



Federal Democratic Republic of Ethiopia
Ministry of Health

Antenatal Care, Part 2

Blended Learning Module for the
Health Extension Programme



HEAT

Health Education and Training
HEAT in Africa

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Contents

Study Session

Part 2

- 13 Providing Focused Antenatal Care
 - 14 Health Promotion Issues During Pregnancy
 - 15 Counselling Pregnant Women on Danger Symptoms
 - 16 Antenatal Interventions to Reduce Mother-to-Child Transmission of HIV
 - 17 Premature Rupture of Membranes
 - 18 Common Medical Disorders in Pregnancy
 - 19 Hypertensive Disorders of Pregnancy
 - 20 Abortion and Other Causes of Early Pregnancy Bleeding
 - 21 Late Pregnancy Bleeding
 - 22 Starting IV Fluid Therapy and Catheterising the Pregnant Woman
- Notes on the Self-Assessment Questions (SAQs) for Part 2

Study Session 13 Providing Focused Antenatal Care

Introduction

In Part 1 of the *Antenatal Care* Module, you have learned mainly about how the human reproductive system is structured anatomically and how it functions, the normal process and adaptation of pregnancy, the general assessment of the progress of pregnancy, and how to identify minor disorders. In Part 2 of the *Antenatal Care* Module, you will first learn about the basic principles of focused antenatal care (FANC).

This session will start by describing the concepts and principles of FANC and the basic differences between FANC and the traditional approach to antenatal care. It will highlight the other study sessions in Part 2 which all rest under the umbrella of FANC. You will also learn the objectives of each of the four FANC visits. The study session concludes with the preparations you and the pregnant woman should make for the birth, advice about what to do if complications arise, and instructions on how to write a referral note if she has to be transferred to a health facility.

Learning Outcomes for Study Session 13

When you have studied this session, you should be able to:

- 13.1 Define and use correctly all of the key words printed in **bold**. (SAQ 13.1)
- 13.2 Discuss the principles of focused antenatal care (FANC) and state how it differs from the traditional approach. (SAQ 13.1)
- 13.3 Describe the schedule, objectives and procedures covered in each of the four FANC visits for women in the basic component. (SAQs 13.2 and 13.3)
- 13.4 Advise pregnant women on birth preparedness, including the equipment they will need. (SAQ 13.4)
- 13.5 Summarize the main aspects of complication readiness and emergency planning, including advising blood donors and writing a referral note. (SAQ 13.3)

13.1 Focused antenatal care: concepts and principles

Historically, the traditional antenatal care service model was developed in the early 1900s. This model assumes that frequent visits and classifying pregnant women into low and high risk by predicting the complications ahead of time, is the best way to care for the mother and the fetus. The traditional approach was replaced by **focused antenatal care (FANC)** — a goal-oriented antenatal care approach, which was recommended by researchers in 2001 and adopted by the World Health Organization (WHO) in 2002. FANC is the accepted policy in Ethiopia.

FANC aims to promote the health of mothers and their babies through **targeted assessments** of pregnant women to facilitate:

- Identification and treatment of already established disease
- Early detection of complications and other potential problems that can affect the outcomes of pregnancy
- **Prophylaxis** and treatment for anaemia, malaria, and sexually transmitted infections (STIs) including HIV, urinary tract infections and tetanus. Prophylaxis refers to an intervention aimed at preventing a disease or disorder from occurring.

FANC also aims to give holistic **individualized care** to each woman to help maintain the normal progress of her pregnancy through timely guidance and advice on:

- Birth preparedness (described later in this study session),
- Nutrition, immunization, personal hygiene and family planning (Study Session 14)
- Counselling on danger symptoms that indicate the pregnant woman should get immediate help from a health professional (Study Session 15).



In FANC, health service providers give much emphasis to individualized assessment and the actions needed to make decisions about antenatal care by the provider *and* the pregnant woman together. As a result, rather than making the traditional frequent antenatal care visits as a routine activity for all, and categorizing women based on routine risk indicators, the FANC service providers are guided by each woman's individual situation.

This approach also makes pregnancy care a *family* responsibility. The health service provider discusses with the woman and her husband the possible complications that she may encounter; they plan together in preparation for the birth, and they discuss postnatal care and future childbirth issues. Pregnant women receive fundamental care at home and in the health institution; complications are detected early by the family and health service provider; and interventions are begun in good time, with better outcomes for the women and their babies.

Box 13.1 summarises the basic principles of FANC.

Box 13.1 Basic principles of focused antenatal care

- Antenatal care service providers make a thorough evaluation of the pregnant woman to identify and treat existing obstetric and medical problems.
- They administer prophylaxis as indicated, e.g. preventive measures for malaria, anaemia, nutritional deficiencies, sexually transmitted infections, including prevention of mother to child transmission of HIV (PMTCT, see Study Session 16), and tetanus.
- With the mother, they decide on where to have the follow-up antenatal visits, how frequent the visits should be, where to give birth and whom to be involved in the pregnancy and postpartum care.
- Provided that quality of care is given much emphasis during each visit, and couples are aware of the possible pregnancy risks, the majority of pregnancies progress without complication.

- However, no pregnancy is labelled as ‘risk-free’ till proved otherwise, because most pregnancy-related fatal and non-fatal complications are unpredictable and late pregnancy phenomena.
- Pregnant women and their husbands are seen as ‘risk identifiers’ after receiving counselling on danger symptoms, and they are also ‘collaborators’ with the health service by accepting and practising your recommendations.

13.1.1 Advantages of FANC

FANC is gaining much popularity because of its effectiveness in terms of reducing maternal and perinatal **mortality** (deaths) and **morbidity** (disease, disorder or disability). **Perinatal mortality** refers to the total number of **stillbirths** (babies born dead after the 28th week of gestation) *plus* the total number of **neonates** (newborns) who die in the first 7 days of life. The **perinatal mortality rate** is the number of stillbirths and neonatal deaths that occur in every 1000 live births, and is an internationally recognised measure of the quality of antenatal care.

‘Peri’ means ‘around the time of’, so perinatal means around the time of birth.

- What is the definition of the **maternal mortality ratio** (MMR)? (You learned this in Study Session 1 of this Module.)
- MMR is the total number of women dying from complications due to pregnancy or childbirth in every 100,000 live births.

FANC is the best approach for resource-limited countries where health professionals are few and health infrastructures are limited. In particular, the majority of pregnant women can’t afford the cost incurred by the frequent antenatal visits required by the traditional antenatal care approach. From the logistical and financial point of view, the traditional approach is not practical for the majority of pregnant women and is a burden on the healthcare system. As a result, many developing countries, including Ethiopia, are adopting the FANC approach.

13.1.2 Failings of the traditional approach to antenatal care

Research studies (for example, see Box 13.2) have shown that the more frequent antenatal visits traditionally practised do not improve pregnancy outcomes. In particular, pregnant women labelled as ‘low-risk’ or ‘not at risk’ in traditional antenatal care may not receive counselling on danger symptoms. As a result, it is very common that these women fail to recognize the danger symptoms and do not report soon enough to health professionals.

Box 13.2 Failure to identify ‘at risk’ pregnancies

Taking obstructed labour occurrence as one of indicators, a study in Zaire in 1984 in 3,614 pregnant women showed that 71% of the women who developed obstructed labour were previously categorized as ‘not at risk’, while 90% of women who were identified as ‘at risk’ did not develop obstructed labour. This is one source of evidence to show that most pregnancy problems are unpredictable and late phenomena.

Other examples of unpredictable pregnancy disorders that appear very late in gestation include the top three killers of mothers:

- **Hypertensive disorders of pregnancy** (hypertension means high blood pressure), specifically *eclampsia*, which commonly occurs very late in pregnancy, or during labour or after delivery (you will learn about this in Study Session 19).
- **Haemorrhage** (heavy bleeding), which occurs most commonly in the third trimester (Study Session 21 describes late pregnancy bleeding), or the more often fatal postpartum haemorrhage, which occurs after delivery (you will learn about this in the *Labour and Delivery Care* Module).
- **Pregnancy related infection** (postpartum infection of the uterus), which usually develops after delivery (this is described in the *Labour and Delivery Care* Module).

The traditional approach to antenatal care is unable to identify accurately women who are ‘at risk’ of developing any of these life-threatening conditions. It identifies some women as being ‘low risk’ who subsequently develop danger symptoms that need urgent professional intervention.

13.1.3 Comparisons of traditional and focused antenatal care

Table 13.1 summarizes the basic differences between the traditional and focused antenatal care approaches.

Table 13.1 Basic differences between traditional and focused antenatal care.

Characteristics	Traditional antenatal care	Focused antenatal care
Number of visits	16–18 regardless of risk status	4 for women categorised in the <i>basic component</i> (as described later in this study session)
Approach	<i>Vertical</i> : only pregnancy issues are addressed by health providers	<i>Integrated</i> with PMTCT of HIV, counselling on danger symptoms, risk of substance use, HIV testing, malaria prevention, nutrition, vaccination, etc.
Assumption	<i>More frequent</i> visits for all and categorizing into high/low risk helps to detect problems. Assumes that the more the number of visits, the better the outcomes	Assumes all pregnancies are potentially ‘at risk’. <i>Targeted and individualized</i> visits help to detect problems
Use of risk indicators	Relies on routine risk indicators, such as maternal height <150 cm, weight <50 kg, leg oedema, malpresentations before 36 weeks, etc.	Does not rely on routine risk indicators. Assumes that risks to the mother and fetus will be identified in due course
Prepares the family	To be solely dependent on health service providers	Shared responsibility for complication readiness and birth preparedness
Communication	<i>One-way communication</i> (health education) with pregnant women only	<i>Two-way communication</i> (counselling) with pregnant women and their husbands

Substance use includes tobacco, alcohol, khat, illegal drugs, hashish, cocaine and others

Cost and time	Incurs much cost and time to the pregnant women and health service providers, because this approach is not selective	Less costly and more time efficient. Since majority of pregnancies progress smoothly, very few need frequent visits and referral
Implication	Opens room for ignorance by the health service provider and by the family in those not labelled 'at risk', and makes the family unaware and reluctant when complications occur	Alerts health service providers and family in all pregnancies for potential complications which may occur at any time

13.2 Important elements of FANC

FANC has the following three stages:

- Thorough **evaluation** (history taking, physical examination and basic investigations)
- **Intervention** (prevention/prophylaxis and treatment)
- **Promotion** (health education/counselling and health service dissemination).

Box 13.3 summarises the steps in this process.

Box 13.3 Basic steps in the FANC service

- 1 Gather information (take history) by talking with the mother, check the mother's body and check the fetus (physical examination and tests), as you learned in Study Sessions 8 to 11 of this Module.
- 2 Interpret the gathered information (make a diagnosis) and evaluate any risk factors.
- 3 Make an individualized care plan. If no abnormalities are identified, the care plan will focus on counselling, birth preparedness and complication readiness. If the mother needs specialized care, the plan will be to refer her to a higher health facility.
- 4 Follow the care plan — in subsequent visits, you may be able to take care of the woman yourself by providing treatments and counselling, or you may need to refer her.

In provision of the FANC service, important elements to be considered are:

- Keeping privacy and confidentiality; effective communication builds trust and fosters confidence, so you should talk with women and their husbands in a manner that encourages communication about birth preparedness, complication readiness, HIV prevention, care and treatment.
- Continuous care is provided by the *same* provider for pregnant women in the community; in the context of this curriculum, you are the skilled health care provider for the pregnant women without identified complications in your community.
- Promotion of involvement of the woman's partner or support person in the process of antenatal care and in preparations for the delivery.
- Provision of routine antenatal care services according to the national protocols, which will be described later in this study session).

-
- Linking of antenatal and postnatal care with prevention of mother to child transmission of HIV (PMTCT) and provision of family planning services.

13.3 The basic and specialized components of FANC

The FANC model divides pregnant women into two groups: those eligible to receive routine antenatal care (called the **basic component**), and those who need special care based on their specific health conditions or risk factors (the **specialized component**). Pre-set criteria (described below) are used to determine the eligibility of women to join the basic component. Women selected for the basic component are considered *not* to require any further assessment or special care at the time of the first visit, regardless of the gestational age at which they start the antenatal care programme.

Women are questioned and examined at the first antenatal visit to see if they have any of the following risk factors:

Previous pregnancy:

- Ended in stillbirth or neonatal loss
- History of three or more consecutive spontaneous abortions
- A low birth weight baby (<2500 g) or a large baby (>4000 g)
- Hospital admission for hypertension, pre-eclampsia or eclampsia. (You will learn about these conditions in Study Session 19.)

Current pregnancy:

- Diagnosed or suspected twins, or a higher number of multiple pregnancies
- Maternal age less than 16 years or more than 40 years
- Mother has blood type Rhesus-negative: this can result in serious harm to the fetus if it is Rhesus-positive, because the mother makes antibodies which can cross the placenta and attack the baby's tissues
- Mother has vaginal bleeding, or a growth in her pelvis
- Mother's diastolic blood pressure (the bottom number) is 90 mmHg or more
- Mother currently has diabetes, heart disease, kidney disease, cancer, hypertension or any severe communicable disease such as TB, malaria, HIV/AIDS or another sexually transmitted infection (STI).

A 'YES' to any **ONE** of the above questions means that the woman is *not* eligible for the basic component of antenatal care. She is categorized in the **specialized component** and requires more close follow-up and referral to specialty care.

You will refer women in the specialized component to a higher level health facility for additional monitoring and specialized care determined by specialists in these areas, while you continue to follow the activities of the basic component with these women.



13.4 The Antenatal Care Card

Figure 13.1 is a guide to the information that you should gather at each of the four antenatal visits. At the beginning of each visit, ask the mother if she has developed any danger symptoms since her last check up. Remind her to come to see you quickly if she develops vaginal bleeding, blurred vision, abdominal pain, fever or any other danger symptoms. You will learn how to counsel her about danger symptoms in Study Session 15.

Mother's Name:		DOB:	ID:			
General Condition		Pregnancy follow up				
Gravidity		Visits	1st	2nd	3rd	4th
Parity		Date of Visit	/ /	/ /	/ /	/ /
LMP (last menstrual period)	/ /	GA				
EDD (expected date of delivery)	/ /	BP				
Referred for STI testing (☐)	HIV test result R / NR / I	Weight				
		FHB (fetal heart beat)				
Referred for HIV testing (☐)		Anaemia/ Oedema				
Obstetric history		Sign/symptom of illness				
1. Previous stillbirth or neonatal loss? N/Y			Action taken			
2. History of 3 or more consecutive spontaneous abortions? N/Y						
3. Birth weight of last baby < 2500g N/Y						
4. Birth weight of last baby > 4000g N/Y						
5. Hospitalization for hypertension or pre-eclampsia/eclampsia? N/Y						
6. Previous C/S (caesarean surgery) N/Y						
Current pregnancy		Folic acid				
7. Age less than 16 years? N/Y		Mebendazol				
8. Age more than 40 years? N/Y		Birth Preparedness				
9. Vaginal bleeding? N/Y		Plan for Delivery place				
10. Diastolic blood pressure 90mm Hg or more at booking? N/Y		Plan for Birth attendant				
General medical history		Plan for check up one week after birth				
11. Diabetes mellitus? N/Y		Saving of birth cost				
12. Renal (kidney) disease? N/Y		For Delivery:				
13. Cardiac (heart) disease? N/Y		Plan for transportation				
14. Known substance abuse? N/Y		Contact person in case of emergency				
15. Any other severe medical disease or condition like malaria, TB, HIV? N/Y						
Remarks		Intended plan done? (If not why?)				

Mebendazol is a drug used to treat hookworm infestation

Figure 13.1 Antenatal Care Card from the Ethiopian Federal Ministry of Health's 'Integrated Maternal and Child Care Card'.

13.5 Objectives and procedures at each FANC visit

Sometimes a pregnant woman comes for the first antenatal check-up when the pregnancy is already advanced, but you should cover *all* the steps in the basic care plan and *all* of the first visit activities even if she is already in the second or third trimester.

13.5.1 The first FANC visit

The **first FANC visit** should ideally occur before 16 weeks of pregnancy. You are expected to achieve the following objectives:

- Determine the woman's medical and obstetric history (using the techniques you learned in Study Session 8) in order to collect evidence of her eligibility to follow the basic component of FANC, or determine if she needs special care and/or referral to a higher health facility.
 - Perform basic examinations (pulse rate, blood pressure, respiration rate, temperature, pallor, etc.).
 - If you think the pregnancy is beyond the first trimester, try to determine the gestational age of the fetus by measuring fundal height using the methods you learned in Study Session 10.
 - Provide nutritional advice and routine iron and folate supplementation (the dosage is in Study Session 14). Advising against misconceptions about diet is also important. For example, in some parts of Ethiopia it is thought that eating eggs and meat during pregnancy will cause vernix (the sticky white substance on the baby's skin at birth), and that vernix is dirty. In fact, eggs and meat are important sources of protein for the mother and the developing fetus, and vernix is good for the baby because it protects the baby's skin.
 - Provide HIV counselling and PMTCT services (you will learn how to do this in Study Session 16).
 - Give advice on malaria prevention and if necessary provide insecticide-treated bed nets (ITNs). You will learn more about malaria prevention and treatment in Study Session 18.
 - Check her urine for sugar using the dipstick test you learned about in Study Session 9, or refer her to the health facility if you suspect she may be developing diabetes.
 - Advise her and her partner to save money in case you need to refer her, especially if there is an emergency requiring transport to a health facility. She may also need money for additional drugs and treatments. Financial help may be available from local community organizations like women's groups.
 - Provide specific answers to the woman's questions or concerns, or those of her partner.
- What could it mean if there is a difference of several weeks between the gestational age estimated from fundal height measurement and the estimate based on last normal menstrual period (LNMP)?
 - As you learned in Study Session 10, this may mean that the woman has not remembered the date of her LMNP correctly, but it could also mean that the fetus is not growing normally (fundal height lower than LNMP estimate), or there could be too much amniotic fluid around the fetus, or



a twin pregnancy or very big baby (fundal height larger than LNMP estimate.)

13.5.2 The second FANC visit

Schedule the **second FANC visit** at 24–28 weeks of pregnancy. Follow the procedures already described for the first visit. In *addition*:

- Address any complaints and concerns of the pregnant woman and her partner.
- For first-time mothers and anyone with a history of hypertension or pre-eclampsia/eclampsia), perform the dipstick test for protein in the urine. (You will learn how to do this in Study Session 19 of this Module.)
- Review and if necessary modify her individualized care plan.
- Give advice on any sources of social or financial support that may be available in her community.

13.5.3 The third FANC visit

The **third FANC visit** should take place around 30–32 weeks of gestation. The objectives of the third visit are the same as those of the second visit. In *addition* you should:

- Direct special attention toward signs of multiple pregnancies and refer her if you suspect there is more than one fetus.
- Review the *birth preparedness* and the *complication readiness* plan (discussed later in this study session).
- Perform the dipstick test for protein in the urine for all pregnant women (since hypertensive disorders of pregnancy are unpredictable and late pregnancy phenomena).
- Decide on the need for referral based on your updated risk assessment.
- Give advice on family planning (Study Session 14).
- Encourage the woman to consider exclusive breastfeeding for her baby (Study Session 14).

Remember that some women will go into labour before the next scheduled visit. Advise all women to call you at once, or come to you, as soon as they go into labour. Don't wait!

You should also emphasize the importance of the first postnatal visit to ensure that the woman is seen by you either at her home or at the Health Post as soon as possible after the birth. The most critical postnatal period for the mother is the first 4 hours; this is when most cases of postpartum haemorrhage (PPH) occur. (You will learn about PPH in the *Labour and Delivery Care* Module.)

13.5.4 The fourth FANC visit

The **fourth FANC visit** should be the final one for women in the basic component and should occur between weeks 36–40 of gestation. You should cover all the activities already described for the third visit. In *addition*:

- The abdominal examination should confirm fetal lie and presentation, as you learned in Study Session 10 and 11 and in your practical training classes. At this visit, it is extremely important that you discover women

with a baby in breech presentation or a transverse lie and refer her to the nearest health facility for obstetric evaluation.

- The **individualized birth plan** (Box 13.4) should be reviewed to check that it covers all aspects of birth preparedness, complication readiness and emergency planning, as described in the next section.
 - Provide the woman with advice on signs of normal labour and pregnancy-related emergencies (described in Study Session 15) and how to deal with them, including where she should go for assistance.
- What is meant by breech presentation, and what is a transverse lie? (You learned this in Study Session 11.)
 - **Breech presentation** is when the baby is ‘head up’ in the uterus near the end of gestation, with its buttocks, feet or legs pushing down into the mother’s cervix. A **transverse lie** is when the baby is lying sideways across the abdomen.



A baby in the breech presentation may be delivered through the vagina in a health facility. A baby in the transverse lie can only be corrected into the normal ‘head first’ or vertex presentation by an obstetric specialist, or it must be delivered by caesarean surgery.

Box 13.4 Individualized birth plan

An individualized birth plan is a guide for healthcare providers developed in discussion with the individual woman and her partner or main support people which reflects their preferences about the planned birth. Some couples choose to have their baby at home under your care because they see birth as a normal part of life. Others choose to have a hospital or health centre birth. The birth plan for HIV positive women should be to deliver in a health facility, according to the National Guideline for PMTCT of HIV (as described in Study Session 16 of this Module).

13.6 Birth preparedness, complication readiness and emergency planning

Birth preparedness is the process of planning for a normal birth.

Complication readiness is anticipating the actions needed in case of an emergency. **Emergency planning** is the process of identify and agreeing all the actions that need to take place quickly in the event of an emergency, and that the details are understood by everyone involved, and the necessary arrangements are made. First we consider normal birth preparedness.

13.6.1 Normal birth preparedness

Educate the mother and her family to recognize the normal signs of labour. Delivery may occur days or even weeks before or after the expected due date based on the date of the last normal menstrual period. Knowing what labour means will help the mother know what will happen, and this in turn helps her feel comfortable and assured during the last days or weeks of her pregnancy.

Provide clear instructions on what to do when labour starts (e.g. in the event of cramping abdominal pain or leaking of amniotic fluid). Make sure that someone will call you or another skilled attendant for the birth *as soon as possible*. Support your verbal advice with written instructions in the local language.



Birth preparedness should also cover:

- Honoring her choices. You should give all the necessary information about safe and clean delivery, but ultimately you should respect a woman's choice of where she wants to give birth and who she wants to be with her.
- Helping her to identify sources of support for her and her family during the birth and the immediate postnatal period.
- Planning for any additional costs associated with the birth.
- Preparing supplies for her care and the care of her newborn baby.

13.6.2 Birthing supplies the mother should prepare

The **birthing supplies** that a pregnant woman and her family should be advised to prepare before the delivery are listed below (and see Figure 13.2):

- Very clean cloths to put under the mother and for drying and covering the newborn
- New razor blade to cut the cord
- Very clean and new string to tie the cord
- Soap, a scrubbing brush and (if possible) medical alcohol for disinfection
- Clean water for drinking and for washing the mother and your hands
- Three large buckets or bowls
- Supplies for making rehydration drinks, 'atmit' or tea
- Flashlight if there is no electricity in the area.

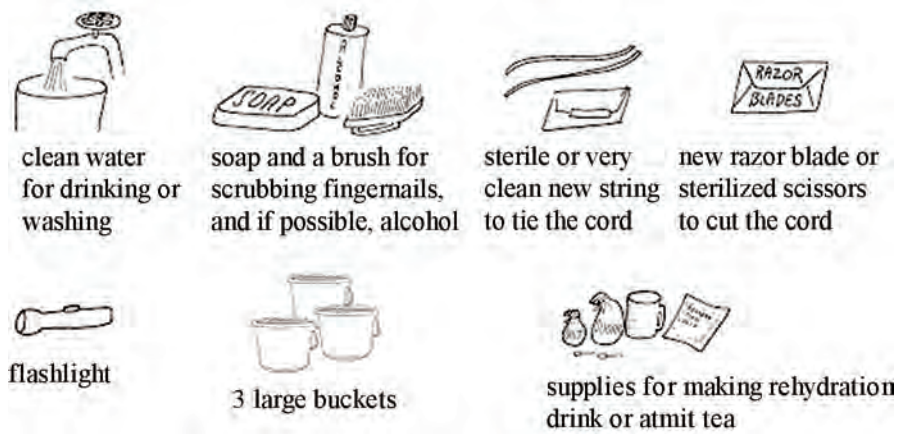


Figure 13.2 Supplies the woman should prepare in readiness for the birth.

13.6.3 Complication readiness and emergency planning

As noted earlier, complication readiness is the process of anticipating the actions needed in case of an emergency and making an emergency plan (Box 13.5). Pregnancy-related disorders such as high blood pressure and bleeding can begin any time between visits for antenatal check-ups, and any other illness may occur during the pregnancy. If such conditions are suspected at any stage, you should refer the woman immediately, and repeatedly counsel her to report to you or seek medical care quickly if danger symptoms are seen.

Box 13.5 In an emergency

Make sure the woman and her husband and other family members know where to seek help.



- Alert them to plan for transportation with vehicle owners.
- Advise them to save money for transportation, drugs and other treatments.
- Decide who will accompany her to the health facility.
- Decide who will care for her family while she is away.
- A pregnant woman may bleed massively (haemorrhage) during or after delivery and may need blood to be given to her. You should make sure that she or her husband identifies two healthy adult volunteers who agree to act as blood donors if she needs it. Reassure the potential blood donors that they will not be harmed by giving blood, and their general health will be assessed before donating.

An important aspect of emergency planning is to foresee possible sources of delay that could be overcome by good planning.

13.6.4 Causes of delay in getting emergency help

There are three types of delay, all of which can be serious for the mother and her baby:

- Delay in healthcare-seeking behaviour (delay in deciding to seek medical care),
- Delay in reaching a health facility
- Delay in getting the proper treatment.

These delays have many causes, including logistical and financial constraints, and lack of knowledge about maternal and newborn health issues. For example, the woman, her family or neighbours may feel that only the husband or another respected family member can give permission for the woman to send for you, or get urgent medical care at a health facility. But delay could threaten her life and that of her baby.

Delays in deciding to *seek care* may be caused by failure to recognize symptoms of complications, cost considerations, previous negative experiences with the healthcare system and transportation difficulties. Delays in *reaching*

care may be created by the distance from a woman's home to a facility or healthcare provider, the condition of roads, or a lack of emergency transportation.

Delays in receiving appropriate care may result from shortages of supplies and basic equipment, a lack of healthcare personnel, and poor skills of healthcare providers. The causes of these delays are common and predictable. However, in order to address them, women and families and the communities, providers and facilities that surround them must be prepared in advance and ready for rapid emergency action.



13.6.5 Making a referral

Finally, you need to know what to do if you are making a **referral** – sending a client for additional health services and specialized care at a higher level health facility. You should complete a referral form in full and sign and date it, then make sure it goes to the health facility with the patient; it also has a space for feedback to you by the health facility about what treatment they have given.

If you do not have the standard referral form, you should write a note to the health facility that contains the key information (Box 13.6).

Box 13.6 Referral note

- Date of the referral and time
- Name of the health facility you are sending the patient to
- Name, date of birth, ID number (if known) and address of the patient
- Relevant medical history of the patient
- Your findings from physical examinations and tests
- Your suspected diagnosis
- Any treatment you have given to the patient
- Your reason for referring the patient
- Your name, date and signature.

That concludes our discussion of focused antenatal care. In the study sessions that follow in this Module you will learn more about specialized aspects of antenatal care in specific contexts, including health promotion issues in pregnancy, counselling the pregnant woman about danger symptoms, PMTCT of HIV, the diagnosis and management of malaria, anaemia and urinary tract infections, hypertension, abortion and bleeding in early and late pregnancy. The *Antenatal Care* Module ends by describing how to set up an intravenous (IV) cannula and infusion tubing to give fluids directly into the blood stream, and how to insert a urinary catheter to drain the bladder of a pregnant woman. Your practical training sessions will ensure that you have achieved these competencies.

Summary of Study Session 13

In Study Session 13 you learned that:

- 1 Focused antenatal care (FANC) segregates pregnant women into those eligible to receive routine ANC (the basic component) and those who need specialized care for specific health conditions or risk factors.
- 2 FANC emphasizes targeted and individualized care planning and birth planning.
- 3 FANC makes the pregnant woman, with her husband and the family, participatory in identifying pregnancy related or unrelated complications, planning and decision-making on the future course of pregnancy.
- 4 Until proved otherwise, no pregnancy is to be labelled as risk-free.
- 5 A pregnant woman has four antenatal visits, each with specific objectives to promote FANC the health of the mother and the fetus, assess risks, and give early detection of complications.
- 6 The first FANC visit should be before week 16 of pregnancy; it assesses the woman's medical and obstetric history, physical examination and test results, to determine her eligibility to follow the basic component.
- 7 The second FANC visit is at 24–28 weeks. The additional focus is on measuring blood pressure and fundal height to determine gestational age.
- 8 The third FANC visit is at 30–32 weeks. The additional focus is on detecting multiple pregnancies.
- 9 The fourth is the final FANC visit between weeks 36 and 40. The additional focus is on detecting breech presentation and transverse fetal lie, and signs of hypertensive disorders. Pay extra attention to informing women about birth preparedness, complication readiness and emergency planning.
- 10 Complication readiness and emergency planning anticipates and prepares for the actions needed in case of an emergency, including organising transport, money, support persons and blood donors, and reducing sources of delay in getting to the higher level health facility.
- 11 Women who need to be referred at any stage during the pregnancy, or when labour begins, should be accompanied by a referral note with all relevant details of their history, diagnosis and treatment.

Self-Assessment Questions (SAQs) for Study Session 13

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 13.1 (tests Learning Outcomes 13.1, 13.2 and 13.4)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A Focused antenatal care focuses on the pregnant woman alone.
- B Women in the basic component receive only 4 FANC visits, unless warning signs or symptoms are detected at any stage.
- C Pregnant women do not need to prepare any equipment for labour and delivery.
- D The birth plan in FANC is essentially the same for every woman and she is told about it at the fourth visit.
- E Prophylaxis in FANC focuses on prevention of sexually transmitted infections, including mother to child transmission of HIV, malaria, nutritional deficiencies, anaemia and tetanus.

SAQ 13.2 (tests Learning Outcomes 13.3 and 13.5)

Suppose a 27-year-old pregnant woman called Aster comes to see you. She tells you that this is her first pregnancy and the last time she saw her menstrual period was 25 weeks ago. What actions do you take during this first visit? When would you normally see her for the next visit?

SAQ 13.3 (tests Learning Outcomes 13.3 and 13.5)

Suppose Aster comes to you at 32 weeks of her pregnancy. You discover that her blood pressure is 120/60 mmHg, she has mildly pale conjunctiva and the fundal height is measured as the 38 week size. What do these signs suggest and what actions would you take?

Study Session 14 Health Promotion Issues During Pregnancy

Introduction

Health promotion refers to any activity that aims to achieve better health in a community or a country. It includes the **health education** of individuals to enable them to control and change their lifestyles so that their health is improved. This is the main focus of this study session, in the context of your role as a health educator of pregnant women during antenatal care visits. But as you know from Study Session 2 of this Module, health promotion activities go far beyond this focus on individual behaviour, and include a wide range of social and environmental interventions that increase health and wellbeing in populations as well as individuals. Health promotion also includes **disease prevention** — actions taken to prevent a disease from developing, and **health screening** — the routine testing of individuals to see if they are at risk of developing a health problem. The relationship between health promotion, health education, disease prevention and health screening is represented in Figure 2.1 in Study Session 2.



Antenatal care (FANC, Study Session 13) provides a key entry point for a broad range of health promotion and disease prevention services. It is essential for healthcare providers and women to talk about important issues affecting the woman's health and her pregnancy.

During the antenatal period, you can promote the health of the women in your care and the health of their babies before and after birth, by educating mothers about the benefits of good nutrition, adequate rest, good hygiene, family planning and exclusive breastfeeding, and immunization and other disease prevention measures. Your aim is to develop women's knowledge of these issues so they can make better informed decisions affecting their pregnancy outcome — but you should never lose sight of the difficulties some women will face in being able to improve their lifestyles.

Learning Outcomes for Study Session 14

When you have studied this session you should be able to:

- 14.1 Define and use correctly all of the key words printed in **bold**. (SAQs 14.2 and 14.4)
- 14.2 Describe the major dietary constituents for good health in a pregnant woman, advise women on eating well with little money, and explain the problems resulting from a poor diet. (SAQs 14.1 and 14.2)
- 14.3 Explain the benefits of good hygiene and other self-care activities in pregnancy. (SAQ 14.3)
- 14.4 Explain the benefits of immunization against tetanus. (SAQs 14.3)
- 14.5 Explain the benefits of early and exclusive breastfeeding for the mother and for her baby. (SAQs 14.3 and 14.4)
- 14.6 Explain the benefits of family planning to achieve birth spacing and discuss postpartum contraception with pregnant women. (SAQ 14.4)

14.1 Nutrition during pregnancy

In this section (the biggest in this study session) we describe the nutritional requirements in pregnancy in detail and explain how you can advise women about eating well, even if they have very little money for additional food.

14.1.1 Eating well

Eating well means eating a *variety* of healthy foods and also eating *enough* food. This combination helps a pregnant woman and her baby stay healthy and strong because it:

- Helps a woman resist illness during her pregnancy and after the birth
- Keeps a woman's teeth and bones strong
- Gives a woman strength to work
- Helps the baby grow well in the mother's uterus
- Helps a mother recover her strength quickly after the birth
- Supports the production of plenty of good quality breast milk to nourish the baby.

