FOCUSED ANTENATAL CARE
MALARIA AND SYPHILIS
IN PREGNANCY

Learner’s Guide for ANC Service Providers
and Supervisors
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MALARIA AND SYPHILIS
IN PREGNANCY

Learner’s Guide for ANC Service Providers and Supervisors

January 2009
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<tr>
<td>ABC</td>
<td>Abstinence, Be faithful and Condom use</td>
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<td>AFASS</td>
<td>Available, Feasible, Accessible, Sustainable and Safe</td>
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<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<td>ALu</td>
<td>Artemether-Lumefantrine</td>
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<td>AMCR</td>
<td>Average Monthly Consumption Rate</td>
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<td>ANC</td>
<td>Antenatal Care</td>
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<td>APH</td>
<td>Ante Partum Hemorrhage</td>
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<td>ARM</td>
<td>Artificial Rupture of Membranes</td>
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<td>ARV</td>
<td>Antiretroviral</td>
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<td>BFP</td>
<td>Biologic False Positive tests</td>
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<td>BS</td>
<td>Blood smear</td>
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<td>CB</td>
<td>Closing Balance</td>
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<td>DHS</td>
<td>Demographic Health Survey</td>
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<td>DOT</td>
<td>Direct Observed Treatment</td>
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<td>EDD</td>
<td>Expected Date of Delivery</td>
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<td>FANC</td>
<td>Focused Antenatal Care</td>
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<td>FBOs</td>
<td>Faith Based Organisations</td>
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<td>FeFo</td>
<td>First Expiry First Out</td>
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<td>FEFOL</td>
<td>Fersolate and Folic acid</td>
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<td>FGM</td>
<td>Female Genital Mutilation</td>
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<td>FTA-ABS</td>
<td>Fluorescent Treponemal Antibody Absorbed</td>
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<td>Hb</td>
<td>Haemoglobin</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>HLD</td>
<td>High Level Disinfectant</td>
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<td>HMIS</td>
<td>Health Management Information System</td>
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<td>IEC</td>
<td>Information Education and Communication</td>
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<td>IFA</td>
<td>Iron, Folic Acid</td>
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<td>IM</td>
<td>Intra Muscular</td>
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<tr>
<td>IPTp</td>
<td>Intermittent Preventive Treatment in Pregnancy</td>
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<td>ITN</td>
<td>Insecticide Treated Nets</td>
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<td>IV</td>
<td>Intra Venous</td>
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<td>Jhpiego</td>
<td>Johns Hopkins Program for International Education in Gynaecology and Obstetrics</td>
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<td>LNMP</td>
<td>Last Normal Menstrual Period</td>
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<td>MIP</td>
<td>Malaria in Pregnancy</td>
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<td>MOHSW</td>
<td>Ministry of Health and Social Welfare</td>
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<td>MTCT</td>
<td>Mother to Child Transmission</td>
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<td>NACP</td>
<td>National AIDS Control Program</td>
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<td>NMCP</td>
<td>National Malaria Control Program</td>
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<td>NPERCHI</td>
<td>National Package of Essential Reproductive and Child Health Interventions</td>
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<tr>
<td>PIH</td>
<td>Pregnancy Induced Hypertension</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission</td>
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<td>PPE</td>
<td>Personal Protective Equipment</td>
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<td>QI</td>
<td>Quality Improvement</td>
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<td>RCH</td>
<td>Reproductive and Child Health</td>
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<td>RCHS</td>
<td>Reproductive and Child Health Section</td>
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<td>RDT</td>
<td>Rapid Diagnostic Test</td>
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<td>Rh</td>
<td>Rhesus</td>
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<td>RPR</td>
<td>Rapid Plasma Reagin</td>
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<td>SIP</td>
<td>Syphilis in Pregnancy</td>
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<td>SJS</td>
<td>Steven-Johnson's Syndrome</td>
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<td>SP</td>
<td>Sulfadoxine Pyrimethamine</td>
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<td>STIs</td>
<td>Sexually Transmitted Infections</td>
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<tr>
<td>TB</td>
<td>Tuberculosis</td>
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<tr>
<td>TDHS</td>
<td>Tanzania Demographic Health Survey</td>
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<td>TFNC</td>
<td>Tanzania Food and Nutrition Centre</td>
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<tr>
<td>TPHA</td>
<td>Treponemal Pallidum Haemagglutination</td>
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<td>TT</td>
<td>Tetanus Toxoid</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>VDRL</td>
<td>Venereal Disease Research Laboratory</td>
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<tr>
<td>VHW</td>
<td>Village Health Worker</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Foreword

