dry and covered area.				

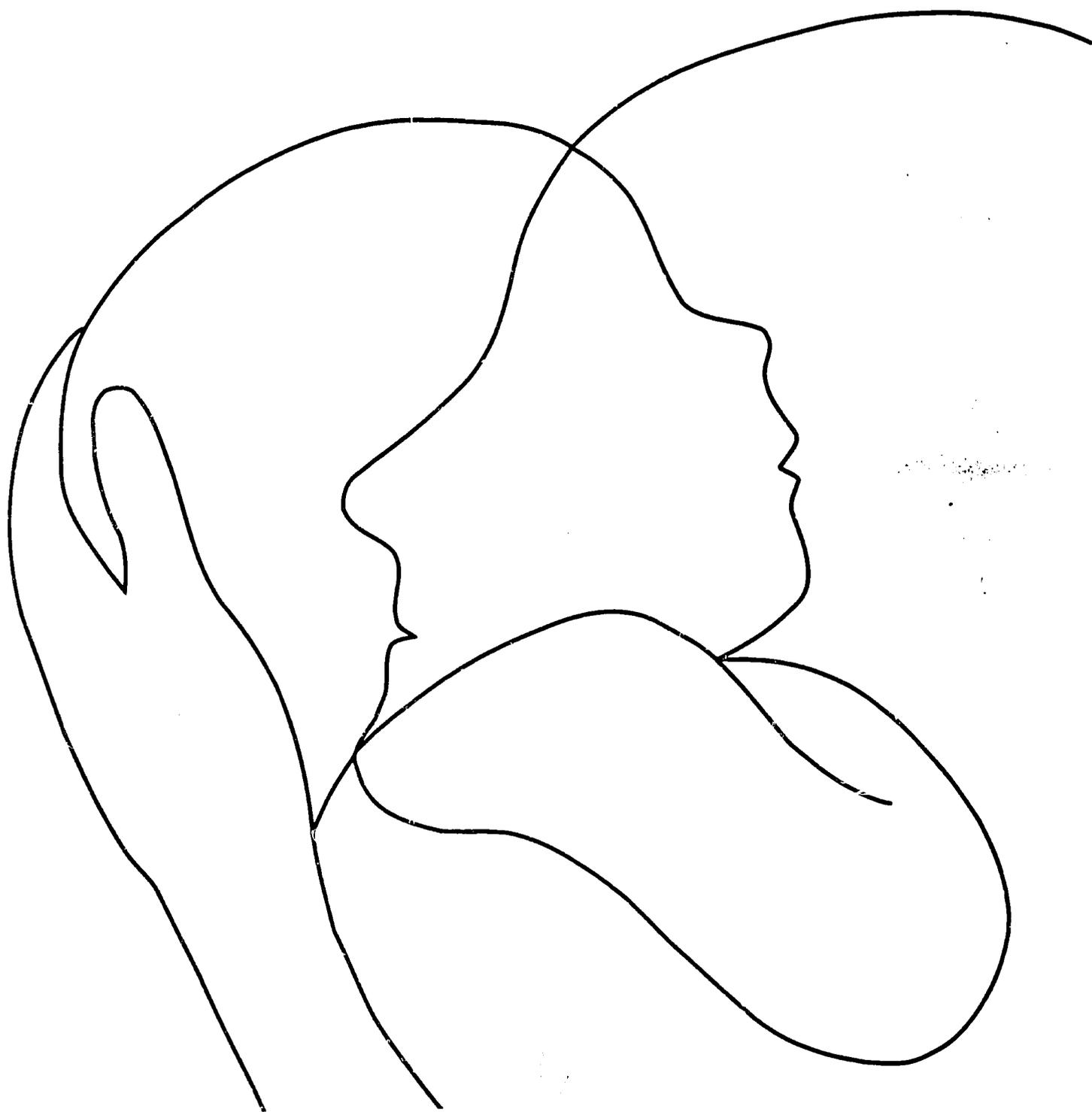
Comments:

References

Experience and the following references provided information for this module.

- CMI vacuum delivery system instruction booklet (1989). Columbia Medical and Surgical, Inc. Bend, Oregon.
- Epperly, T. D., Breiting, E. R. (1988, Sept). Vacuum extraction. American Family Physician. 38(3) 205-210.
- Malmstrom, T. & Jansson, I. (1965). Use of the vacuum extractor. Clinical OB/GYN. 8, 895-913.
- Myles, M. F. (1981). Textbook for midwives. Churchill Livingstone, Edinburgh. 35,644.
- Nurse Clinician Training Manual. (1984). MCH series. Ministry of Health, Maseru. 81.
- Philpott, R. H., Sapire K.E. & Axton J. H. M. (1978). Obstetrics, family planning and paediatrics. University of Natal Press, Pietermaritzburg. 9,104.
- Sennett, E. S., Fallis, G. B. (1983). Vacuum extraction: use in small rural hospital. Canadian Medical Association Journal. 129, 575-578.
- Witter, F. R., (1986). Soft-cup vacuum extractors safely assist normal deliveries. Contemporary OB/GYN Special Issue Technology. 109-117.

Module 10: SYMPHYSIOTOMY



Module Contents
SYMPHYSIOTOMY

	Page
Goal	1
Objectives	1
Common Medical Terms	1
Introduction	3
Skill - Symphysiotomy	6
Equipment	6
Procedure	6
Learning Aids	11
1. Sterile Technique	11
2. Sterile Supplies	13
3. Position for Symphysiotomy	14
4. Abnormal Presentations and Positions	15
5. Oxytocin Infusion, EMERGENCY USE ONLY - With Vacuum Extraction and/or Symphysiotomy	17
6. Measuring the Diagonal Conjugate	20
Review Questions	21
Skills Checklist	25
References	29

SYMPHYSIOTOMY

Goal

This module will help the midwife learn the indications and contraindications of a symphysiotomy. The midwife will learn the life saving skill of how to divide (separate) the symphysis pubis to make the pelvic opening larger.

Review the module on **Monitoring Labor Progress** before you study this module.

Objectives

The midwife caring for a mother during delivery should be able to:

1. List and recognize the indications for doing a symphysiotomy
2. Describe how to position the mother for a symphysiotomy
3. Explain to the mother and others the need for symphysiotomy
4. Explain the contraindications of a symphysiotomy
5. Describe the dangers to the mother when doing a symphysiotomy
6. Explain the procedure for symphysiotomy
7. Do a symphysiotomy to help a mother deliver her baby
8. Demonstrate postpartum care for a woman after symphysiotomy
9. Explain the uses of oxytocin
10. Demonstrate sterile technique.

Common Medical Terms

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

Adduction - Moving an arm or leg toward the body.