Eating a variety of foods

It is important for pregnant women (like everyone else) to eat different kinds of food (see Figure 14.1): main foods (carbohydrates), grow foods (proteins), glow foods (vitamins and minerals), and go foods (fats, oils and sugar), along with plenty of fluids. We will describe each of these food groups in more detail later in the study session.



Figure 14.1 Eating well means eating a variety of foods to get all the right nutrients, especially during pregnancy and breastfeeding, and eating enough food for good health.

Eat more food

Pregnant women and women who are breastfeeding need to eat more than usual. The extra food gives them enough energy and strength, and helps their babies grow. They need to *increase* their usual food intake by at least 200 calories per day, or even more than this if they were underweight before they became pregnant. There are many ways to increase daily food intake by this amount: for example, one more serving of maize porridge and 12 groundnuts a day would meet this additional requirement.

Some pregnant women feel nauseated and do not want to eat. But pregnant women need to eat enough — even when they do not feel well. Simple foods like injera or rice can be easier for these women to eat. For women who suffer from nausea, encourage small and frequent meals.

Problems from poor nutrition

Poor nutrition can cause tiredness, weakness, difficulty in fighting infections and other serious health problems. Poor nutrition during pregnancy is especially dangerous. It can cause miscarriage or cause a baby to be born very small or with birth defects. It also increases the chances of a baby or a mother dying during or after the birth.

14.1.2 Talking to women about food

When you see pregnant women for antenatal care, or at village meetings and celebrations, in the market, try to find ways to enquire sensitively about the food they eat. The earlier pregnant women start eating healthier foods, the better chance they have to stay healthy, to have normal births and to have healthy babies.

To find out whether a woman is eating well, ask her what she usually eats, and how much. For example, ask her: ‘What did you eat yesterday?’ Be sure to tell her what is healthy about what she eats, reinforce the positive efforts she is making to eat well. Then, if it is appropriate, make a suggestion for how she could eat better.

Remember that education about food is not enough on its own to change eating behaviour. Even if a woman knows the best foods for health, she may not eat them. Many families cannot afford to buy enough food or a wide variety of foods. Some women may simply not like the taste of some healthy foods. To help a woman eat better, suggest healthy foods that she can afford and will choose to eat.



14.1.3 Eating well with little money

The biggest cause of poor nutrition is poverty. A very poor family can eat better by spending money wisely and not wasting what little they have. A father who buys alcohol, tobacco and ‘chat’ (or khat) could instead buy nutritious food or he could buy a hen to lay eggs. A mother who buys her children sweets or soda pop could instead buy eggs, beans or other low-cost, healthful foods. Here are some ideas that families can use to eat better with little money.

Beans, peas and lentils

Beans, peas and lentils belong to a family of vegetables called legumes. All legumes have a lot of protein and vitamins, and they usually do not cost much. They have even more vitamins if they are sprouted before being eaten. Planting legumes makes soil richer. Other crops such as maize will grow better in a field where legumes once grew (Figure 14.2).



Figure 14.2 Grow beans this year and plant maize in the same earth next year.



Less expensive meats and animal products

Blood and organ meats like liver, heart and kidney have a lot of iron and may cost less than other meats. Fish and chicken are as healthy as other meats, and usually cost less — especially for a family that fishes or raises their own chickens. Eggs have a lot of protein, iron, and vitamin A. Eggs give more protein for less money than almost any other food.

Whole grains

Grains like teff, wheat, rice and corn are more nutritious when they have not been refined (processed to take out the colour). Taking out the colour takes out healthy things too. White bread and white rice have fewer vitamins, minerals and proteins than brown bread or brown rice. Dark teff and brown injera are more nutritious than the light-coloured ones.



Vegetables and fruits

When vegetables are boiled or steamed, some of the vitamins from the foods go into the cooking water. Use this water to make soups.

The outside leaves of plants are usually thrown away, but sometimes they can be eaten. The leaves of the cassava plant have more vitamins and protein than the root. Many wild fruits and berries are rich in vitamins and natural sugars that give energy.

Breast milk

Breast milk costs nothing, and has all the nutrition a baby or young child needs. Young children who are on exclusive breastfeeding do not need fortified milks or other foods until after the age of 6 months.

14.2 Food groups and their nutrients

Main foods (carbohydrates)

In most parts of the world, people eat one **main food** at each meal. This main food may be injera, rice, maize, wheat, millet, cassava, plantain, kocho, bulla, godere, shenkora, gishta, breadfruit or another low-cost, starchy food which is rich in carbohydrates. These foods give the body energy. But to grow and stay healthy, the body needs other types of food too.

Grow foods (proteins)

Grow foods contain protein, which is needed for the growth of muscles, bones, and strong blood. Everyone needs protein to be healthy and to grow. Some grow foods that are high in proteins are:

- Legumes (beans, peas, soybeans, and lentils)
- Eggs
- Cheese, milk and yogurt
- Nuts and seeds
- Cereal, wheat, corn and rice
- Meat, poultry and fish.

Meat, fish and cheese are nutritious foods but they can carry parasites or disease when they are eaten raw. Pregnant women should eat fish, meat or cheese only when it is well cooked or pasteurized.



Go foods (sugars and fats)

Go foods contain sugars and fats, which give the body energy. Everyone needs these foods to be healthy. Some healthy go foods that are high in sugars are:

- Fruits
- Honey.

Some ‘go foods’ that are high in fats are:

- Some nuts (e.g. peanuts) and some seeds (e.g. sunflower)
- Avocados
- Vegetable oils, butter and lard
- Fatty meat
- Milk and cheese
- Eggs
- Fish.

These days, many people eat more sugars and fats than they need. That is because more people drink sugary soda pop, or eat foods that come from packages instead of foods made at home. These packaged, sugary and fatty foods are expensive and not as healthy as fresh products. They also damage the teeth. It is better to eat go foods that are natural, not packaged.



Glow foods (vitamins and minerals)

Glow foods contain vitamins and minerals, which help the body fight infection and keep the eyes, skin and bones healthy and strong. Vitamins and minerals are known as **micronutrients** because they are very small. Fruits and vegetables are high in vitamins and minerals. It is important for pregnant women to eat as many different fruits and vegetables as they can. In the next section, we discuss the five most important vitamins and minerals that pregnant and breastfeeding women should eat every day.

14.2.1 The five most important vitamins and minerals

Pregnant and breastfeeding women need more of these five vitamins and minerals than other people do — iron, folic acid, calcium, iodine and vitamin A. They should try to get these vitamins and minerals every day.

- Why do you think that a pregnant woman needs more of these vitamins and minerals?
- The baby needs them to grow and be healthy and to prevent birth defects. A pregnant woman needs them to have enough energy to look after herself and her family, to fight infections and to keep her strong for completing the pregnancy, giving birth safely and breastfeeding the baby afterwards.

Iron

Iron helps make blood healthy and prevents anaemia (you will learn about diagnosing and treating anaemia in Study Session 18 of this Module). A pregnant woman needs a lot of iron to have enough energy, to prevent too much bleeding at the birth, and to make sure that the growing baby can form

healthy blood and store iron for the first few months after birth. It is also important in the production of good breast milk.

These foods contain a lot of iron (Figure 14.3):

- Poultry (chicken)
- Fish
- Sunflower, pumpkin and squash seeds
- Beans, peas and lentils
- Dark leafy green vegetables
- Yams
- Hard squash
- Meat (especially liver, kidney and other organ meats)
- Whole grain products
- Dried fruit
- Nuts
- Iron-fortified bread
- Egg yolk.

Taking iron pills

It can be difficult for a pregnant woman to get enough iron, even if she eats iron-rich foods every day. She should also take iron pills (or liquid iron drops) to prevent anaemia. These medicines may be called ferrous sulfate, ferrous gluconate, ferrous fumarate or other names (*ferrous* comes from the Latin word for iron).

Iron pills or drops can be obtained from pharmacies and health institutions, but throughout Ethiopia you will give iron pills routinely to pregnant women as part of focused antenatal care. She should receive 300 to 325 mg (milligrams) of ferrous sulphate *once* a day taken by mouth, preferably with a meal. This dosage is usually supplied in a single tablet combined with folate (see below).

The iron pills may cause nausea, make it hard for the woman to pass stool (constipation), and her stool may turn black, but it is important for the woman to keep taking the iron pills because anaemia can cause complications during pregnancy, during delivery, and after the baby is born. It is helpful for the woman to take the iron pill with a meal, drink plenty of fluids, and eat plenty of fruits and vegetables to avoid nausea and constipation. The black colour of the stool is a normal side-effect from the iron and is not harmful.

Folate (folic acid)

Lack of folate can cause anaemia in the mother and severe birth defects in the baby. To prevent these problems, it is important if possible for a woman to get enough folic acid in her diet *before* she becomes pregnant and she should certainly do this in the first few months of pregnancy.

Foods rich in folate that pregnant and breastfeeding women should try to eat every day (Figure 14.4) include:

- Dark green, leafy vegetables
- Whole grains (brown rice, whole wheat)
- Meat (especially liver, kidney and other organ meats)
- Fish



Figure 14.3 Pregnant and breastfeeding women should try to eat at least one iron-rich food every day.



Figure 14.4 These foods contain a lot of folate.

- Peas and beans
- Eggs
- Sunflower, pumpkin and squash seeds
- Mushrooms.

As well as eating as many of these foods as she can, all pregnant women should also take 400 mcg (micrograms) of folic acid tablets orally every day during pregnancy. She should be able to get these tablets from you as part of Focused Antenatal Care.

Calcium

A growing baby needs a lot of calcium to make new bones, especially in the last few months of pregnancy. Women need calcium for strong bones and teeth. These foods (Figure 14.5) contain a lot of calcium:

- Yellow vegetables (hard squash, yams)
- Lime (carbon ash)
- Milk, curd, yogurt and cheese
- Green, leafy vegetables
- Bone meal and egg shells
- Molasses and soybeans
- Sardines.

Women can also get more calcium in these ways:

- Soak bones or eggshells in vinegar or lemon juice for a few hours. Then use the liquid to make soup or eat with other foods.
- Add lemon juice, vinegar or tomatoes when cooking bones.
- Grind eggshells into a fine powder and mix into food.
- Soak maize in lime (carbon ash) before cooking it.

Iodine

Iodine prevents goitre (swelling of the neck) and other problems in adults. Lack of iodine in a pregnant woman can cause her child to have cretinism, a disability that affects thinking and physical features.

The easiest way to get enough iodine is to use iodized salt instead of regular salt (Figure 14.6). It is available in packet form labelled 'Iodized salt' in many market places.

Vitamin A

Vitamin A prevents poor vision at night or when light intensity is low and helps to fight infections. Lack of vitamin A also causes blindness in children. A woman needs to eat plenty of vitamin A-rich food during pregnancy and while breastfeeding.

- Dark yellow and green leafy vegetables and yellow fruits contain lots of vitamin A. Name some of these vegetables and fruits.
- Carrots, mangoes, spinach, cabbage. (You may have suggested other good examples.)

Other sources of vitamin A are liver, fish liver oil, milk, eggs and butter.



Figure 14.5 Calcium-rich foods.

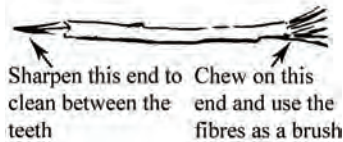


Figure 14.6 Iodized salt is the easiest way to get enough iodine in the diet.



Fluids

Along with eating healthy foods, women should drink plenty of clean water and other healthy fluids every day. Fruit juices, animal milks and many herbal teas are all healthy fluids to drink.



14.3 Hygiene during pregnancy

During pregnancy, women should be especially careful about personal hygiene. Pregnant women sweat more and have more vaginal discharge than non-pregnant women (due to hormonal changes), and they may be more vulnerable to infection by germs in the environment. Keeping the body clean helps prevent infection. Hand washing with soap is the most important hygiene action she can take, especially before preparing food and after going to the toilet. If possible, a pregnant woman should wash her body every day with clean water — especially her genital area.

Dental hygiene is especially important during pregnancy because increased oestrogen levels can cause swelling and increased sensitivity in gum tissues. Whether she cleans her teeth with a dental stick or a toothbrush and toothpaste, the pregnant woman should do so regularly.

14.4 Living a healthy lifestyle

As well as eating well and keeping clean, pregnant women need to get enough sleep and rest every day. This will help her to avoid developing high blood pressure (discussed in detail in Study Session 19 later in this Module), and oedema (swelling of the feet and ankles due to fluid collecting in the tissues). Good rest also helps her to stay strong and gives the fetus a better chance of being born healthy.



Figure 14.7 Families who encourage a pregnant woman to rest often are helping her and the baby to be healthy.

Many women have to work throughout their pregnancy in the fields, factories or shops, as well as in their own homes. This can be especially hard for women during pregnancy, because they get more tired than usual — especially in the last few weeks. Explain to them and their families that the woman should try to rest for a few minutes every 1 to 2 hours (Figure 14.7). This will also help her to enjoy her pregnancy.

Make sure that women know that whatever they put into their body will pass across the placenta and into the baby (Figure 14.8). Cigarette smoke, alcohol and illegal drugs such as opium, heroin, cocaine and barbiturates are dangerous for anyone, but especially harmful to the developing fetus. Even one or two alcoholic drinks a day during pregnancy can result in the baby being born too small, or with birth defects or disabilities that affect the brain.

She should also be advised to avoid:



Figure 14.8 Whatever a mother puts into her body passes to her baby.

- Lifting heavy things
- People who are sick, especially if they have vomiting, diarrhoea or rashes
- Strong chemicals or their fumes (e.g. chemicals used to kill pests in the fields)
- Non-essential medicines
- Medicines such as cough syrups, laxatives and pain relievers that have not been prescribed for her by a health worker (Figure 14.9).



Figure 14.9 Pregnant women should take only medicines that are safe in pregnancy and that are truly needed.

14.5 Immunization against tetanus

Tetanus is a very serious, life-threatening infection, which damages the nervous system and is caused by bacteria in the environment, for example in soil. Tetanus toxoid immunization is the best protection against tetanus for the woman and her baby. Therefore, it is *very* important for her to be immunized according to the schedule on her card, and to bring her card to every antenatal care visit (Figure 14.10).



Figure 14.10 Make sure all pregnant women are immunized against tetanus.

In the Module on *Postnatal Care*, you will learn that to prevent tetanus in the newborn, the stump of the baby's umbilical cord should be kept clean and dry after birth and until it falls off. This is one reason why it is so important for the woman and her family to plan and prepare for a clean and safe childbirth attended by a skilled health provider such as you.

14.6 Benefits of early and exclusive breastfeeding

Breastfeeding positions and good attachment of the baby are described in detail in the *Postnatal Care* Module, but you should lay the foundations during your antenatal care visits with pregnant women — especially those having their first baby. Whether the mother chooses to breastfeed her baby or she feeds a substitute for human milk, you should respect her decision. But



she cannot make this choice if she has not been well informed by you about the benefits of early and exclusive breastfeeding. Explain to her that it:

- Provides the best nutrition for the newborn
- Is easily digested and efficiently used by the baby's body
- Protects against infection and other illnesses
- Offers some protection against allergies
- Is cost-effective and affordable
- Promotes mother–baby bonding
- Provides the woman with a degree of contraceptive protection (though less than 100% effective) if she is exclusively breastfeeding until her first menstrual period returns after the birth.

14.6.1 Unhealthy beliefs and practices about feeding newborns

In some countries, there are beliefs about feeding newborn babies that are dangerous to the baby's health. For example, in some places the baby is given food or liquids, such as water with sugar, honey, herbs, spices and animal milks, during the first 3 days after the birth before the woman begins breastfeeding. The thin, watery fluid called **colostrum** that her breasts produce during these 3 days may be thrown away because it is considered unclean.

- What are the benefits of feeding colostrum to newborns? (You learned about this in Study Session 7 of this Module.)
- Colostrum is rich in proteins and **antibodies** (special proteins produced by the mother's immune system that help to protect her and the baby from infection).

Even after the woman's breastmilk begins to flow, some people go on feeding other liquids and honey to the baby, in addition to breastfeeding.

- What do you think are the reasons for this and what are the risks in doing so?
- Breastfed babies may demand feeding frequently, so the mother may think that her breastmilk is not enough on its own. Feeding other liquids and honey to the baby is not necessary for nutrition and it increases the risk of infection from the spoon or feeding bottle.

14.6.2 General principles of early and exclusive breastfeeding

For mothers who are HIV-negative:

- Babies should begin breastfeeding as soon as possible after birth (preferably within the first hour) and continue for at least the first 6 months of life.
- Colostrum, the first milk should be given to the baby, not thrown away.
- The baby should be breastfed exclusively for the first 6 months of life. Nothing else should be given to the baby to drink or eat during that time.
- The baby should be breastfed whenever s/he wants, day and night (on demand), which stimulates the breasts to produce an adequate supply of breast milk.

You will learn how to advise mothers who are HIV-positive in Study Session 16 of this Module, on prevention of mother to child transmission (PMTCT).

14.7 Postpartum family planning

During the antenatal period, discussions should begin concerning postpartum contraception options. Family planning information and services are important components of good quality antenatal care. These occasions provide an opportunity for health providers to discuss with women the benefits of **birth spacing** (leaving at least 2 years between births) for their health and the health of their current and future children. Help pregnant women and new mothers decide how they will avoid pregnancy after childbirth.



14.7.1 Breastfeeding and contraception

The return of fertility after birth is not entirely predictable, and conception can occur before the woman resumes her first menstrual period. A woman who is not fully and exclusively breastfeeding is able to become pregnant again as soon as 4 to 6 weeks after childbirth, and she should plan to begin some sort of contraception before starting to have sexual intercourse again. Full and exclusive breastfeeding gives good protection against conception, but cannot be relied on as 100% effective. A breastfeeding woman is usually protected from pregnancy *only* if:

- She is no more than 6 months postpartum
- She is breastfeeding exclusively (8 or more times a day, including at least once at night; no daytime feedings more than 4 hours apart and no night feedings more than 6 hours apart; no complementary foods or fluids given to the baby)
- Her menstrual cycle has not returned.

Numerous safe methods of contraception are available for the breastfeeding woman.

14.7.2 Benefits of birth spacing

For maximum protection, women after childbirth should not wait until the return of monthly bleeding to start a contraceptive method, but start as soon as safe guidance for her chosen method allows. (Some basic principles of contraception after miscarriage or induced abortion are given in Study Session 20 of this Module. Detailed discussion of all contraceptive methods and guidelines are given in the *Family Planning* Module in this curriculum.)

Intervals of at least 2 years have health benefits for both the woman and baby (Box 14.1).

Box 14.1 Appropriate birth spacing lowers the risk of:

- Maternal mortality
- Fetal death (miscarriage or stillbirth), neonatal mortality
- Anaemia in the mother during subsequent pregnancies
- Postpartum inflammation of the endometrium lining the uterus
- Premature rupture of the amniotic membranes surrounding the fetus
- Premature birth

- Intrauterine growth retardation and a low birth-weight baby
- Malnutrition of newborns and infants due to insufficient breastmilk.

Coordinate your family planning visits with an infant's immunization schedule. And remember that optimal breastfeeding offers triple value: important improvements in child survival and health, better health for mothers, and temporary contraception.

In the next study session, you will learn about the principles of effective counselling, so you can communicate the health promotion messages to pregnant women sensitively during antenatal care, and address their concerns and beliefs about pregnancy and childbirth.

Summary of Study Session 14

In Study Session 14 you learned that:

- 1 Eating well during pregnancy and breastfeeding means eating a variety of foods and enough foods — at least 200 additional calories every day.
- 2 Eating well with little money is possible by buying cheap nutritious foods like beans and organ meats, growing legumes, keeping chickens, using whole grains, and making soups.
- 3 Pregnant and breastfeeding women need to eat a variety of main foods (carbohydrates), grow foods (proteins), go foods (sugars and fats), and glow foods (vitamins and minerals, particularly iron, folate, calcium, iodine and Vitamin A).
- 4 Iron pills and folate (folic acid) tablets should be provided to pregnant women as part of routine antenatal care.
- 5 Personal hygiene, especially hand washing and keeping the genital area clean, helps to prevent infection during pregnancy (and at all times).
- 6 Getting plenty of rest and sleep, and avoiding alcohol, cigarettes, illegal drugs, strong chemicals and infectious persons helps to protect the pregnant woman and her unborn baby.
- 7 Immunization against tetanus should be a routine part of antenatal care.
- 8 Feeding colostrum, followed by full and exclusive breastfeeding, is the best and only nourishment a baby needs in the first 6 months of life.
- 9 Full and exclusive breastfeeding may protect the woman from becoming pregnant again up to 6 months after the birth, but only if feeding is very frequent and her menstrual periods have not returned.
- 10 Birth spacing of at least 2 years is good for the health of the woman, her baby and any older children — in fact for all her family.

Self-Assessment Questions (SAQs) for Study Session 14

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the following questions.

Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 14.1 (tests Learning Outcomes 14.2)

Suggest some ways to help women who cannot afford to buy a lot of different foods how they can get enough calories and a variety of foods.

SAQ 14.2 (tests Learning Outcomes 14.1 and 14.2)

Complete Table 14.1. Some of the categories have been left blank for you to write your answers.

Table 14.1 for SAQ 14.2.

Food group	Contains	Three examples
Main foods	carbohydrates	
	proteins	
Go foods		
	vitamins and minerals	

SAQ 14.3 (tests Learning Outcomes 14.3, 14.4 and 14.5)

What advice should you give a pregnant woman on how to avoid infection in herself or her newborn baby? Think of at least three different actions she can take.

SAQ 14.4 (tests Learning Outcomes 14.1, 14.5 and 14.6)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A Breastfeeding is 100% effective at preventing a further pregnancy.
- B Colostrum should be fed to the newborn baby, not thrown away.
- C Early and exclusive breastfeeding means feeding only breastmilk from the first hour of the baby's life until at least 6 months of age.
- D Even if menstrual periods return during exclusive breastfeeding, a woman does not need to begin another form of contraception.
- E The benefits of birth spacing of at least 2 years include reduced risk of maternal and fetal death.

Study Session 15 Counselling Pregnant Women on Danger Symptoms

Introduction

This study session will provide you with the knowledge of how to counsel pregnant women on the common danger symptoms that some of them may develop in the course of their pregnancy. Effective counselling in language that the women in your community can understand will enable them to know when to get help quickly from you or from a health facility, if one of these danger symptoms develops.

You have already understood the different meaning of **symptoms** and **signs** in Study Session 8, and in Study Session 9 you learned about the common danger signs and symptoms during pregnancy. This study session will start by briefly explaining the general principles of counselling and the special features of counselling pregnant women. Then we summarise the common pregnancy-related or unrelated danger symptoms that pregnant women themselves can feel or notice in relation to the gestational age. Later in this session, we guide you about when and how to counsel pregnant women in relation to these danger symptoms, and we emphasise the importance of involving the husband/partner in this counselling.

Learning Outcomes for Study Session 15

After completing this session, you should be able to:

- 15.1 Define and use correctly all of the key words printed in **bold**. (SAQ 15.2)
- 15.2 Discuss the general principles of counselling and summarise the skills and attitudes of an effective counsellor. (SAQs 15.1, 15.3, 15.4 and 15.5)
- 15.3 Explain the special nature of counselling pregnant women. (SAQs 15.1 and 15.3)
- 15.4 Describe the common danger symptoms that can be felt or noticed by pregnant women, the gestational age at which each symptom is most likely to appear, and the appropriate actions that the woman should take. (SAQs 15.2 and 15.5)
- 15.5 Identify the appropriate timing of counselling on different types of danger symptoms, in relation to gestational age. (SAQ 15.3)
- 15.6 Explain the importance of husband/partner involvement in the counselling of pregnant women about danger symptoms. (SAQ 15.4)

15.1 General principles of counselling the pregnant woman

Counselling the pregnant woman is a process of **two-way interpersonal communication** in which you help her to know about possible problems that she may encounter during pregnancy, and make her own decisions about how to respond. When you create a two-way discussion with good understanding of each other, it not only helps the woman to know the possible problems that she may encounter and when to take appropriate action, but it also establishes a trusting relationship with you. Additionally, such two-way communication

helps the woman to feel more comfortable and freely express her worries and needs to you.

Remember that the pregnant woman is also an expert on her own needs and situation. She has learnt informally many things about pregnancy (sometimes right and sometimes wrong). Therefore, never discourage her from expressing her beliefs and thoughts to you from the outset — you should develop tolerance for every woman's values and beliefs, while you gently and sensitively try to dispel any important misconceptions she may have. Respect and tolerance for wrong beliefs doesn't mean accepting that they cannot be changed. Sensitivity and tolerance are two of the most important qualities of an effective counsellor.

Box 15.1 summarizes the skills and attitudes you need in order to develop good communication with any client, including pregnant women. The **counselling process** goes through the following stages: opening building relationships with pregnant women, exploring their issues, facilitating exchange of information (two-way) and closing the counselling process with gratification and the next appointment.



Figure 15.1 Maintaining confidentiality builds trust.

Box 15.1 Skills and attitudes for effective two-way communication

- Welcome the woman and ask her to sit near you and facing you.
- Smile and make good eye contact with her.
- Reassure her that you will always maintain her privacy and confidentiality (Figure 15.1).
- Without her permission, do not include a third person in the meeting.
- Use simple non-medical language and terminologies throughout that she can understand, and check frequently that she has really understood.
- Actively listen to her, using gestures and verbal communication to show her that you are paying attention to what she says.
- Encourage her to ask questions, express her needs and concerns, and seek clarification of any information that she does not understand.
- Ideally, she should talk for about two-thirds of the time, and you talk for only one-third (see Figure 15.2). Research has shown that health professionals often talk too much, and don't allow enough time for the client to express their own views and needs.

15.2 What is special about counselling pregnant women?

In the pregnant woman, the general purpose of counselling is to provide her with essential information for improving or maintaining her health and the health of her baby before and after birth. To be specific, the counselling will help the pregnant woman to stay healthy through advising her about health promotion issues such as nutrition (you learned about this in Study Session 14), and also to know the common symptoms of health risks that may affect her or her baby. In addition, counselling will be an entry point to the family, in particular to her husband/partner, so they also know the potential

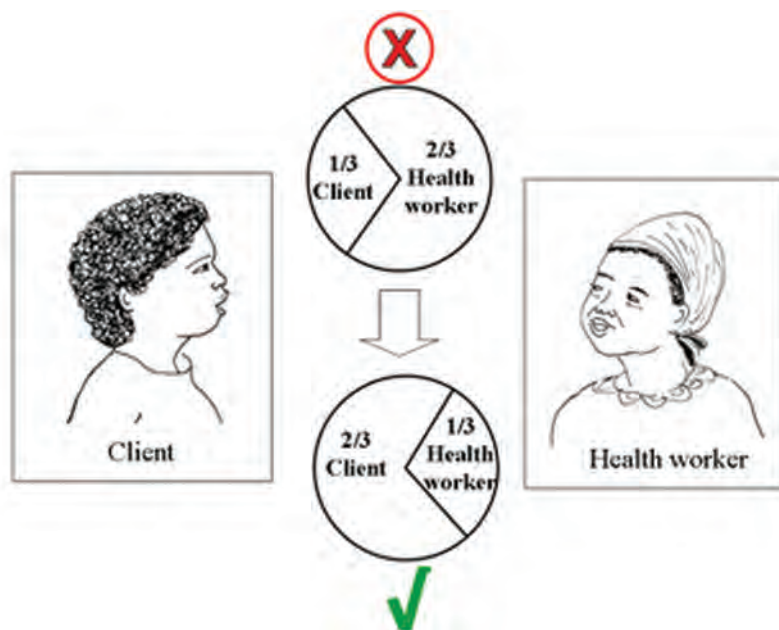


Figure 15.2 Healthcare providers should talk less and encourage their clients to talk more.

risks encountered during pregnancy and get prepared for them both psychologically and economically. Box 15.2 summarizes the outcomes of successful counselling about danger symptoms during the antenatal period.

Box 15.2 Counselling about danger symptoms

Counselling has succeeded when the pregnant woman:

- Feels she got the help she wanted
- Understands the common danger symptoms
- Knows what to do and feels confident that she can come soon if she develops one of the danger symptoms
- Feels respected, listened to and appreciated
- Comes back when she needs your help (trusts you, see Figure 15.3).



Figure 15.3 If the pregnant woman trusts you, she is more likely to come for her antenatal checkups.

15.3 What are the common danger symptoms during pregnancy?

The occurrence of the common danger symptoms that can be felt or noticed by the pregnant woman vary in their timing in relation to the gestational age.

- What is meant by the first, second and third trimester of pregnancy?
- **Trimester** means ‘three month period’. The **first trimester** is the first 3 months of the pregnancy (i.e. from conception to the 14th completed week of gestation, measured from the woman’s **last normal menstrual period** or LNMP); the **second trimester** is from 3–6 months (i.e. from 15 to 27 completed weeks); and the **third trimester** is the final 3 months of pregnancy (i.e. from 28 weeks to delivery at up to 42 weeks).

You have already learnt about the assessment of some pregnancy-related and medical problems by taking the woman's history and doing a physical examination (recall Study Sessions 8 and 9). However, you can only detect health risks to the mother or to the baby during the routine antenatal checkups, so it is very important to help the mother detect any symptoms by herself and know when to come to you quickly.

First, you have to know very well the timing of occurrence of common pregnancy-related or other medical problems, taking the gestational age as the milestones (see Table 15.1). Secondly, you have to be selective not to overwhelm the pregnant mother with too much information at a time. Thirdly, remember that counselling is not a one-time business – you should be prepared to repeat the messages about danger symptoms at every visit and check that the woman has understood correctly.

You already know about some of the conditions listed in Table 15.1 (e.g. ectopic and molar pregnancy). Later in this Module, you will learn in detail about the other common causes of maternal and fetal mortality and morbidity during pregnancy: hyperemesis gravidarum was in Study Session 12; premature rupture of membranes (PROM) is in Study Session 17; malaria, anaemia and urinary tract infections are covered in Study Session 18; hypertensive disorders of pregnancy are in Study Session 19; and spontaneous and induced abortion and vaginal bleeding in early and late pregnancy are in Study Sessions 20 and 21 respectively.

Table 15.1 Danger symptoms during pregnancy.

Symptoms the mother experiences <i>(terms in italics are the most important)</i>	She may have this medical condition
Conception to 20 weeks of pregnancy	
<i>Persistent vomiting</i> , weight loss	Hyperemesis gravidarum Characterised by persistent vomiting, weight loss of 5 kg and above, urine analysis shows ketones 2+ or more (You learnt about this in Study Session 12; how to do the urine analysis is in Study Session 19)
<i>Vaginal bleeding (fresh)</i> , may include passage of clots and fleshy material, with crampy lower abdominal pain	Abortion (acute) All types of spontaneous abortions except missed abortion are acute 'sudden' events (You will learn about abortions in Study Session 20)
<i>Pregnancy symptoms disappear, abdomen is not growing or is even decreasing in size</i> , there may be minimal dark vaginal bleeding	Missed abortion When the fetus or fetal tissue is entirely in the uterus, but it has no signs of life and the cervix is completely closed
<i>Vaginal bleeding (menstrual-like)</i> , lower abdominal pain, missed or irregular period	Ectopic pregnancy (covered in Study Sessions 5 and 12)
<i>Vaginal bleeding (fresh)</i> , passage of tissues which look like an ice spoiled with blood (grape-like tissues), fast abdominal growth	Molar pregnancy (covered in Study Sessions 10 and 20)

On and off lower abdominal pain alone is very common in early pregnancy and is not a danger symptom on its own.

20 weeks to full term pregnancy

Headache, burning epigastric pain (Figure 15.4), blurred vision, generalized body swelling (involving the back, abdominal wall, hands and face), decreased urine output

Hypertensive disorders of pregnancy

(pre-eclampsia and eclampsia were introduced in Study Sessions 8 and 9; you will learn more in Study Session 19)

Vaginal bleeding in late pregnancy, even a minimal amount

Late abortion (20–27 weeks) or antepartum haemorrhage (28 weeks +)
(You will learn more in Study Session 20)

Leakage of watery fluid from the vagina that wets her underwear significantly and may be extensive

Premature rupture of membranes (PROM)

(You will learn about PROM in Study Session 17)

Progressively increasing pushing down pain in the lower abdomen before 9 months of gestation

Preterm labour

(This is covered in the Module on *Labour and Delivery Care*)

No change in abdominal growth, fetal kick felt less than 10 times in 12 hours. (Any number of fetal kicks felt in one minute is counted as one kick)

Intrauterine fetal growth restriction (IUGR) (Briefly mentioned in Study Session 7)

Absent fetal kick for more than 6 hours

Intrauterine fetal death (IUFD)
At any time during pregnancy

Fever, headache, chills, rigor, sweating, feels thirsty, generalized aching pain, lost appetite

Malaria, typhoid fever, typhus fever or relapsing fever

(You will learn about these infections in the Module on *Communicable Diseases*)

Urination becomes painful, frequent, urgent and may be bloody or look like pus

Urinary tract infections (UTIs, cystitis or urethritis)

(You will learn about UTIs in Study Session 18)

Pain in the sides (flanks), fever, vomiting, bloody urine, urgency and frequency in urination

Acute pyelonephritis

(Figure 15.5 shows the specific area in the kidney where this infection can occur)

Yellowish discolouration of the eyes, loss of appetite, hate spicy food smell, feels exhausted, nausea and vomiting

Liver disease

Thirsty, drinks excessive amounts of water, urinates a lot, feels hungry, weight loss

Diabetes mellitus

Persistent cough

Lung and heart disease


Figure 15.4 Burning epigastric pain is a danger symptom.