The vision of the MOHSW-RCHS is “A healthy and well informed Tanzania population with access to quality Reproductive and Child Health services that are accessible, affordable and sustainable”. To implement this RCHS developed the National Package of Essential Reproductive and Child Health Interventions (NPERCHI) in 2000.

The NPERCHI outlines a number of interventions to be implemented to meet the RCHS Mission, which is “to promote, facilitate and support—in an integrated manner—the provision of reproductive and child health services in Tanzania.” One of the interventions spelled out by NPERCHI is Antenatal Care (ANC). For Tanzania to provide quality ANC to her people the RCHS in partnership with NMCP, NACP and other maternal and neonatal health stakeholders embarked on the process of developing Focused ANC package for training service providers and supervisors.

In the year 2001 Performance Facility Needs Assessment was done in Arusha and Iringa which revealed various gaps on service providers’ knowledge, skills and attitudes, particularly in ANC. Some of the gaps still exist to date as observed and documented through the ANC quality improvement process.

In Tanzania, malaria, anaemia, syphilis and HIV contribute significantly to maternal and newborn morbidity and mortality. These conditions require special attention especially during the provision of ANC services.

The Learner’s Guide for ANC Service Providers and Supervisors is a national guideline for training providers and supervisors throughout the country, the move which will enhance provision of standard ANC services in an integrated manner.

The first edition of this Package was used extensively to train service providers between 2002 and 2004. The availability of new knowledge necessitated a revision of the first version in 2004. The second edition included a new chapter on infection prevention and an enrichment of the Prevention of Mother to Child Transmission of HIV (PMTCT) section.

To further support quality of ANC services, the Learner’s Guide has updates on current maternal and newborn health status in Tanzania, prevention and control of malaria, anaemia and syphilis in pregnancy and PMTCT of HIV. Also key tools in providing care such as infection prevention and clinical decision making have been added. Management of service statistics and ANC service monitoring using quality improvement tool has also been added.

It is my sincere hope that stakeholders will take this national guideline as a valuable tool to promote provision of quality ANC services in Tanzania.

Blandina Nyoni
Permanent Secretary
Acknowledgement

The Ministry of Health and Social Welfare would like to express its appreciation to all those who contributed to the development of the Focused ANC, Malaria and Syphilis in Pregnancy Learners Guide. The Ministry would like to acknowledge specifically the institutions that were involved. These include:

- Reproductive and Child Health Section, National Malaria Control Programme, National AIDS Control Programme including the PMTCT Secretariat, for their guidance
- The United States Agency for International Development for the financial and technical support
- Zonal Training Centers and other health training institutions, Zonal RCH teams, Regional and District Health Management Teams, health facilities (public, private and FBOs) for their commendable contributions.
- Muhimbili University of Health and Allied Sciences for their constructive input
- Tanzania Food and Nutrition Center (TFNC) for their constructive input
- The ACCESS/Jhpiego Program for technical assistance and coordination

The Ministry of Health and Social Welfare recognizes contributions of individual experts who represented the above mentioned institutions. (See Appendix 17).

Dr. Deo M. Mtasiwa
Chief Medical Officer
Goal and Objectives of the FANC Learner’s Guide

The goal of the Learner’s Guide for FANC Service Providers and Supervisors is to improve delivery of quality ANC services through acquisition of knowledge, skills and change of attitudes of health care providers and supervisors.