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

Diagonal conjugate - the internal (inside) measurement of the pelvis from the lower border (edge) of the symphysis to the promontory of the sacrum. The normal measurement is 12 - 13.3 cm (4 3/4 - 1 1/4 inches). Refer to Learning Aid 6, Measuring the Diagonal Conjugate.



Figure 1. Side views for measurement of the diagonal conjugate

Normal cephalopelvic proportion - the baby's head goes through the birth canal (pelvic opening) and the baby delivers without problem. Compare this definition to cephalopelvic disproportion.



Figure 2. Normal cephalopelvic proportion

Normal female pelvis - the side and front of the pelvis are formed by the two hip bones (innominate bones), and the back by the sacrum and the coccyx (tail bone or bottom of the spine). Look at Figure 3 to find the position and different parts of these bones.

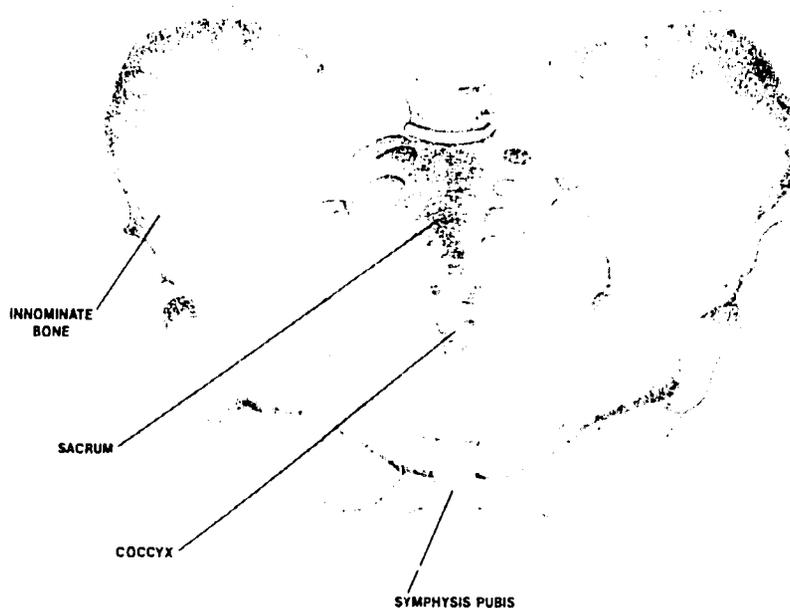


Figure 3. The bones of the pelvis and important points.

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

Symphysiotomy - the separation (dividing) of the symphysis pubis pad of cartilage with a scalpel making the pelvic opening larger.

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

Introduction

The symphysiotomy operation is important in midwifery and obstetric practice where cephalopelvic disproportion (CPD) is common.

If a symphysiotomy is done on the wrong patient at the wrong time or with poor technique, the results can seriously damage the mother and baby. **A symphysiotomy should be done only when the midwife or doctor knows the indications, contraindications and is skilled in the operation.** Side effects and complications are seen in proportion to the lack of skills and inexperience of the midwife or doctor doing the operation (R.H. Philpott).

Usually, the midwife will identify possible problems with size of the pelvis at antenatal clinic. The midwife will help the woman see a doctor. Sometimes the midwife will identify problems when woman is in labor and help the woman get to the doctor. It is important that the midwife identify problems and gets help from the doctor as soon as possible. This can not be stressed enough. It is when we delay identifying or referring a problem that the outcome is a damaged baby, a damaged mother, or even death of mother and/or baby.

There will be times when a woman in labor with CPD comes to the midwife. The baby and mother may be distressed and the midwife may need to do a symphysiotomy to save the life of the mother or baby. The neglected or mismanaged cases of women in labor at home may cause damage to the mother and baby. **The midwife must try to avoid this impossible situation by getting all women to come to antenatal clinic.** The midwife must teach the importance of coming to the maternity when having trouble during pregnancy, labor and delivery.

Early Identification of Cephalopelvic Disproportion

Cephalopelvic disproportion (CPD) is a common problem in African women because of contracted pelvis (Philpott). It is important to **screen women before labor** and send those with possible CPD to doctor. Maternity is not a safe place to do a trial labor in case surgery is needed.

During antenatal clinic or the first time you see a pregnant woman, **ASK and LISTEN, LOOK and FEEL** for the following. If any of the following are identified, help her to the doctor.

Primigravida

- Height below normal for your ethnic group
- Diagonal conjugate less than 12 cm (4 3/4 inches)

Multipara

- History of stillbirth or neonatal death
- History of Caesarian Section, Vacuum Extraction, Symphysiotomy.

What happens when you do a symphysiotomy?

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

There is a permanent enlargement of pelvic size. Healing at the joint is by fibrous (stretchy) tissue. This tissue relaxes (softens or stretches) to let the baby deliver in later deliveries. Outcome of 22 deliveries in women with previous symphysiotomy, 167 (73%) spontaneous vertex delivery, 3 (14%) episiotomy, 25 (11%) Caesarian Section, 5 (2%) repeat symphysiotomy. (Van Roosmalen)

Indications

Symphysiotomy is mainly done to overcome borderline cephalopelvic disproportion (CPD) with a primigravid labor, vertex presentation and a live fetus. The major problem is to assess (decide) borderline CPD accurately. See **Monitoring Labor Progress, Descent of the Fetal Head**.

Borderline CPD will usually present as delay late in the first stage or during the second stage of labor. It is very important for midwives to be skilled in the identification of CPD. Referral to a doctor is the preferred management of CPD in all patients to prevent rupture of the uterus, maternal or fetal death.

The degree of CPD will be seen in the descent (level) of the fetal head, degree (amount) of molding and cervical dilatation. Remember that increased molding, a change in fetal heart rate or the presence of meconium are serious signs of fetal distress. The skilled midwife should realize that a symphysiotomy is not the answer to delay in labor due to inefficient uterine action (contractions) in the absence of CPD, nor can it be used to overcome severe CPD.

While monitoring labor progress, the following signs will tell you if there is a CPD problem which **may** be relieved by a symphysiotomy:

1. The fetal head is engaged. Three-fifths or less of the fetal head can be felt abdominally.
2. The degree of overlap (molding) of the fetal head will be mild (+) to moderate (++). **Severe molding (+++) is a sign of serious fetal distress.** Referral to the doctor must be **right away** to prevent rupture of the uterus, maternal or fetal death.
3. The cervix falls loosely over the head (7 or more cms), but the head can not descend to fully dilate the cervix.
4. The uterine contractions must be regular and efficient.

Symphysiotomy is only done to overcome borderline CPD.

Contraindications

Symphysiotomy is **not used**:

1. On obese (heavy) women. The weight of the thighs might pull the symphysis pubis too far apart.
2. In women who have had a previous cesarean section. The release (loosening) of the symphysis pubis might cause too much pressure on the uterine scar.
3. To overcome delay in labor due to inefficient uterine contractions.
4. When the estimated weight of the baby is less than 2.7 kg or more than 3.6 kg. The large baby may pull the symphysis pubis too far apart and healing will not take place. The small baby must have some other problem for it is so small that CPD can not be the problem.