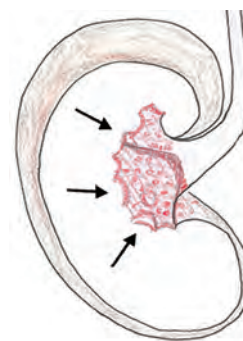


Figure 15.5 Infection in this part of the kidney leads to danger symptoms.

Table 15.1 is a detailed summary for you to study as a healthcare provider. It would not be appropriate or useful to show it to pregnant women during antenatal visits.

- Can you suggest why not?
- The table uses medical language that the woman is unlikely to understand (unless she is also a health worker), and it may overwhelm her with too much information all at once and make her anxious to see so many potential risks to herself and her baby.

Table 15.2 is a simplified summary in two parts, which can be shared with pregnant women at the appropriate stage of gestation. Women in the basic component of the focused antenatal care (FANC) programme, described in Study Session 13, should be seen for the first antenatal visit before 16 weeks of gestation if possible, and for the second visit at 20–24 weeks. Make sure every woman knows the common danger symptoms that are more likely to occur at each stage.

Table 15.2 Danger symptoms all pregnant women should know.

In all visits before 20 weeks	In all visits after 20 weeks
Persistent vomiting	Headache
Vaginal bleeding	Burning epigastric pain (see Figure 15.4)
No change in abdominal growth	Blurred vision
Fever	Vaginal bleeding
Vomiting	Leakage of fluid
	No change in abdominal growth
	Persistent vomiting

15.4 Telling pregnant women about the danger symptoms

You should realize that pregnant women have many responsibilities at home and usually also in the fields, and they may already be overwhelmed by too much information about the current pregnancy. Table 15.2 presents what the mother primarily needs to know, but you shouldn't tell her everything all at the same time. Counselling the pregnant woman in relation to the stages of pregnancy is a good strategy from the perspective of the pregnant woman's understanding and using your time as efficiently as possible. In other words, you need to discuss the common danger symptoms with her, taking into account the stage of pregnancy. For instance, a pregnant woman coming for antenatal care before 20 weeks of gestation should be counselled about the danger symptoms of miscarriage, which are usually manifested by *vaginal bleeding*. She should also be aware of danger symptoms of common medical disorders that can occur any time during pregnancy - in the same way that they could occur to anyone in the rest of the population.

Most pregnancy-related serious problems occur in the third trimester. Therefore, it is a good opportunity to counsel the mother about them during the second trimester, to let her prepare ahead of time. If you have them, using printed instructions, diagrams, photos or pictures, which improve the pregnant woman's understanding and her ability to remember the key points. It is also a good approach to remind her about what was discussed at earlier antenatal visits (see Box 15.3).

Box 15.3 Following up on previous counselling messages

In subsequent antenatal visits, helping the woman to go over what was discussed before will help you to:

- Discover how much she understood the issue already
- Discover how much she can recall correctly
- Identify her acceptance and readiness to act on the knowledge
- Identify areas she has wrongly understood.

It will also help her to express her concerns and doubts, so that you can:

- Discuss any issues that were not clear or not accepted
- Plan together what to do next, involving her husband/partner.

15.5 Advantages of husband/partner involvement in antenatal counselling

The majority of pregnancy-related problems are unpredictable and late phenomena. On the other hand, public awareness of pregnancy-related maternal and fetal health risks is very minimal. So far in Ethiopia, the husband or male partner is usually more influential, economically empowered and socially accepted than the woman. Counselling as many pregnant women as possible is one way of accessing the public by involving the husband, who can act as the second agent on dissemination of potential risks of pregnancy to the majority (the public).

Therefore, involving the husband/partner in antenatal visits has many advantages (Box 15.4).

Box 15.4 Involving the husband/partner in antenatal visits

- Helps the partner/husband to become aware of the danger symptoms the woman may encounter during the pregnancy.
- Will make him more caring and more concerned.
- Helps him to take action (early reporting) when danger symptoms appear.
- Alerts him to save money for possible emergencies, e.g. transport to the health facility.
- Alerts the family to decide on their preferred place of delivery.
- Helps the family get prepared for caring for the mother and her baby after the birth.
- Is a further entry point to increase general public awareness of the potential risks during pregnancy.



15.6 Checklist after each antenatal counselling session

Finally, we conclude this study session with a checklist that you can use to evaluate your own counselling skills and attitudes (Table 15.3). It has been adapted for use in counselling pregnant women, but it incorporates the general principles of counselling that you can apply to any client in your health care.

Table 15.3 Checklist for ‘GATHER’ counselling skill (modified for pregnant women).

Greet	Did you:
	Welcome each pregnant woman on arrival?
	Discuss in a comfortable and private place?
	Assure the pregnant woman of confidentiality?
	Express caring and acceptance by words and gestures throughout the meeting?
	Explain what to expect?
Ask	Did you:
	Ask the pregnant woman’s reason for the visit?
	Encourage the pregnant woman to do two-thirds of the talking?
	Ask mostly ‘open’ questions?
	Pay attention to both <i>what</i> the client said and <i>how</i> it was said?
	Put yourself in the woman’s shoes — expressing understanding of what she said without criticism or judgment?
	Ask about the pregnant woman’s feelings?
	Ask about her preferences?
Tell	Did you
	Start the discussion focusing on the pregnant woman’s preference(s)?
	Discuss the danger symptoms of pregnancy in relation to the gestational age?
	Give information about danger symptoms of pregnancy to help her make her own decisions?
	Avoid ‘information overload’?
	Use words familiar to the client?
	Discuss the advantages of early reporting if she encountered danger symptoms during pregnancy?

Help	Did you: Let the pregnant women know that the decision is hers? Help the pregnant women be able to realize common danger symptoms? Help her think over the consequences for her own or her baby's life? Advise the pregnant women without controlling and frustrating? Let the pregnant women decide? Make sure the pregnant women's choices are based on accurate understanding? List any medical, social, cultural or religious reasons for making a different decision – probably different from what you might like to achieve?
Explain	Did you: Provide what the client wants, if there is no medical reason not to? Explain when the woman should come to you if one of the danger symptoms appeared? Help her to explain in her own words how much she understands each of the danger symptoms of pregnancy? Explain using printed instructions, pictures and diagrams?
Return	Did you: Plan when the next visit should be? Discuss with the pregnant woman if she can come back with her husband or partner? Assure the pregnant woman that she should come back at any time, for any reason? Assure her to come back soon, even if she missed the day of her scheduled appointment for some reason beyond her control? Assure her that it is her full right to go to any other health facility at any time? Thank the pregnant woman for attending for antenatal care?

Summary of Study Session 15

In Study Session 15 you learned that:

- 1 Counselling is a two-way confidential communication process that helps pregnant women to examine their personal issues, make decisions, and make plans for taking action if they develop danger symptoms.
- 2 Basic skills in counselling include the use of active listening, encouraging the pregnant woman to talk, to ask questions freely, and focusing on relevant issues in relation to danger symptoms and gestational age.
- 3 Every pregnant woman has the right to decide what happens to her pregnancy.

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- 4 All information that the pregnant woman provides during her visit should be kept confidential.
 - 5 Common errors in counselling include interrupting the woman when she is talking, looking away frequently, criticizing her cultural and religious values, finishing off her sentences and judging her.
 - 6 The counselling process goes through the following stages: opening and building relationships, exploring the issues, facilitating change, and closing.
 - 7 The pregnant woman should be counselled to come to you at once if she develops one or more of the following danger symptoms:
 - *Usually in the first half of pregnancy:* persistent vomiting, weight loss, vaginal bleeding and no change in abdominal growth.
 - *Usually in the second half of pregnancy:* headache, blurred vision, epigastric burning pain, vaginal bleeding, leakage of fluid from the vagina, no change in abdominal growth, decreased or absent fetal kick.
 - *Any time during pregnancy:* fever, vomiting, flank pain, yellowish discoloration of eyes or persistent cough.
 - 8 Involving the husband or partner in the antenatal care visits makes care of the pregnant woman a family concern and responsibility, and also helps them to be alert to danger symptoms that need urgent action.

Self-Assessment Questions for Study Session 15

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the following questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 15.1 (tests Learning Outcomes 15.1 and 15.2)

For each of the following statements, say whether it is true or false. Explain what is *incorrect* about any statement that you judge to be false.

- A Saying welcome, showing a smiling face, letting her express her concerns and doubts, helps the mother feel comfortable and develop confidence in you.
- B You have to tell her that unless she comes on the day of her scheduled appointment, you will not see her at any other time.
- C You should not allow her to ask questions till you finish telling her what she needs to know.
- D You can counsel one woman who is sitting with you while you are conducting a physical exam of another one.
- E If she tells you that her two daughters were circumcised on the day she gave birth at home, tell her harshly that she shouldn't do it again, and if she plans to do the same thing if this baby is a girl, she should not come back for any other visits.
- F Counselling a pregnant woman on danger symptoms is essential in every visit.

SAQ 15.2 (tests Learning Outcome 15.3)

Based on what you have learned from Table 15.1, match each of the danger symptoms listed in group A with the appropriate medical condition in group B by drawing arrows between them.

A

Leakage of fluid from the vagina
Vaginal bleeding
Fever
Abdominal size decreasing
Flank pain
Persistent headache

B

Hypertension
PROM
Antepartum haemorrhage
Malaria
Acute pyelonephritis
Missed abortion

SAQ 15.3 (tests Learning Outcome 15.4)

For each of the following statements, say whether it is true or false.

Explain what is *incorrect* about any statement that you judge to be false.

- (a) The counsellor should tell the pregnant woman about all the danger symptoms of pregnancy during her first focused antenatal visit before 16 weeks of gestation.
- (b) Encouraging the pregnant woman to repeat what has been discussed during counselling will increase her memory (retention capacity) of the key points.

SAQ 15.4 (tests Learning Outcome 15.5)

List some of the advantages of involving the husband/partner in antenatal counselling on danger symptoms.

SAQ 15.5 (tests Learning Outcomes 15.1 to 15.5)

First read Case Study 15.1 carefully and then answer the questions that follow it.

Case study 15.1 Mrs H's story

Mrs H is a 25-year-old woman in her second pregnancy, who came to see her Health Extension Practitioner (HEP) for the first time when she was 34 weeks pregnant. The HEP asked where she gave birth previously. Her blood pressure and weight was measured and her general health seemed good; her abdomen was examined, and the pregnancy seemed to be progressing normally. Lastly, she was told to come back after 3 weeks.

Two weeks later, she developed excess leakage of watery fluid from her vagina. She informed her neighbours and they told her not worry about it. Since it continued flowing, on the third day after the leakage began, she went back to the HEP and got the same advice she got at home. On the fifth day, she developed a high fever (temperature 39°C) and an offensive smelling vaginal discharge.

-
- (a) What is wrong with the antenatal visit at 34 weeks' gestation from the perspective of counselling the pregnant woman effectively?
 - (b) Why did Mrs H leak watery fluid from her vagina?
 - (c) Why did she wait three days to report to the HEP after the leakage began?
 - (d) What should have been done by the HEP when Mrs H came with leakage of fluid from her vagina?
 - (e) Why did Mrs H develop a high fever and offensive smelling vaginal discharge?

Study Session 16 Antenatal Interventions to Reduce Mother to Child Transmission of HIV

Introduction

HIV (the **Human Immunodeficiency Virus**) destroys the body's defences against other infections, which lead to death if the person is not treated appropriately with anti-HIV drugs. HIV is carried in the blood of an infected person and also appears in the genital tract of infected men and women. It can be transmitted from one person to another by unprotected sexual intercourse (sex without a condom) or by transfer of infected blood. The virus can also be transmitted from mother to child during pregnancy, during labour and delivery, and during breastfeeding.

It is important for you to counsel pregnant women about prevention of mother to child transmission (PMTCT) of HIV, and to test them for HIV, as a routine part of antenatal care. This study session explains what you need to know about PMTCT so you can discuss it effectively with pregnant women during antenatal visits. We also tell you about a blood test for HIV, which will become available for you to use in women's homes or at your Health Post. When you study the next two Modules in this curriculum, *Labour and Delivery Care* and *Postnatal Care*, you will learn about the policy and practice of PMTCT during those periods. The Module on *Communicable Diseases* covers HIV testing, prevention and treatment in the whole community. Here we focus on pregnant women before they give birth.

Learning Outcomes for Study Session 16

When you have studied this session, you should be able to:

- 16.1 Define and use correctly all of the key terms printed in **bold**. (SAQ 16.1)
- 16.2 Describe the factors that increase HIV transmission from mother to child during the antenatal period. (SAQ 16.2)
- 16.3 Provide a sensitive and effective HIV testing and counselling service to pregnant women. (SAQ 16.3)
- 16.4 Know how to use the opt-out approach to HIV testing and state the difference between the opt-in and opt-out approaches. (SAQ 16.4).

16.1 PMTCT of HIV in antenatal care

By **prevention of mother to child transmission (PMTCT) of HIV** we mean the set of interventions designed to reduce the transmission of HIV from HIV-infected pregnant women to their babies. Although HIV testing and counselling *before* pregnancy is important, you should always bear in mind that antenatal care may provide the first opportunity for testing and counselling women in your community regarding HIV. You should consider PMTCT as an essential component of focused antenatal care, as you learned in Study Session 13. It is an entry point for care and support not only for HIV-infected pregnant women, but also for their partners and newborn babies. Moreover, it will contribute to the attainment of the nationally shared Ethiopian vision of an 'HIV-free generation by the year 2020'.

It is Ethiopian national policy to aim to test all pregnant women who give their **informed consent**. Informed consent means consent given by a person who is being offered medical testing or treatment, and who understands the risks and benefits of the procedures being offered. Even if the facilities and training to achieve the target of 100% of pregnant women HIV tested at Health Post level are not yet available, you need to know about HIV testing, and what treatment will be provided for HIV-infected women. This is so you can explain to them what will happen if they agree to be tested. We should emphasize that it is essential for pregnant women to give *informed* consent.

16.2 When does HIV transmission occur from mother to baby?

Although **mother to child transmission (MTCT)** of HIV can take place during pregnancy, the highest risk of transmission is during labour and delivery. Depending on breastfeeding practices and the duration of breastfeeding, there is also a substantial risk of MTCT of HIV during breastfeeding.

Without intervention, it is estimated that 40 out of every 100 babies (40%) born to HIV-infected mothers will be HIV-infected. Table 16.1 shows the risk of transmission during pregnancy, during labour and delivery, and during breastfeeding. Sixty percent of babies of HIV-infected mothers will not acquire the virus at all. However, it is not possible to predict which HIV-infected mother will transmit the virus to her child, so you must provide PMTCT services to *all* HIV-positive pregnant women.



Table 16.1 Estimated percentage of mother-to-child transmission (MTCT) of HIV from an HIV-positive mother to her baby during different transmission periods.

Transmission period	Maximum risk of HIV MTCT without any intervention
During pregnancy (in the uterus)	5–10%
During labour and delivery	10–15%
During breastfeeding after birth	5–10%
Overall risk <i>without</i> breastfeeding	15–25%
Overall risk with breastfeeding to 6 months	20–35%
Overall risk with breastfeeding to 18–24 months	30–45%
Total risk of MTCT	20–40%

Adapted from FMoH, 2007, *Guidelines for Prevention of Mother-to-Child Transmission of HIV in Ethiopia*.

- Looking at the data in Table 16.1, how does the period of breastfeeding affect the risk of MTCT of HIV?
- The longer the breastfeeding period, the greater the risk of MTCT of HIV. If a baby is breastfed to 6 months the risk of MTCT is 20–35%. The risk rises to 30–45% if breastfeeding goes on till the baby is 18–24 months old. This is a 10% rise in the risk of MTCT.

If HIV infection can be detected and treated effectively in the antenatal period, then it will reduce the chances of MTCT during labour and delivery or breastfeeding. Next, we look at the factors that increase the risk of MTCT during pregnancy.

16.3 Risk factors that increase the risk of HIV transmission during pregnancy

In HIV-positive pregnant women, the virus is found abundantly in the birth canal (cervix and vagina) and in the mother's blood. Therefore, if the baby is exposed to vaginal fluid or to the mother's blood during labour and delivery, there is an increased chance of MTCT occurring.

Normally, there is no direct mixing between the maternal and fetal blood in the uterus, as you learnt in Study Session 5. However, anything that breaks the barrier between the placenta and the wall of the uterus will increase the risk of MTCT of HIV. Box 16.1 lists some of the factors during pregnancy that can damage the barrier between maternal and fetal blood supply in the placenta, increasing the risk of MTCT. You will learn more about risk factors that increase the chance of MTCT of HIV during labour and delivery, and during lactation, in the next two Modules on *Labour and Delivery Care* and *Postnatal Care*.

Box 16.1 Damage to the barrier between fetal and maternal blood supply in the placenta

Common factors that damage the natural barrier between the fetal and maternal blood supply in the placenta and expose the fetus to maternal blood include:

- *Infection of the placenta* due to malaria, or by bacteria or viruses.
- *Bleeding from the placenta* before labour begins (the medical name for this is antepartum haemorrhage). This can occur due to *placental abruption* (placenta detaching too early from the uterus) or *placenta previa* (placenta covering the opening of the cervix). You will learn about these placental conditions in Study Session 21.
- *Injury to the abdomen* due to a blow, or by a sharp object which penetrates the abdomen.
- *Vigorous abdominal massage* by traditional healers in late third trimester. In some areas of Ethiopia, traditional healers repeatedly massage the abdomen, which they believe will make delivery of the baby easier.
- *Maternal malnutrition*, especially deficiency of vitamin C, vitamin A, or the mineral zinc.
- *Cigarette smoking*, which weakens the fetal membranes surrounding the unborn baby and increases the chance of developing placental abruption.

One question you may have is whether pregnancy affects HIV disease progression, or whether HIV disease progression affects pregnancy. So far, the evidence suggests that pregnancy does not make HIV worse. Similarly, there is no evidence that HIV infection leads to bad pregnancy outcomes.

16.4 PMTCT: core interventions

You should encourage all pregnant women to consent to be tested for HIV. You may be able to do the test yourself (see Section 16.5.1 below), but if you cannot carry out the test, it is available at all health centres and hospitals. Explain to every pregnant woman that if her HIV test result is positive, she can receive effective services to prevent her baby from getting HIV before or after birth. Tell her also that there is treatment for herself and her partner (if her partner is tested and found to be positive for HIV). The core PMTCT interventions are listed in Box 16.2.

Prophylaxis (pronounced 'proff-ill-axis') means 'treatment aimed at prevention'. ARP drugs are given to prevent HIV from being transmitted from an HIV-infected mother to her baby.

Box 16.2 Core PMTCT interventions

- *HIV testing and counselling.* You will learn more about this later in this study session. (You learned about general counselling principles in Study Session 15.)
- *Giving antiretroviral drugs (ARVs) to HIV-positive pregnant women.* These drugs act against viruses such as HIV which belong to a virus 'family' called retroviruses. They are given either as part of **antiretroviral therapy (ART)** for women who are eligible to start treatment for their own HIV infection, or as **antiretroviral prophylaxis (ARP)** to pregnant women who are not eligible to start antiretroviral treatment at this time. Giving pregnant women ARV drugs either before or during pregnancy benefits them directly, but it also helps to *prevent* HIV transmission to the baby. According to the 2007 *National PMTCT of HIV Guidelines for Ethiopia*, ARP should be started at 28 weeks of gestation, but ART can be started at any time provided that the woman is eligible. (You will learn in detail about eligibility criteria for ART in the *Communicable Diseases Module*).
- *Safe delivery practices.* These are taught in the Module on *Labour and Delivery Care*.
- *Safe baby feeding practices.* You will learn about these in the Module on *Integrated Management of Newborn and Childhood Illness*.

16.4.1 Antiretroviral prophylaxis (ARP) and antiretroviral therapy (ART)

Antiretroviral prophylaxis (ARP) for prevention of mother to child transmission of HIV involves giving an antiretroviral drug to the mother starting at 28 weeks of gestation, again to the mother during labour and delivery, and to her baby immediately after its birth. The drug reduces the risk of transmission of HIV to the baby. It is different from the antiretroviral therapy (ART) given to the mother to treat her own HIV infection, depending on her eligibility criteria.

If an HIV-positive mother prefers and insists to deliver her baby at home, the current ARP drug that can be made available to her is called Nevirapine. When you know that an HIV-infected woman is near to giving birth at home, if you are authorised and trained to do so, you should give her a single dose of Nevirapine (200 mg) to take when true labour starts. It is better if you make the diagnosis of true labour and administer the drug yourself. Also, the



baby should receive a single dose of Nevirapine within 3 days of being born. You should give this drug directly based on the baby's weight. You will learn how to do this in the *Communicable Diseases* Module in this curriculum.

For those who decide to give birth in a health centre or hospital, three types of ARP drugs need to be taken by the labouring mother as prophylaxis (AZT + Nevirapine + Lamuvudine). The woman and her husband have to know that the three ARP drugs administered during labour provide better protection for the baby. Additionally, the baby will be given two drugs (AZT + Lamuvudine) for 1–4 weeks. Therefore, you have to encourage HIV-positive women to give birth in health centres or hospitals.

The ARP drugs reduce the risk of MTCT of HIV to the baby, but they don't treat the mother's HIV infection and don't improve her health. In some cases, the pregnant woman can start ART drug treatment for her HIV infection before she gives birth (if she is eligible). Therefore, you should try to encourage all HIV-infected pregnant women to go to the nearest health centre to check if they can start ART that will also protect their babies.



16.5 Routine HIV testing during pregnancy

It is advisable to carry out HIV testing on all pregnant women. The test is voluntary and, after receiving pre-test information, the woman has the right to refuse testing (as described later, in Section 16.5.2). A signed consent form is not needed in Ethiopia to conduct the HIV test — but obtaining clear verbal consent is essential.

The World Health Organization (WHO) and the health services in many countries, including Ethiopia, promote a policy of **provider-initiated HIV testing and counselling**. This means that when trained to do so, you should offer and provide HIV testing and counselling *routinely* as part of your maternal and child health services. You should not wait for the woman to ask for it (client-initiated HIV testing and counselling). If you have not been trained in these competencies, you should offer pre-test education and refer the woman to the nearest health centre, or inform her of a date for outreach testing.

16.5.1 Detecting HIV infection using blood tests

HIV infection can be detected in the blood by three tests. These include the **HIV Rapid Test** (or **HIVRT**), which is the only test which can be done in a person's home or at a Health Post. The other two tests (the Western blot test and enzyme immunoassay test), can only be done at a higher level health facility. As it is so easy to use, the HIVRT is the most commonly used HIV test in Ethiopia. It involves taking a very small sample of blood from the person's finger by pricking it with a sterile instrument, and taking a drop of blood to place onto a test kit (Figure 16.1). You will learn how to conduct the test and read the result in the Module on *Communicable Diseases*.

The principle behind all the various HIV testing kits that have been developed to screen blood is the same. The tests are highly sensitive for detecting HIV infection. They work by detecting **antibodies** (proteins produced by the body to fight infection) which appear in the blood after the **window period** of HIV infection. The window period is the period of time (up to 12 weeks or 3 months) between the virus entering a person's body and the appearance of detectable antibodies in the person's blood. In some cases, a person with a negative HIV test result may be infected, but the result fails to show up because they are in the window period of infection. Testing this person again

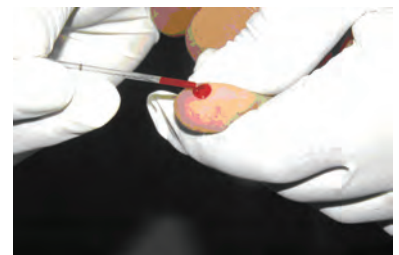


Figure 16.1 A blood sample being taken for an HIV Rapid Test. (Photo from the Ethiopian Health and Nutrition Research Institute.)

after 3 months from the date of infection will usually reveal an HIV — positive result.

- A small sample of the person’s blood is run through two HIVRT tests using kits from two different manufacturers. Can you suggest why the blood is tested twice using two different testing kits?
- It increases confidence in the accuracy of the result if both tests are negative, or if both are positive. If the two results are different, it suggests that a test may not have been carried out correctly and a third test should be conducted as a ‘tie breaker’.

16.6 Steps in HIV testing and counselling

16.6.1 Opt-in and opt-out approaches

There are two contrasting approaches to counselling pregnant women about the need for HIV testing: they are known as ‘opt-in’ and ‘opt-out’. The **opt-in approach** involves counselling a woman for about 40 minutes in a private room, to inform her about everything she wants to know, so she can agree to be tested with informed consent (i.e. opt-in, or accepted by the woman). Of course, at the end of the counselling session, she may refuse to have the test. Opt-in was practised until 2006 in Ethiopia and is still the approach in many other countries.

The **opt-out approach**, on the other hand, involves informing the woman that she is about to have an HIV test. The main aim of the opt-out approach is to get as many women (and men) as possible tested for HIV infection. The differences between the opt-in and opt-out approaches are summarised in Table 16.2. As you can see, the opt-out approach is much more successful in achieving high test coverage than was the case with opt-in.

Table 16.2 Comparison of opt-in and opt-out counselling approaches to HIV testing.

Features	Opt-in	Opt-out
National PMTCT of HIV guideline	2001	2007
Counselling	Pre-test and post-test (before and after test; pre-test can take a long time till the client accepts the test)	Post-test (after the test result unless the client refused or opted-out)
Test take-up rate (number of persons tested)	Very low	Very high
Helps people to see the HIV test as normal	No	Yes

Another big advantage of the opt-out approach is that HIV testing becomes a normal procedure for everyone. The *normalization* of HIV testing helps to overcome fear of taking the test, so in the future it becomes just like any other routine test for any disease. Information about HIV testing can be presented in group sessions, which also helps to normalize it; for example, you may arrange a group meeting for pregnant women in your community to discuss aspects of focused antenatal care, and refer to the HIV test as a normal part of

the routine visits. Finally, it is less time consuming for health workers, as it does not involve a long pre-test counselling session with each woman.

16.6.2 Counselling women who refuse HIV testing

There are some crucial points about the opt-out approach that you need to understand. First, the woman can refuse the test — she can opt-out. Second, if the HIV test result is positive, the woman will be given post-test counselling. Third, women who opted-out (refused) will be provided with a longer session of counselling, which starts by letting them express their concerns and reasons for objection to the test, so you can address their specific questions and worries.

In order to counsel opted-out women effectively you need to build trust. Emphasize that getting an early diagnosis and starting treatment or prophylaxis greatly improves the chances of survival for women who are HIV-positive and their babies. Knowing her HIV status does not necessarily mean a woman's husband or partner has the right to know as well — it is her full right either to disclose her HIV status or to hide it. However, for better outcomes of follow-up and treatment, disclosing the truth to her family has a big advantage because they can support her. Assure the woman that HIV is no longer a disease that needs to be hidden, or one that people should be ashamed of. Also, it is not a disease that always leads to death, provided that people are diagnosed early and treatment is started early.

If a woman continues to refuse the HIV test, further counselling should be provided in subsequent antenatal care visits. She should be reassured that opting-out of HIV testing will not affect her access to antenatal care, labour and delivery care, postnatal care, or related services. Encourage her to reconsider testing. Do not pressure her to be tested, but let her know that if she changes her mind, an HIV test and further counselling can always be provided during a later visit. Document the reasons for her refusal in your notes as a reminder to offer her HIV counselling and testing the next time you see her. Box 16.3 summarises some common reasons why women refuse HIV testing.



Box 16.3 Common reasons why women refuse HIV testing

- Fear of being found HIV-positive and losing hope.
- Fear of a positive HIV result causing marriage disharmony and divorce.
- Fear of being found HIV-positive and not trusting the health professionals to keep the result private.
- Fear of a positive HIV test leading to stigma and discrimination by the community.

16.6.3 The HIV Rapid Test algorithm

An **algorithm** is a set of guidelines that enables you to follow the steps in a prescribed course of action, with pathways at each step depending on the results. Figure 16.2 shows you the algorithm approved for HIV Rapid Testing in Ethiopia.

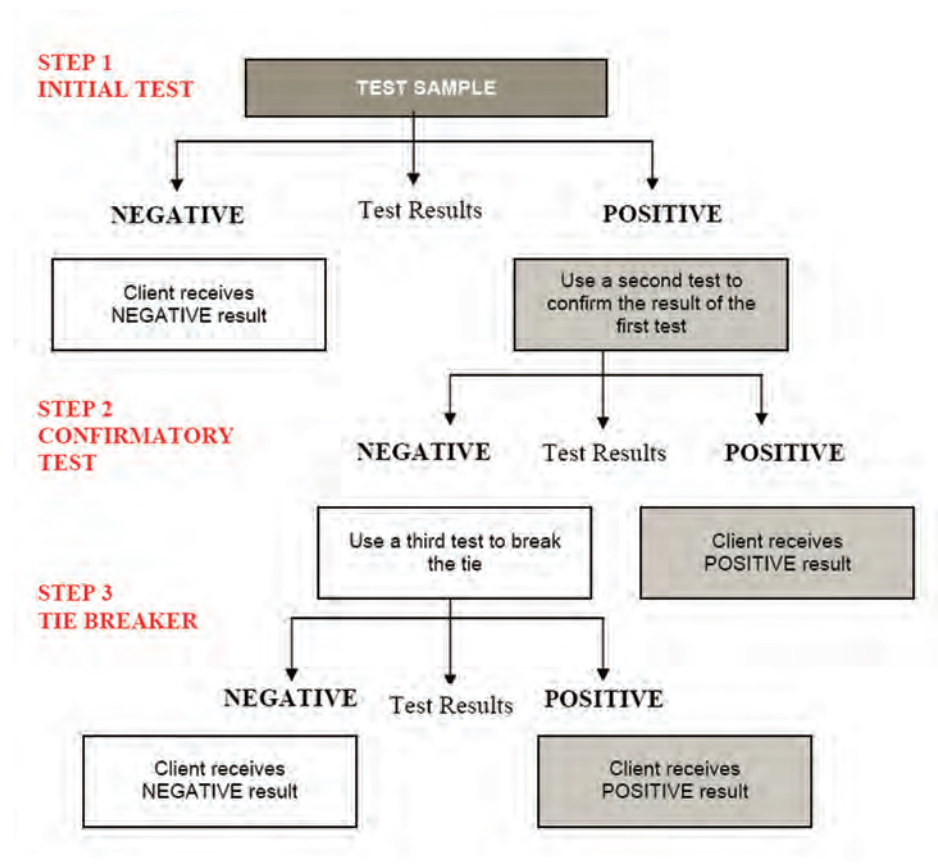


Figure 16.2 HIV Rapid Test Algorithm for Ethiopia.

As you can see from Figure 16.2, if the first test is positive, in order to be certain whether the client really is HIV infected, there is the need to conduct a second test to confirm the result of the first test.

- What does the algorithm in Figure 16.2 say should happen if the *second* test is negative (it *contradicts* the result of the first test)?
- The algorithm requires a third test to be conducted as a ‘tie-breaker’ — the third test will either confirm the positive result obtained by the first test, or it will confirm the negative result obtained by the second test.

Following the steps in the algorithm ensures that a positive test result has been clearly confirmed by two different tests *before* the result is given to the client.

16.6.4 Discussing HIV test results: post-test counselling

If a woman has agreed to, and has had the HIV test, you need to know how to discuss the results with her (and ideally also with her partner) during **post-test counselling**. In an adult, a positive HIV test result means that the person *is definitely* infected with HIV. As you will learn in a later Module, a positive test result in a newborn or very young baby may not mean that the baby is infected. The mother’s antibodies against HIV can get into the baby’s blood during labour and delivery, and it is impossible to tell from the HIV Rapid Test if it is detecting *her* antibodies or the *baby’s* antibodies. A negative HIV test result usually means that the mother or the baby is *not* infected with HIV.

A woman may be at high risk for HIV if she has recently had unprotected sexual intercourse with a man of unknown HIV status, or with a man known to be HIV-positive; or if her husband has another wife or has had other sexual partners, or if her husband injects illegal drugs. If such a woman tests negative the first time, she should be tested again after 3 months to confirm the original test result.

16.6.5 Post-test counselling for HIV-positive pregnant women

In talking to a woman after a positive HIV test result, you should be very sensitive to her feelings, which may include shock, anger or denial. When she is able to take in your health education messages, make sure that she understands:

- The importance of delivering her baby in a higher health facility where ARP drugs are available and safe delivery methods are practised, to prevent MTCT of HIV.
- She can reduce the risk of becoming ill by:
 - Taking ART as prescribed and medicines to prevent **opportunistic infections** from developing
 - Practising safe sex by using a condom with her partner to protect him from HIV infection, and to ensure she doesn't get any other sexually transmitted infections (STIs) from him if he has unsafe sex with anyone else
 - Eating enough nutritious food, as recommended for all pregnant women regardless of HIV status (see Study Session 14)
 - Having good personal hygiene, as recommended for everyone to prevent infections with bacteria, viruses, protozoa and fungi, infestations with parasites and insects, and skin disorders.
- How to prevent MTCT of HIV to her baby (as you learned in this study session) including safe ways of feeding the baby (as you will learn in the Module on *Integrated Management of Newborn and Childhood Illness*).
- That the woman's partner or husband and children should be tested for HIV.
- The importance of preventing HIV transmission to others and ways to do this.
- The importance of referrals for follow-up and ongoing HIV healthcare for herself, her partner, her HIV-exposed baby and other family members.

Opportunistic infections are infections caused by bacteria or viruses in people whose immune systems are weakened, for instance by HIV. A healthy person would normally be able to fight off infections by these bacteria or viruses.

16.6.6 Post-test counselling for HIV-negative pregnant women

Even though the woman will be very relieved that she has tested negative, you should ensure that she understands:

- How to remain HIV-negative through using safe sex practices.
- The need for later HIV testing if additional risk exposures occur, or if the test was done during the window period of early HIV infection.
- Exclusive breastfeeding for her baby (that is, just breastfeeding, no bottle-feeding or feeding of solid foods before 6 months of age).
- If she becomes HIV-infected during pregnancy or while breastfeeding, the baby has an increased risk of MTCT (see Table 16.1 above).