The objective of the FANC Learner’s Guide is to update ANC service providers and supervisors on:

- Focused antenatal care
- PMTCT of HIV
- Malaria and anaemia in pregnancy
- Syphilis in pregnancy
- ANC quality improvement process including interpersonal communication, infection prevention and control.
CHAPTER 1
FOCUSED ANTENATAL CARE

SESSION 1.1 Introduction to Focused ANC

Learning objectives

• Explain the background of Focused Antenatal Care
• Explain the overview of pregnancy
• Define Focused Antenatal Care
• Discuss the aims of Focused Antenatal Care
• Identify characteristics of an effective Antenatal Care
• Discuss related performance standard(s) and verification criteria from the ANC quality improvement tool

Background to Focused ANC

In Tanzania, in spite of high antenatal attendance of pregnant women in various health facilities, maternal mortality rate remains high at 578 per 100,000 live births and infant mortality rate at 68 per 1,000 births. While 94% of all pregnant women received antenatal care at least once from health professionals, only 47% of births in 2004-05 occurred in health facilities. (DHS 2004/5).

In view of this, the Ministry of Health and Social Welfare (MoHSW) felt the need to strengthen the quality of RCH services by developing the National Package of Essential Reproductive and Child Health Interventions (NPERCHI). Focused Antenatal Care is one of the interventions and one of the Safe Motherhood Pillars.
The Safe Motherhood Pillars

- Safe Motherhood means ensuring that all women and their new borns receive the care they need to be as healthy as possible throughout pregnancy, childbirth and postpartum period.
- Safe Motherhood can be achieved by providing high-quality maternal health services to all women during pregnancy, childbirth and postpartum period.
- Focused Antenatal Care (FANC) pillar depends on the health system including health care providers and clients themselves. All must work together in the same direction to improve the mother’s and the baby’s health.

Overview of Pregnancy

- Pregnancy is a normal physiological process and majority of women carry their pregnancy to term without complications.
- Every pregnant woman is at risk of complications although only about 15% of women face some complications.
- Complications cannot be predicted, therefore each pregnancy should be treated as a special event needing focused care. Every pregnant woman is at risk of complications.
- In the first trimester, the woman may experience early signs of pregnancy such as morning sickness.
- Exaggerated morning sickness (hyperemesis gravidarum) and vaginal bleeding need special treatment.
During the second trimester, the woman feels quickening of the baby and experiences rapid weight gain.

Excessive or lack of weight gain of 0.5 kg per week during pregnancy is an indication of abnormality in the physiology of pregnancy. Excessive weight gain of more than 0.5 kg per week may be a symptom of hypertensive disorders of pregnancy or an indication of multiple pregnancies.

In the third trimester, the baby matures and establishes the lie, the mother may experience some discomfort during walking, breathing, sleeping, etc.

Feeling tired or dizzy, breathlessness are not 'normal’ conditions in pregnancy. They can indicate severe anemia. The woman should be tested and treated immediately.

**Note:** *Encourage mothers to start seeking antenatal services as soon as they realize that they are pregnant.*

### Definition of Focused Antenatal Care

**Focused Antenatal Care is:**
- Goal oriented care that is client centered, timely, friendly, simple, beneficial and safe to pregnant women.
- Care which is provided to pregnant women by skilled attendant which emphasizes on the woman’s overall health, her preparation of childbirth, readiness for complications that may occur in pregnancy, labour, delivery and postpartum.

### Goal of Focused ANC

The goal of focused antenatal care is to provide timely and appropriate care to women during pregnancy to reduce the maternal morbidity and mortality as well as achieving a good outcome for the baby. This process is part of the national RCH big program of improving quality of the services in Tanzania.

### Aims of Focused ANC

- Early detection of existing diseases and treatment or referral.
- Promotion of health and to maintain well being of mother and baby physically, mentally and socially.
- Development of Individualized Birth Plan (IBP) and complication readiness plan.
• Prevention of diseases and early detection and management of complications during pregnancy, labor/delivery and postpartum through identification of danger signs and symptoms.