Skill: Symphysiotomy

A symphysiotomy is an emergency, surgical, life saving procedure when done by a skilled and experienced midwife or doctor.

A symphysiotomy is always done right before delivery. Prepare for a distressed baby. A large episiotomy is done to reduce the amount of pressure on the symphysis pubis and to protect the bladder and urethra. Refer to module on **Episiotomies and Repair of Lacerations**. A vacuum extraction may be done to help the mother deliver her baby. Bleeding and possible hemorrhage may happen, intravenous hydration is necessary. Refer to module on **Hydration and Rehydration**.

You must have two assistants to help you and two reliable persons to support the woman's legs.

Equipment

Symphysiotomy is a **sterile procedure**. See Learning Aids **Sterile Technique** and **Sterile Supplies** at the end of this module.

Sterile scalpel:

solid blade scalpel (such as Glaxo-Allenbury No. 14554) or
handle with a Number 20 blade

Sterile catheter: firm Jacques No. 6 if available or any catheter

Sterile gloves

Sterile episiotomy equipment, see module on **Episiotomies and Repair of Lacerations**

Sterile local anesthesia equipment

Sterile delivery and vacuum extraction equipment

Resuscitation equipment

good light source

soap and water

Procedure

1. Collect all of your equipment and explain to your assistants what you expect them to do. One assistant should watch the intravenous drip and monitor the woman and baby. The second assistant should be gloved to assist in the symphysiotomy. The two reliable persons should be assigned the very important responsibility of holding the woman's legs. See the Learning Aid at the end of this module for symphysiotomy positioning.
2. Explain to the mother and family what you are going to do. Make sure the woman understands the importance of her cooperation. Any uncontrolled movement during or after the incision will cause too much separation in the symphysis pubis. This can cause severe pain and a long recovery.
3. Ask the assistant to wash the lower abdomen and genital area with soap and water. Start the intravenous drip if it has not already been running.

4. Ask two reliable persons to help the woman lie on her back.
5. Scrub your hands. Put on sterile gloves.
6. FEEL the middle (fibrocartilage) of the symphysis pubis.

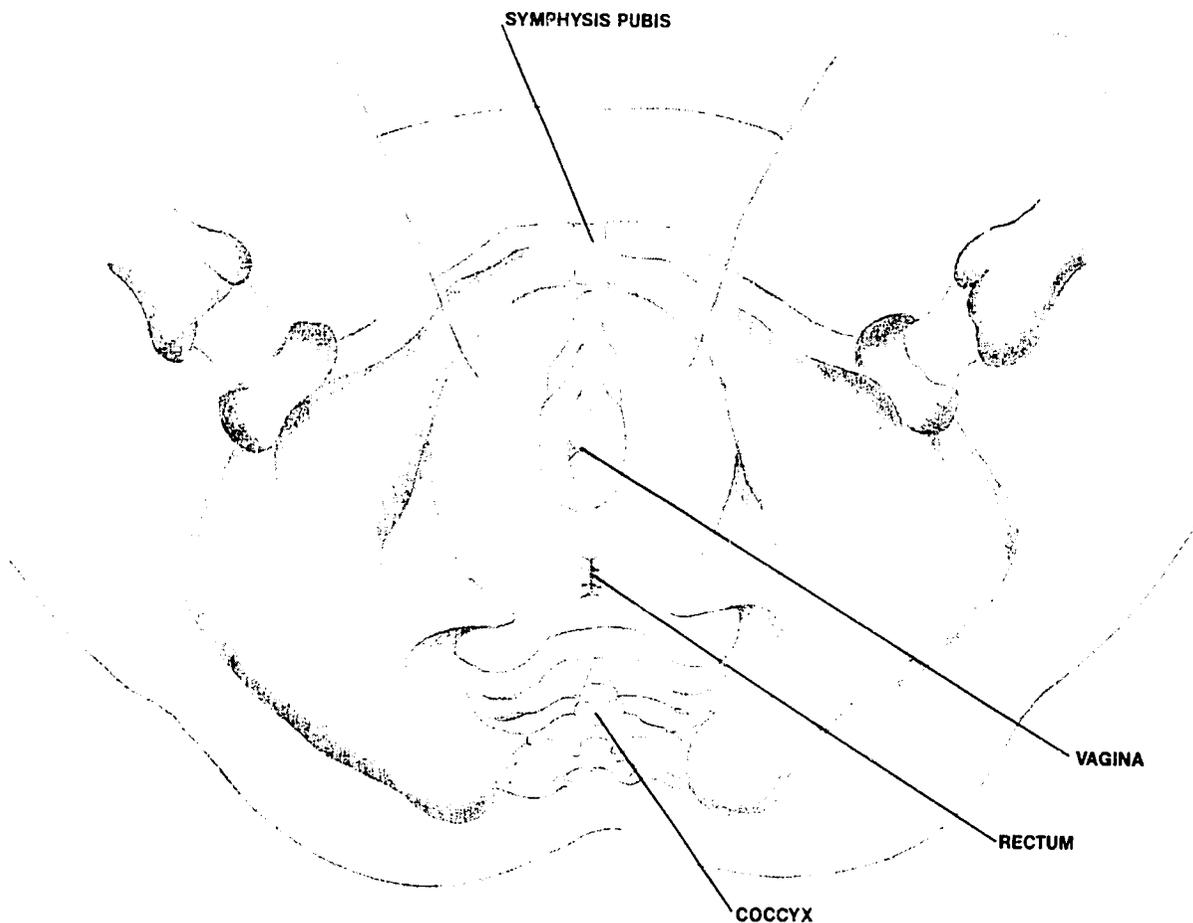


Figure 4. Symphysis pubis and related anatomy

7. Infiltrate 10 ml of 1.0% lidocaine hydrochloride over and around the symphysis pubis area using the same technique as for infiltrating the perineum.
8. Infiltrate the perineum with 10 ml of 1.0% lidocaine hydrochloride, see module on **Episiotomies and Repair of Lacerations** in preparation for cutting the episiotomy.
9. Pass a catheter into the urethra and bladder. Tape the catheter to the woman's leg to keep it from coming out.
10. Ask the two reliable persons to support the legs against their chests so that the legs are abducted (spread apart) to not more than 80 to 90 degrees. See illustration in Learning Aid - 3.

11. Check to make sure the anesthesia is working. Touch the area with a sharp needle. The woman should feel a dull (not painful) touch.
12. Insert two fingers in the vagina. Find the catheter and push the catheter to one side with your vaginal fingers. Your fingers will make sure you do not cut the urethra or the uterus. **Always feel for the knife blade with your vaginal fingers.**
13. Find the symphysis pubis with the vaginal fingers.