- The importance of effective family planning and birth spacing. (The Module on *Family Planning* will teach you all the details of different methods.)

16.6.7 Checklist for HIV testing and counselling during the antenatal period

Table 16.3 below summarises the steps involved in testing and counselling for HIV during the antenatal period, at the first antenatal visit and at every subsequent visit. We hope that you will find it helpful. Remember that you will also receive practical skills training in PMTCT of HIV, which will also cover policy and procedures during labour and delivery and the postnatal period.

Table 16.3 Checklist for counselling all pregnant women for HIV during every antenatal visit.

Ask, check	Result	Treat and counsel
<ul style="list-style-type: none"> • Have you ever been tested for HIV? • If yes, do you know the result? (Explain to the woman that she has the right not to disclose the result.) • Has the partner been tested? 	<ul style="list-style-type: none"> • Known HIV-positive. 	<ul style="list-style-type: none"> • Ensure that she visited adequate staff and received necessary information about MTCT of HIV prevention • Enquire about the ART or ARV prophylaxis and ensure that the woman knows when to start • Enquire how she will be supplied with the drugs. • Enquire about the infant feeding option chosen • Advise on additional care during pregnancy, delivery and postpartum • Advise on correct and consistent use of condoms • Counsel on benefits of involving and testing the partner
	<ul style="list-style-type: none"> • No HIV test results or not willing to disclose result. 	<ul style="list-style-type: none"> • Provide key information on HIV • Inform her about voluntary counselling and testing to determine HIV status • Advise on correct and consistent use of condoms • Counsel on benefits of involving and testing the partner
	<ul style="list-style-type: none"> • Known HIV-negative 	<ul style="list-style-type: none"> • Provide key information on HIV • Counsel on benefits of involving and testing her partner • Counsel on the importance of staying negative by correct and consistent use of condoms

16.8 Additional care for the HIV-positive woman during pregnancy

Finally, we should mention that a recent study in Ethiopia showed that most of the study participants believed that if HIV-infected women got pregnant, their general health would deteriorate because pregnancy accelerates HIV disease progression. As mentioned above, being pregnant does *not* mean that the healthy condition of the woman will deteriorate. However, maternal health may deteriorate during pregnancy because of the stage of HIV. If a woman gets pregnant when she has advanced HIV, she will certainly experience many health problems, including opportunistic infections. Therefore it is not being HIV-positive itself that should guide health service providers to give her additional care — it is the stage of the disease.

Summary of Study Session 16

In Study Session 16, you have learnt that:

- 1 The common risk factors for increased chance of mother to child transmission of HIV during the antenatal period are: anything that breaks the normal barrier separating the maternal and fetal blood supply in the placenta, such as placental infection or bleeding, injury, vigorous abdominal massage, maternal malnutrition and cigarette smoking; exposure of the baby to infected vaginal fluid or maternal blood during labour and delivery; and prolonged exposure to HIV in breastmilk.
- 2 PMTCT of HIV is offered as a routine component of standard maternal and child healthcare. It is the first stage in the ongoing prevention, treatment, care and support of HIV-positive pregnant women, their babies and partners.
- 3 HIV testing and counselling is one of the core interventions of PMTCT of HIV. The others are: giving antiretroviral drugs to HIV-positive women and their newborn babies, safe delivery practices, and safe baby feeding practices.
- 4 The opt-out provider-initiated counselling approach for HIV testing is more effective than the opt-in approach and is recommended by the Ethiopian national guidelines.
- 5 The HIV Rapid Test (HIVRT) is the most commonly used HIV antibody test in Ethiopia and is suitable for blood testing in homes and at the Health Post.
- 6 A positive HIV test result must be confirmed by a second test using a test kit from a different manufacturer. If the second test disagrees with the result of the first test, a third test is conducted as a ‘tie breaker’ using the HIV Rapid Test Algorithm (Figure 16.2).
- 7 HIV-positive women should be strongly encouraged to give birth in a higher health facility where more advanced methods of PMTCT and additional ARP drugs (antiretroviral prophylaxis) can be given than are available at community level.
- 8 Post-test counselling for HIV-positive and HIV-negative women should include advice about safe sex practices, encouraging the woman’s husband or partner to be tested for HIV, and the importance of family planning and birth spacing.

-
- 9 HIV-positive pregnant women will need additional ongoing care and support, referrals and follow-up for themselves, their exposed babies, their partners and other family members.

Self-Assessment Questions (SAQs) for Study Session 16

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 16.1 (tests Learning Outcome 16.1)

A woman has sexual intercourse with a man who is HIV-positive. She is tested for HIV infection two weeks after this sexual intercourse. Her HIV test is negative.

- (a) Should you trust this result? Give reasons for your answer.
- (b) What should you do next?

SAQ 16.2 (tests Learning Outcome 16.2)

Many factors increase the risk of MTCT during the antenatal period. What do these factors have in common? Give two examples.

SAQ 16.3 (tests Learning Outcome 16.3)

A pregnant woman refuses an HIV test. Is there any more you can do?

SAQ 16.4 (tests Learning Outcome 16.4)

What are the main advantages of using the opt-out approach rather than the opt-in approach to HIV testing?

Study Session 17 Premature Rupture of Membranes (PROM)

Introduction

In this study session you will learn the definition, classification and risk factors of premature rupture of membranes (PROM). We will describe the potential complications that may end up with serious maternal morbidity and, at the worst, maternal mortality.

This session also tells you about the potential complications that endanger the life of the fetus and the newborn baby. You will learn how to make a clinical diagnosis of PROM and what actions you can take when you have women with PROM, building on your existing knowledge about leakage of fluid from the vagina as one of the danger symptoms in Study Session 15.

Learning Outcomes for Study Session 17

When you have studied this session, you should be able to:

- 17.1 Define and use correctly all of the key words printed in **bold**. (SAQ 17.1, 17.2 and 17.3)
- 17.2 Describe the classification of PROM. (SAQ 17.1 and 17.3)
- 17.3 Describe the different risk factors associated with PROM. (SAQ 17.2)
- 17.4 Define the diagnostic features of PROM. (SAQ 17.2)
- 17.5 Discuss the possible complications of PROM affecting the mother and the fetus. (SAQ 17.2 and 17.3)
- 17.5 Explain what action you need to undertake whenever you come across a woman with PROM. (SAQ 17.2 and 17.3)

17.1 Premature rupture of membranes

Premature rupture of membranes (PROM) is defined as a spontaneous leakage of amniotic fluid from the amniotic sac where the baby swims; the fluid escapes through ruptured fetal membranes, occurring after 28 weeks of gestation and at least one hour before the onset of true labour. PROM can occur before or after 40 weeks' gestation, so the word 'premature' does not mean that the gestational age of the fetus is preterm.

Premature here refers to the premature rupture of fetal membranes before the onset of labour. PROM is of concern because rupture of fetal membranes before the onset of labour is not normal and is associated with many complications (described later in this session). In a normal labour, the fetal membranes usually rupture *after* the labour has progressed for some time, when the fetal head is deeply engaged and the cervix is near to full dilatation, with no complications in most labouring women. (You will learn in detail about labour progress in the next Module, *Labour and Delivery Care*.)

You need to know that the majority of people in Ethiopia don't think of PROM as a problem. Rather, they consider the leakage of fluid as a good symptom about the coming labour. As you will see later in this study session, many serious complications can occur as a result of PROM. Therefore, you need to counsel the woman, her husband/partner and her family very clearly

about the actions they should take if her membranes rupture and fluid leaks from her vagina before labour begins. Tell them about the dangers of waiting at home after the rupture of fetal membranes. We begin by describing how you classify cases of PROM, which determines how you handle each case.

17.2 Classifications of PROM

PROM is classified according to the gestational age at which it occurs and the interval between rupture of the fetal membranes and the onset of true labour.

Preterm PROM occurs *after* 28 weeks of gestational age and *before* 37 weeks.

Term PROM occurs *after* 37 completed weeks of gestational age, including post-term cases occurring after 40 weeks.

Preterm and term PROM are further divided into:

- **Early PROM** (less than 12 hours has passed since the rupture of fetal membranes)
- **Prolonged PROM** (12 or more hours has passed since the rupture of fetal membranes).

The major reason for classifying PROM into term, preterm, early and prolonged PROM is for effective management decisions. The *earlier* the occurrence (preterm PROM) and the *longer* the interval between the rupture of fetal membranes and onset of labour, the more complications there are likely to be. We will describe the actions you should take to manage cases of PROM in Section 17.6 of this study session. First, we discuss the risk factors for PROM and then the complications that can result for the mother and the fetus.

17.3 Risk factors for PROM

Rupture of fetal membranes can occur when the cervix is either closed or dilated. Sometimes, it can occur in a very early pregnancy (before 28 weeks – this leads to inevitable abortion, which you will learn about in Study Session 20), or in early third trimester (between 28 and 34 weeks). It is not exactly known why fetal membranes rupture before the onset of labour. However, there are some known risk factors highly associated with PROM.

Consider the amniotic cavity as a sac (or bag) whose wall is formed by the fetal membranes, enclosing the fetus and amniotic fluid. The sac will rupture at the weakest point, which is the part of the membranes in direct contact with the ‘mouth’ of the cervix. Rupture happens when the sac is either damaged by an infection or external trauma, or it becomes over-stretched (distended) and unable to withstand the internal pressure. These risk factors are described in more detail below.

17.3.1 Infection can cause PROM

Bacteria that cause infection in the lower genital tract (infection of the cervix or vaginal wall) can travel upwards through the cervix and infect the fetal membranes. This can weaken the membranes enough to allow them to rupture.

Box 17.1 summarises the diagnostic signs of infection in a woman with PROM.

Box 17.1 Evidence of infection in a woman with PROM

- Fever: the woman may complain of feeling feverish, or you may record her temperature of 38°C or more.
- The vaginal discharge may have an offensive smell and the colour may be changed from watery to cloudy.
- She may have an increased pulse rate (more than 100 beats/minute).
- The fetal heart beat may increase to 160 beats/minute or more.
- She may feel pain in the lower abdomen, particularly when it is touched.

17.3.2 Malpresentation of the fetus

Rupture of fetal membranes is highly associated with fetal malpresentations in the third trimester. Particularly high risk of PROM is associated with footling breech (feet first) and transverse lie (across the abdomen) with the baby's back arched upwards and hands and legs pointing down, in direct contact with the weakest point of the membranes.

17.3.3 Multiple pregnancy and excess amniotic fluid

If the uterus holds two or more babies, or there is excess accumulation of amniotic fluid (polyhydramnios), the fetal membranes become over-stretched and rupture. The membranes can rupture even if the amount of amniotic fluid is small, if there is another cause such as those described below.

'Poly' means excess, 'hydra' means water, and 'amnios' refers to the amniotic fluid. So 'polyhydramnios' means 'too much amniotic fluid'.

17.3.4 Cervical incompetence

Without uterine contraction, the cervix may dilate spontaneously early in gestation and this can be the cause for an abortion (miscarriage). The cervix may dilate even in late pregnancy before the onset of labour. As the cervix continues dilating, it will allow part of the fetal membranes to pass through it. As a result, the membranes can rupture easily and leak amniotic fluid.

17.3.5 Trauma to the abdomen

Any blunt or penetrating trauma to the abdominal wall can result in a break in the fetal membranes. Blunt traumas include: uterine manipulation by a doctor or midwife to change the fetal presentation from breech or transverse lie to the normal 'head down' or vertex presentation; uterine massage by traditional healers; and blunt abdominal injury (e.g. from a blow or fall). An example of a penetrating abdominal injury is insertion of a hollow needle into the amniotic cavity through the abdominal wall, or through the cervix, to withdraw amniotic fluid or placental tissue for analysis.

17.4 Diagnosis of PROM

When there is a rupture in the fetal membranes, the woman notices a painless sudden leakage of fluid from her vagina, which is usually excess and watery. However, when the amount of amniotic fluid in the sac is minimal, the leaking fluid may only wet her underwear, and you may be unsure whether to make the diagnosis of PROM from the woman's complaint.

The mother may be worried, but not be sure whether the leakage is normal or abnormal. A little bit of excess vaginal discharge is normal near to full term, and this may be confused with the leakage of amniotic fluid. So you need to refer any woman complaining of excess vaginal discharge for further evaluation at a higher level health facility, in case the woman is showing signs of PROM.

Box 17.1 summarises the clinical features that can help you to make the diagnosis of PROM.

Box 17.1 Clinical features of PROM

- The woman complains of leakage of fluid from her vagina (minimal or excess).
- She says she noticed a decrease in the size of her abdomen after leakage of fluid.
- You observe watery fluid coming out through the vagina, or the woman's under clothing is soaked with watery fluid.
- When you measure the distance between the pubic symphysis and the fundal height (as described in Study Session 9), you find the baby is small for gestational age. (Note that being 'small for gestational age' can also be due to scanty amount of amniotic fluid with intact membranes, intrauterine growth restriction and wrong date for the stated gestational age.)
- In PROM, the amniotic fluid remaining in the sac will be minimal, so you may be able to feel (palpate) the fetal parts easily through the mother's abdomen.
- Although not specific, the woman may have an offensive smell due to vaginal discharge, and she may have a fever (see Box 17.1 above); these signs indicate an already established infection, which may be the cause of PROM.
- You can give her a dry vaginal pad or Goth and check after some hours whether it is wet or still dry. Note that being dry doesn't necessarily rule out PROM.

17.5 Complications of PROM

PROM is associated with several potentially life-threatening complications, as we will now describe.

17.5.1 Infection after PROM

As stated earlier, the premature rupture of fetal membranes allows bacteria to get into the uterine cavity. They multiply rapidly in the warm, wet environment and, as a result, both the mother and the fetus may develop a life-threatening infection. It can continue even after the birth as uterine or widespread infection in the mother, and cause pneumonia, sepsis (blood infection) or meningitis (infection of the brain) in the newborn.

Infection is one of the most feared complications of PROM because, unless it is quickly treated, it may end up with both maternal and fetal or newborn

death. But the good news is that swift treatment with antibiotics is generally successful.

It should be noted that *prolonged* PROM cases are highly likely to develop a uterine infection unless treated quickly with preventive antibiotics.

- Why do you think prolonged PROM is particularly likely to lead to infection?
- Over 12 hours have passed since the fetal membranes ruptured, so any bacteria that got into the uterus have enough time to multiply and take hold.

17.5.2 Cord prolapse

One of the potentially fatal complications of PROM for the baby is **umbilical cord prolapse**. (The term ‘prolapse’ means ‘pushing out of the proper place’.) When the membranes rupture, the umbilical cord may be washed downwards by the rushing out of amniotic fluid and fall towards the vagina. It may be pushed ahead of the baby and push out into the cervix (see Figure 17.1) through the break in the membranes. In this position, the prolapsed cord is easily compressed, cutting off the blood supply to the fetus and this can be the cause of sudden fetal death.

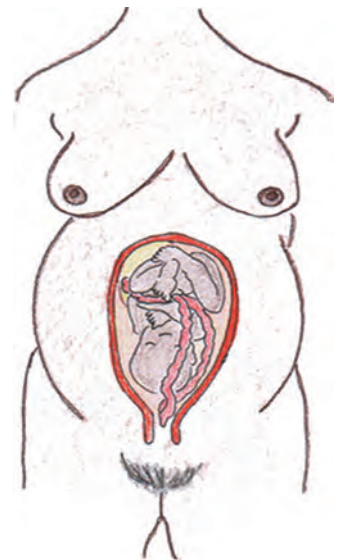


Figure 17.1 Prolapsed cord is a dangerous complication of PROM.

17.5.3 Fetal hypoxia and asphyxia

When the ruptured fetal membranes have leaked most of the fluid that keeps the fetus ‘floating’ in the uterus, the membranes collapse around the baby, and the baby can press against the uterine wall. It can lie on and compress the umbilical cord, so the fetus becomes short of oxygen and the waste product carbon dioxide builds up in its body.

Deficiency of oxygen and accumulation of carbon dioxide in the body is called **hypoxia** (literally ‘low oxygen’), which rapidly leads to **asphyxia** (brain and tissue damage due to hypoxia) resulting in death if oxygen is not quickly restored.

The fetus can also develop asphyxia and die because of partial or complete placental abruption, as described next.

17.5.4 Placental abruption

When the cause of the rupture of fetal membranes is an over-stretched uterus, there is a possibility of premature separation of the placenta from the uterine wall (a condition called *placental abruption* which you will learn more about in Study Session 21). This can happen when a gush of fluid suddenly flows out of the uterus, ripping part of the placenta away from the uterine wall.

17.5.5 Preterm labour

Once the fetal membranes rupture, labour usually starts spontaneously in less than one week. If the PROM occurs several weeks before the pregnancy reaches full term, the resulting labour will also be preterm, and this can pose a risk to the newborn. Its development may not be sufficiently mature to sustain life — for example, the preterm baby cannot maintain its body temperature as well as a full term baby, its respiration will be shallow, it may have trouble feeding and its immune system may not be able to protect it from infection.

17.5.6 Deformity of fetal limbs

Sometimes labour does not start spontaneously after PROM. This is the most risky situation for development of infection and fetal deformity, if it occurs too early in gestation and the pregnancy continues for a long period of time after the membranes have ruptured.

Without the amniotic fluid to keep the fetus 'floating', the muscular walls of the uterus closely surround the fetus and compress it. The immature fetal bones are not yet strong enough to resist the pressure, and the chance of developing deformity of the legs, feet, arms or hands is very high if the pregnancy continues in this state for more than 3 weeks.

17.6 Actions in a case of PROM

Whenever you see a woman with clearly defined or suspected PROM, the questions you need to answer are:

- 1 Does the woman have established labour or not?
- 2 If the woman has established labour:
 - Is it preterm or term PROM?
 - How long has she stayed at home after the membranes ruptured?
 - How much has the labour progressed?
- 3 Is the fetus alive or dead?
- 4 Irrespective of labour condition, does the woman have established infection or not?

You need to answer the above questions because they show what actions you need to take, as we will now describe.

17.6.1 When should you conduct the delivery *before* referral?

Under certain conditions, it is safer for you to conduct the delivery of a woman with PROM where she is (at her home or your Health Post) before referral.



Don't do an internal vaginal examination, even wearing surgical gloves, in a woman with PROM!

- Can you explain why not?
 - It greatly increases the risk of infection getting into the uterus.

You should support her through the labour before referral if she is:

- already in *established labour* (yes to Question 1 above)
- and she came to you with a history of *term PROM*, after 37 completed weeks of gestation and the leakage of fluid happened before the onset of labour (Question 2)
- and you see *no evidence of infection* (no to Question 4).

If the labour and delivery was normal and the woman and baby are doing well, check them for the next 24 hours. Tell the family to call you and take her to a health facility immediately if there is any sign of infection in the mother or the newborn.

If the woman comes to you with PROM and she is already in established labour which has progressed a long way (late active first stage, or second stage when the woman is wanting to push), *even with evidence of infection, or a preterm labour, or you think the fetus may be dead*, it is still preferable to conduct the delivery where the woman is and refer her to a health facility as soon as the baby is born.

17.6.2 When should you refer *before* conducting the delivery?

Refer the woman with PROM as soon as possible to a hospital with a surgical facility if she is not in labour, or she is still in the early stage of labour and there is time to get her to the health facility before labour progresses much. Remember that if the case is preterm PROM, the newborn will need special care in a hospital.

Summary of Study Session 17

In Study Session 17, you learned that:

- 1 Premature rupture of membranes (PROM) is a spontaneous rupture of fetal membranes and leakage of fluid from the vagina after 28 weeks of gestation and at least one hour before the onset of true labour.
- 2 PROM is classified as preterm PROM when the leakage of fluid occurs before 37 completed weeks of gestation, and term PROM when it occurs after 37 weeks.
- 3 Women with prolonged PROM (12 or more hours passed since the rupture of fetal membranes) are highly likely to develop infection in the uterus unless they get swift antibiotic treatment.
- 4 The commonest risk factors for PROM include infection in the reproductive tract, fetal malpresentations (breech or transverse lie), multiple pregnancy, excess amniotic fluid, cervical incompetence, and abdominal trauma.
- 5 The diagnosis of PROM is based on a history of sudden and painless leakage of moderate or excess watery fluid from the vagina. You may witness the woman's soaked underwear, feel easily palpable fetal parts through her abdominal wall, and measure the uterine size as 'small for gestational age' because her abdomen has shrunk.
- 6 The common complications of PROM are infection in the mother and/or the fetus/newborn, cord prolapse, intrauterine fetal asphyxia/death, placental abruption, preterm labour, and deformity of the fetal limbs.
- 7 Fever, foul smelling vaginal discharge, increased maternal pulse rate, increased fetal heartbeat and lower abdominal pain are signs of infection in the uterine cavity, which needs to be treated quickly with antibiotics.
- 8 To minimize the risk of infection, gloved digital pelvic examination should be avoided in women with PROM.
- 9 Deliver the baby and then refer in cases of term or preterm PROM where the woman is already in advanced labour, even if there is evidence of

infection or in cases of term PROM if labour has begun normally and there is no evidence of infection.

- 10 Refer as soon as possible all women with PROM coming to you before the onset of labour, or in early labour, with established maternal or neonatal infection; refer all preterm babies immediately after delivery.
- 11 Make sure that the woman with PROM and her family are well aware of the risks of waiting at home; counsel them to call you at once and take transport to the health facility.

Self-Assessment Questions (SAQs) for Study Session 17

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the following questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 17.1 (tests Learning Outcomes 17.1 and 17.2)

Complete the missing information in Table 17.1.

Table 17.1 for SAQ 17.1.

PROM classification	Gestational age
Preterm PROM	
Term PROM	
	Interval since membranes ruptured
Early PROM	
Prolonged PROM	

SAQ 17.2 (tests Learning Outcomes 17.1, 17.3, 17.4 and 17.5)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A Infection in the uterus may cause PROM and may also be a complication following PROM.
- B PROM may occur if the uterus is over-stretched by malpresentation of the fetus, multiple pregnancy or excess amniotic fluid.
- C Cervical incompetence in combination with PROM can be a cause of umbilical cord prolapse.
- D The fetal membranes are so strong that blunt trauma to the abdomen is unlikely to cause PROM.
- E Hypoxia and asphyxia of the woman in labour is a common complication of prolonged PROM.
- F A sudden gush of clear watery fluid from the vagina is always seen in cases of PROM.

SAQ 17.3 (tests Learning Outcomes 17.1, 17.2, 17.5 and 17.6)

Read Case Study 17.1 and then answer the questions that follow it.

Case Study 17.1 Zufan's story

Zufan's family contact you to say that her waters broke 24 hours earlier, but they are concerned because her labour has not started yet. They think the baby was due to be born last week. She feels hot to the touch and is becoming restless and complaining of pain in her lower abdomen.

- (a) How do you classify Zufan's case of PROM?
- (b) Does she have the signs of any complications?
- (c) Is there anything you could have done to prevent her condition from worsening?
- (d) What immediate action should you take?

Study Session 18 Common Medical Disorders in Pregnancy

Introduction

In this study session you will learn about three common medical disorders during pregnancy and their effects on the health of the pregnant woman: malaria, anaemia and urinary tract infections (or UTIs), and how to distinguish mild treatable UTIs from persistent infections of the bladder and serious disease affecting the kidneys. We will teach you about the causes of these conditions, their signs, symptoms, diagnosis and management, and when you should refer the woman to a health facility for further tests and treatment. And you will learn the best ways to prevent these conditions from occurring and why it is especially important to do this during pregnancy.

Learning Outcomes for Study Session 18

When you have studied this session, you should be able to:

- 18.1 Define and use correctly all of the key words typed in **bold**. (SAQs 18.1 and 18.2)
- 18.2 Describe the risks to the woman, the fetus and the newborn of malaria, anaemia and urinary tract infections (UTIs) in pregnancy. (SAQ 18.1)
- 18.3 Advise pregnant women and their male partners how to prevent malaria, anaemia and UTIs from occurring. (SAQ 18.2)
- 18.4 Identify the signs and symptoms of malaria in the pregnant woman, and know how to manage malaria in pregnancy and when to refer the woman to a health facility. (SAQ 18.2)
- 18.5 Identify the signs and symptoms of anaemia in the pregnant woman, and know how to manage anaemia in pregnancy and when to refer the woman to a health facility. (SAQ 18.2)
- 18.6 Identify and distinguish between the signs and symptoms of infections of the bladder and infections of the kidneys during pregnancy, manage mild UTIs in pregnancy with oral medicine and know when to refer a woman with persistent infection to a health facility. (SAQ 18.2)

18.1 Malaria in pregnancy

Malaria is an infection of the red blood cells caused by a parasite called **plasmodium** that is carried by certain kinds of mosquitoes. A mosquito sucks up the malaria parasites in the blood of an infected person when it takes a blood 'meal', and then passes the parasites on when it bites someone else (Figure 18.1). The parasites develop to maturity in the person's red blood cells and millions of parasites collect in the placenta of a pregnant woman.

Malaria can be more severe in women who are sick with other illnesses. Malaria is more dangerous to pregnant women than to most other people. A pregnant woman with malaria is more likely to develop anaemia (as you will see later in this study session), have a **miscarriage** (spontaneous abortion of the fetus before 24 weeks of pregnancy), an early birth, a small baby, a **stillbirth** (baby born dead after the 24th week of pregnancy) or to die herself (**maternal mortality**).

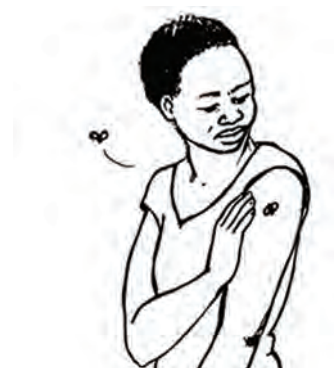


Figure 18.1 Some kinds of mosquito can transmit malaria parasites to people.

18.1.1 Symptoms of malaria

The **symptoms** of a disease are the indications that an affected person is aware of and is able to tell you about; they may tell you spontaneously, but you may have to ask the right questions. The symptoms of malaria are:

- Chills (feeling unusually cold, shivering) and rigors (intense periods of shivering lasting several minutes and up to 1 hour); this is often the first symptom of an attack
- Headache and weakness often accompany the chills
- Fever (raised temperature); the fever often follows the chills, and the temperature may go so high that the person suffers *delirium* (not being in her right mind, seeing or hearing things that are not real)
- Sweating as the temperature falls
- Diarrhoea/vomiting may also be experienced in some cases
- Muscle/joint pain is another common symptom.

The periods of fever typically alternate with periods of chills and rigors in attacks that can occur every day, or every 2–3 days. All of these symptoms could be due to something else, but you should suspect malaria if they happen in a person who has been exposed to mosquitoes in an area where malaria is known to occur.

The signs of a disease are the indications that only a trained health professional would notice, or be able to detect by conducting a test. For example, if you suspect malaria, you should take the person's temperature with a thermometer if you have one (you learned how to do this in Study Session 9), or by comparing your own temperature with the woman's (Figure 18.2). In cases of malaria, the fever can go as high as 39–40°C or even higher.

- What is the normal body temperature and what would be a sign of fever?
- Normal body temperature is 37°C; a sign of fever would be a temperature of 38°C or above.



Figure 18.2 A person with a high fever will feel much hotter than you.

18.1.2 Diagnosis of malaria

There are two main ways to diagnose malaria using blood tests. The simplest way is to run a **malaria rapid diagnostic test (RDT)**, which detects proteins produced by the parasite in the patient's blood. The test kits can be in the form of a dipstick, a plastic cassette or a card, which changes colour when exposed to a drop of blood from an infected person – usually taken by pricking a finger with a sterile lance. However, the test kits must be stored carefully and protected from humidity and high temperatures. Training for health workers is required before the signs of malaria in the test results can be interpreted accurately.

The other way to diagnose malaria, which requires specialist training and equipment, is from microscopic examination of a smear of blood on a glass slide, which has been stained to reveal the parasites. Facilities for microscopic blood testing are usually not available at Health Post level. If you have been trained to use the malaria RDT and have access to properly stored test kits, you should diagnose malaria on the basis of the test results. If you are unable to use the malaria RDT, base your diagnosis on the symptoms (e.g. headache, fever, chills, muscle/joint pain), and high temperature measured with a thermometer.

18.1.3 Treatment of malaria in pregnancy

It is important for pregnant women to avoid malaria — or to be treated quickly if they get sick. Malaria medicines can have side-effects, but these medicines are much safer than actually getting sick with malaria. If a woman has symptoms of malaria, she should be treated right away. The medicine used in Ethiopia in the Health Extension Programme is called Artemether Lumifantrine (marketed as Coartem tablets). It works by interfering with the development of the parasites in the person's red blood cells.

Coartem can be used to treat malaria during the second and third trimesters of pregnancy. The **second trimester** is 13–27 weeks since the woman's last normal menstrual period (LNMP), and the **third trimester** is from 28 weeks until the birth at around 40 weeks. If the diagnostic test is positive for malaria, or you strongly suspect malaria based on the clinical signs and symptoms, and the woman is in either the second or third trimester, treat her as indicated in Box 18.1.

Box 18.1 Coartem treatment in the second or third trimester of pregnancy

- Four Coartem tablets twice a day (12 hours apart) for 3 days (a total of 24 tablets). Tell her to take the tablets with food, milk, oatmeal or soup. She can crush them and mix them with a spoonful of food if this makes it easier for her to swallow the medicine. Figure 18.3 (on the next page) shows a way of explaining to women how many tablets to take.
- You can also give her paracetamol tablets (500–1000 mg) every 4–6 hours to bring down her temperature when she has a fever.
- Cold sponging her body with a cloth dipped in cool water will also help when she has a fever.
- Advise the woman to drink plenty of fluids to make sure she does not become dehydrated. She should drink at least 1 large cup of fluid every hour.

If the woman is in the **first trimester** (i.e. up to 12 weeks since her LNMP), but she is too sick to travel to the health centre, give her the treatment in Box 18.2 (over the page). The risk from malaria to her life and the life of her fetus is greater than the risk from taking the medicine during early pregnancy. Send her to the health centre as soon as she is well enough to travel. Note that the drug Artesunate is given by slipping a specially shaped capsule — called a **suppository** — into the woman's rectum by pushing it gently through her anus.



Pregnant women with suspected malaria in the first trimester, who are not too sick to travel, should be referred to the nearest health centre for specialist treatment.



Figure 18.3 A Health Extension Worker shows a chart with Coartem tablets in groups of four. (Photo: courtesy of AMREF Ethiopia)

Box 18.2 Artemether injection and rectal Artesunate

Pre-referral intramuscular (IM) injection of Artemether is given in cases of severe suspected malaria. The dosage is 3.2 mg of Artemether for every kilogram (kg) of the woman's body weight, in a single injection into the muscles of her upper arm.

Pre-referral rectal Artesunate given in suppositories with the following doses.

Woman's weight	Dose	Number of suppositories
30–39 kg	50 mg	1
over 40 kg	400 mg	4

Note that pregnant women are likely to weigh more than 40 kg after the first trimester.

The total number of malaria deaths and cases has been falling in Ethiopia in recent years, due to the major effort to prevent the disease and to treat it rapidly when it occurs. The Health Extension Programme is vitally important in reducing malaria even further, including early diagnosis and treatment of pregnant women coming to you for antenatal care.

18.1.4 Prevention of malaria

To prevent malaria, you must do everything possible to avoid mosquito bites. You should advise everyone in your community to act together to:

- Get rid of standing water where mosquitoes breed; drain pits that fill with rain water; cover or get rid of tin cans and pots that collect water near the house.
- Stay away from spending the night in wet places where mosquitoes breed.
- Use bed nets treated with insecticide, a mosquito-killing chemical. In many parts of Ethiopia you are able to distribute **insecticide treated nets (ITNs;** see Figure 18.4) to families who need them. These nets protect people who sleep under them from being bitten by mosquitoes, and they also reduce the risk to others sleeping in the same room because the insecticide repels mosquitoes from entering the house.



Figure 18.4 Insecticide-treated bed nets offer good protection from the mosquitoes that carry malaria. (Photo: UNICEF Ethiopia/Indrias Getachew)

Preventing malaria should be an individual and a community responsibility. Consider holding a health campaign aimed at raising awareness of how to prevent malaria, using the health promotion techniques you learned about in Study Session 2 of this Module. Make sure the pregnant women you see for antenatal care know that they, their unborn baby and their children under 5 years are all at increased risk of malaria.

18.2 Anaemia in pregnancy

Women with anaemia have less strength for childbirth and are more likely to bleed heavily afterwards (postpartum haemorrhage), become ill after childbirth, or even die. You have already learned a lot about the diagnosis and prevention of anaemia in earlier study sessions in this Module, so in this session we will focus on its treatment and reinforcing what you have learned already.

- What is anaemia and what happens in the body of an anaemic person?
- When someone has **anaemia**, it usually means the person has not been able to eat enough foods containing iron. Red blood cells need iron to make **haemoglobin**, the substance that helps the red blood cells carry oxygen from the air we breathe to all parts of the body. A person with anaemia can't make enough red blood cells, so their body is short of oxygen.

Note that some kinds of anaemia are caused by illness, not lack of iron, and some are inherited (genetic). It may also be caused by infestation with certain parasites, including malaria and hookworm. In this session we are concerned with anaemia caused by iron deficiency in the diet. Many pregnant women have anaemia, especially poor women who can't afford to eat enough iron-rich foods, as you already know from Study Session 14.