**Characteristics of an effective ANC**

• Well organized and prepared health facility.
• Care from a skilled and well motivated healthcare service provider.
• Preparation for birth and potential complications.
• Focused content of routine antenatal visits based on the mother’s needs.
• Promoting health through provision of Tetanus Toxoid (TT), iron and folic acid supplementation, IPTp, ITNs and positive self care practices such as essential nutrition actions, avoiding tobacco, alcohol and drug abuse, safe sex, etc.
• Counseling, detection and treatment of diseases including: HIV/AIDS, syphilis (and other STIs), tuberculosis, malaria, anaemia, hypertension and diabetes.
• Early detection and management of complications and prompt referral to the next level of care.
• Promote linkages among providers/facilities, communities and families to ensure continuity of care.
• Ultimately provides woman-friendly care.

**Woman-Friendly Care**

• Clean and attractive facility, providing kind and supportive care
• Explain what is happening to the woman and family after each evaluation.
• Praises the woman/family for her/their efforts
• Helps the woman feel cool when she is too hot or warm when it is cold
• Empowers woman and her family to become active participants in the care.

  The provider:
  – Involves family, partner or other support person in the care
  – Includes relevant and feasible advice
  – Speaks in a language that the client understands

• Considers rights of the woman:
  – Respects beliefs, culture and traditions, permits cultural practices that are not harmful
  – Recognizes the right to be informed about her health and what to expect during visit
  – Obtains informed consent prior to exams and procedures
  – Assures privacy and confidentiality.

• Considers emotional, psychological and social well-being of the woman

**Quality in ANC services**

• Quality is the degree of performance in relation to a defined standard of an intervention
• Quality in ANC is based on performance standards that are safe and have capacity to improve quality of antenatal services within available resources.
• ANC Quality Improvement (QI) process is a practical management approach for improving performance and quality of services
• ANC QI tool
  - establishes the desired level of performance objectively and expresses it using standards with focus to clinical practices and supportive functions
  - serves to measure actual performance during the baseline as well as in the internal monitoring and external assessment visits
  - helps identify the gaps between actual and desired performance.

Note: Refer to Appendix 1 for details on ANC QI tool

Expected Performance Standards
• The facility has the minimum skilled human resources with appropriate language for providing FANC.
• The physical structure is adequate, clean, attractive and safe for providing FANC
• The provider receives and treats the pregnant women cordially, and conducts a quick check at the first contact.

Note: Refer to Performance standards numbers 1, 2 and 6 of the ANC quality improvement tool

Summary
• The call of the MOHSW in Tanzania is to raise quality of ANC services so as to contribute to reduction of maternal and newborn deaths which are unacceptably high.
• Focused ANC is one of the pillars of Safe-Motherhood and national policy guidelines and standards have been developed to guide its implementation.
• Studies have shown that ‘Every pregnant woman is at risk of complications’ hence each pregnancy is a special event needing individualized focused and care.
• Focused ANC is client centered, goal oriented services given by a skilled provider
• Aims of focused ANC are
  - early detection and provision of treatment for existing diseases,
  - promotion and maintenance health of mother and baby,
  - supporting clients in developing individual birth plan and complication readiness plan
  - early detection and management of complications - pregnancy, labour, delivery and post partum
SESSION 1.2 Elements of Focused ANC

Learning objectives
- Describe elements of Focused Antenatal Care
- Describe Focused Antenatal Care visits.

Elements of Focused ANC

1. Early detection and diagnosis of disease/abnormality
2. Counseling on health promotion
3. Individual Birth Plan (IBP) and complications preparedness
4. Danger signs and symptoms in the mother and new born
5. Focused ANC visits, referral and follow-up of ANC client
6. Prevention of Mother to Child Transmission (PMTCT) of HIV
7. Management of clients’ records

Element 1: Session 1.2.1 Early Detection and Diagnosis of Disease and Abnormalities

Learning Objective
- Describe assessment of an ANC client
- Discuss related performance standard(s) and verification criteria from the ANC QI tool

Assessment of an ANC client
- Quick check
- History taking
- Physical examination
- Laboratory investigation
- Decision making.