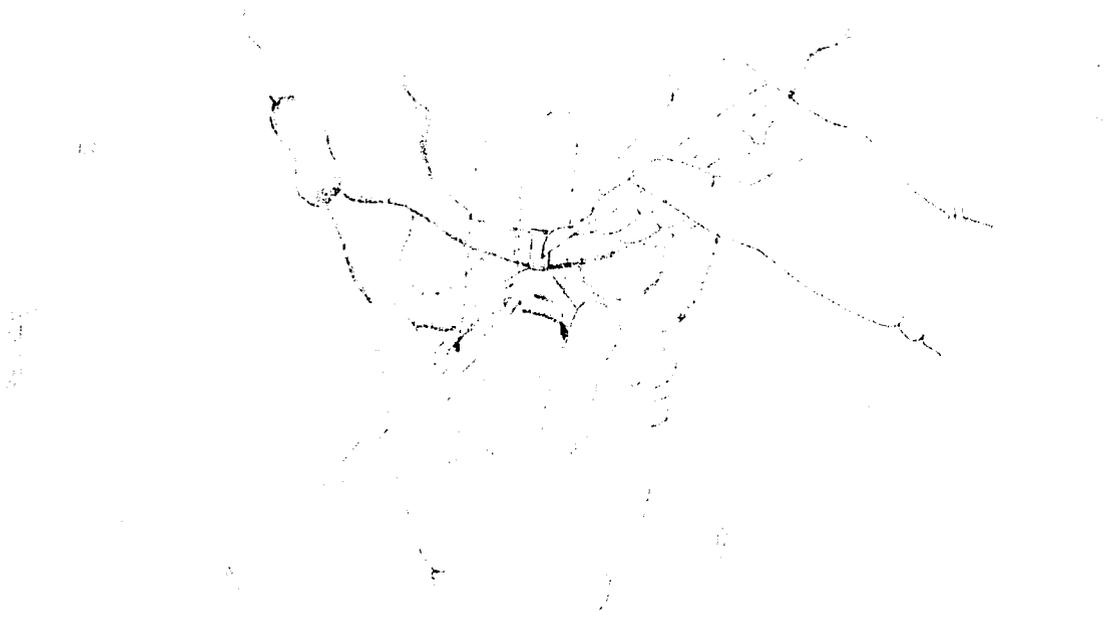


Figure 5. Insert scalpel in the mons

14. With your other hand, feel for the symphysis pubis cartilage just under the mons (fatty pad). Insert (push) the scalpel in the mons over the symphysis pubis. Make a 3/4 inch (2 cm) incision.
15. Keep the catheter pushed to one side with one of the vaginal fingers. Place the other finger below the symphysis pubis joint to feel for the knife as you cut. Make sure the knife **does not come through to your finger.**
16. Hold the scalpel at right angles to the skin and the symphysis pubis with the cutting edge pointing towards you. Push the knife firmly and smoothly. The fibrocartilage is cut completely, from the top to the bottom. You will feel the knife easier with the vaginal fingers as the cartilage is cut. Pay close attention to what you are feeling with your vaginal fingers. You should always feel tissue between your vaginal fingers and the knife.
17. Your vaginal fingers will be able to feel when the separation has taken place in the joint. The separation of the pubic bones will be about 2.5 cm (the width of a thumb).

18. If there is bleeding, stop it by pressing down on the cut.
19. The fetal head will decide the amount of separation of the symphysis. Once the incision is made, the reliable persons should bring the woman's legs **together** (adduction) at the same time. Ask one of the reliable persons to watch for bleeding and press on the cut.
20. Sometimes contractions slow during this part of the procedure and sometimes the baby comes out quickly. Prepare for the delivery. A generous (large) episiotomy is done so that the head can be delivered with as little pressure as possible on the bladder and urethra. Refer to **Episiotomies and Repair of Lacerations**.
21. Effective uterine contractions are necessary to push the baby out once the symphysis is cut. Help the mother to bear down and push as this is the least traumatic way for the delivery. Use the vacuum extractor to help the baby deliver if necessary.
22. If there are no or inefficient uterine contractions, an intravenous drip with oxytocin should be set up and run to get efficient contractions. Refer to Learning Aid - 5, **Oxytocic Therapy, Emergency Use only with Vacuum Extraction or Symphysiotomy**. Remember that inefficient uterine contractions are a **contraindication for a symphysiotomy**. Only in an unusual emergency should a midwife be in a situation when a symphysiotomy is done and contractions stop.
23. Give oxytocin after the delivery. If an intravenous drip with oxytocin was started, run it until finished.
24. Inspect the vagina and cervix for trauma. Refer to **Episiotomies and Repair of Lacerations**.
25. Repair the episiotomy. Keep the legs as close together as is possible.
26. Put one stitch in the skin over the symphysis.
27. Change the catheter to a Foley if available.
28. Bathe the woman as needed and make her comfortable.
29. Help the reliable persons place a soft cloth between the woman's legs, remembering always to keep them together (adduct). Wrap the knees loosely together using a wide roller bandage or cloth.
30. Explain to the woman and her family that the legs must be wrapped together so that the cut will heal. Ask the family to prepare the woman's favorite food and drink. Explain to them that she has worked hard and needs to eat and drink to get her energy and strength back.
31. Help the woman to lie on her side and arrange for transport to doctor.

Care of the woman after symphysiotomy

The woman will need care in hospital for 10 - 15 days depending on her condition and recovery. Her knees will need to be wrapped together for two days. She will need perineal care, frequent turning and positioning on her side. The catheter should drain continuously for five days. She will need treatment with a broad spectrum antibiotic such as Ampicillin for 10 - 14 days. She will need good food and fluids to heal her body and establish a milk supply for her baby.

She will need assistance with walking on the third - fifth day. She may need to use crutches, canes or sticks for support when beginning to walk. Most of the time by the tenth day she will be able to walk without assistance.

Complications

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

Pain after the symphysiotomy can be managed with analgesics. Difficulty walking and pain usually disappear by the time of discharge. There may be some pain over the incision and backache which will lessen as the woman continues to recover from the operation. There may be recurring pain with another pregnancy at the time when there is relaxation of the symphysis and sacro-iliac joints.

Urinary tract infection and stress incontinence are usually prevented by an adequate (large) episiotomy to keep the head away from pressing on the anterior vaginal wall. Infection needs to be treated with antibiotics.

Follow up postnatal examinations

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

Learning Aid 1 - Sterile Technique

Sterile technique is used to prevent (stop) contamination in an area. For instance, sterile technique is used while doing a symphysiotomy to stop germs from getting into the incision (cut). All of the area and anything touching the area where the cut is made must be sterile (having no germs).