18.2.1 Diagnosis of anaemia

Screen all pregnant women for anaemia at every antenatal visit, by asking about their symptoms. Useful questions to ask are:

- 'Do you feel weak or get tired easily?'
- 'Are you breathless (short of breath) when you do routine household work?'
- 'Do you often feel dizzy, and have you ever fainted (become unconscious)?'

These symptoms are caused by too little oxygen in the blood to provide energy for normal activities. A person with anaemia tends to feel short of breath because they have to breathe more rapidly to get enough oxygen into their body. If the brain can't get enough oxygen, the person will feel dizzy and may faint.

The **signs** of anaemia (things a trained health professional can look out for or measure) are:

- Pallor: paleness inside eyelids, palms of the hands, fingernails and gums.
- Rapid breathing (faster than 40 breaths in a minute; normal breathing rate is 18–30 breaths per minute).
- Fast pulse (over 100 beats in a minute). You learned how to measure the pulse rate in Study Session 9 (Section 9.4).



On the first antenatal care visit

If you suspect that the woman may be anaemic, encourage her to have a blood test for anaemia if it is available at the nearest Health Centre. The blood test measures the concentration of haemoglobin (the iron-containing substance in the blood) to see if there is enough to carry the oxygen that she needs for normal activity and her unborn baby needs for growth. If blood testing is not available, use your judgement of the known signs and symptoms (listed above) to diagnose anaemia and offer treatment as described below.

On subsequent antenatal care visits

- Look for pallor inside her eyelids, hands, fingernails and gums.
- Take her pulse. Is it over 100 beats per minute?
- Count the number of breaths she takes in 1 minute. Is it faster than 40 breaths?

Anaemia poses a serious risk to her health and that of her baby, especially around the time of delivery.



If you are concerned that a pregnant woman has anaemia and she is not responding to the treatment you give her, you should refer her to a Health Centre straight away.

18.2.2 Prevention of anaemia in pregnancy

Eating a healthy diet

All pregnant women should be advised about eating enough foods containing good amounts of **iron** and **folate** (a vitamin, which is also called folic acid). You already know why she needs iron. Folate also helps to prevent anaemia in women who are pregnant or breastfeeding, and it can prevent some kinds of birth abnormalities in the baby.

- Think back to Study Session 13. Name some foods that contain a lot of iron.
- You may have thought of some of these: chicken; fish; sunflower, pumpkin and squash seeds; beans, peas and lentils; dark green leafy vegetables; yams; hard squash; red meat (especially liver, kidney and other organ meats); whole grain products such as brown bread; iron-fortified (enriched) bread; nuts and egg yolk.
- Now name some foods that contain a lot of folate.
- Fish; sunflower, pumpkin and squash seeds; beans and peas; dark green leafy vegetables; red meat (especially liver, kidney and other organ meats); brown rice; whole wheat; mushrooms and eggs.



Iron and folate tablets

You should give each pregnant woman enough iron tablets and folate tablets so she can take one tablet of each supplement once a day, or a combined tablet, until she sees you for the next antenatal visit. Make sure you give women more of these tablets at every visit. The *preventive* dosage is:

- Iron: 300 to 325 mg (milligrams) of ferrous sulphate once a day taken by mouth, preferably with a meal. Usually this dosage will be supplied in a single tablet combined with folate, but sometimes it can be given as iron drops.
- Folate: 400 µg (micrograms) of folic acid once a day taken by mouth, usually combined with iron.

18.2.3 Treatment of anaemia in pregnancy

Moderate levels of anaemia can usually be cured by eating foods high in iron and folate, and also vitamin C (like citrus fruits and tomatoes), and by taking iron tablets and folate. The *treatment* dosage is:

- Iron: 300 to 325 mg (milligrams) of ferrous sulphate *twice* a day taken by mouth (*double* the dosage given to prevent anaemia).
- Folate: 400 µg (micrograms) of folic acid once a day by mouth (the same dosage as for prevention).

After prescribing these tablets and dietary advice, a pregnant woman with suspected anaemia should be checked again in 4 weeks. If she is not getting better, refer her to the health centre. She may have an illness, or she may just need a stronger iron supplement.

The supplements should be continued for 6 months during pregnancy if less than 40% of women in your community have anaemia. Continue for a further 3 months after the birth if more than 40% of women are anaemic, and your client is breastfeeding.

If a woman has severe anaemia (a blood test shows she has haemoglobin less than 8 gm per litre of blood) in the 9th month of pregnancy, she should plan to have her baby in a hospital.

Side effects of iron tablets

Taking iron tablets can cause side-effects like constipation, nausea and black stools. Tell the woman she may have these side-effects, but it is important for her to keep taking the iron tablets. Taking the tablet when she eats a meal may help to prevent nausea, and drinking plenty of healthy fluids and eating lots of fruits and vegetables helps to prevent constipation. Reassure her that the black colour of her stools is not harmful and will go when it is safe for her to stop taking the iron tablets.

18.3 Urinary tract infections

The **urinary tract** (see Figure 18.5) includes the kidneys, kidney tubes, bladder and urethra (the opening where urine comes out of the body). They are all connected and work together to get rid of body wastes from the blood. First the kidneys clean the blood and turn waste into urine. Then the urine goes down the kidney tubes to the bladder. The urine stays in the bladder until the person urinates (passes water).

Urinary tract infection occurs when harmful germs (bacteria) get into the urethra. The infection can easily spread upwards to the bladder or kidneys. Doctors often refer to urinary tract infections as **UTIs** (when you say this it sounds like ‘you-tee-eyes’). You should assume that a UTI may involve all levels of the tract: the urethra, the bladder and the kidneys.

A woman is more likely to get UTIs during pregnancy than at other times. UTIs – particularly those that get all the way up to the kidneys – can be very *dangerous* for the mother and can also cause her to start labour too early if they are not treated right away. This is why it is important to check for signs of infection at every antenatal visit.

18.3.1 Prevention of UTIs

To prevent UTIs, teach women how to keep germs in their stools away from the urethra by wiping from front to back after urinating or passing stools (see Figure 18.6). If they wipe from the anus towards the urethra, they can carry germs into the genital area, where they could get into the urethra. Remind women and their partners to wash their hands and genitals before sex. Women should also urinate right after having sex. Using a condom also helps to prevent the spread of a UTI from a man to a woman.

In Section 18.3.3 (below) you will learn about giving antibiotics to women who have a history of frequent bladder infections to prevent the infection from coming back during pregnancy.

18.3.2 Diagnosing UTIs

A woman with a healthy urinary tract will not usually report pain, itching or burning when urinating. However, sometimes a woman has a UTI but she has no signs. It is important to try to tell whether the infection has reached the bladder, or if it has gone further up the urinary tract and reached the kidneys. Kidney infections are more serious and are a greater risk to the mother and her unborn baby.

Testing for UTIs

UTI can be detected by testing the woman’s urine. There are several different tests which are usually done at a Health Centre. There are dipsticks that

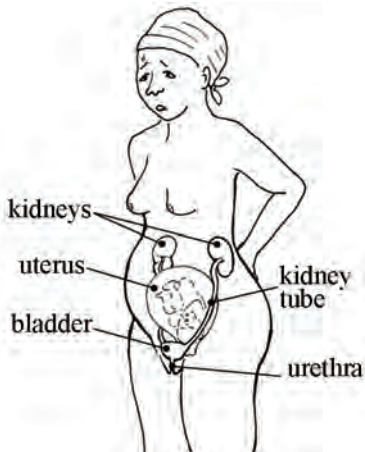


Figure 18.5 The main features of the urinary tract. (You have already seen all of these structures in Figure 3.1 in Study Session 3, *except* the kidneys and kidney tubes.)



Figure 18.6 Wiping from front to back after urinating or passing stools helps to prevent urinary tract infections.

change colour when dipped into infected urine, or the bacteria may be seen if the urine is looked at through a microscope, or the bacteria can be grown (cultured) in special containers until there are enough to identify them. All these tests require a clean 'mid-stream' urine sample.

- You learned how to collect a mid-stream urine sample in Study Session 9. How would you explain to a woman how to do it?
- You would tell her to begin urinating, but after she has produced the first trickle she should collect some urine from the middle of the stream in a clean container, and stop collecting before she empties her bladder.

Dipstick, microscope and bacterial culture tests are the only certain way to diagnose a UTI, but they cannot tell the difference between infection of the bladder and kidney infections. You may be able to do this by careful questioning of the woman about her symptoms.

Symptoms of a bladder infection

Ask the pregnant woman if she experiences any of the following symptoms:

- Constant feeling of needing to urinate, even after having just urinated
- Pain or burning while urinating, or straight afterwards
- Pain in the lower belly, behind the front of the pelvis.

Symptoms of a kidney infection

Ask the pregnant woman if she experiences:

- Any signs of bladder infection
- Cloudy or bloody urine
- Fever, feeling very hot and sweating
- Feeling very sick or weak
- Flank pain (in one or both sides)
- Repeated vomiting
- Chills, rigors or shivering persistently.

Another symptom is pain in the lower back, sometimes on the sides (see Figure 18.7). But note that pain along the spine is common in pregnancy and may not be a sign of kidney infection. Normal back pain in pregnancy can be helped with massage, or exercise. If the pain is due to a kidney infection, massage or exercise won't relieve it.

18.3.3 Treating a bladder infection

Encourage the mother to drink 1 large cup of clean and healthy liquid at least once every hour while she is awake. Liquids help wash infection out of the urinary tract. Water and fruit juices are especially good to drink. Encourage her to eat fruits that have a lot of vitamin C, like oranges, guavas ('zeitun') and mangoes.

If the infection does not start to improve quickly, or if the woman has any signs of kidney infection, refer her to the health centre, where tests can be performed to confirm the infection, and begin effective treatment with **antibiotics** (medicines that kill bacteria). The longer you wait to treat an infection, the more difficult it will be to cure.



Itching or burning while urinating can also be a sign of vaginal infection or a sexually transmitted infection. If you see a patient with these symptoms, refer her to the nearest health facility.

If you suspect a kidney infection, refer the mother immediately to the nearest health facility.



Figure 18.7 Pain along the sides of the back may be normal in pregnancy, or it may be a sign of kidney infection.

If you have been trained to treat mild bladder infections with antibiotics, the dosage is:

- Amoxicillin: 500 mg (milligrams) by mouth three times per day for 5 days; this antibiotic may be supplied in tablets of 250 mg or 500 mg, so take care to give the correct number of tablets. Never give another antibiotic – only Amoxicillin.

Using antibiotics to prevent recurrent bladder infections

If the woman has had frequent urinary tract infections in the past, you can give her preventive treatment with antibiotics to prevent further infections during her pregnancy. The dosage is:

- Amoxicillin: 250 mg once a day at bedtime taken by mouth for the remainder of the pregnancy and for 2 weeks after the baby is born.

18.4 In conclusion

Malaria, anaemia and UTIs are three of the most common medical disorders during pregnancy. In this study session you have learned how to diagnose, prevent and treat them. In the next three study sessions, you will learn about three more medical disorders that threaten the lives of pregnant women if they are not diagnosed and referred immediately: hypertensive disorders (Session 19), early pregnancy bleeding (Session 20) and late pregnancy bleeding (Session 21).

Summary of Study Session 18

In Study Session 18 you have learned that:

- 1 Malaria is caused by a parasite that is spread by mosquitoes.
- 2 A pregnant woman with malaria is more likely to have anaemia, miscarriage, early birth, small baby, stillbirth (baby born dead), or to die herself.
- 3 It is important for pregnant women to avoid getting malaria — for example by using insecticide-treated bed nets — and to be treated quickly if they get sick.
- 4 Malaria medicines may be costly and can have side-effects, but these medicines are much safer than actually getting sick with malaria, particularly during pregnancy. The usual anti-malaria medicine in Ethiopia is Coartem.
- 5 Iron helps the blood carry oxygen from the air we breathe to all parts of the body. Too little iron in a pregnant woman's diet means she will be short of breath because she is anaemic.
- 6 Women with anaemia have less strength for childbirth and are more likely to bleed heavily, become ill after childbirth, or even die.
- 7 Eating a diet rich in iron and folate, and taking these essential nutrients in tablets every day during pregnancy, can prevent anaemia from developing, and treat mild cases of anaemia.
- 8 The urinary tract includes the kidneys, kidney tubes, bladder and urethra. UTIs are common during pregnancy and can be prevented by good hygiene.
- 9 Bladder and kidney infections can be dangerous for the mother and can also cause her to start labour too early if they are not treated right away.



If antibiotic treatment fails to cure the signs of infection, or if the woman gets another bladder infection later in the pregnancy, refer her to the Health Centre for urine tests. She may need treatment with a different antibiotic.

Drinking a lot of clean liquids is often sufficient to flush the bacteria out of the body.

- 10 Itching or burning while urinating is a common symptom of bladder infection; mild bladder infections can be treated with antibiotics. The usual antibiotic in Ethiopia at Health Post level is Amoxicillin.
- 11 Kidney infection is particularly dangerous and the woman should be referred immediately if she has cloudy or bloody urine, fever, and pain in the lower back.

Self-Assessment Questions (SAQs) for Study Session 18

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 18.1 (tests Learning Outcomes 18.1, 18.2 and 18.3)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A The risk of a UTI can be reduced by washing hands and genitals properly.
- B A woman is more likely to get infections of the urethra, bladder or kidneys during pregnancy than at other times.
- C It is important to give iron tablets to prevent anaemia only at the first antenatal visit.
- D Encouraging a woman with a UTI to drink 1 glass of liquid every hour while she is awake helps to reduce her bladder infection.
- E Malaria in pregnancy is associated with an increased risk of spontaneous abortion and stillbirth.
- F Milk is rich in folate, so drinking plenty of milk during pregnancy can help to prevent anaemia.

SAQ 18.2 (tests Learning Outcomes 18.1, 18.4, 18.5 and 18.6)

Complete the empty boxes in Table 18.1.

Table 18.1 for SAQ 18.2.

Medical condition	Signs and symptoms
Malaria	
Anaemia	
Bladder infection	
Kidney infection	

Study Session 19 Hypertensive Disorders of Pregnancy

Introduction

Hypertensive disorders of pregnancy are one of the three leading causes of maternal morbidity and mortality (together with haemorrhage and infection). The contribution of **hypertension** (high blood pressure) to mortality and morbidity of the fetus and newborn is also immense. Hypertensive disorders may complicate up to 10% of all pregnancies, with the highest proportion occurring in women who are pregnant for the first time (**primigravida**). Hypertension is usually defined as blood pressure above 140/90 mmHg, where the top number is the *systolic* pressure and the bottom number is the *diastolic* pressure.

Blood pressure is measured in millimeters of mercury (mmHg) because the original instruments contained a column of mercury.

- Do you remember what systolic and diastolic pressure refer to?
- The **systolic pressure** is the pressure of blood in the blood vessels at the moment when the heart contracts. The **diastolic pressure** is measured when the heart relaxes between beats.

A major purpose of your antenatal care service is to make pregnant women aware of the danger symptoms of hypertensive disorders, to check their blood pressure at every antenatal visit (you learned how to do this in Study Session 9), and to make a timely diagnosis of hypertension and refer affected women as early as possible.

In this study session you will learn about the changes in the woman's body as a result of hypertension and how this affects the mother and the fetus, the classifications of hypertension, the common risk factors for developing it, how to diagnose the different types and what actions to take in order to prevent worsening complications and even death.



Learning Outcomes for Study Session 19

After studying this session you should be able to:

- 19.1 Define and use correctly all of the key words printed in **bold**. (SAQs 19.1, 19.2 and 19.3)
- 19.2 Briefly describe what happens in blood vessels and body fluids in women with hypertension, and how this can damage the fetus. (SAQs 19.1 and 19.2)
- 19.3 Define the different types of hypertensive disorders of pregnancy. (SAQ 19.2 and 19.3)
- 19.4 List the common risk factors for developing pregnancy-related hypertension. (SAQ 19.3)
- 19.5 Describe the common clinical features of severe pre-eclampsia. (SAQ 19.3)
- 19.6 Identify the common maternal and fetal/neonatal complications of hypertensive disorders of pregnancy. (SAQ 19.3)
- 19.7 Provide basic supportive treatment and facilitate early referral, in particular for women with severe hypertensive disorders of pregnancy. (SAQ 19.3)

19.1 How does hypertension affect pregnancy?

The underlying cause of hypertension related to pregnancy remains unclear. However, hypertension is known to contribute to disorders in different parts of the body; in particular, it affects the brain and spinal cord, the heart and blood vessels, the blood, the kidneys and the liver.

19.1.1 Effects on blood vessels and body fluids

A well-known phenomenon in a woman who develops hypertension during pregnancy is that the muscular walls of the blood vessels all over her body contract, so the space inside the vessels becomes smaller. (The technical name for this is generalised *vasoconstriction*.) The constriction causes high blood pressure in the blood vessels, and this is one reason why fluid from the blood is pushed out through the vessel walls and collects in the woman's tissues.

- What is the name for the swelling due to fluid collecting in the tissues and where is the swelling most often visible in pregnant women with hypertension? (You learned about this in Study Sessions 7 and 8, particularly Box 8.2.)
- The swelling is called **oedema** and is a warning sign of hypertension in pregnancy. It is most often seen in the lower legs, ankles and feet; also the hands, and in the most severe cases in the face and back.

19.1.2 Effects of maternal hypertension on the fetus

Any form of hypertension during pregnancy has a significant effect on fetal growth and survival. This happens because of the marked reduction in the mother's blood volume, which will in turn reduce the blood supply from the **endometrial arteries** into the placenta. The endometrial arteries bring the mother's blood into the placenta, delivering oxygen from her lungs and nutrients from her digestive system to the fetus. (You can see them if you look back at Figure 5.5 in Study Session 5.)

- If the maternal blood flow into the placenta is reduced, what effect will this have on fetal development?
- The transfer of oxygen, nutrients and fluids to the baby will be reduced, so it will not develop normally. Fetal growth is likely to be restricted (hypertension during pregnancy is one of the common causes of intra-uterine growth restriction, IUGR).

The amount of **amniotic fluid** surrounding the fetus will also be much less than normal, because the blood flow to the baby's kidneys is reduced, so it makes less urine. In late pregnancy, most of the amniotic fluid comes from the baby's urine. The fetus may die due to deficiency of oxygen and nutrients, or due to significant reduction of amniotic fluid. If the fetus lives very long in the uterus with a reduced oxygen supply, the growing brain is very likely to be dangerously affected. As a result, if the baby is born alive and survives early childhood, mental retardation can appear when it is older.

The fetus may also die because the placenta gets aged too early and the blood supply is inadequate, so there can be early separation of the placenta from the wall of the uterus. (Early detachment is called **placental abruption** and you will learn all about it in Study Session 21. Preterm labour may begin spontaneously (Study Session 17), and the mother's life can also be at risk due to severe placental abruption where much blood may be lost.

19.1.3 Common complications of severe pre-eclampsia for the mother

Complications of any type of hypertensive disorder for the mother are highly related to the generalized vasoconstriction and body fluid redistribution (more outside the blood vessels and less inside the vessels). These phenomena result in:

- Inadequate blood supply to her vital organs (brain, heart) and less vital organs for short survival (kidneys, gastrointestinal tract including liver, skeletal muscles and skin).
 - Fluid accumulating in her organs (liver, brain, abdominal cavity, eyes, lungs), which swell and can even rupture.
 - Narrow or constricted blood vessels, which contributes to blood cell damage, particularly platelets (essential for blood clotting if there is a tear or wound in the tissues), and red blood cells.
- If a significant proportion of the woman's red blood cells are damaged, what condition will she develop?
- She will develop **anaemia**.

19.1.4 Summarising maternal and fetal complications of severe pre-eclampsia

Table 19.1 Common complications of severe pre-eclampsia in the mother and the fetus.

Maternal complications	Fetal complications
Eclampsia	Placental abruption
Intracranial haemorrhage (bleeding inside the skull)	Intrauterine asphyxia (severe shortage of oxygen in the uterus)
Anaemia	IUGR (intrauterine growth restriction)
Low platelet count, poor blood clotting and risk of bleeding	Premature delivery
Acute kidney failure	IUFD (intrauterine fetal death)
Acute liver failure, maybe even liver rupture	Respiratory distress after birth(early neonatal asphyxia)
Fluid in the lungs (pulmonary oedema)	Mental retardation
Heart failure	
Temporary total blindness	

Asphyxia is pronounced 'ass-fix-ee-ah'.

'Acute' refers to a condition that begins suddenly and rapidly becomes very serious.

19.2 Classification of hypertension during pregnancy

Hypertension during pregnancy can be a new development, or a continuation or worsening of hypertension that existed before the pregnancy. If the hypertension is diagnosed before pregnancy or during the first 20 weeks of gestation, or if the hypertension persists for six weeks after the baby is born, it is defined as **chronic hypertension**.

The reason for classifying hypertension during pregnancy is to enable you to decide what actions to take in each case. Some types (e.g. mild pre-eclampsia and gestational hypertension — see Table 19.2 below) have fewer and less

'Chronic' describes a condition that has been going on for a long time.

severe complications for the mother and the fetus: other types (e.g. severe pre-eclampsia and eclampsia) can have fatal complications unless managed quickly.

19.2.1 Classification of pre-eclampsia

Pre-eclampsia is the commonest type of hypertensive disorder of pregnancy and the focus of much of the discussion in this section (see Table 19.2). It usually occurs in the second half of pregnancy (after 20 weeks of gestation, but most commonly after 28 weeks). The appearance of protein in the woman's urine (**proteinuria**) is a danger sign. **Significant proteinuria** is defined as a positive urine dipstick test for protein with a result greater than or equal to +2 on the scale supplied with the dipsticks.

Proteinuria is pronounced 'proh-teen-you-ree-ah'.

Table 19.2 Characteristics of types of hypertension and pre-eclampsia

Type	Raised blood pressure (measured twice, 6 hours apart)	Proteinuria	Symptoms of severity
Gestational hypertension (develops during pregnancy, resolves afterwards)	Above 140/90 mmHg	No significant proteinuria	None
Mild pre-eclampsia	Between 140/90 and 160/110 mmHg	No significant proteinuria	None
Severe pre-eclampsia	Greater than or equal to 160/110 mmHg	With or without significant proteinuria (urine dipstick test result greater than or equal to +2)	Headache, blurred vision, epigastric burning pain, decreased urine output, decreased or absent fetal kick
Superimposed pre-eclampsia	Higher than before the pregnancy in a known chronic hypertensive woman	Significant or worsening proteinuria	With or without symptoms of severity

You will learn about these symptoms of severity in Section 19.4 later.

19.2.2 Diagnostic signs of eclampsia

Eclampsia is the most severe type of hypertensive disorder. The diagnosis is made when a woman with pre-eclampsia (most commonly), or any other type of hypertensive disorder, develops **convulsions** (fits or seizures, Figure 19.1) or **coma** (complete loss of consciousness). The convulsion looks like the seizure you might have witnessed in a person with epilepsy (in Amharic: *Yemitil Beshita*). You will learn more about this type of convulsion later in this study session.



Figure 19.1 Convulsion is a characteristic sign of eclampsia in pregnancy.

19.3 Risk factors for pre-eclampsia/eclampsia

In the majority of cases, the occurrence of pre-eclampsia or eclampsia is unpredictable and the cause is unknown. However, there are some risk factors which are known to be associated with hypertensive disorders of pregnancy (Box 19.1).

Box 19.1 Common risk factors for hypertensive disorders in pregnant women

- First time pregnancy before the age of 20 years or after 35 years
- Multiple pregnancy (twins or more)
- Family history of pre-eclampsia/eclampsia in close female relatives
- History of pre-eclampsia/eclampsia in the previous pregnancy
- Diabetes currently
- Obesity currently (woman is very overweight for her height)
- Kidney disease currently.

Knowing these risk factors will help you to:

- Anticipate the possibility of a hypertensive disorder and its complications developing before they actually happen.
- Offer counselling to the woman and her partner and family about the danger symptoms of severe pre-eclampsia/eclampsia, so they can take action quickly if needed.
- Make antenatal care visits more frequently in late pregnancy to women with known risk factors.

Equally important, you need to know that *any* woman (regardless of age and number of previous deliveries) can develop a hypertensive disorder in *any* pregnancy. Therefore, although it is good to anticipate its occurrence in those who have one of the risk factors, you should assume that *all* pregnant women have the potential to develop hypertension.

19.4 Clinical features of severe pre-eclampsia.

As you saw in Table 19.2, mild pre-eclampsia is an incidental finding of raised blood pressure in a woman who doesn't have any other hypertensive symptoms. However, a woman with severe pre-eclampsia can have one or more complaints of severe symptoms. From observations and research studies, the following are the common clinical features.

19.4.1 Headache

Although there are many causes of headache during pregnancy, till proved otherwise, you should first consider that a headache could be due to the severe form of hypertension. *Brain oedema* (swelling due to fluid collecting around the brain) and increased pressure inside the skull (the medical name for the skull is the cranium, so doctors call this **intracranial pressure**) are the major reasons for the headache in severe pre-eclampsia.

19.4.2 Blurred vision/visual disturbance

Blurred vision and visual disturbances are also because of increased intracranial pressure, coupled with oedema in the brain and in the retina (the structure at the back of the eyeball).

19.4.3 Epigastric pain

Oedema in the liver can become very painful because the liver is covered by a capsule, which becomes tense and painful when the liver accumulates too much fluid in its tissues. The liver lies behind the *epigastric* area of the abdomen, which you learned to identify in Study Session 15 (look back at Figure 15.4). Other causes of **epigastric pain** are rare during pregnancy, so the message is: first think of hypertension in a pregnant woman (particularly after 28 weeks of gestation) complaining of epigastric pain.

19.4.4 Decreased urine output

Urine production decreases very significantly in severe types of pregnancy-related hypertension. The reduction in maternal blood volume (described in Section 19.1.1) results in markedly reduced blood flow to the kidneys, and as a result, there will be a significant decrease in urine output. The woman may stop producing urine altogether.

19.4.5 Decreased or absent fetal kick

This happens because the fetus receives a reduced supply of oxygen and nutrients due to the decreased blood flow through the placenta, as described above.

19.4.6 Generalized (pathologic) oedema

Generalized oedema is characterized by the widespread development of oedema in the woman's back, abdomen, hands and face. The oedema is considered *pathologic* if the mother's weight gain per week is above 1.0 kg. The normal weight gain per week during pregnancy is in the range of 0.25 kg to 0.75 kg (average 0.5 kg).

19.5 Clinical features of eclampsia

Eclampsia occurs when the woman hasn't been able to get adequate treatment when she had severe pre-eclampsia. It is the most life-threatening complication of severe pre-eclampsia. It can occur before labour, during labour and after delivery. Sometimes, eclampsia can occur as long as 24 hours after the delivery, even in women who gave birth with normal blood pressure and without any danger symptoms before and during labour. Therefore, if a woman comes to you with a history of convulsion, after a normal labour and delivery and even some time at home, the first clinical problem you need to consider is eclampsia. But you should also know that there are other medical causes of convulsion, such as blood sugar being too low or too high (hypo or hyperglycaemia), malaria affecting the brain, bacterial infection in the brain (e.g. meningitis), stroke, drugs, or poisoning.

As you learned above, the diagnosis of eclampsia is made when the clinical features of pre-eclampsia are present, plus:

- Convulsion/fits
- Coma in the absence of other causes.

The convulsion in eclampsia is usually sudden in onset, but in some cases there may be warning signs and symptoms that make the occurrence of eclampsia inevitable (see Box 19.2).

Box 19.2 Warning signs and symptoms that eclampsia is developing

- Intractable/severe headache
- Severe epigastric pain
- Markedly blurred vision or total visual loss (temporary)
- Lethargic or very irritable
- Disoriented about the time, people and places in her environment
- Disconnected with the environment
- Shows some abnormal behaviour.

19.5.1 Convulsions in eclampsia

The convulsion in eclampsia is similar to the seizure in people with epilepsy. Like an epileptic fit, it has four phases:

The quiet stage

The typical feature of the first stage is a period of quiet (it may not take more than 20 seconds) when the person has generalized weak muscles, stiffness and twitch, and staring eyes.

The tonic stage

This may last up to 30 seconds and is characterized by a severe form of generalized muscle spasms, where the muscles of the legs and hands contract very severely and may seem as strong as a dry stick. During the tonic stage, the woman stops breathing and becomes short of oxygen. There is also rolling of the eyes where you can see the upper part of the sclera (the white part of the eye).

The clonic stage

The third stage may take up to 2 minutes and is classically a jerky movement of the whole body as a result of vigorous muscle contraction and relaxation. At this stage, the woman can breathe and she will also salivate and urinate spontaneously.

The coma stage

After the clonic stage is over, in typical cases the woman becomes deeply unconscious for an uncertain period of time. However, a woman can be comatose even from the outset (i.e. without even a single convulsion). The duration of the coma state is dependent on:

- *The number of previous convulsions:* The higher the number, the longer the duration of coma, which may even end in death. Having a history of more than ten convulsions is one of the poor outcome indicators. Therefore, the earlier the convulsion episodes are controlled, the better the prognosis for the mother and the baby.
- *Severity of brain oedema:* The space between the skull and the brain is very limited. Thus, even a minimal increase in the mother's brain size due to oedema or haemorrhage will have a serious effect on the brain cells, because the pressure on the brain (the intracranial pressure) rises so high.

- *Extent of intracranial haemorrhage* (see below in this session): As already described for brain oedema, any bleeding in the intracranial space will increase the intracranial pressure on the brain cells. Additionally, it may aggravate further bleeding and can create a vicious cycle.
- *Associated hypoglycaemia* (low blood sugar level): Each convulsion requires energy. This is because, during the tonic-clonic stages, almost all the skeletal muscles contract and relax many times. Frequent convulsion means consumption of much energy, which comes from stored sugars in the blood, liver and tissues. The woman with eclampsia cannot replace the sugars used by her muscles quickly enough, so she develops very low blood sugar (severe **hypoglycemia**), which in turn may manifest in coma. Because her blood sugar is low, the woman with eclampsia invariably will be getting some energy from proteins in her muscles to keep her alive. Breaking down proteins produces *ketone bodies* that can be used as an energy source and some will appear in her urine. You can test for the presence of ketone bodies with a dipstick.

19.6 What can you do if you diagnose a hypertensive disorder in a pregnant woman?

Your primary role in the management of hypertensive disorders of pregnancy is early identification of warning signs and symptoms, and immediate referral to a hospital or health centre. If possible ensure rapid transportation and reception of the woman at the higher health facility. Your actions should be based on your clinical diagnosis and the severity of the hypertension.

19.6.1 Actions if pre-eclampsia is not severe

Pregnant women diagnosed to have:

- mild pre-eclampsia,
- chronic hypertension
- gestational hypertension

should be referred *without any intervention by you*, preferably on the day of diagnosis.

- Why do you think referral is necessary, even though the hypertension is not severe?
 - This is because sometimes the mild form of hypertension may progress to the severe type in a very short period of time.

19.6.2 Persuading affected women to go for medical treatment

You should offer counselling to the woman and her family about the danger of maternal and fetal complications and the advantage of getting specialist medical treatment urgently. In cases of eclampsia, people in many parts of rural Ethiopia believe that convulsions/fits are related to an evil spirit. A pregnant woman who has had a fit in these cultures may not want to go to a health facility, because she may prefer to go to the holy water, to a priest or other religious leader, or to local healers. You have a very important role to make sure that the woman and her family understand that the fits are caused by the very high blood pressure she is experiencing. Reassure her that the convulsions will stop progressively after the baby is delivered.

19.6.3 Supportive pre-referral treatment for severe pre-eclampsia

Your second role is providing supportive treatment to avoid worse complications before the woman reaches the health facility. When your clinical diagnosis is as defined in Table 19.2 earlier:

- severe pre-eclampsia
- superimposed severe pre-eclampsia

you should be able to prevent the occurrence of eclampsia by taking the supportive actions in Box 19.2 below.

Box 19.2 Actions to prevent superimposed and severe pre-eclampsia progressing to eclampsia

- 1 Make the referral to the higher health facility as soon as possible.
- 2 Communicate with the receiving hospital or health centre to alert the medical team that a pregnant woman with severe pre-eclampsia is coming for urgent treatment.
- 3 Reassure the woman and her family that when she arrives at the health facility, the doctor will give her drugs to reduce her high blood pressure (anti-hypertensive drugs) and to prevent her from developing convulsions (anti-convulsant drugs).
- 4 While transport is being arranged, insert an intravenous (IV) line into a vein in the woman's hand or arm, as you will learn to do in Study Session 22 of this Module and in your practical training sessions. Connect the IV line to a bag containing at least 1 litre of IV fluid: either Normal Saline (N/S) or Ringer Lactate (R/L). Never give dextrose in water IV fluid (D/W).

19.6.4 Emergency referral for eclampsia

If you discover a pregnant woman with eclampsia, you should take the actions already described in Box 19.2. Refer her urgently unless she is already in advanced labour — in this case you should deliver the baby and refer her and the baby to a hospital as soon as possible after the birth.

When you transport a woman with eclampsia to the health facility, make sure she is lying on her side with her airway open (Figure 15.2). Don't let her lie on her back because she may find it difficult to breathe if she has another fit. Lying on her side also means that if she vomits during a fit, she is less likely to breathe the vomit into her lungs.

In the next study session you will learn about another potentially life-threatening situation: abortion and early pregnancy bleeding.



Figure 15.2 It is safest to transport the mother to hospital lying on her side.