Note: The above steps lead one to make diagnosis/understanding what the woman requires for the visit.

Activities to be done during the ANC
Quick Check
General appearance, gait, and asking general screening questions

History taking
- Personal information
- Medical history- Medication, allergies, HIV status
- Surgical history
- Obstetrics and gynecological history
- Family and social history
- Immunization
- Ownership and use of an ITN

Physical examination
- General appearance,
- Blood Pressure
- Weight, height
- Pulse and Respiratory rates
- Head to toe assessment
  - Conjunctiva
  - Lymph nodes
  - Breast examination
  - Fundal height
  - Foetal lie
  - Foetal presentation
  - Foetal heart sound
  - Other masses
- Genital inspection
  - Female Genital Mutilation
  - Sores, swelling, discharge
  - PV Bleeding

Laboratory investigations
- Urine test for albumin and sugars
- Hb
- Blood grouping and Rhesus factor
- VDRL/RPR for syphilis screening
- HIV testing
- CD4 count if indicated
- Blood examination for malaria parasites where indicated.

Decision Making
- Interprets information from client’s history, physical examination and laboratory investigations and deciding on the care to be given

Note: All the findings should be recorded in the Antenatal card (RCH card No. 4) and MTUHA book No. 6

Quick Check is performed by health care service provider to identify clients/pregnant women who need immediate attention through:
- Observation as a woman enters ANC clinic/room
  - General appearance – facial expression, pallor, sweating, shivering, difficult breathing etc.
  - Gait (how the woman is walking)
- Asking general screening questions to identify danger signs and symptoms such as severe headache, PV bleeding, leaking, dizziness, fever, etc.

Note: In case of any problem stabilize, treat and/or refer the client immediately.

History Taking
Ensuring a conducive environment for history taking involves availing the necessary equipment and offering privacy. The following should be addressed:

- Personal information
- Details about previous pregnancies
- LNMP, calculate EDD and gestational age
- Use of contraceptives prior to pregnancy
- Use of medications and drug allergies
- Nutrition – dietary habits and locally available foods
- Use of alcohol/tobacco/other substances such as herbal medicine and use of non-food substances (PICA).
- Tiredness, breathlessness and use of IFA, any side effects
- Immunization status
- Intermittent Preventive Treatment (IPTp) and use of ITN
- History related to STIs including HIV and AIDS
- Present medical and surgical problems
- Social and financial support, etc
- Any other concerns.

Note: See Annex 3A - Checklist for Antenatal History, Physical Examination and provision of Basic Care

Calculation of EDD

- Know the first date of the Last Normal Menstrual Period (LNMP)
- Add 7 days to the date
- Subtract 3 months from the months (if the month is above March)
- Add 9 months to the month if the month is below April
- Add 1 to the year if it is above April.

Calculation of Gestational Age

- Know the first date of the LNMP
- Add up all the days from the LNMP to the date of visit.
- Divide by 7 to get gestational age in weeks.

Note: Use pregnancy calculator to estimate EDD and GA if available

Physical Examination

When conducting physical examination, have the woman remain seated or lying down and relaxed:

General examination

- Take blood pressure, weight, height, pulse, temperature (if indicated) and respiration
- Check for pallor (conjunctiva, palms)
- Breasts and lymphnodes examination

Abdominal examination

- Inspection (scars, movement with respiration, and shape of the abdomen)
• Palpation and measure for fundal height, lie, presentation and descent of presenting part (lie and presentation are only important after 36 weeks).
• Listen and count foetal heart rate.

Genital inspection
  – Female Genital Mutilation
  – Sores, swelling, discharge
  – PV Bleeding.