General Rules

1. Everything touching broken skin, used to cut (such as a knife blade), or go through the skin (like a needle) must be sterile.
2. Sterile wrapped articles (such as cotton, gauze, gloves, instruments) are **not sterile** if
 - there are holes in the wrappers. Holes and tears let germs inside of the wrapper.
 - they are damp or wet. Germs can go inside through the wet places.
 - it falls on the floor. The floor is always very contaminated.
3. Sterile gloved hands and sterile objects (supplies and equipment) must always be kept in view or above your waist. The area below the waist or table top is thought of as not sterile. For example, do not let your sterile gloved hands hang down. Always hold your gloved sterile hands higher than your elbows.
4. A sterile article touched by something not sterile becomes not sterile.
5. It is not wrong to contaminate something. **It is very wrong to know an area or something is contaminated and not correct the situation.**
6. Boiled sterile equipment is **not sterile** if
 - they are uncovered in a sterile container
 - they are touched with unsterile hands, instruments or materials
 - it has been longer than 24 hours since they have been boiled
 - they were not completely covered with water and boiled for twenty minutes.

Hand washing is the best way to not pass germs to ourselves, our families and our patients. The main way germs are carried is on our hands as we touch things. Germs are on our hands and under our fingernails.

Hand washing must be the most frequent activity of the midwife.

Hand washing must be done

- when starting and leaving work
- before and after doing any procedure such as catheterization, giving an injection, bathing a baby, etc.
- after doing tests such as urinalysis and hemoglobin

Keep your fingernails short and clean. Use soap and water. Dry your hands with a clean and dry towel.

Surgical hand washing must be done before any delivery. Sterile gloves should also be used when available.

You need a brush (surgical or local sponge), a stick to clean your nails, soap or antiseptic solution and water to wash your hands.

- wash your hands with soap and water
- wet your hands and forearms
- put soap on your hands and then your arms to your elbows
- hold your hands above elbow level as much as possible. The hands are always cleaner than your arms during and after a surgical scrub. Water should always run from your finger tips to your elbows.
- clean your nails with a stick
- rinse the hands and arms (remember to hold your hands above your elbows) with running water from a tap or poured by an assistant. If you do not have an assistant, you must have three containers of water. Use one container to wet and lather. Use one container to rinse the first two times and the third container to do a final rinse. Rinse by first putting in the hands and then with a continuous motion the arms to the elbows should rinse through the water. Always keep your hands above your elbows so that water runs from the tips of your fingers to the elbows.
- lather the hands and arms. Scrub with brush or local sponge each hand and each arm. Make sure to scrub every side of each finger. Scrub between the fingers. Be careful not to rub so hard that you scratch the skin.
- rinse hands and arms with running water
- repeat scrub with brush and rinse again with running water
- air dry. A sterile towel may be used if you are putting on sterile gloves.
- remember to keep your hands above your elbows at all times.

Practice the surgical hand washing under the supervision of a co-worker. Practice until you no longer have to time yourself. With practice you should be able to do a surgical hand wash in three minutes. **Time is very important in an emergency.** It is necessary for midwives to be skilled in surgical hand washing to prevent contamination when caring for women during labor and delivery.

Learning Aid 2 - Sterile Supplies

Sterile supplies (instruments, cotton, gauze, towels, suture, etc.) are protected from contamination by being wrapped in sterile paper, cloth or plastic. Sterile supplies that are sterilized by boiling, autoclave or pressure cooker may be protected by stainless steel drums or canisters with lids. Remember that it is **sterile on the inside** of any sterile container or package.

There is a special way to use sterile containers. An assistant with clean hands can open the containers, touching only the **outside**. With your sterile gloved hands, touch only the **inside** of the container. Sterile supplies can be removed from a container or package with a sterile transfer forceps.

Reminders about sterilizing:

- Before sterilizing supplies, make sure they are clean and in good condition.
- Sterilize by boiling. Cover clean instruments with clean water, time for 20 minutes **after the water is boiling**.
- Sterilize with steam. A pressure cooker or autoclave is easy to use. There must always be some water in it to make the steam for sterilizing. Follow the instructions with the pressure cooker or autoclave to sterilize.

For more information, review fundamentals of nursing procedures on sterilization.

Learning Aid 3 - Position for Symphysiotomy

The position and cooperation of the woman is important to the success of the symphysiotomy. Ask two reliable persons to support the legs. They each should hold one of the woman's legs. They should use both hands. One hand should hold the ankle.

They should stand close to the woman's leg. They should hold the leg against their own bodies. This will help them not move the leg. They should hold the leg firmly. Each leg should not be abducted (pulled away from the body) more than 80 to 90 degrees from the center of the woman's body.