Summary of Study Session 19

In Study Session 19, you learned that:

- 1 Hypertensive disorders of pregnancy are one of the common causes of maternal and perinatal morbidity and mortality.
- 2 Generalized constriction of blood vessels is a fundamental phenomenon of pregnancy-related hypertension. It brings about a marked reduction in the woman's blood volume, as fluids leave the blood vessels and accumulate in the tissues. Oedema occurs in different tissues and organs (including the brain, liver and kidneys), and leads to a significant reduction in blood supply to different parts of the mother's body, and to the placenta.
- 3 Known risk factors for pregnancy related hypertension include: being primigravida before the age of 20 years or after 35 years, multiple pregnancies, personal or family history of pre-eclampsia or eclampsia, having diabetes or kidney disease, or being obese.
- 4 Pre-eclampsia (raised blood pressure + significant proteinuria) is the most common type of hypertension during pregnancy. Severe pre-eclampsia is characterized by clinical manifestations such as headache, visual disturbance, epigastric pain, decreased urine output, decreased fetal kick and development of generalized oedema.
- 5 Eclampsia is diagnosed when the pregnant woman develops convulsion or coma in the absence of other causes. It is the leading cause of maternal and fetal death among all types of hypertensive disorders of pregnancy.
- 6 In classical cases, eclampsia has four stages: quiet, tonic, clonic and coma stages.
- 7 The coma stage can be long if there is recurrent convulsion, significant brain oedema, much intracranial haemorrhage or associated hypoglycaemia.
- 8 The very common complications of severe pre-eclampsia include eclampsia, anaemia, low platelet count, multiple and acute failure of organs (kidneys, liver, heart, lungs, and eyes).
- 9 The fetal complications include placental abruption, intrauterine and early neonatal asphyxia (due to low oxygen levels in the blood), intrauterine growth restriction (IUGR) and intrauterine fetal death (IUFD).
- 10 In the management of hypertensive disorders of pregnancy, your primary role is facilitating early referral.

Self-Assessment Questions (SAQs) for Study Session 19

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering these questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 19.1 (tests Learning Outcomes 19.1 and 19.2)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A When the muscular walls of the blood vessels all over a woman's body contract, the space inside the vessels becomes larger so her blood pressure falls.
- B Hypertension during pregnancy reduces the blood supply from the endometrial arteries in the mother's uterus to the fetus via the placenta.
- C Hypertension reduces the amount of amniotic fluid surrounding the fetus, because the blood flow to the baby's kidneys is reduced so it makes less urine.
- D Fetal growth is not restricted in a pregnant woman with hypertension.

SAQ 19.2 (tests Learning Outcomes 19.1 and 19.3)

Complete Table 19.3 with the measurements you would expect to find in women classified with the types of hypertension shown in the left-hand column.

Table 19.3 for SAQ 19.2

Type	Raised blood pressure	Proteinuria	Symptoms of severity
Gestational hypertension			
Mild pre-eclampsia			
Severe pre-eclampsia			
Superimposed pre-eclampsia			

SAQ 19.3 (tests Learning Outcomes 19.1, 19.2, 19.3, 19.4, 19.5 and 19.6)

Read the following case study and then answer the questions on the next page.

Case Study 19.1 Zewditu's story

Zewditu is a 37-year-old primigravida woman who is pregnant with twins. She is very overweight for her height. She was in good health until she reached gestational week 22, when she began to complain of headaches and swollen feet and ankles.

-
- (a) Does Zewditu have any of the common risk factors for hypertension? If yes, what are they?
 - (b) Does she have any of the clinical features of hypertension? If yes, what are they and what is the underlying cause?
 - (c) What complications could affect Zewditu's baby if she has untreated hypertension?
 - (d) What action should you take in Zewditu's case and why?

Study Session 20 Abortion and other Causes of Early Pregnancy Bleeding

Introduction

In this study session you will learn about the main causes of **early pregnancy bleeding**, that is when a woman bleeds while pregnant and before 28 weeks, which should not happen normally. Abortion is one of the most common causes of early pregnancy bleeding and is an important cause of maternal mortality and morbidity globally. In addition, about 15 out of 100 pregnancies end in **spontaneous abortion** (miscarriage). You will learn how to classify abortions so you can give appropriate care, and about the legal aspects of abortion in Ethiopia and safe methods of abortion used in health facilities. Ectopic and molar pregnancies are the other main causes of early pregnancy bleeding. A woman can have serious health problems when a pregnancy ends early, so you need to know about the warning signs. The session ends with guidance on pre-referral emergency care that could save a woman's life, and post-abortion counselling and family planning, which are important aspects of your role.

Learning Outcomes for Study Session 20

When you have studied this session, you should be able to:

- 20.1 Define and use correctly all of the key words printed in **bold**. (SAQ 20.1)
- 20.2 Describe common causes of bleeding in early pregnancy. (SAQ 20.2)
- 20.3 Describe the clinical classifications of abortion, the legal aspects of abortion in Ethiopia, and the safe methods used in health facilities. (SAQ 20.1)
- 20.4 Identify the warning signs and the emergency treatment required before referral for early pregnancy bleeding. (SAQ 20.2)
- 20.5 Describe the features of woman-friendly comprehensive post-abortion care, including the post-abortion family planning service. (SAQs 20.1 and 20.3)

20.1 What is early pregnancy bleeding?

Bleeding *before* 28 weeks of pregnancy is considered as **early pregnancy bleeding**. If it occurs *after* 28 weeks it is referred to as **late pregnancy bleeding**. This cut-off-point of 28 weeks is based on the chance of survival if the baby is born before the expected date at 28 weeks. Survival before 28 weeks is very minimal in countries like Ethiopia where there is a shortage of intensive care facilities for premature babies. Nowadays some countries have brought the cut off point to 20 weeks because of the increased chance of survival due to the improved care and technology their health system provides.

The main cause of early pregnancy bleeding is **abortion**, the ending of a pregnancy early with the loss of the fetus. Two other common causes are **ectopic pregnancy** (when the fetus implants and grows outside the uterus), and **molar pregnancy** (when a tumour grows in the uterus instead of a fetus). We will refer to both of these problems near the end of this study session, but our main focus will be on abortion.

20.2 Abortion

20.2.1 Spontaneous abortion

Spontaneous abortion (also known as a **miscarriage**) occurs naturally in 15% of pregnancies, often so early that the woman may not even realise that she was pregnant. However, spontaneous abortion may sometimes lead to heavy bleeding and threaten the woman's life. Sexually transmitted infections, injury, violence, malaria and stress all can cause a pregnancy to end early. Sometimes miscarriages happen because a woman has been near poisons or toxic chemicals. It is not easy to know why a miscarriage happens all the time, but some causes of miscarriage are preventable. Some miscarriages can be prevented by treating women for illness and infection and by helping them to avoid chemical poisons and violence. But some women have one miscarriage after another, and you may not know why.



Women with a history of repeated miscarriages should be treated in a health facility with specialized services to find the cause and to help them carry this pregnancy all the way through.

20.2.2 Induced abortion

Unplanned and unwanted pregnancies, especially in adolescent girls, may result in the woman resorting to an **induced abortion** (deliberate termination of the pregnancy). Under certain conditions in some countries, a **legal abortion** may be induced safely in a health facility by trained health professionals. This procedure will not usually endanger a woman's future pregnancies. The legal position in Ethiopia and the allowable methods of safe abortion are covered in Section 20.2.4 of this study session.

An **unsafe abortion** is a termination induced by the woman herself or by an unskilled person in an unhygienic environment (Figure 20.1).

A woman who was sick, injured or bled heavily after an abortion may have scars in her uterus that could cause problems for later pregnancies. Death from unsafe abortion is one of leading causes of mortality and morbidity globally and especially in developing countries. In Ethiopia it is an important cause of maternal death and needs to be addressed to reduce the high maternal mortality in the country.

- Do you recall the Ethiopian maternal mortality ratio (MMR) from Study Session 1?
- The 2005 Ethiopian Demographic Health Survey reported that 673 women died in every 100,000 live births. That is at least 22,000 women dying from causes related to pregnancy or childbirth every year.

20.2.3 Clinical classification of abortion

The outcomes of either a spontaneous or induced abortion are classified based on clinical presentation, as judged by the health care provider. It is important for you to know the different categories, because how you treat the woman depends on the clinical classification.

Complete abortion

A **complete abortion** means that all parts of the fetus and placenta have been expelled through the vagina; nothing is left behind in the uterus and the cervix has closed. No treatment procedure to evacuate (empty) the uterus is usually necessary. After a complete abortion which has been safely induced, the woman may feel light cramping pains in her abdomen, and bleeding from her vagina should be no more than during a normal menstrual period.



Figure 20.1 Unsafe abortion can cause heavy bleeding, serious infection, infertility or even death.

Incomplete abortion

An **incomplete abortion** is when part of the fetal tissue or placenta is still in the uterus and the cervix is open. If you leave an incomplete abortion without treatment for some time there is an increased risk that it will be complicated with infection and this could be life-threatening for the woman.

When you attend the practical skills training associated with this study session you will see how the tissue left behind in the uterus can be removed with instruments, using a technique called *evacuation* and *curettage*. You will also learn how to give drugs to the woman by mouth (orally) and by injection into the muscles of her thigh or buttocks (intramuscular injection, or IM) to assist this process.



If bleeding is light to moderate, and there is fetal tissue protruding through the mouth of the uterus, you can gently remove it with a sterile gloved finger. Do not attempt to do this until you have completed your practical training in this competency. Give the woman 400µg (micrograms) of *misoprostol* orally before you refer her to the nearest health facility.

Threatened abortion

When a pregnancy is complicated by bleeding from the vagina, but the cervix is closed, this may signal a **threatened abortion**. There is a chance that the pregnancy may continue normally, provided the fetus is showing signs of life.

If you suspect an abortion is threatened, refer the woman to the nearest health facility, where they may be able to preserve the pregnancy.

Inevitable abortion

An **inevitable abortion** is when the fetus is entirely in the uterus, but the pregnancy will definitely end in the expulsion of the fetus. Often the woman has lower abdominal pain and a cervical change called *effacement*, when the cervix has pulled back and become thinner; then the cervix starts to dilate and open as though during a normal full-term labour. (You will learn about effacement and dilatation of the cervix in *Labour and Delivery Care*, the next Module in this curriculum.) The contents of the uterus will often spontaneously come out, but if this does not happen soon, you will be taught to give the woman 400 µg (micrograms) of *misoprostol* orally, repeated once after 4 hours if necessary. Do not attempt to do this until you have completed your practical training in this competency.

Missed abortion

When the fetus is entirely in the uterus, but it has no signs of life and the cervix is completely closed, this situation is called a **missed abortion**. The dead fetus is likely to be retained in the uterus for some time unless there is an intervention in a specialised health facility.

Removing a dead fetus after a missed abortion usually requires the specialised services of a district hospital, so you should make every effort to transfer the woman to the highest available health facility.

20.2.4 Legal aspects of abortion in Ethiopia

Prior to 2004, abortion was permitted in Ethiopia only to save a woman's life, protect her health and in cases of rape. According to the new penal code, adopted in 2004, abortion is not punishable when it is performed to save a woman's life or health; in cases of rape, incest or serious fetal impairment; or when a pregnant woman lacks the capacity to care for a child because of her young age or her deficient physical or mental health. As a step toward implementing the new law, the Ethiopian Federal Ministry of Health released guidelines for safe abortion services in June 2006, which set out basic principles and standards for the delivery of abortion care.

- Semira comes to see you and says she is pregnant. She is in good health. She has no stable partner and she does not want the baby. Does Ethiopian law provide for her to have a legal abortion? Explain why or why not.
- Semira is not eligible for the abortion service in Ethiopia unless she was raped, the father is a close relative (incest), or she is not able to care for the baby because of serious mental or physical illness.

20.2.5 Methods of provision of abortion

Safe induced abortion is provided in Ethiopia for women who meet the legal criteria described above and who want to end their pregnancy. The procedures are carried out at a health centre or hospital, so you should refer women seeking help from the abortion service to go to the higher health facility. The methods for provision of a legal abortion depend on the gestational age of the pregnancy and the facilities available locally. They include:

- **Medical abortion:** where women are given medical drugs to initiate the process of abortion
- **Manual vacuum aspiration** or **MVA:** using an instrument like a syringe operated by hand that creates a negative pressure to suck out the contents of the uterus
- **Evacuation and curettage:** emptying the contents of the uterus using metallic instruments to remove the fetal tissue and clean the inner walls of the uterus.

Remember that women need emotional support before, during and after an induced abortion, just as they do after a spontaneous miscarriage. In the next section, we describe the post-abortion services that you should provide to the women in your community.

20.3 Woman-centred comprehensive post-abortion care

The Ethiopian guidelines define woman-centred comprehensive post-abortion care as:

‘a comprehensive approach to providing abortion services that takes into account the various factors that influence a woman’s individual mental and physical health needs, her personal circumstances, and her ability to access services ... that support women in exercising their sexual and reproductive rights.’

(Federal Democratic Republic of Ethiopia, *Technical and Procedural Guidelines for the Provision of Safe Abortion Services in Ethiopia*, 2006)

20.3.1 Goals of the post-abortion service

The goals of a woman-centred comprehensive post-abortion service are to:

- Provide safe, high-quality services
- Decentralize services to the most local level possible
- Be affordable and acceptable to women
- Understand each woman’s particular social circumstances and individual needs, and tailor her care accordingly
- Reduce the number of unplanned pregnancies and abortions

- Identify and serve women with other sexual or reproductive health needs
- Be affordable and sustainable to the health system.

To achieve these goals, you have many roles to play, including recognizing the individual needs and social circumstances of individual women and guiding them where to get appropriate care at the appropriate time. You also have to act effectively in response to any referral note a woman may bring back to her village from a higher level health facility.

20.3.2 Important messages for women after a spontaneous or induced abortion

Giving emotional support

When a pregnancy ends early, a woman may feel afraid, sad or upset, or she may feel guilty or ashamed. Many women, especially unmarried women, feel they must hide a miscarriage or induced abortion because of attitudes against sex, family planning or abortion in their communities. As the closest and most trusted health worker locally, you have an important role to play in sympathizing for the loss of the pregnancy and providing the woman with emotional support (Figure 20.2).

If she had a spontaneous abortion, tell her that this mostly occurs because of maternal illness or problems with the developing fetus. Reassure her that the chances for a subsequent successful pregnancy are good, unless there has been infection of the uterus, or the cause of her miscarriage has not been identified and it has an effect on future pregnancies (but this is rare). If the woman wants another baby, encourage her to delay the next pregnancy until she has completely recovered from the miscarriage or abortion.



Figure 20.2 When a pregnancy ends early, help the woman recover emotionally.

Breaking the cycle of unwanted pregnancies

Another important role is providing a family planning service to those who need it, including breaking the cycle of unwanted pregnancies and induced abortions. If pregnancy is not desired after an abortion and there are no severe complications requiring further treatment, the woman should receive adequate counselling and help in selecting the most appropriate contraceptive method that can be started immediately. Section 20.5 of this study session gives a brief introduction to post-abortion family planning.

Care after an uncomplicated abortion

After an uncomplicated spontaneous or induced abortion, tell the woman that she should expect to feel mild pains or cramps in her lower abdomen for a few days, and some light bleeding from her vagina — no more than in a normal menstrual period. Tell her how she and her family can look after her for a few days (Box 20.1).

Box 20.1 Taking care after an uncomplicated abortion

Good care after a spontaneous or induced abortion can prevent infection and help a woman's body to heal faster. She should:

- Drink plenty of liquids and eat nutritious foods
- Rest often and avoid heavy work for a week
- Wash regularly, but she should not douche or sit in a bath or tub of water until a few days after the bleeding stops

- Use clean cloths or pads to catch any blood, and change the pads often
- Not put anything inside her vagina, and avoid sexual intercourse for at least a few days after the bleeding stops.

Tell her to call you immediately or seek help from a higher health facility if she has any of the warning signs listed in the next section.

20.3.3 Follow-up care after an abortion

Prevention of abortion-related illness and mortality is dependent on the availability of comprehensive post-abortion care throughout the healthcare system. Whether it is health information and education, stabilization of symptoms and timely referral, safe methods of abortion, or specialized care for the most severe complications, at least some components of post-abortion care should be available at every service delivery site in the healthcare system, including at Health Posts. If the woman had a miscarriage or a safely induced abortion at a health facility, she is less likely to develop a serious infection or injury than a woman whose abortion was done illegally by someone who used unsafe tools.

Emergency post-abortion care refers to the actions you should take if any of the complications in Box 20.2 arise after an abortion.

Box 20.2 Complications after an unsafe abortion

The most serious complication is death. It is estimated that around one-third of maternal deaths in Ethiopia are due to unsafe abortions. For every woman who dies, it is estimated that another 16 to 33 women suffer a complication after an unsafe abortion, including:

- Haemorrhage (heavy bleeding)
- Infection in the pelvic cavity, or in the bloodstream (e.g. tetanus)
- Perforation of the uterus (puncturing the wall of the uterus by a sharp instrument)
- Injury to adjacent organs in the pelvic cavity (e.g. vagina, urinary bladder, rectum, intestines)
- Poisoning from an overdose of medicines or herbs used to induce abortion.

In the longer term, a woman can suffer from chronic (persistent) pelvic pain, especially during menstruation, repeated spontaneous abortion or infertility.

You should check the woman's health, pulse, temperature and blood pressure regularly after an abortion and question her carefully and sensitively to reveal any of the following warning signs and symptoms:

- Strong cramping pains in the lower abdomen
- Swollen or hard lower abdomen with no sounds or gurgles inside
- Heavy bleeding, large clots of blood or bleeding for more than 2 weeks
- Bad smell coming from the vagina



If a woman has any of these warning signs after an abortion, refer her to the nearest health centre or hospital

- Fever: temperature 38°C or above
- Fast pulse: more than 100 beats per minute
- Feeling very nauseated, faint or dizzy
- Low or falling blood pressure, below the bottom of the normal range of 120/70 mmHg.

If heavy bleeding occurs, you may not be able to see the blood if it is leaking into the woman's abdomen from an injury to her uterus or other internal organs, which may occur after an unsafe abortion. Heavy loss of blood leads to a condition known as shock (Box 20.3).

Box 20.3 Signs of shock

A woman in shock will be pale and sweating, with a fast pulse (above 100 beats per minute), fast respiration, low or falling blood pressure (the diastolic pressure — the bottom number — is below 60 mmHg), and dizziness or confusion; she may even lose consciousness. You must act quickly to save her life.

20.3.4 Pre-referral treatment in an emergency

Emergency treatment of patients in shock includes starting an **intravenous (IV) infusion**, that is delivering a sterile fluid called Normal Saline or Ringer's Lactate solution, directly into a vein to replace the blood fluids and salts that are being lost through heavy bleeding. You will learn the theory of how to do this in Study Session 22 of this Module, and in your practical skills training. As soon as the IV infusion is set up, you must make an immediate referral of the woman to the nearest health facility.

During transport make sure you position the woman appropriately with her head flat (do not use a pillow) and her legs raised and supported (see Figure 20.3). This position helps to keep her blood pressure from falling even lower. If possible, you should accompany her to the next level health facility to maintain the IV infusion and keep the bag of IV fluid held above her. If you cannot go with her, explain the importance to whoever accompanies her of keeping the woman and the fluid bag in the suggested positions; also tell them how to close the IV tubing when the bag of fluid has completely drained. Ideally, send a healthy person with her who could act as a blood donor if she needs a transfusion of blood when she gets to the health facility.

Make sure you write a *referral note* that covers all the essential details.

- Recall what these details are (you learned this in Study Session 13).
- A referral note should include the patient's name, age and address; any medical or personal history that is relevant to her current condition; a clear description of her signs and symptoms; the details of any treatment you have performed; and your reasons for referring her to the health facility. Remember to sign and date the note and say how you can be contacted so you can follow-up the patient afterwards.



Figure 20.3 Position a woman who is haemorrhaging like this and transport her quickly to get emergency care.

20.4 Other causes of early pregnancy bleeding

The warning signs and the emergency treatment described above are also relevant to two other common causes of early pregnancy bleeding.

20.4.1 Ectopic pregnancy

Ectopic pregnancy is when pregnancy occurs outside the endometrial cavity of the uterus. The most common site for an ectopic pregnancy is in a fallopian tube (the pair of tubes connecting the uterus with the interior of the abdomen, each one ending close to the ovary on that side. Look back at Figures 3.3 and 5.3 in *Antenatal Care, Part 1*, to remind yourself of the anatomy of the uterus and the adjacent structures. Other possible sites are the ovarian ligaments, the ovaries and the abdominal cavity surrounding the uterus.

If the embryo implants in the fallopian tube, it cannot support the growing fetus for longer than the first few weeks. There is a high risk that the tube will rupture and the woman will start bleeding into the abdominal cavity. This is a life-threatening situation leading to shock, which must be quickly treated to stop the bleeding. The typical symptoms of ectopic pregnancy are lower abdominal pain, late menstrual periods and vaginal or internal bleeding.

20.4.2 Molar pregnancy

The other cause of early pregnancy bleeding is molar pregnancy, which you already learned about in Study Session 10. You may encounter this problem occasionally. It is characterized by an abnormal growth of a tumour formed from the future placenta during early pregnancy. The uterus fills with grape-like tissues and grows bigger than the size it will attain at full term of a normal pregnancy (Figure 20.4).

- Can you recall the signs of a molar pregnancy?
 - No fetal heartbeat can be heard. No baby can be felt when you palpate the mother's abdomen. The woman has had nausea all through the pregnancy. She has spotting of blood and tissue like bunches of grapes coming from her vagina.

One of the feared complications in molar pregnancy is it may lead to severe bleeding which may result in the death of the mother. If the woman presents with bleeding from the vagina, start an intravenous (IV) line and fluid infusion (as described in Study Session 22 and practised in your practical skills training) before making a referral. The fluid should run as fast as 60 drops per minute. The woman should be escorted to the health facility by healthy adults who can potentially be blood donors.

20.5 Post-abortion family planning

In the final section of this study session, we turn to the need for post-abortion family planning. In many instances, provision of emergency post-abortion care may be one of the few occasions that a woman and her partner come into contact with the healthcare system. Therefore, it represents an important opportunity for providing contraceptive information and services.

Post-abortion family planning should include the following components:

- Counselling about contraceptive needs in terms of the client's reproductive goals



If you suspect an ectopic pregnancy you must send the woman for evaluation and treatment to the nearest health facility.

Whenever you suspect a molar pregnancy, you must send the woman to a health facility as soon as possible.



Figure 20.4 A molar pregnancy (tumour) growing in the uterus instead of a baby.

- Information and counselling about all available methods, their characteristics, effectiveness and side-effects (see Figure 20.5)
- Choices among methods (e.g. short- and long-term, hormonal and non-hormonal)
- Assurance of contraceptive resupply, so the woman does not run out of protection:
 - Access to follow-up care
 - Information about the need for protection against sexually transmitted infections (STIs).

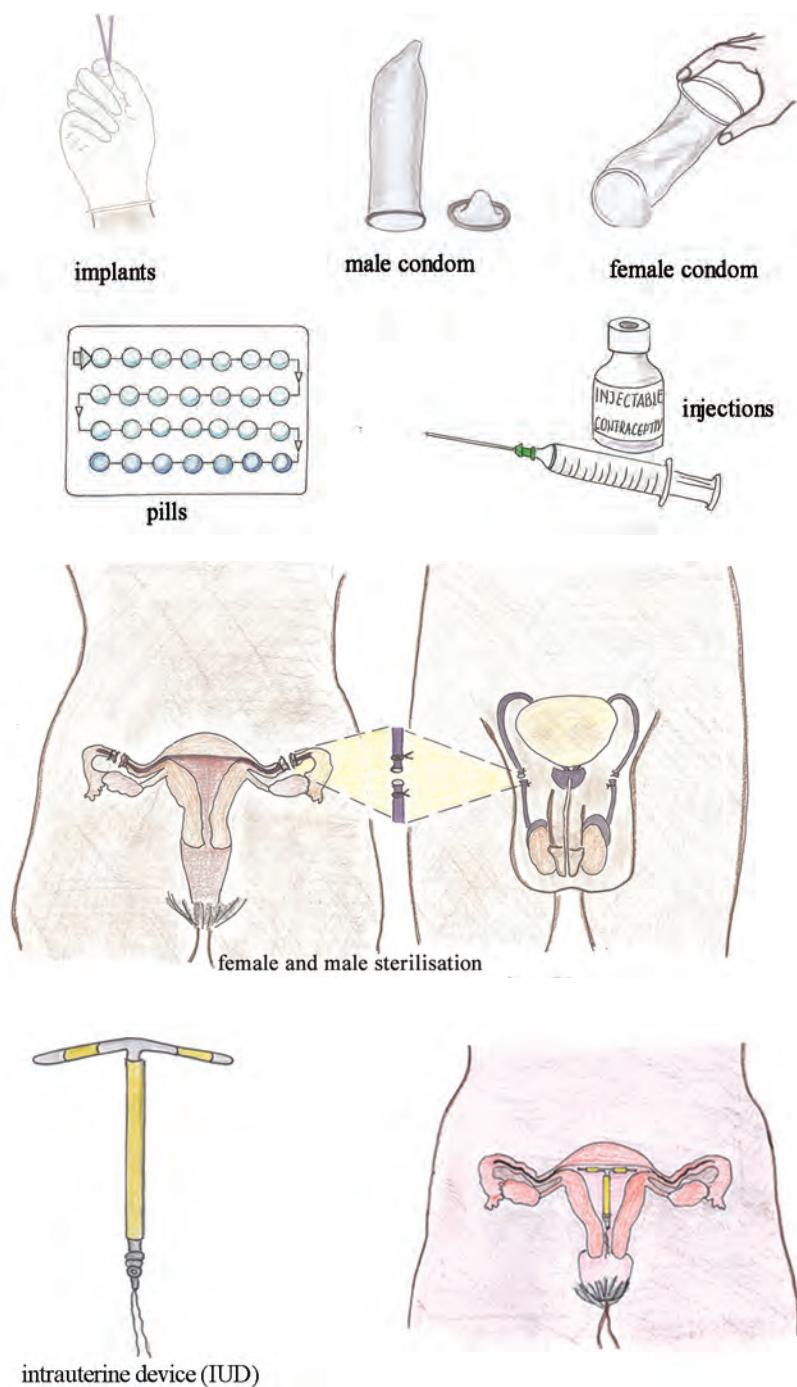


Figure 20.5 Some methods of contraception.

Post-abortion family planning also should be based on an individual assessment of each woman's situation: her personal characteristics, clinical condition and the service delivery capabilities in the community where she lives. You will learn about all of this in detail in the Module on *Family Planning* in this curriculum. Many women will receive post-abortion family planning while they are in the higher level health facility, but a few may have left too soon. You will also have to provide them with the continued supply of contraception when they are back in your community. Thus this is one area you have a big role in the provision of care to women who have had an abortion.

20.5.1 When to start family planning

Post-abortion family planning services need to be initiated almost immediately, because fertility returns quickly: within two weeks after a first-trimester abortion or miscarriage, and within four weeks after a second trimester abortion or miscarriage. All women receiving post-abortion care need counselling and information to insure they understand that they can become pregnant again before their next menstrual period, and that there are safe contraceptive methods to prevent or delay pregnancy.

If a woman wants to become pregnant again soon, encourage her to wait. Waiting at least six months after a spontaneous or induced abortion may reduce the chances of having a low birth weight or premature baby and the mother developing anaemia.

In the next study session, you will build on what you have learned in this study session when we describe the causes of bleeding in late pregnancy and how to manage this emergency situation.

Summary of Study Session 20

In Study Session 20 you have learned that:

- 1 Early pregnancy bleeding occurs before 28 weeks of gestation.
- 2 Spontaneous abortion (miscarriage) occurs spontaneously in about 15% of pregnancies.
- 3 Common causes of early pregnancy bleeding are spontaneous or induced abortion, ectopic pregnancy and molar pregnancy. These conditions can lead to major complications, including maternal mortality, particularly when unsafe abortions are performed by unskilled people in unhygienic environments.
- 4 When the law permits, women can get safe abortion services in health facilities. Medical and surgical options are available to provide safe abortion services under the provision of Ethiopian law.
- 5 Warning signs after an abortion include strong cramping pains in the lower abdomen, swollen or hard abdomen, heavy bleeding, a bad smell coming from the vagina, fever, fast pulse, nausea, dizziness and shock. These are signs that emergency treatment and referral should begin immediately.
- 6 Emergency treatment for haemorrhage or shock include starting an intravenous (IV) infusion before transferring the woman to a health facility, accompanied by a potential blood donor.
- 7 Family planning should be part of woman-friendly comprehensive post-abortion care services, to break the cycle in case of induced abortions and to give time for recovery in cases where the abortion was spontaneous.

Self-Assessment Questions (SAQs) for Study Session 20

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the questions that follow. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 20.1 (tests Learning Outcomes 20.1, 20.3 and 20.5)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A There is no need to refer all incomplete abortion cases to the next higher health facility.
- B In a complete abortion the tissue inside the uterus has been entirely expelled and the cervix has closed.
- C Women whose abortion is complete will not be able to get pregnant again for some months.
- D After an abortion, a woman should be advised to delay another pregnancy until she has completely recovered.

SAQ 20.2 (tests Learning Outcomes 20.2 and 20.4)

First read Case Study 20.1 and then answer the questions that follow it.

Case Study 20.1 Mrs X

Mrs X is 26 years old and has been married for 4 years. She has one child who was born 3 years ago and is hoping that she is pregnant again. Mrs X says she has lower abdominal pain and has started bleeding two days ago. When you examine her she has a rapid pulse of 100 beats per minute and blood pressure of 110/60 mmHg. She also has pale conjunctiva and mild lower abdominal tenderness.

- (a) What are the possible causes of bleeding at this early stage of her pregnancy?
- (b) What do her other symptoms suggest may be happening?
- (c) Give your reasons to indicate whether it would be safer to refer her to a higher health facility.
- (d) If you refer her, what will you do before referral?

SAQ 20.3 (tests Learning Outcome 20.5)

Mention three things a good post-abortion family planning service will include.

Study Session 21 Late Pregnancy Bleeding

Introduction

Bleeding after 28 weeks of gestation is considered to be **late pregnancy bleeding**. You learned about early pregnancy bleeding before 28 weeks in Study Session 20. Late pregnancy bleeding is also referred to as **antepartum haemorrhage (APH)** by doctors and midwives. It is an important cause of maternal and fetal death and needs the attention of a highly skilled healthcare provider at the earliest time possible in order to save the life of the woman and her unborn baby.

As the first contact provider for pregnant women in your community, you have to work with them on birth preparedness and making a complication readiness plan to address such eventualities as severe bleeding in pregnancy. You must provide obstetric first aid and then make sure that a woman with late pregnancy bleeding can reach a health facility where she can get urgent help. A District Hospital or Health Centre with the ability to perform obstetric operations can save her life.

'Antepartum' is Latin for 'before birth'; 'haemorrhage' is pronounced 'hemm-orr-edge' and means severe loss of blood.



Learning Outcomes for Study Session 21

When you have studied this session, you should be able to:

- 21.1 Define and correctly use all of the keywords printed in **bold**. (SAQs 21.2 and 21.3)
- 21.2 Describe the warning signs and the common causes of late pregnancy bleeding. (SAQs 21.1, 21.2 and 21.3)
- 21.3 Provide obstetric first aid and know when to make an urgent referral of a woman with late pregnancy bleeding. (SAQs 21.1 and 21.2)

21.1 What causes late pregnancy bleeding?

The most common causes of late pregnancy bleeding, or ante-partum haemorrhage (APH), are due to bleeding from the placenta, but there are other less common causes arising in the uterus or other parts of the reproductive tract. First, we will list the causes briefly, and then describe placental abruption, placenta previa and ruptured uterus in detail, because these are conditions that require your immediate life-saving intervention.

- **Placental abruption:** this condition occurs if the placenta pulls away prematurely (too soon) from its normal attachment site in the top two-thirds of the uterus.
- **Placenta previa:** this condition is when the placenta has attached too low down in the uterus, very close to, or even covering, the cervix.
- **Ruptured uterus:** this can occur during a prolonged or obstructed labour when the uterus, after a long effort to expel the fetus, gives way and tears or bursts.
- **Ruptured varicose vein** in the genital area: this can occur if a vein becomes twisted and dilated. As a result, it can easily be traumatized and bleed, usually during labour and delivery.

- **Heavy show:** the mucus mixed with bloody fluid that comes from the birth canal at the start of labour is called the **show**; sometimes, when this mucus plug detaches it may be followed by brisk and heavy bleeding called a *heavy show*, which often stops on its own without any intervention. But she should always be referred.

21.2 Placental abruption

Placental abruption refers to the premature separation of the whole or part of a placenta which is implanted in the upper two-thirds of the uterus. Normally the placenta only separates from the uterus *after* the delivery of the fetus, in the **third stage of labour** (you will learn all about this in the module on *Labour and Delivery Care*). The mother and the baby may die if the place where the placenta pulled away from the wall of the uterus starts to bleed a lot.

- Why is it likely that placental abruption will result in a lot of bleeding, and why does this pose a serious risk to the mother and the fetus? (Think back to what you learned about the structure of the placenta in Study Session 5, or look again at Figure 5.5 in *Antenatal Care, Part 1*.)
- the mother's blood flows into large spaces in the placenta which lie close to the fetal blood vessels (Figure 5.5). If the placenta tears away from the wall of the uterus, the mother's blood will flow out into the cavity of the uterus and she could die from the loss of blood. The supply of oxygen and nutrients from her blood to the fetus will be reduced, so it may die or be severely brain damaged.

Most of the bleeding from the place where the placenta has pulled away from the wall of the uterus may escape through the cervix and flow out of the vagina. This blood is usually dark in colour because it doesn't contain much oxygen. This is an important warning sign!