**Abdominal Examination:**

**Inspection:** Surface of abdomen (scars, movement with respiration, and shape of the abdomen)

**Palpation:**
  • Palpate for fundal height from 12 weeks of gestation age
  • Fetal parts and movements from 20 weeks of gestation
  • Fetal lie and presentation is of concern from 36 weeks of gestation.  
  (Abnormal lie or/and presentation if observed from 36 weeks is more unlikely to change therefore decide appropriately for a place of birth)
  • Fetal heart sound from 24 weeks of gestation.

**Fundal Height Measurement**
Palpation of the abdomen

Palpate to determine fetal parts, lie, presentation and descent of the presenting part.

There are two methods of palpating the abdomen: the 3 steps and the 4 steps *(Leopold’s Maneuvers)*

**Abdominal Palpation – 3 Step Method**

**Fundal Palpation**

Palpate to determine which fetal part is at top of uterus:

- Place both hands on sides of fundus at top of abdomen
- Use finger pads to assess consistency/ mobility of fetal parts
**Lateral Palpation**

To feel for fetal back:

- Move hands smoothly down sides of uterus
- Smooth and firm (back) versus bulge and moveable (legs and arms).

**Pelvic Palpation (Supra Pubic)**

To feel presenting part:

- Place hands on sides of uterus, palms below umbilicus, fingers toward symphysis pubis
- Grasp fetal part.

**Abdominal Palpation – 4 Step Leopold’s Maneuvers**

*There are 4 step and three step technique*

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

- Fetal heart sound
  - By 24 weeks fetal heart sounds are heard with fetoscope
  - Normal fetal heart rate is from 120 to 160 beats per minute (during pregnancy only, not in labor).

Note: *Abnormal or absent fetal heart sound require urgent/ further attention*

Genital Inspection

- Ensure privacy, good light and infection prevention practices
- Inspect the perineum for sores, discharge, evidence of FGM and bleeding.

*Refer to Annex 3A - Checklist for Antenatal History, Physical Examination and Provision of Basic Care*

Antenatal Laboratory Investigations

- Haemoglobin
- Blood grouping and Rh factor
- RPR for syphilis screening
- Urinalysis for sugar and albumen
- HIV screening (after counseling)
- Blood Smear (BS) or Rapid Diagnostic Test (RDT) for malaria if she has history of fever.

Decision making

Decision making is a purposeful, organized thinking process that links client’s assessment results with planning, provision and evaluation of care through a series of logical steps of:

- Gathering the information from quick check, history, physical examination and laboratory investigations.
- Interpreting the information and deciding on the woman’s needs e.g. immediate care, IPTp, ITN, TT, nutritional advice.
- Developing care plan.
• Implementing the care plan e.g. giving IPTp by DOT, dialogue on IBP, HIV/syphilis post test counseling, linking HIV positive client to Care and Treatment unit.
• Evaluating the care plan including checking questions by the provider or a supervisor using “STOP” questions (see Annex 10).

Expected Performance Standards
• The health care provider
• prepares necessary supplies and equipment including registers and cards used in the provision of ANC
• takes the clinical history, including obstetric, medical, surgical, social aspects and HIV/AIDS status.
• properly conducts a physical and obstetric examination
• requests or checks for laboratory tests and observes infection prevention standard precautions according to the national guidelines

Refer to Performance standards numbers 5, 7, 8 and 9 of the ANC quality improvement tool

Summary Element 1
• Health care provider conducts quick check to identify clients/pregnant women who need immediate attention.
• History taking, physical examination and laboratory investigations are important components of client assessment in the provision of individualized care.
• Information from quick check, history-taking, physical examination and laboratory investigation results followed by clinical decision making are foundations upon which the care plan is designed, implemented and evaluated.

ELEMENT 2: Session 1.2.2 Counseling and Health Promotion in ANC

Learning objective
• Describe counseling and health promotion in ANC
• Discuss “GATHER” model supported by “CARE” skills
• Discuss related performance standard(s) and verification criteria from the ANC QI tool

Counseling and Health Promotion in ANC

Definition:
Counseling is interpersonal communication (face to face conversation) where one person helps another (between two people) to make an informed decision and to work on it.