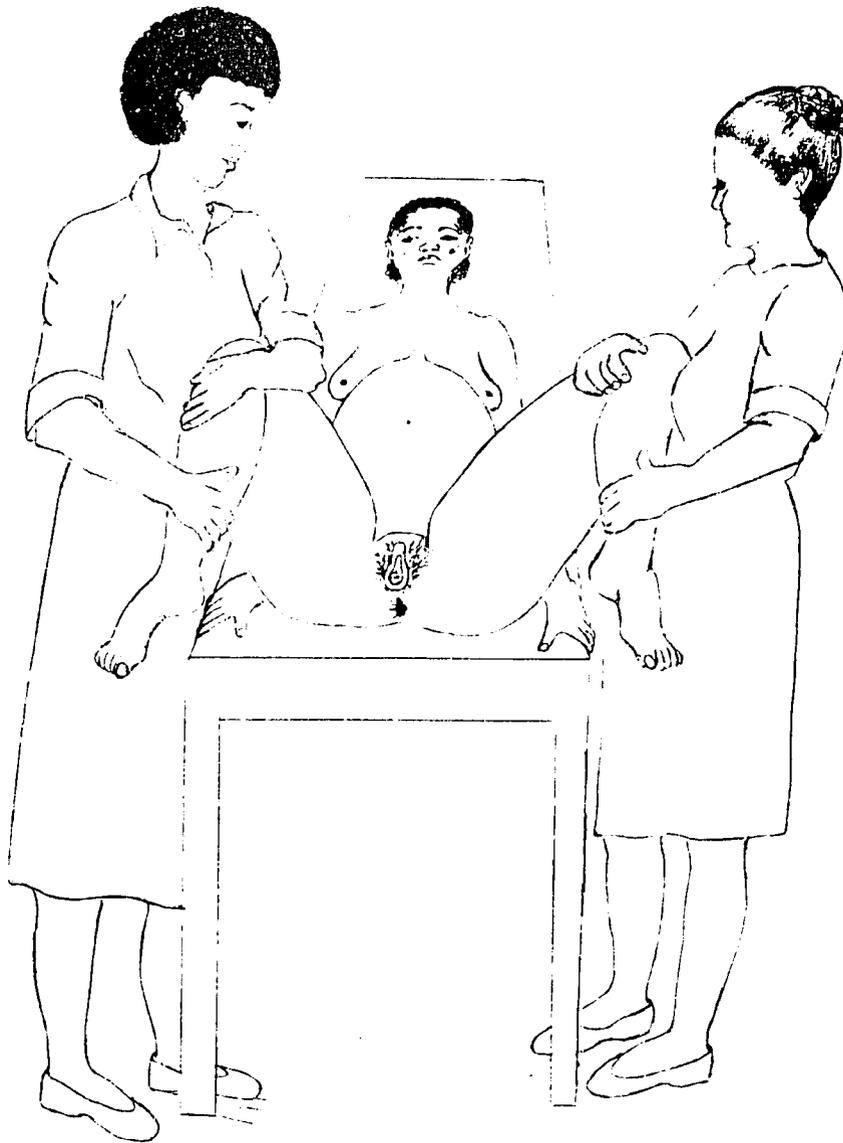


Figure 6. Position of the woman for symphysiotomy

Learning Aid 4 - Abnormal Presentations and Positions

Occipito-Posterior position occurs in about 10 of every 100 vertex presentations. **LOOK** at the abdomen. You will see a depression at or below the umbilicus when there is an occipito-posterior position.

The first stage of labor may be slow even with good uterine contractions. Good contractions help the head flex and descend. The head then rotates and the occiput is delivered anteriorly.

Sometimes, flexion does not occur. The front of the baby's head reaches the pelvic floor first and rotates forward. The baby is born with the face to the pubis.

The **danger** of a occipito-posterior position is that **flexion does not take place and the head stops descending**. If you can not take the woman to the doctor, try to increase flexion.

Insert your fingers into the vagina under the symphysis pubis. Press on the baby's forehead before the next contraction. Hold this position during a contraction to help flex the baby's head. Push up on the front of the baby's head with your hand and try to help the head rotate. Be prepared for a depressed baby and bleeding from lacerations in the mother.

Face presentation usually develops/happens during the labor rather than before the labor. When you do a vaginal examination, the presenting part is high, soft and irregular. The chin becomes the leading part.

The labor may be prolonged. The cord may come first. Usually the baby is born spontaneously when the chin is anterior. Do an episiotomy to give more space for the delivery.

If the chin is posterior, the woman must be taken to the hospital for delivery. She can not deliver spontaneously from this position. Sedate the woman to try to stop the contractions and ask your assistant to help get transport as soon as possible.

Brow presentation is almost never diagnosed before labor begins. The presenting part will be high. The anterior fontanelle may be felt on one side and the orbital (eye) ridges felt on the other side of the presenting part. Sedate the woman to try to stop the contractions and help her get to the hospital as soon as possible.

Shoulder presentation happens with a transverse lie. The presenting part does not fit well into the pelvis. The membranes usually rupture early. The cord may prolapse. If the woman is in labor, sedate her. Help her get to the hospital as soon as possible.

Incomplete rotation of the shoulders causes a delay in the delivery. Help the rotation by putting your finger into the anterior axilla (armpit) of the baby. Pull or turn the baby's anterior axilla downward. This will help the baby rotate and deliver.

If this does not work, try to rotate the posterior arm upward.

If this does not work, make an episiotomy and deliver the posterior shoulder. Take care to protect the humerus (upper arm) with your fingers so that you do not break the arm. Bend the elbow. Slide the arm over the baby's chest and deliver first the hand and then the arm of the posterior shoulder. Deliver the anterior shoulder and the rest of the baby.

Multiple Pregnancy

Diagnosis of multiple pregnancy is not always easy. After 20 weeks the uterus is larger than usual for dates. On palpation finding more than one head is diagnostic. For this reason, always palpate the entire uterus of a pregnant woman even though a head is found immediately at one or the other end of the uterus. The head may feel small in relation to the size of the uterus. Many baby parts may be felt.

At times the presence of more than one baby is not known until it is realized that the uterus is still large and high after the delivery of the first baby.

Labor is often premature in a multiple pregnancy. The babies may be premature or immature. Abnormal presentations are common because the babies are small. For these reasons, multiple pregnancies should be referred to the doctor.

Since it is possible that a woman may come in advanced labor, review the delivery procedure in your midwifery textbook.

Remember that abnormal presentations in labor often occur when the woman has cephalopelvic disproportion. If you attempt to deliver or delay your referral to the hospital, the mother and baby may be injured, damaged or even die.

Learning Aid 5 -Oxytocin Infusion, EMERGENCY USE ONLY, With Vacuum Extraction and/or Symphysiotomy.

The midwife must only use oxytocin infusion in an emergency situation. The midwife must never use oxytocin infusion for augmentation (to speed up) or induction (to start) labor.

The hormone oxytocin stimulates uterine smooth muscle to contract and causes cervical dilatation. Oxytocin must **always be given IV to induce or strengthen labor contractions**. Oxytocin must be given in a method to allow for very close regulation (control) of the dosage. The oxytocin dosage depends on the response of the uterus to the oxytocin. Hyperstimulation (too strong, hard contractions) of the uterus must be prevented during pregnancy as it may cause fetal distress or ruptured uterus with death of the mother and baby. Oxytocin should not be given into the muscle or under the tongue as you can not carefully control how fast the body absorbs it. You could easily cause the uterus to rupture.

Refer to the module **Monitoring Labor Progress, Abnormal Labor Progress**. The midwife can use the partograph to identify complications in labor. **Early identification of complications will let the midwife help the woman get to the doctor.**

The doctor decides when to use oxytocin during labor. The doctor may use oxytocin infusion during labor for pregnancy-induced hypertension, prolonged gestation, maternal diabetes, premature or prolonged rupture of membranes. The midwife is responsible for managing the oxytocin infusion and for monitoring the mother and baby.

Oxytocin infusion is contraindicated when placenta previa, cephalopelvic disproportion or fetal distress is identified. Oxytocin infusion should be given only under doctor's supervision in a woman with an over distended (too large) uterus, grand multiparity, or history of cervical or uterine surgery.

The supervising doctor for the midwife is responsible for giving the midwife guidelines for using an oxytocin infusion during emergencies. If possible, oxytocin infusion during labor should only be done where a doctor is available. **There is always the danger of a ruptured uterus during an oxytocin infusion. This possibility is cause for all midwives and doctors to use caution when making the decision for an oxytocin infusion.**

Review the **Hydration and Rehydration** module, Starting an Intravenous Infusion in a Peripheral Vein.

The midwife must discuss with her supervising doctor, the guidelines suggested below and make changes according to the supervising doctor.