However, in some cases, all the blood from the detachment site may stay inside the uterus cavity, which begins to fill up with blood (Figure 21.1). You will not see external bleeding, as very little of the blood escapes through the vagina. However, the woman will show the typical signs of severe internal bleeding known as *haemorrhagic shock*, which we already described briefly in Study Session 20 on early pregnancy bleeding. We repeat the information below (Section 21.2.1) because there is even more risk of it happening when a woman bleeds late in the pregnancy.

Other signs of placental abruption include:

- If the mother is already in labour, notice if she has pain between contractions, which may get worse and worse as time passes
- Her abdomen is hard, sore and tender to the touch
- The baby's heartbeat can be very fast (faster than 180 beats a minute), or very slow (slower than 100 beats a minute), or if you cannot hear a fetal heartbeat the baby could be dead
- The baby moves less or not at all.



Figure 21.1 Bleeding due to placental abruption.

21.2.1 Haemorrhagic shock

Placental abruption with external or internal bleeding may lead to **haemorrhagic shock**, in which blood is lost in such large amounts that the blood remaining in the woman's blood vessels is not enough to deliver the nutrients and oxygen required by her body cells.

- What are the signs and symptoms of haemorrhagic shock? (Think back to Box 20.3 in the previous study session.)
- A woman in shock will be pale and sweating, with a fast but feeble pulse (above 100 beats per minute), fast respiration, low or falling blood pressure (the diastolic pressure — the bottom number — is no more than 60 mmHg and sometimes far less); she complains of dizziness; she seems confused and may even lose consciousness.

You should look for signs such as **pallor**: her fingernails, the palms of her hands and the inside of her eyelids will turn whiter as she loses blood. She may tell you she feels weak or be unable to lift her head. She appears restless, possibly asking for water to drink, and she seems confused. Confusion happens because her brain is being starved of oxygen. Common consequences of haemorrhagic shock include failure of the kidneys or the heart.

21.2.2 Acute renal failure

As a result of haemorrhagic shock and the reduced amount of blood flowing to the kidneys, they may stop functioning. As a result, the woman produces very little urine, so toxic material which should have been cleared from her blood by her kidneys and expelled in her urine will build up in her blood. The accumulation of toxic chemicals in her blood rapidly causes her to become severely ill and death follows unless the condition is reversed. This condition is called **acute renal failure** ('acute' means it develops quickly into a life-threatening condition; 'renal' is a medical term referring to anything to do with the kidneys).

21.2.3 Heart failure

If the woman is haemorrhaging, her heart will beat very fast as it tries to pump enough blood to vital body parts like her brain. If the blood loss is severe, her heart may not be able to beat fast enough to compensate for the falling blood volume and the women will develop **heart failure**. This condition is where the heart is unable to pump enough blood to the tissues and as a result death may occur.

21.3 Placenta previa

The other common cause for late bleeding is **placenta previa**. In this situation the placenta is attached very close to the cervix, or is even covering it (Figure 21.2 on the next page). As the cervix dilates the edge of the placenta may detach and it starts bleeding. A woman with this condition generally has clear, bright red blood coming from her vagina. The amount may be less than with placental abruption, but in some cases it can be severe and life threatening. The bleeding is often painless, so the woman may not have noticed it happening for a while, for example during the night when she was in bed. The bleeding can be set off by sexual intercourse and it may be recurrent (stopping and starting again).



All of the conditions resulting from placental abruption require you to take immediate emergency action: see Section 21.5.

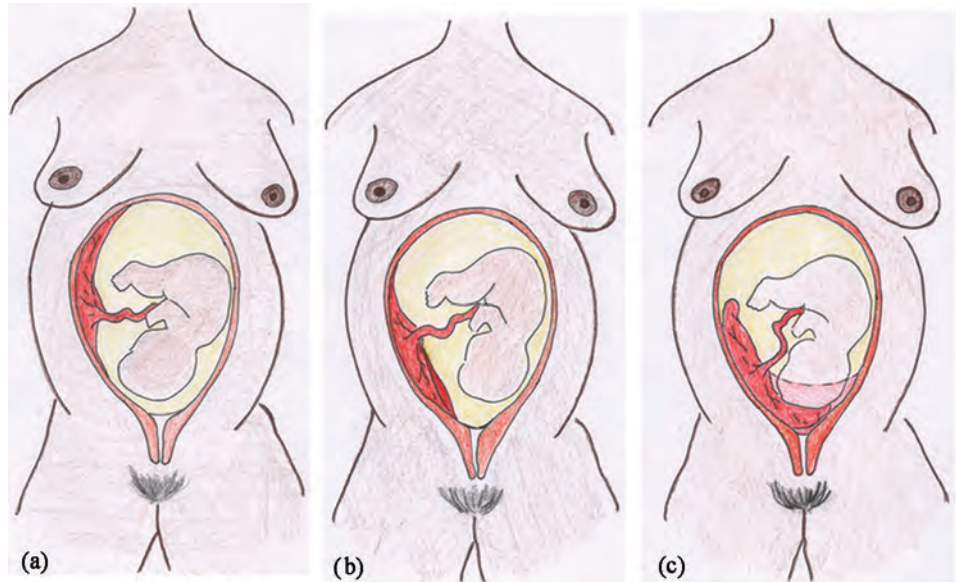


Figure 21.2 Placenta previa is classified on how close the placental edge is to the cervix. (a) Low placental implantation, but not intruding into the cervix. (b) Partial placenta previa. (c) Complete placenta previa.

In a woman with late pregnancy bleeding due to placenta previa, the uterus often feels soft when you palpate her abdomen, in contrast to the hard feeling of the uterus when bleeding is due to placental abruption.

The fetal head is generally not in the lower part of the uterus, which feels empty. This abnormal presentation may be a sign of placenta previa. Usually the fetal condition is normal, so you can detect a fetal heart beat when you listen with a fetoscope, and the mother reports the fetus is moving and kicking normally — but this is not always the case.

The diagnosis of placenta previa can only be confirmed by examining the woman with an ultrasound machine that can reveal the position of the placenta, or by vaginal examination in an operating theatre. Therefore you should refer her to a health facility with the necessary equipment to make a diagnosis.



Women with a suspected placenta previa should be referred to a District Hospital or Health Centre with an ultrasound machine or operating theatre.

Never do a vaginal examination yourself if a woman is bleeding in late pregnancy. This will worsen the situation and increase the risk to her and the fetus.

21.4 Ruptured uterus

Bleeding from a **ruptured uterus** may occur from the vagina so you can see the blood flowing out, or the uterus may bleed into the woman's abdomen where the blood won't be visible to you. If a woman who has been a long time in labour develops abdominal pain that is constant and gets worse with movement, or if, the uterus stops its contraction in the effort of expelling the fetus, or she develops vaginal bleeding with associated state of shock, it is likely that the uterus has ruptured. If the uterus stops contracting, the abdomen will become soft and the fetal parts can be felt easily when you do an abdominal examination. If the baby has died the fetal heartbeat will not be evident when you listen with a fetoscope.

You will learn much more detail about the condition of the ruptured uterus in the next module in this curriculum, on *Labour and Delivery Care*. If you encounter a woman with the signs of a ruptured uterus you should take the emergency actions described below.

21.5 What to do for a woman with late pregnancy bleeding

If you detect late pregnancy bleeding and you suspect placental abruption, placenta previa, a ruptured uterus or bleeding from any other cause, take the following steps:

- **Never perform a vaginal examination**
- Make a rapid evaluation of the general condition of the woman, including vital signs: pulse, blood pressure, respiration and temperature; check her for pallor, weakness, dizziness and confusion.
- If you suspect shock, begin treatment immediately by starting a rapid intravenous (IV) infusion with Normal Saline or Ringer's Lactate solution. (You will learn the theory of how to do this in Study Session 22 and develop this competency in your practical skills training.)
- Even if signs of shock are not present, keep shock in mind as you evaluate the woman further because her status may worsen rapidly. If shock develops, take the actions described above.
- Urgently mobilize all available people who can help, inform them how serious the situation is and put into action the complication readiness plan you developed with the woman and as part of focused antenatal care (Study Session 15 of this module). For example, get the village people to assist with transporting her quickly to the higher health facility; make sure that healthy people go with her who can donate blood if she requires a blood transfusion.

Remember that the initial bleeding could be heavy and life-threatening and the woman may arrive at your Health Post carried by relatives. In such a situation, after you do a quick assessment of the condition of the patient, put up the IV line, organize transport and send the woman to the nearest higher health facility as soon as possible.

- What is the safest position in which to transport the woman? (Think back to Figure 20.3 in the previous study session.)
- Her head should be lying flat — don't put a pillow under her head. Raise her knees and support her legs with pillows or rolled blankets, so her feet are higher than her head.

Ideally, you should accompany her to maintain the IV infusion and keep the bag of IV fluid held above her. If you cannot go with her, explain the importance to whoever accompanies her of keeping the woman and the fluid bag in the suggested positions; also tell them how to close the IV tubing when the bag of fluid has completely drained. Remember to send a referral note with the woman.

In the final study session in this Module, we teach you the theory of how to set up an intravenous infusion, and also how to insert a urinary catheter in a woman who is unable to urinate due to complications of pregnancy or labour.



In the case of late pregnancy bleeding, even if the bleeding stops on its own before labour begins, the woman should *always* be referred and preferably deliver her baby in a higher health facility.

Summary of Study Session 21

In Study Session 21 you have learned that:

- 1 Late pregnancy bleeding (ante-partum haemorrhage) can cause maternal and fetal death, and should be treated as a potentially life-threatening emergency.
- 2 The most common causes of life-threatening late pregnancy bleeding are placental abruption and placenta previa, or more rarely it can result from a ruptured uterus.
- 3 Less serious bleeding can arise from a varicose vein in the genital area, or blood resulting from a heavy show, which usually stops on its own.
- 4 Placental abruption can present with both concealed (internal) and revealed (externally visible) bleeding from the vagina; the blood is usually dark and the woman may report abdominal pain.
- 5 Placenta previa often presents with painless, bright red bleeding and can be associated with abnormal presentation of the fetus. Usually (but not always) fetal condition is normal.
- 6 Never do a vaginal examination in women with late pregnancy bleeding as this may precipitate severe bleeding.
- 7 Initial assessment of the woman's vital signs and initiation of IV fluid therapy are the critical first steps in managing haemorrhagic shock in women with severe late pregnancy bleeding.
- 8 After putting up an IV infusion, transfer the patient immediately to a District Hospital or higher health facility with an operating theatre, as most cases require surgical intervention.

Self-Assessment Questions for Study Session 21

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the following questions. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 21.1 (tests Learning Outcomes 21.2 and 21.3)

Relatives call you to see a woman who is bleeding from the vagina at the 8th month of gestation.

- (a) What will you do as the initial assessment?
- (b) Will you initiate emergency treatment for this woman and refer her to the nearest higher health facility? Explain why, or why not.
- (c) What will you tell the relatives to do?

SAQ 21.2 (tests Learning Outcomes 21.1, 21.2 and 21.3)

Which of the following statements is *false*? In each case, say why it is incorrect.

- A You can do a vaginal examination for a pregnant women who comes to you with vaginal bleeding at gestational age of 37 weeks.
- B Premature separation of a normally implanted placenta always results in external bleeding.
- C Placenta previa is when the placenta is attached close to or covering the cervix.
- D You may not need to refer women who present with persistent or recurrent bleeding in late pregnancy if the bleeding stops spontaneously.

SAQ 21.3 (tests Learning Outcomes 21.1 and 21.2)

Read Case Study 21.1 and then answer the questions that follow it.

Case Study 21.1 Mrs X is brought to the Health Post

Mrs X is brought to your Health Post carried by her relatives on a locally made wooden bed. You are told she is 9 months pregnant. She had severe abdominal pain, which was followed by vaginal bleeding. When you examine her you see her clothes are soaked in blood. She is restless and asking for water. Her pulse is 120 beats per minute and her blood pressure is 80/50 mmHg.

- (a) What are the possible causes of bleeding in this case? Explain your answer.
- (b) Is Mrs X in a state of shock? Justify your diagnosis.

Study Session 22 Starting IV Fluid Therapy and Catheterising the Pregnant Woman

Introduction

In this session you will learn about two very important techniques for emergency care of the pregnant woman who is either:

- **haemorrhaging** (losing blood very quickly from her uterus), for reasons already described in Study Sessions 20 and 21; or who
- cannot **urinate** (pass urine) because there is an obstruction preventing her from emptying her bladder. Usually this is because the pressure of the baby is blocking the urethra – the tube that brings urine down from her bladder.

This study session is preparation for the practical skills training in both these techniques, which you will receive during an attachment in a health centre or hospital. Here we introduce you to the equipment you will need, and describe how to start and maintain IV fluid therapy and how to catheterise the bladder of the pregnant woman. You will also learn to follow infection control procedures while performing these techniques.

Before you begin either of these techniques, explain to the woman in local language what you are going to do and why she needs this procedure. Tell her that as soon as you have finished doing it, she must go to the higher health facility for further treatment.

Make sure that transportation is being arranged while you are setting up the IV fluid therapy or bladder catheterisation.

Learning Outcomes for Study Session 22

- 22.1 Define and use correctly all of the key words printed in **bold**. (SAQs 22.1, 22.2 and 22.3)
- 22.2 Explain the reasons for giving IV fluid therapy or catheterising the bladder of a pregnant woman. (SAQ 22.1 and 22.3)
- 22.3 Describe the equipment, the preparation and the procedure for starting intravenous (IV) fluid therapy, including selecting a suitable venipuncture site, and inserting and removing a cannula from a vein. (SAQs 22.1 and 22.2)
- 22.4 Describe how you would monitor IV fluid therapy. (SAQ 22.1)
- 22.5 Describe the equipment, the preparation and the technique of how to insert and remove a urinary catheter. (SAQs 22.1 and 22.3)
- 22.6 Describe the infection control procedures required to reduce the risk of infection resulting from IV fluid therapy or catheterising the bladder. (SAQ 22.1 and 22.2)



22.1 Starting intravenous (IV) fluid therapy

22.1.2 When to start IV fluid therapy

A pregnant woman who is haemorrhaging will rapidly develop a state of shock; unless you take action quickly she will soon become unconscious and die.

- What are the signs of **shock**? (You learned this in Study Session 20.)
- The woman will look pale, especially inside her lower eyelids and the palms of her hands; her *diastolic* blood pressure (the bottom number) is *below* 60mmHg – sometimes much lower; and her pulse is high, often more than 100 beats per minute.

In order to save her life, you need to know how to start **intravenous (IV)** fluid therapy (also known as *IV fluid resuscitation* or *IV infusion*). This means getting special fluids into her blood circulation through a hollow needle called a **cannula** inserted into a vein, to replace the fluid part of the blood she is losing. You should do this before you urgently refer her to a hospital or health centre, where they will give her a blood transfusion. Women in labour, or soon after delivery of the baby, may also haemorrhage (as you will learn in the *Labour and Delivery Care* Module). You should start IV therapy quickly whenever you detect that a woman is haemorrhaging.

22.1.2 Setting up the IV fluid therapy equipment

The first step in the process of initiating IV fluid therapy is to assemble and check the equipment you need (see Figure 22.1). You can place everything on a very clean large dish or locally available tray. We will describe the equipment in detail after you have looked at Figure 22.1.

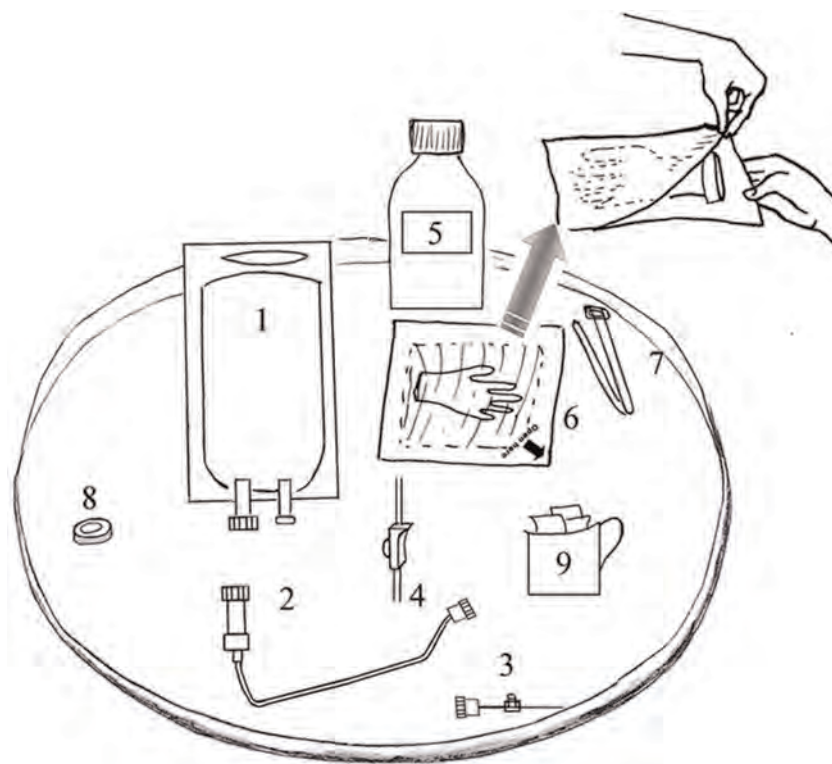


Figure 22.1 Equipment needed for IV fluid therapy. The numbers in the list below correspond to the number beside the equipment on the tray.

- 1 Sterile IV fluid in a plastic bag; the main types are called Normal Saline (NS) and Ringer's Lactate (RS) solution.
- 2 Sterile IV tubing (sometimes called an IV line) with a connector at one end to join it to the IV fluid bag, and a connector at the other end to join it to the cannula. It comes sealed in a sterile plastic package (not shown in Figure 22.1).
- 3 Sterile IV cannula. It comes sealed in a sterile plastic package (not shown in Figure 22.1). There is a larger diagram later in this study session (Figure 22.6).
- 4 Roller clamp, which you attach to the IV tubing and tighten or loosen to control the flow of fluid along the tube.
- 5 Bottle of alcohol to use with the cotton swabs (9) to clean the area of skin where the cannula is inserted; if alcohol is not available you can use soap and water.
- 6 Sterile surgical gloves in a sealed bag. If you open the bag carefully (as shown in Figure 22.1), you can lay the sterile paper on the tray with the inside facing upwards, and use the paper as a sterile surface. If you do not have sterile gloves, you should use very clean gloves swabbed with alcohol or scrubbed with soap and water.
- 7 A belt or rope, or a piece of cloth or bandage, to use as a **tourniquet** – something you tie around the person's arm to obstruct the flow of blood for a short time while you insert the needle at the end of the cannula into a vein.
- 8 A plaster to stick over the cannula when it is in the person's arm to keep it securely in place. If you do not have a plaster you may use a clean bandage or locally available material, e.g. a piece of clean cloth.
- 9 Cotton swabs or small pieces of very clean cloth, to use with the alcohol for cleaning the person's skin before you insert the cannula.

Tourniquet is pronounced 'torn-ee-kay'.

22.1.3 Sterile techniques for IV fluid therapy

When you prepare to give a person IV fluid therapy you have to keep everything clean and use **sterile techniques** (free from germ contamination) as much as possible. This may be difficult in a rural home, but you can reduce the risk of infection if you follow the instructions in Box 22.1.

Box 22.1 Preventing infection during IV fluid therapy

- The most important precaution is to wash your hands thoroughly with soap and clean water *for at least two minutes* before and after you handle patients or sterile equipment.
- Use alcohol to clean the tray or dish for your equipment, or (if not available) use soap and water and make sure it is thoroughly air-dried before using it.
- Put on sterile or very clean gloves. You must wear gloves all the time because you will be coming in contact with the patient's blood.
- The cannula, the IV tubing and the surgical gloves come sealed in sterile plastic or paper packages. The inside surface of these sterile packages can be opened out and laid flat to serve as a sterile surface for the equipment until you need it.

- The patient should be lying down in a comfortable position. Swab her skin with alcohol or soap and water around the area where the cannula will be put into a vein.
- Open the sterile package holding the IV tubing and connect it to the fluid infusion bag. Hang the bag on hook in a wall above the patient, or ask someone to hold it up for you. Make sure the tip of the tubing which will be connected to the cannula is kept untouched and sterile.

22.1.4 Selecting the IV cannula

You must choose a cannula with the appropriate size of needle for the required purpose. The size is referred to as the **gauge** of the cannula, and each size is given a number – the larger the number, the bigger the cannula.

- Why do you think you should choose a large gauge cannula if you are giving IV fluid therapy to a pregnant woman who is haemorrhaging?
- The woman has lost a significant amount of blood. Therefore, you need to get replacement fluids into her blood system as quickly as possible. You need a large gauge cannula so you can infuse a large amount of fluid into her vein in a short time.

22.1.5 Selecting the venipuncture site

The next step is identifying a good **venipuncture site**, that is the site where you will ‘puncture a vein’ by inserting the IV cannula. Figure 22.2 shows some commonly used sites in the hand and forearm.

In selecting the site for venipuncture:

- Ask the patient which is the hand she most often uses, e.g. to hold a knife or a tool. If she says she is ‘right handed’, this is her ‘dominant’ hand and her left is her ‘non-dominant’ hand.
- Look first at possible venipuncture sites on her non-dominant hand and then look higher up the arm.
- Select a vein which is large enough for the cannula, avoiding sites near to joints like the wrist or the elbow.
- Make sure that when you insert the cannula, it will not interfere with woman’s ability to move her hand or arm.
- Avoid a site which is painful to touch.

The visibility of the veins can be improved by encouraging the woman to close her hand into a fist and then open it again several times, lowering the arm and stroking the chosen venipuncture site. As you become more experienced, you will find it easier to choose a suitable vein which is easily visible, not twisted, where you think you can enter your cannula easily.

Gauge is pronounced ‘gage’. The largest commonly available cannula is gauge 18 or 20.

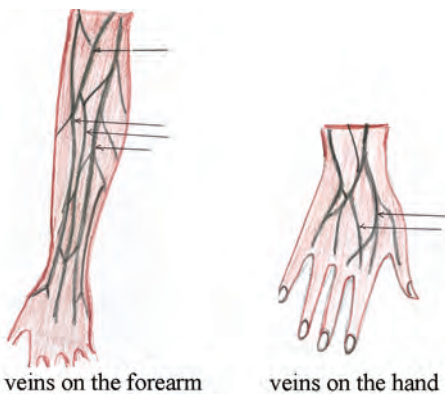


Figure 22.2 Common venipuncture sites in the hand and forearm.

22.1.6 Inserting the IV cannula

Once you decide where to insert your IV cannula, apply a tourniquet about three finger-widths above the chosen venipuncture site (Figure 22.3a). Then feel for the vein with your gloved finger (Figure 22.3b). Clean the site with alcohol (Figure 22.3c) or soap and water.

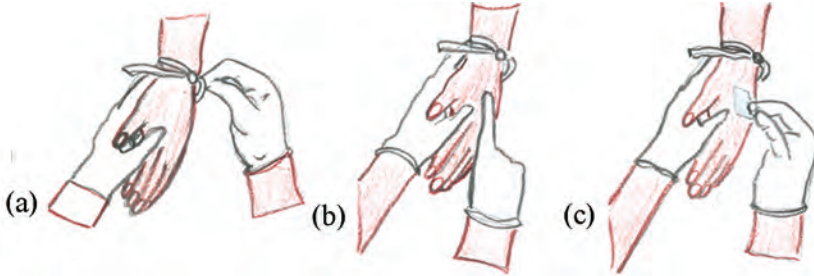


Figure 22.3 Steps in inserting an IV cannula. (a) Tie the tourniquet above the chosen venipuncture site. (b) Feel for a good vein with your gloved finger. (c) Clean the area with alcohol or soap and water.

Then stretch the skin taut and stabilize the vein with your non-dominant hand — meaning keeping it stretched so that it does not move easily and you miss your target with the needle. Pierce the skin with the IV cannula over vein at a 45 degree angle; first you push the needle into the skin and then aim at the vein (Figure 22.4). As you approach the vein, lower the angle to about 10 degrees and insert the cannula into the vein.

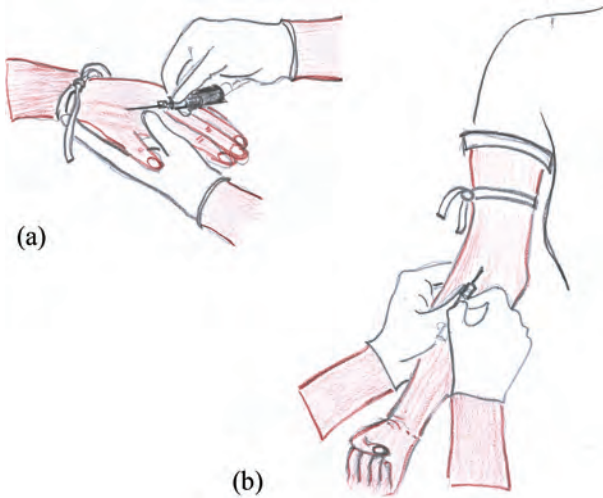


Figure 22.4 Stretch the skin with your non-dominant hand and insert the cannula into a vein (a) in the patient's hand; (b) in the forearm.

Look for blood 'flash back' (blood shooting back along the barrel of the cannula), which tells you that the needle is in the vein. Release the tourniquet at this point, then push the cannula further into the vein until you are well into the vein.

The cannula is a metal needle with plastic over it, and it is the plastic part that remains in the vein. Gently remove the metal needle part of the cannula, leaving the plastic part in the vein.

You then stabilize the plastic part of the cannula with a plaster, or clean rope or cloth wrapped around the venipuncture site (Figure 22.5).

Connect the IV tubing to the IV fluid bag and open the roller clamp to let fluid flow down the tube. Do this *before* connecting the other end of the



Figure 22.5 The cannula is held in place with a plaster (or similar) and connected to the IV tubing.

tubing to the cannula. Flushing with fluid ensures there are no air bubbles in the tube before you begin infusing fluid into the patient.

22.3 Monitoring during IV therapy

Once the IV tubing has been connected to the cannula, push the roller to the top of the clamp (see Figure 22.6). This allows the fluid to run down the tube and into the woman's vein as quickly as possible. The flow rate should be as fast as you can run it because the woman is losing a lot of blood. Maintain this high flow rate at all times, including during transportation to the health facility. Make sure the IV fluid bag is kept higher than the woman's arm, or the flow rate will slow down even if the roller clamp is fully 'open'.

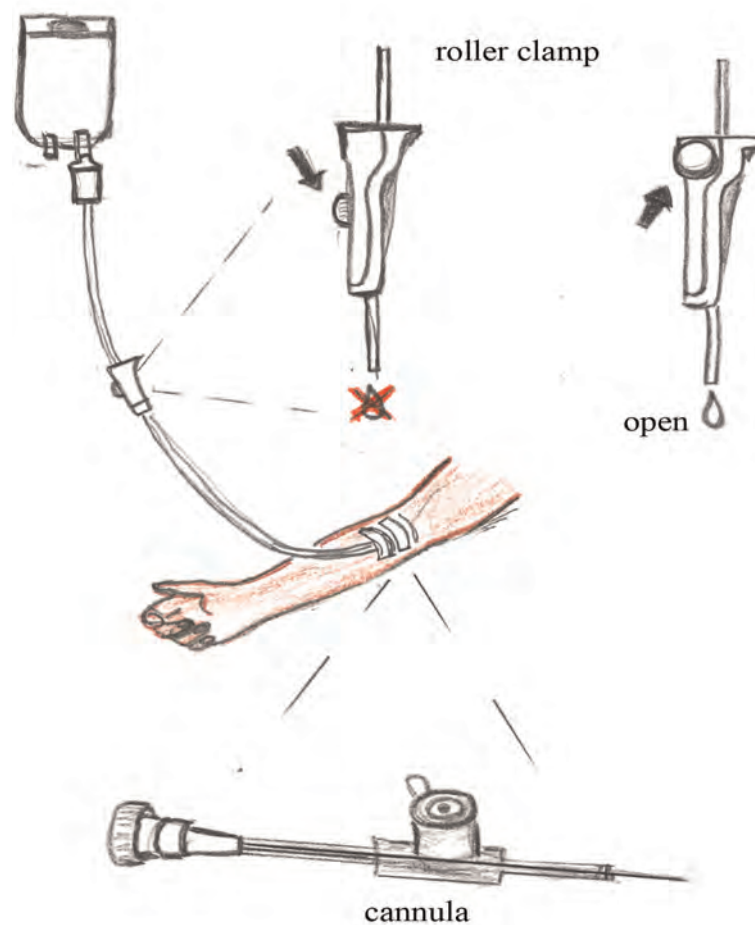


Figure 22.6 The roller clamp can be 'closed' (middle picture) or 'opened' to adjust the flow rate of IV fluid down the IV tubing and into the vein through the cannula.

22.3.1 Establishing a monitoring routine

A routine has to be established for monitoring the progress of IV fluid therapy, beginning at the bag of fluid and ending at the venipuncture site. The flow rate should be checked every 15 minutes for as long as the woman is with you. If the flow has slowed down, check if the IV tubing has twisted, or if the position of the woman's hand or arm has twisted to obstruct the flow, and straighten them out. The flow rate in emergency fluid replacement should run as fast as possible.

Make sure you monitor the woman's pulse and blood pressure every 15 minutes.

- If you are giving IV fluid therapy to treat shock due to blood loss, what would you expect to happen to the pulse rate and blood pressure as the IV fluids are infused?
- With adequate infusion the pulse rate will decrease and blood pressure will increase. (After infusing two to three bags of IV fluid, the expectation is for the pulse to slow down and the blood pressure to start rising towards normal.)

As soon as you have completed the IV fluid therapy set up, refer the woman to a higher health facility as quickly as possible. Go with her if you can.

22.3.2 When to stop IV infusion

Look for any swelling around the venipuncture site compared with the other hand (or arm), as this may signal that the cannula has moved and the fluid is running into the soft tissue instead of into the vein. If you see swelling, loosen the plaster and remove the IV cannula. Choose a new venipuncture site and use a new sterile IV cannula to enter a new vein and reconnect the IV fluid bag.

IV fluid therapy is stopped when the woman does not need additional fluid any more, or when the venipuncture site has developed an infection (the skin around the site will be red and will feel painful to the patient if you touch it). Sometimes patients may be given too much IV fluid in a short time and this may put stress on the heart because the blood volume has become too large. Fluid can also get into the lungs and in such cases the patient will have difficulty breathing, cough and sometimes become confused. This is not likely to happen while the patient is with you because you will refer her immediately after you started the IV infusion. But in case you encounter this situation, stop the infusion and refer the woman to the next higher facility immediately for further treatment.

You can stop the infusion by closing the roller clamp so no more fluid runs down the tube. Leave the cannula in place for someone at the health facility to remove under sterile conditions.

- To stop an infusion you need sterile or very clean gloves, a clean dry swab, an antiseptic wipe or swab soaked in alcohol, and a new plaster.

Explain what you will be doing to the patient, put on your gloves and turn the roller clamp to the 'off' position. Check that the flow of fluid along the tube has stopped. Remove the plaster or other stabilizing material over the cannula while holding the cannula in place with your other gloved hand. With a clean dry swab held over the venipuncture site, withdraw the cannula and apply pressure with your fingers to the site for a minute or two. Then swab the site with antiseptic or alcohol to remove any germs that may be near the puncture hole. When the skin is dry, cover the site with a plaster if you have one.

Always make sure the cannula is intact and dispose of it safely in a puncture-proof container.

22.4 Bladder catheterisation



A pregnant woman in labour who cannot urinate as a result of compression on the outflow tube (urethra) from the bladder, will have great discomfort. At the same time, the full bladder will further obstruct the passage of the unborn baby by occupying space in the pelvis. She needs to have a **catheter** (sterile rubber or plastic tube) inserted into her bladder to let the urine out before you refer her to a higher health facility. The technique is called **catheterisation**. This procedure may even allow the birth of the baby to progress. Without it, if labour begins, she may be unable to give birth normally. Women who are a long time in labour may also need catheterisation if their bladder becomes obstructed. If the woman's bladder is distended it will feel like a soft bag of water lying above her pubic bone. When she is lying flat on her back, you may see the full bladder as a rounded mass.

Tell her what you are going to do and why she needs the procedure. Then ask her to lie on her back with her head lifted and her legs flexed, with feet wide apart. Cover her lower body except the genital area with a clean cloth to reduce embarrassment for her if other people are present.

22.4.1 Bladder catheterisation equipment

Assemble the necessary equipment for the procedure and lay them on a very clean dish or tray (see Figure 22.7). We will describe the equipment in detail after you have looked at Figure 22.7.