Equipment

Oxytocin infusion is given as a two bottle method. Start an intravenous infusion. The oxytocin will be prepared in a second bottle. In addition to the equipment for starting an intravenous infusion you will need a second sterile intravenous tubing (giving set), clamp, needle and intravenous solution. You will also need oxytocin (such as Syntocinon).

Preparation of equipment

Start the intravenous infusion (first bottle). Get the oxytocin solution ready (second bottle). Put 2 units of oxytocin in one liter (1000 ml) of 5% dextrose in water. Put a piece of tape on the 5% dextrose in water bottle. Write the date, time, name and amount of oxytocin on the tape. Record the amount of oxytocin on the labor record. Attach the tubing and needle to the bottle. Attach the needle to the first intravenous tubing (piggyback).

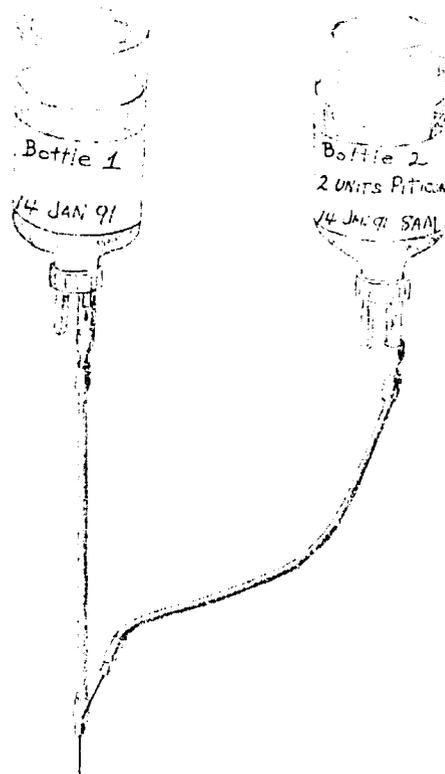


Figure 7. Two bottle method for oxytocin infusion

Procedure

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

2. Refer to the **Monitoring Labor Progress** module, fetal heart rate and uterine contractions. **LISTEN** and record the fetal heart rate every five minutes for 20 minutes. **FEEL**, time and record the uterine contractions every five minutes for 20 minutes. This information will give you baseline (know what was happening before you start) information.

Remember to continue all routine monitoring of labor progress in addition to the more often fetal heart rate and uterine contraction monitoring.

3. Clamp the first tubing to the bottle with plain fluid. Open the second tubing to the bottle with oxytocin and regulate the drops to 15 drops in a minute. Listen and record the fetal heart rate every 10 minutes. Feel, time, and record the uterine contractions every 10 minutes.

The goal is to slowly build the labor pattern to 3 - 4 contractions of 40 seconds duration every 10 minutes with the fetal heart rate remaining within the normal range of 120 - 160 beats in a minute. The cervix will complete dilating and the mother will deliver a healthy baby.

- After 30 minutes, no change in contractions and fetal heart rate within normal range, increase the drip rate to 30 drops in a minute.
- After 30 minutes, no change in contractions and fetal heart rate within normal range, increase the drip rate to 60 drops in a minute.
- After 30 minutes, no change in contractions and fetal heart rate within normal range, add 6 units of oxytocin to the oxytocin infusion and **restart your drip rate to 15 drops in a minute**. Remember to record the time and amount of oxytocin added on the bottle and labor record.

Remember to carefully monitor and record fetal heart rate and uterine contractions every 10 minutes as long as oxytocin infusion is being given.

- If the contractions are less than 2 minutes apart and last 50 seconds or longer, or if the uterus does not relax between contractions, stop the oxytocin by clamping off only the piggyback bottle. Open the tubing to the first bottle and regulate the drops to 30 drops in a minute. Change the mother's position and let the first intravenous infusion run until the uterus is relaxed between contractions.
- If the mother's and baby's condition are within normal ranges, try a second time with the oxytocin infusion, beginning with 15 drops in a minute and continue with monitoring until the goal is reached.

Remember that oxytocin infusions can cause over stimulation of the uterus in which contractions happen almost continuous or the uterus does not relax between contractions. This over stimulation can cause tetanic (hard and continuous) contractions. This over stimulation can cause fetal distress, abruptio placenta or rupture of the uterus.

Learning Aid 6 - Measuring the diagonal conjugate

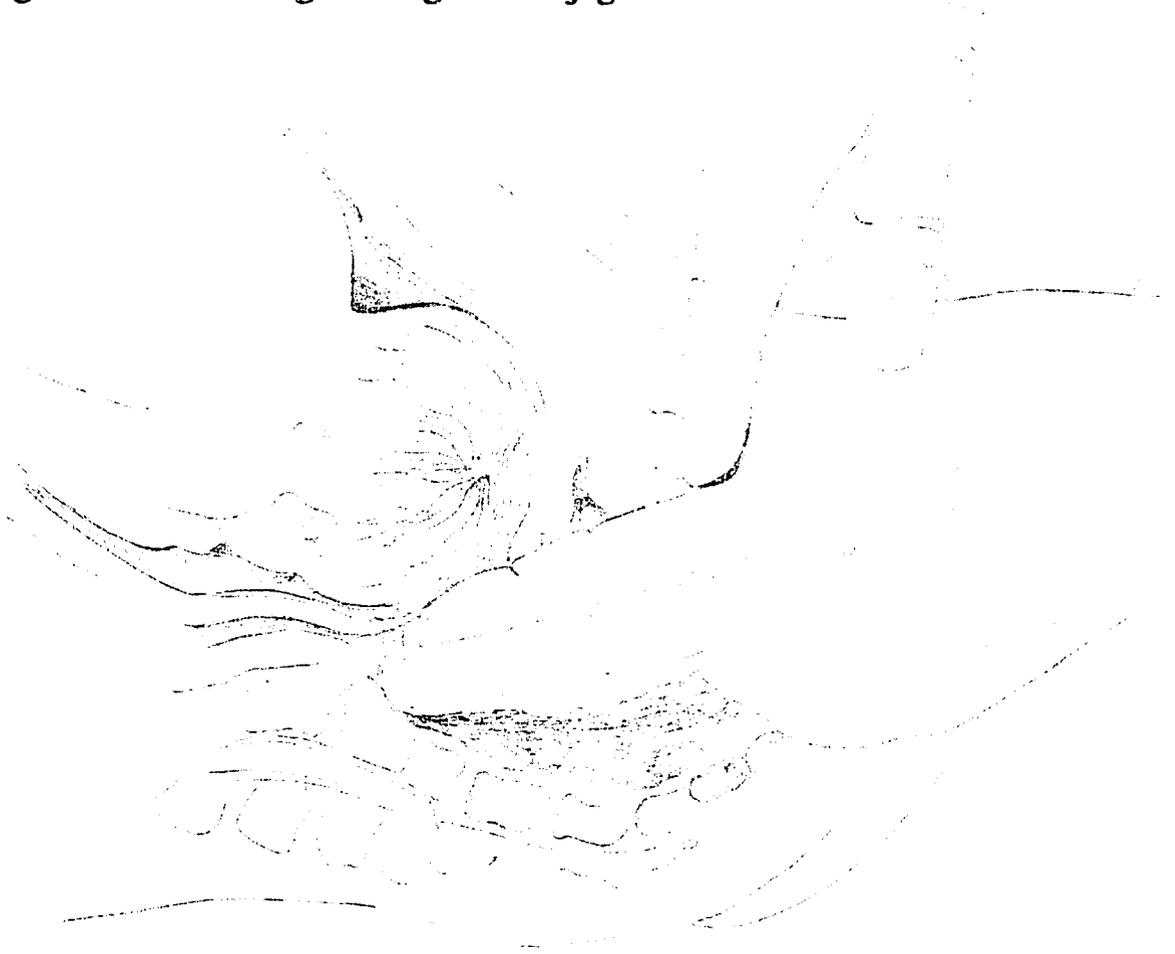


Figure 8. Measuring diagonal conjugate

Procedure

1. The woman empties her bladder.
2. Ask the woman to lie on her back with knees drawn up.
3. Explain what you are going to do.
4. Scrub your hands and clean the woman's genital area.
5. Insert your fingers into the vagina.
 - Try to reach the part of the spine which is jutting forward (the promontory of the sacrum).
 - When the tip of the middle finger is touching this spot, place the other index finger on the part of the hand which is touching the pubic bone (see Figure 8).
6. Remove your fingers.
7. Measure the distance between the tip of the middle finger and the marked place on the hand. Subtract 2 cm (3/4 inch) for the thickness of the bone, fat and skin.

It is good practice for a midwife to know the place on her hand from the tip of the index finger that measures the normal diagonal conjugate.

3. Describe the dangers (complications) of a symphysiotomy for a mother. How can you prevent these dangers? (page 10)

4. List the steps of a symphysiotomy. (pages 6 - 9)

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

5. Demonstrate hand washing and surgical hand washing.

List the equipment needed for surgical hand washing if you do not have running water and an assistant. (page 11 and 12)

6. Describe how to give an oxytocin infusion in an undelivered woman. (page 17 - 19)

7. Describe postpartum care for a woman after symphysiotomy. (page 10)

Date Date Date Date

5. Ask first assistant to wash the lower abdomen and genital area with soap and water.				
6. Start IV infusion if not already running.				
7. Ask two reliable persons to help the woman lie on her back.				
8. Infiltrate 10 ml 1.0% lidocaine hydrochloride into the skin over and around symphysis pubis.				
9. Infiltrate perineum with 10 ml of 1.0% lidocaine hydrochloride.				
10. Scrub and glove.				
11. Pass a catheter.				
12. Ask the two reliable persons to support the legs against their chests so that the legs are abducted (pulled apart) to not more than 80 degrees.				
13. Check to make sure the anesthesia is working by touching a sharp needle to the area.				
14. Get ready to make the incision. <ul style="list-style-type: none"> · insert two fingers into the vagina · find the catheter/urethra with vaginal fingers · push the catheter to one side · find the symphysis pubis with the vaginal fingers 				

Comments:

Date Date Date Date

<p>15. Start the incision</p> <ul style="list-style-type: none"> · feel for symphysis pubis fibrocartilage · insert scalpel in the mons over symphysis pubis · make 1/4 inch (2 cm) incision · keep catheter pushed to one side with vaginal finger to protect the urethra · place the other vaginal finger at the back of the symphysis pubis joint to feel for knife blade. 				
<p>16. Finish the incision</p> <ul style="list-style-type: none"> · hold scalpel at right angle to the skin and symphysis pubis · keep cutting edge point towards you · push knife firmly and smoothly through the fibrocartilage · you will feel the blade easier with vaginal fingers as cartilage is cut · you should always feel tissue between vaginal fingers and knife blade · your vaginal fingers will feel about a 2.5 cm (width of thumb) separation of the pubic bones. 				
<p>17. If there is bleeding, stop it with direct pressure.</p>				
<p>18. Let the fetal head decide the amount of separation of the symphysis pubis</p> <ul style="list-style-type: none"> · ask reliable persons to adduct (put together) woman's legs after incision · ask reliable persons to watch for bleeding and tell you right away. 				

Comments:

	Date	Date	Date	Date
19. Prepare for delivery <ul style="list-style-type: none"> · make a generous episiotomy · use vacuum extractor if woman can not push baby 				
20. Deliver baby <ul style="list-style-type: none"> · be prepared for a depressed baby 				
21. Give oxytocin after delivery				
22. Inspect vagina and cervix for trauma				
23. Repair episiotomy and symphysis cut <ul style="list-style-type: none"> · keep legs as close together as possible 				
24. Change catheter to a Foley, if available				
25. Bathe woman, wrap her legs together, make her comfortable <ul style="list-style-type: none"> · place soft cloth between her knees · wrap legs loosely together so that she does not forget to keep them together · do routine after delivery care · check catheter 				
26. Arrange for transport to hospital <ul style="list-style-type: none"> · go with the woman and her family 				

Comments:

References

Experience and the following references provided the information for this module.

- Crichton D., Seedat E. K. (1963). The technique of symphysiotomy. South African Medical Journal 37:227.
- Duale S. et al (1990 March). A follow-up study of pregnancy outcome in women with symphysiotomy versus cesarean section in Zaire. International Center for Research on Women, Washington DC.
- Gebbie, D. A. M. (1974). Symphysiotomy. Tropical Doctor 4:69.
- Hartfield, V. J. (1973 June). A comparison of the early and late effects of subcutaneous symphysiotomy and of lower segment cesarean section. The Journal of Obstetrics and Gynaecology of the British Commonwealth Vol.80:508-514.
- Menticoglou, S. M. (1990 February). Symphysiotomy for the trapped aftercoming parts of the breech: a review of the literature and a plea for its use. Australian New Zealand Journal of Obstetrics and Gynaecology 30(1):1-9.
- Myles, M. F. (1981). Textbook for midwives. Churchill Livingstone, Edinburgh. 35:658.
- Norman, R. J. (1978). Six years experience of symphysiotomies in a teaching hospital . South African Medical Journal 54:1121.
- Nurse Clinician Training Modules (1984). Maternal and child health series. Ministry of Health, Maseru. 5:72.
- Philpott R. H. et al (1978). Obstetrics, family planning and pediatrics. University of Natal Press, Pietermaritzburg. 9:107.
- Van Roosmalen, J. (1987). Symphysiotomy as an alternate to cesarean section. International Journal of Gynaecology and Obstetrics. 25:451-458.