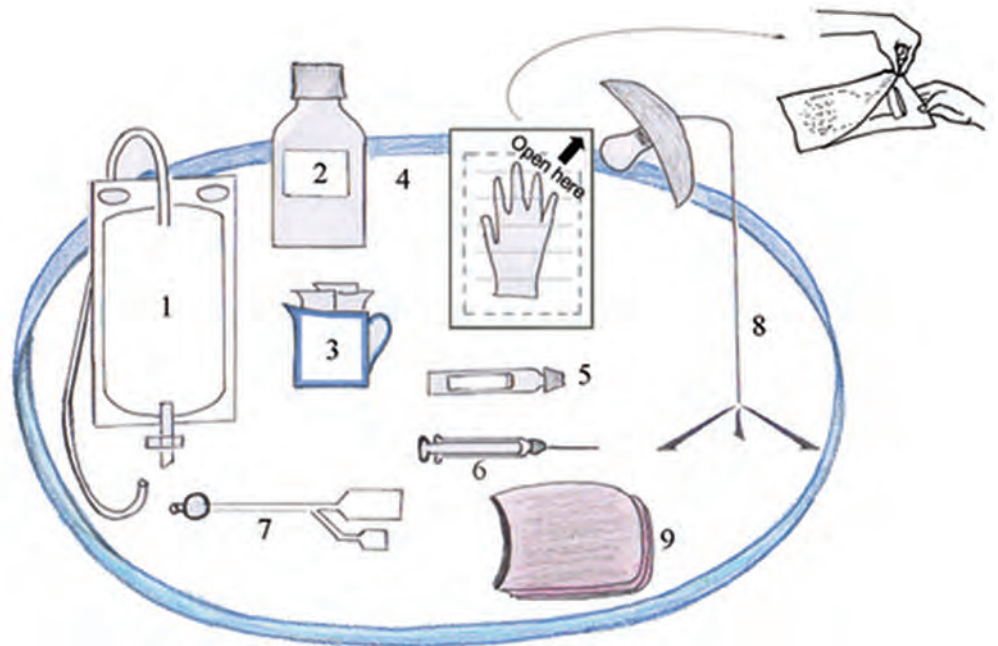


Figure 22.7 Equipment needed for bladder catheterisation. The numbers in the list below correspond to the number beside the equipment on the tray.

- 1 Sterile drainage tubing with a collection bag to hold the urine draining from the bladder. It will come in a sterile plastic package (not shown in Figure 22.7).
- 2 Alcohol or antiseptic cleaning solution to clean the genital area; if you do not have it, use soap and water.
- 3 Cotton swabs or small pieces of very clean cloth.

- 4 Sterile gloves; if you do not have them use very clean gloves.
- 5 Tube of lubricant (slippery gel to help the catheter go in more easily).
- 6 Syringe containing sterile water to inflate the catheter balloon.
- 7 Sterile catheter of the correct size; the size in common use is 16FC (FC or Foley Catheter, is the unit used to indicate the size of the catheter). It will come in a sterile plastic package (not shown in Figure 22.7). Notice the side tube which connects to an inflatable balloon at the tip of the catheter.
- 8 Good light source; a battery operated torch may serve the purpose, but you will need to ask someone to hold it for you.
- 9 Cloth to drape over the woman's lower body.

22.4.2 Steps in the catheterisation procedure

- What is the first thing you should do before you open any of the sterile equipment packages?
- Wash your hands thoroughly with soap and water for at least 15 seconds.

Once your patient is prepared and informed and your equipment is ready, put on the sterile or very clean gloves and clean around the woman's vulva and perineal area with antiseptic solution or alcohol, starting from the urethral opening and swabbing outwards (Figure 22.8a). If you don't have antiseptic solution, clean the area thoroughly with soap and water.

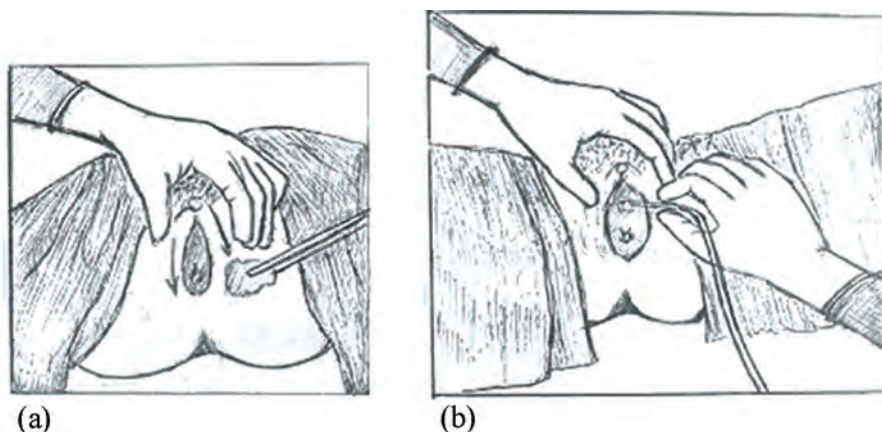


Figure 22.8 (a) Clean the area around the vulva and perineum with an alcohol swab. (b) Gently pull back the labia majora to expose the urethral opening and insert the catheter.

- Why do you think it is important to clean the area starting with the urethral opening and swabbing *outwards*?
- This avoids wiping germs from the perineal area towards the urethral opening; they could be carried inside when the catheter is inserted.

Use your non-dominant hand to carefully pull back the *labia majora* to fully expose the urethral opening. (You may wish to look back at the detailed drawing of the female external genitalia in Figure 3.2 in Study Session 3.) Lubricate the 16FC catheter if you have proper lubricant (don't use anything else) and slowly insert the catheter into the urethral opening (Figure 22.8b).

Once well into the bladder, you will see urine flowing out through the end of the catheter. Use the syringe to inject 5 ml of sterile water into the tube

leading to the catheter balloon; this makes the balloon swell up and anchors the catheter in the bladder so it won't pull out when the patient moves (see Figure 22.9). Pull on the catheter very gently to feel the resistance.

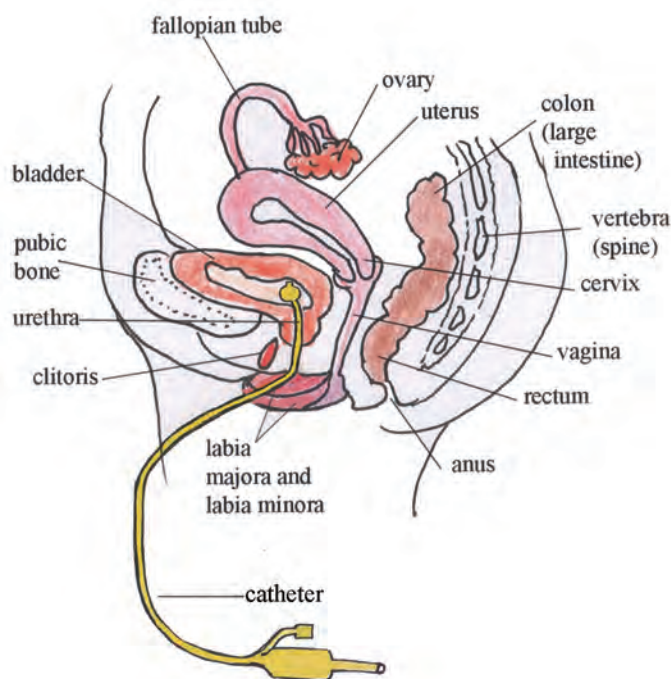


Figure 22.9 Half section of the pelvic cavity of a woman showing a urinary catheter anchored in the bladder by the inflated catheter balloon.

Then connect the catheter to the sterile drainage tubing so the urine flows into the collecting bag. Make sure the collecting bag is placed *below* the level of the bladder, or the urine will not flow into it. If you do not have a sterile collecting bag, then let the urine drain into a very clean container. This is called an 'open' system and it carries a bigger risk of infection passing up the drainage tube and into the bladder. Ideally, the drainage should be a 'closed' system with the urine draining into a sterile bag.

As soon as you have completed the procedure, refer the woman to a higher health facility as quickly as possible. Go with her if you can.

22.4.2 General care for the catheterised person

When you are providing care to the woman who is catheterised, understand that she may feel some discomfort in her bladder area. Reassure her to reduce anxiety by explaining why you want to keep the catheter in place.

You should also keep her clean by wiping away any urine that might have leaked from the catheter; this may make her wet and embarrass her, or irritate her skin and also increase her anxiety.

22.4.3 Removing the catheter

When it is time to remove the catheter, prepare the necessary items on a very clean tray or dish.

- The equipment you will need are sterile or very clean gloves, and a syringe to remove the water from the catheter balloon.
- Tell the patient you are going to remove the catheter and this may cause a little discomfort. Put on the gloves and *without disconnecting the drainage*

tube use the syringe to collapse the balloon by sucking the sterile water back into the syringe. When all the water has been withdrawn, slowly pull out the catheter.

Explain to the woman that she may feel some soreness or slight burning pain when she urinates normally for the first few times, but her bladder will soon be functioning normally.

22.5 In conclusion

This concludes the *Antenatal Care* Module. You have learned many things in the 22 study sessions about looking after the pregnant woman who is healthy and whose pregnancy is progressing normally, and also about the interventions you should make if you detect danger signs and symptoms. Your knowledge and skill can prevent many complications and save the lives of women and their unborn babies who get into difficulties. In the next Module, you will learn about *Labour and Delivery Care*.

Summary of Study Session 22

In Study Session 22 you have learned that:

- 1 Intravenous (IV) fluid therapy is required to replace lost fluids in a pregnant woman who is losing a lot of blood.
- 2 Giving IV fluid therapy includes knowing how to assemble the necessary equipment, identify a suitable venipuncture site, insert a cannula into a vein and stabilize it, and maintain a rapid flow rate of fluid into the woman's circulation.
- 3 Reasons for stopping IV fluid therapy include: the woman's blood pressure and pulse return to normal, fluid leaks into the tissues around the venipuncture site instead of running into the vein, there are signs of infection around the venipuncture site, or the woman has received too much fluid and is showing signs that her heart or lungs may be affected.
- 4 Catheterisation of the bladder involves introducing a sterile rubber or plastic tube through the urethra and into the bladder to drain excess urine. The procedure is necessary when the bladder is distended due to an obstruction preventing the woman from urinating normally, e.g. during a long or obstructed labour.
- 5 The catheter is anchored in the bladder by injecting sterile water into the catheter balloon to inflate it and hold the catheter in place.
- 6 A closed drainage system is important for collecting the urine; an open system can result in infection travelling back up the tubing into the bladder.
- 7 Infection control procedures should be observed at all times when giving IV fluid therapy or catheterising the bladder; wash hands thoroughly before and after the procedure, wear sterile or very clean gloves, and swab the surrounding area of skin with antiseptic solution or alcohol before inserting the IV cannula or the urinary catheter.
- 8 Make sure you inform the patient what you are going to do before you begin these procedures and explain why it is necessary to help her in this way.
- 9 Refer the woman to a higher health facility immediately you have completed the procedure. Go with her if you can.

Self-Assessment Questions (SAQs) for Study Session 22

Now that you have completed this study session, you can assess how well you have achieved its Learning Outcomes by answering the questions that follow below. Write your answers in your Study Diary and discuss them with your Tutor at the next Study Support Meeting. You can check your answers with the Notes on the Self-Assessment Questions at the end of this Module.

SAQ 22.1 (tests Learning Outcomes 22.1, 22.2, 22.3, 22.4, 22.5 and 22.6)

Which of the following statements is *false*? In each case, explain what is incorrect.

- A A woman who is in shock due to loss of blood should be referred immediately without beginning IV fluid therapy.
- B Remove and reposition the IV cannula if the venipuncture site swells and is painful.
- C If you don't have a plaster to put over the venipuncture site there is no need to stabilize the IV cannula in the vein.
- D You can stop giving IV fluid if the woman's blood pressure and pulse return to normal and she is no longer bleeding.
- E The syringe is for injecting sterile water into the bag collecting urine from the drainage tube in the bladder.
- F Wash your hands thoroughly with soap and water before you touch the patient or the equipment.
- G The flow rate should be as fast as possible when you start IV fluid therapy for a woman who is in shock.

SAQ 22.2 (tests Learning Outcomes 22.1, 22.3 and 22.6)

Rearrange the following list into the correct sequence of actions when you start IV fluid therapy.

- 1 Open the sterile IV tubing and connect the tubing to the bag of IV fluid and hang it higher than the patient or ask someone to hold it up for you.
- 2 Put on sterile or very clean gloves.
- 3 Clean the venipuncture site with antiseptics, alcohol or soap and water.
- 4 Tie a tourniquet about three finger-widths above the venipuncture site.
- 5 Identify the possible site for the IV cannula insertion.
- 6 Wash your hands.
- 7 Take the cannula from the sterile package and insert it at the venipuncture site; then withdraw the needle, leaving the plastic cannula in the vein.
- 8 Put the patient in the lying down position.
- 9 Connect the cannula to the bag of IV fluid and open the roller clamp.

SAQ 22.3 (tests Learning Outcomes 22.1, 22.2 and 22.5)

Define what catheterisation means and why it may be necessary in the pregnant woman in labour. List at least five items of equipment you need to conduct this procedure.

Notes on Self-Assessment Questions (SAQs) for Antenatal Care, Part 2

Study Session 13

SAQ 13.1

A is *false*. Focused antenatal care does not focus on the pregnant woman alone (this used to happen in the traditional approach). FANC includes the woman's partner and if possible the whole family in caring for her during pregnancy, watching for danger symptoms, and preparing for the birth, complication readiness and emergency planning.

B is true. Women in the basic component receive only 4 FANC visits, unless warning signs or symptoms are detected at any stage.

C is *false*. A pregnant woman should prepare for labour and delivery by assembling very clean cloths, a new razor blade, very clean new string, soap and a scrubbing brush, clean water for washing and drinking, buckets and bowls, supplies for making drinks, and a flashlight.

D is *false*. The birth plan in FANC is individualized for every woman and her partner and respects her wishes and preferences. It is discussed at the third visit and revised if necessary at the fourth visit.

E is true. Prophylaxis in FANC focuses on prevention of sexually transmitted infections, including mother to child transmission of HIV, malaria, nutritional deficiencies, anaemia, urinary tract infections and tetanus.

SAQ 13.2

As Aster is already 25 weeks pregnant, you should cover all the services of the *first and the second* FANC visits. Give close attention to investigating her medical and obstetric history and do a complete physical examination, including blood pressure, pulse, temperature, respiration rate, abdominal examination to measure fundal height, listen to the fetal heart beat, check for presentation and lie of the fetus, and check the results of urine tests. The purpose is to determine Aster's eligibility to follow the basic component of FANC. Also advise her on nutrition, hygiene and rest.

If she is healthy and the pregnancy appears to be progressing normally, tell her that the next visit should be at 30–32 weeks of pregnancy — but she must seek help at once if she experiences any of the danger symptoms such as bleeding or foul smelling discharge from her vagina, fever, blurred vision, or feeling dizzy and confused.

SAQ 13.3

Pale conjunctiva suggests that Aster may be anaemic, so ask her about her nutrition — what does she eat and how much food does she get each day? Perform a multiple dipstick test on a sample of her urine to see if it contains excess sugar or protein. If her urine test is normal, counsel her on improving her nutrition and provide her with iron and folate tablets.

As the fundal height is much more than you would normally expect at 32 weeks, it may indicate twins or a pathological condition and Aster should be referred for evaluation at a higher level of care. Therefore you should write a referral note and advise her to go to the nearest health centre or hospital. She may need help in arranging transportation or money for the trip. Advise her about birth preparedness, complication readiness and emergency planning.

Study Session 14

SAQ 14.1

Beans, peas and lentils are cheap and nourishing and quite easy to grow. Organ meats like liver, heart and kidney have a lot of iron and may cost less than other meats. Brown bread or brown rice and dark teff are more nutritious than the light-coloured grains and are usually cheaper to buy if she cannot grow her own.

SAQ 14.2

The table below is the completed version of Table 14.1. We do not know exactly which three examples you chose for each food group, so you may have mentioned other good examples.

Table 14.1 Completed.

Food group	Contains	Three examples
Main foods	carbohydrates	injera, rice, maize, etc.
Grow foods	proteins	beans, eggs, meat, etc.
Go foods	sugars and fats	fruits, honey, nuts, etc.
Glow foods	vitamins and minerals	fish, dark green leafy vegetables, meat, etc.

SAQ 14.3

Some actions that you can advise a pregnant woman to take to avoid infection in herself and her newborn baby:

- Washing her hands with soap, particularly before preparing food and after using the toilet.
- Washing her body every day with clean water, especially her genital area.
- Cleaning her teeth every day with a dental stick or toothbrush.
- Getting an immunization with tetanus toxoid.
- Keeping the stump of the newborn baby's umbilical cord clean and dry until it falls off.

SAQ 14.4

A is *false*. Breastfeeding is *not* 100% effective at preventing a further pregnancy; full and exclusive breastfeeding gives good protection from pregnancy but cannot be relied on as 100% effective —especially not after 6 months from the birth or if menstrual periods return.

B is true. Colostrum should always be fed to the baby because it is very nutritious and gives protection against infection.

C is true. Early and exclusive breastfeeding means feeding only breast milk from the first hour of the baby's life until at least 6 months of age.

D is *false*. A woman who is breastfeeding exclusively *does* need to begin another form of contraception if her menstrual period returns.

E is true. Birth spacing of at least 2 years reduces the risk of maternal and fetal death.

Study Session 15**SAQ 15.1**

A is true. Welcoming the mother, smiling and letting her express her concerns and doubts, helps her to feel comfortable and develops confidence in you.

B is *false*. It is not an easy task always to come on the day of appointment for the majority of rural Ethiopian pregnant women, who typically have many personal and social responsibilities at home. It is their right to come earlier or later than the appointed date, or even not to come at all. It is the duty and responsibility of any health professional to say welcome with open hands at whatever time and date women come for their antenatal check-up.

C is *false*. The health service is primarily the client's/patient's business. The duty of the health professionals is to deliver a service which makes the client comfortable and satisfied. With that understanding, you have to be prepared to receive questions and do the best to encourage women to raise any questions which are not clear for them.

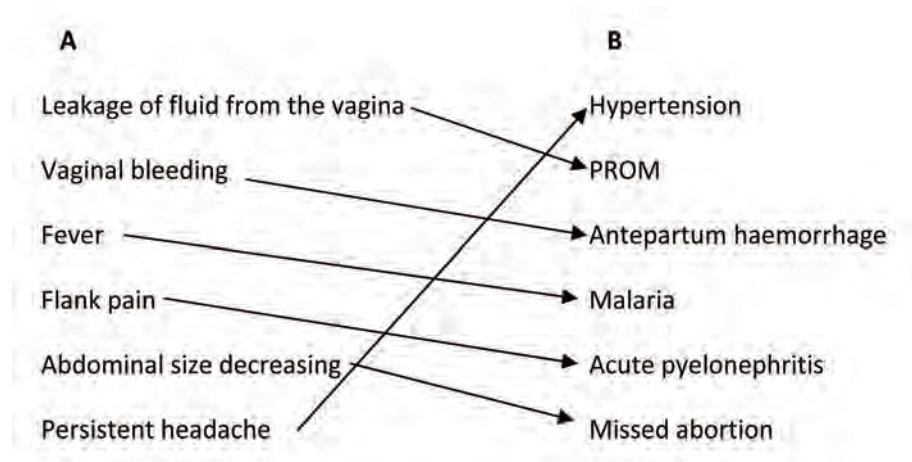
D is *false*. By its principle, counselling is discussing personal issues which the client may not like to be shared with other persons outside the family. Therefore, even when you are in a hurry, it is not advisable to counsel one woman while you are examining another. In such an environment, the one to be counselled may not freely share her feelings and concerns with you.

E is *false*. You cannot encourage behavioural change in adults by criticizing, frustrating, demoralizing and openly discouraging them. This woman will not feel respected by you and she may not return for further antenatal care. To make a positive change in unhealthy behaviour, the best method with adults is open discussion, letting them know the risks/disadvantages and giving them a chance to evaluate the options for themselves and make their own decision.

F is *true*. During every antenatal care visit, pregnant women should be counselled on the danger symptoms of pregnancy, so they can take swift action if an emergency arises.

SAQ 15.2

The arrows connect the danger symptoms in List A with the appropriate medical condition in List B.



SAQ 15.3

A is *false*. The area of counselling that pregnant women need should be appropriate to their stage of pregnancy, because:

- Different pregnancy-related complications occur at different stages of pregnancy.
- It is not easy for clients to understand and retain a lot of information, particularly if it is not relevant to them at that time.
- Addressing all the danger symptoms during a single visit will take a lot of your time.
- So much potentially worrying information about dangers may overwhelm the clients, and prevent them from raising their own questions and asking for clarification.

B is *true*. Repeating what has been discussed/said will help:

- The pregnant woman to remember what she has heard.
- The health service provider to check the woman's level of understanding.

SAQ 15.4

- Counselling the husband/partner on the danger symptoms during antenatal visits means that he can also look out for them and get help more quickly in an emergency.
- Involving husbands/partners is one way of informing the public more widely about the potential risks to women and babies during a pregnancy.
- If the husband/partner knows the possible health risks of pregnancy, he may be more caring and more concerned about looking after his wife.
- He is more likely to agree to take his pregnant wife to a health service provider if danger symptoms arise.

- Counselling the husband/partner enables him to get prepared both psychologically and financially for dealing with a possible pregnancy-related emergency.

SAQ 15.5

- Mrs H was not counselled on the danger symptoms of pregnancy at 34 weeks' gestation. When she was worried about her symptoms, she requested advice from her neighbours. They thought (incorrectly) that the leakage of watery fluid from her vagina at 36 weeks was normal, instead of a serious pregnancy-related problem.
- The watery fluid leaked because of the premature rupture of fetal membranes that function as a sac to hold the fetus and the amniotic fluid inside. So, it was the amniotic fluid which was coming out through the broken membranes.
- She waited days before seeking help because she did not know fluid leakage is a danger sign of PROM (premature rupture of membranes) and her neighbours assured her that it was not a problem.
- The HEP should have referred her to the nearest health centre or hospital for evaluation and treatment.
- Mrs H developed a high fever and offensive smelling vaginal discharge because infection was able to rise up through the vagina into the uterus after the fetal membranes ruptured.

Study Session 16

SAQ 16.1

- No, you should not trust the result. The woman could be in the *window period* of HIV infection, so the HIV test may give a negative result even if she was infected with HIV from this sexual intercourse.
- Counsel the woman to come for testing again after the end of the window period, which lasts around 12 weeks, and to use safer sex practices to ensure that she does not pass on HIV if she has become infected.

SAQ 16.2

Two factors are smoking, and injury to the abdomen, for example from a sharp instrument. (Note: You may have chosen other factors from those listed in Box 16.1.) What these factors have in common is that they may damage the barrier between the maternal and fetal blood supply in the placenta, allowing the blood from mother and fetus to mix. This increases the risk of mother to child transmission of HIV.

SAQ 16.3

If a pregnant woman refuses an HIV test, you can:

- Find out why she has refused — does she have any specific reasons for refusal? Address any specific questions and concerns she may have. Document this discussion. Build trust and deal with her concerns sensitively, for example about the impact on her family, fear of stigma and discrimination.
- Reassure her that the refusal to be tested will not affect her access to antenatal care, labour and delivery care, postnatal care, or related services.
- Provide pre-test counselling again in future antenatal visits.

SAQ 16.4

First, many more pregnant women are likely to accept HIV testing if the opt-out approach is adopted. Second, as more women are tested, the HIV test will come to be seen as more normal and acceptable as a routine part of antenatal care. Third, it is less time-consuming for health workers, as it does not involve a long pre-test counselling session with each woman.

Study Session 17

SAQ 17.1

The completed Table 17.1 should look like this:

PROM classification	Gestational age
Preterm PROM	After 28 weeks and before 37 weeks
Term PROM	After 37 weeks, including post-term (after 40 weeks)
	Interval since membranes ruptured
Early PROM	Less than 12 hours
Prolonged PROM	More than 12 hours

SAQ 17.2

A is *true*. Infection in the uterus may cause PROM and may also be a complication following PROM.

B is *true*. Prom may occur if the uterus is over-stretched by malpresentation of the fetus, multiple pregnancy or excess amniotic fluid.

C is *true*. Cervical incompetence in combination with PROM can be a cause of umbilical cord prolapse.

D is *false*. Blunt trauma to the abdomen is a common cause of PROM.

E is *false*. Hypoxia and asphyxia of the *fetus* (not the woman in labour) is a common complication of prolonged PROM.

F is *false*. Some cases of PROM occur *without* a sudden gush of clear watery fluid from the vagina, so you should always take account of other diagnostic signs such as reduction in size of the abdomen and clearly palpable fetal parts.

SAQ 17.3

- Zufan's condition should be classified as post-term prolonged PROM, because the gestational age is already beyond 40 weeks and her membranes ruptured more than 12 hours ago.
- She has two clear signs of abdominal infection: fever and lower abdominal pain.
- You could have prevented her condition from worsening if you had counselled Zufan and her family more clearly about the risks of waiting at home after the membranes have ruptured.
- You should immediately refer her to the nearest hospital or health centre with surgical facilities; she will also need antibiotics quickly to treat the infection.

Study Session 18

SAQ 18.1

A is *true*. The risk of urinary tract infection (UTI) can be reduced by washing hands and genitals properly.

B is *true*. A pregnant woman is more likely to get a UTI than when she is not pregnant.

C is *false*. Iron tablets to prevent anaemia should be given at *every* antenatal visit – not just the first one.

D is *true*. Encouraging a woman with a UTI to drink fluids every hour while she is awake will help to reduce her bladder infection.

E is *true*. Malaria in pregnancy is associated with an increased risk of spontaneous abortion and stillbirth.

F is *false*. Milk is good for pregnant women as part of a balanced diet, but it is not rich in folate; she should eat plenty of fish, beans, peas, dark green leafy vegetables, red meat, brown rice, whole wheat, mushrooms and eggs to increase the folate in her diet.

SAQ 18.2

The completed version of Table 18.1 appears below.

Table 18.1 Signs and symptoms of common pregnancy-related medical disorders

Medical condition	Signs and symptoms
Malaria	Chills, rigors, headache, weakness, fever alternating with chills, sweating as the temperature falls, sometimes diarrhoea/vomiting, muscle/joint pain. Malaria parasites detected by blood testing.
Anaemia	Pallor, rapid breathing (breathlessness), fast pulse (over 100 beats/minute), weakness, dizziness, occasionally fainting. Low haemoglobin detected by blood testing.
Bladder infection	Constant feeling of needing to urinate, pain or burning while urinating, pain in the lower belly. Bacteria detected by urine testing.
Kidney infection	As for bladder infection, plus cloudy or bloody urine, fever, feeling very sick or weak, flank pain in one or both sides which is not relieved by massage, repeated vomiting, chills and persistent shivering.

Study Session 19

SAQ 19.1

A is *false*. When the muscular walls of the blood vessels all over a woman's body contract, the space inside the vessels becomes *smaller* so her blood pressure *rises*.

B is *true*. Hypertension during pregnancy reduces the blood supply from the endometrial arteries in the mother's uterus to the fetus via the placenta.

C is *true*. Hypertension reduces the amount of amniotic fluid surrounding the fetus, because the blood flow to the baby's kidneys is reduced so it makes less urine. In late pregnancy, most of the amniotic fluid comes from the baby's urine.

D is *false*. Fetal growth is *very likely* to be restricted in a pregnant woman with hypertension, because the transfer of oxygen, nutrients and fluids to the baby via blood from the placenta is reduced.

SAQ 19.2

The completed version of Table 19.3 appears below.

Type	Raised blood pressure	Proteinuria	Symptoms of severity
Gestational hypertension	Above 140/90 mmHg	No significant proteinuria	None
Mild pre-eclampsia	Between 140/90 and 160/110 mmHg	No significant proteinuria	None
Severe pre-eclampsia	Greater than or equal to 160/110 mmHg	With or without significant proteinuria (urine dipstick test result greater than or equal to +2)	Headache, blurred vision, epigastric burning pain, decreased urine output, decreased or absent fetal kick
Superimposed pre-eclampsia	Higher than before the pregnancy in a known chronic hypertensive woman	Significant or worsening proteinuria	With or without symptoms of severity

SAQ 19.3

- Zewditu has three of the common risk factors for hypertension: she is having her first baby after the age of 35 years; she is expecting twins; and she is obese.
- She has two clinical features of hypertension: headaches and swollen feet/ankles. Both are caused by oedema (swelling due to fluid collecting in the tissues). The headaches are due to oedema around the brain, and the swollen feet and ankles are due to oedema in the tissues of the lower limbs. The underlying cause of the oedema is because the high blood pressure is pushing fluid from the blood out through the vessel walls and into the surrounding tissues.
- The complications that could affect Zeditu's baby if she is not treated quickly are: placental abruption, intrauterine asphyxia, intrauterine growth restriction, intrauterine fetal death, or mental retardation in later life.
- The first action is to measure her blood pressure and test her urine for the presence of protein. Even if the results are close to normal, she should be referred *without any intervention from you* to a higher health facility for further assessment, preferably on the day of the assessment. This is because even if her hypertension is currently mild, it may progress to severe pre-eclampsia in a very short period of time.

Study Session 20

SAQ 20.1

- 1 A is *false*. All women with an incomplete abortion should be referred to the next higher health facility. If you leave an incomplete abortion without treatment for some time there is an increased risk that it will be complicated with infection and this could be life-threatening for the woman.
- 2 B is true. In a complete abortion the tissue inside the uterus has been entirely expelled and the cervix has closed.
- 3 C is *false*. Women whose abortion is complete can get pregnant again quickly, because fertility returns within two to four weeks.
- 4 D is true. After an abortion, a woman should be advised to delay another pregnancy until she has completely recovered.

SAQ 20.2

(a) The possible causes of bleeding in a woman like Mrs X in the early stage of a pregnancy are:

- spontaneous abortion (miscarriage)
- ectopic pregnancy
- molar pregnancy.

(b) The fact that she has lower abdominal pain, a rapid pulse of 100 beats/minute, low blood pressure (110/60mmHg), and pale conjunctiva (a sign of anaemia) suggests that she is going into shock due to blood loss.

(c) She should be referred quickly to a higher health facility because she may lose consciousness and die; she has already been bleeding for two days.

(d) Before transferring her to the health facility, you should:

- start an intravenous (IV) fluid infusion to replace the fluids lost through haemorrhage
- position her in the vehicle with her head flat and her legs raised
- send someone with her who could act as a blood donor if she needs a transfusion
- write a clear referral note that covers all essential details.

SAQ 20.3

You only had to identify three of the following, but a good post-abortion family planning service will include:

- Counselling about contraceptive needs in terms of the client's reproductive goals
- Information and counselling about all available methods, their characteristics, effectiveness and side effects
- Choices among methods (e.g. short- and long-term, hormonal and non-hormonal)
- Assurance of contraceptive resupply, so the woman does not run out of protection
- Access to follow-up care

- Information about the need for protection against sexually transmitted infections (STIs).

Study Session 21

SAQ 21.1

- (a) The initial assessment would be a rapid evaluation of the general condition of the woman, including her vital signs: pulse, blood pressure, respiration and temperature; check her for pallor, weakness, dizziness and confusion.
- (b) Emergency treatment should begin immediately with rapid intravenous (IV) infusion with Normal Saline or Ringer's Lactate solution. This may save her life by replacing the fluids and salts lost through the haemorrhage, so her blood pressure does not drop dangerously low.
- (c) The relatives should be told to organise transport for the woman to the nearest higher level health facility.

SAQ 21.2

A is *false*. You should *never* do a vaginal examination on a woman with late pregnancy bleeding (i.e. after 28 weeks of gestation).

B is *false*. Premature separation of a normally implanted placenta *may* result in external bleeding, but it may also cause internal bleeding.

C is true. Placenta previa is when the placenta is attached close to or covering the cervix.

D is *false*. You should *always* refer women with persistent or recurrent bleeding in late pregnancy, even if the bleeding stops spontaneously.

SAQ 21.3

(a) The possible causes of bleeding in the case of Mrs X are:

- Placental abruption
- Placenta previa
- Ruptured uterus
- Ruptured varicose vein.

(b) Mrs X is in a state of shock: she is restless and thirsty, her pulse is very fast (120 beats/minute) and her blood pressure is dangerously low (80/50 mmHg).

Study Session 22

SAQ 22.1

A is *false*. A woman who is in shock (low blood pressure and rapid pulse) due to blood loss needs IV fluid therapy to be started *before* referral.

B is true. You should remove and reposition the IV cannula if the venipuncture site swells and is painful. This indicates that the fluid is going into the tissues instead of into the vein.

C is *false*. If you don't have a plaster to put over the venipuncture site, you should stabilize the IV cannula by tying very clean cloth around it. If the cannula is not stabilized it can pull out of the vein.

D is true. You can stop giving IV fluid if the woman's blood pressure and pulse return to normal and she is no longer bleeding.

E is *false*. The syringe is for injecting sterile water into the catheter balloon (not the collecting bag) to inflate the balloon so it anchors the catheter in the bladder.

F is true. You should wash your hands thoroughly with soap and water before you touch the patient or the equipment.

G is true. The flow rate should be as fast as possible when you start IV fluid therapy for a woman who is in shock.

SAQ 22.2

The correct sequence of steps in starting IV fluid therapy is 6, 8, 2, 5, 4, 3, 7, 1 and 9, as in:

- Wash your hands.
- Put the patient in the lying down position.
- Put on sterile or very clean gloves.
- Identify the possible site for the IV cannula insertion.
- Tie a tourniquet about three finger-widths above the venipuncture site.
- Clean the venipuncture site with antiseptics, alcohol or soap and water.
- Take the cannula from the sterile package and insert it at the venipuncture site; then withdraw the needle, leaving the plastic cannula in the vein.
- Open the sterile IV tubing and connect the tubing to the bag of IV fluid and hang it higher than the patient or ask someone to hold it up for you.
- Connect the cannula to the bag of IV fluid and open the roller clamp.

SAQ 22.3

Catheterization of the bladder means introducing a sterile rubber or plastic tube into the urethra and then into the bladder to drain urine when the bladder is obstructed. Bladder obstruction can happen in a long or obstructed labour when the baby presses down on the urethra and blocks the normal flow of urine. The items of equipment you need are:

- Sterile catheter of the correct size (16FC)
- Sterile drainage tubing with a urine collection bag
- Syringe containing sterile water to inflate the catheter balloon
- Sterile or very clean gloves
- Alcohol or antiseptic cleaning solution and swabs
- Tube of lubricant
- A good light source
- Cloth to drape over the woman's lower body.