– Counseling targets both the pregnant woman and her partner during the ANC visits. It aims at assisting them in developing the individual birth plan and complication preparedness.
Advise on health promotion aspects such as nutrition, use of ITN, personal hygiene, etc.

Effective counseling follows the GATHER steps reinforced by CARE skills.

See Job Aid (GATHER STEPS)-Annex 9

Health Promotion
Health promotion is giving health messages to pregnant women and their partners to enable them improve their health. Areas of health promotion include:

- Diet, Nutrition and use of minerals and vitamins supplementation
- Personal hygiene including clothing
- Danger signs in pregnancy
- Individual Birth Plan and complication preparedness
- Use of medicines and immunization
- Protection from malaria (use IPTp, ITNs and other protective measures)
- Family Planning
- Breastfeeding
- Avoiding harmful habits.
- Prevention from STIs/HIV (safer sex)

Diet and Nutrition

Essential nutrition actions by a pregnant woman include:

- Increased food intake during pregnancy – encourage eating 3 meals and a snack/bite in between meals every day.
- Take diversified diet i.e. meals containing protein, carbohydrates, vitamins, fats, water, minerals including iodized salt.
- Reduce energy expenditure by reducing workload and encouraging resting. Provide iron/folic acid supplements daily.
- Monitor weight gain throughout pregnancy, women should gain at least one kg. per month in the second and third trimesters.
- Take SP for IPTp and use ITN for malaria prevention.
- Take mebendazole/albendazole tablets for deworming.
• Advise the mother on a balanced diet that includes proteins, high calorie content, fruits and vegetables for preventing anaemia and ensuring proper growth of the foetus.
• Encourage the pregnant woman three meals and a snack to increase energy to take every day.
• Encourage the pregnant woman to have a diversified diet based on locally available foods.
• Encourage regular taking of iron and folic acid tablets daily throughout pregnancy and post partum period.
• Take tablets between meals or before going to bed with little water or juice to avoid possible nausea and vomiting.
• Counsel on compliance and side effects of iron.
• Avoid drinking tea and coffee while taking iron because these drinks contain iron absorption inhibitors. Tea or coffee should be taken at least one hour apart after taking the tablets or meal.
• Encourage the pregnant woman to take Vitamin C rich foods such as oranges, guava, pawpaw, baobab fruits etc. to enhance absorption of iron.
• Avoid overcooking vegetables.
• Use iodized salt only.
• Avoid eating non-food substances such as clay, ashes, charcoal etc.
• Encourage women to take sweet energy drinks when in labour.

Note: The advice needs to be realistic, based on the foods that are available locally.

Rest and Activity
• Encourage the mother to rest (nap in the afternoon).
• Avoid overworking and exhaustion.
• Encourage the mother to carry on with light household work and light exercises such as walking.
• Avoid lying on back and right side to prevent compression of inferior venacava which may lead to supine hypotension. Instead the mother should be encouraged to lie on left side with legs slightly elevated.

Note: Partners, family and community members to give support to pregnant mothers.

Personal Hygiene and Clothing
• Good personal hygiene prevents infections
• Encourage the mother to wear clean comfortable clothing and flat shoes. High shoes may lead to back pain
• Encourage pregnant mothers to live in a clean environment
• Encourage the mother to wash her body and carry out oral hygiene daily.

Use of Medicine and Immunization in Pregnancy
• Encourage pregnant women to speak out about their pregnancy status whenever they are seeking other healthcare services.
Medicines are generally discouraged particularly during the first trimester unless advised by a service provider.
Routine medicines and vaccine prescribed during pregnancy will include folic acid, iron, SP, mebendazole/albendazole tablets and tetanus toxoid.
Some medicines are not recommended during the first trimester, e.g. SP, Artemether Lumefantrine (ALu), Metronidazole (flagyl) and warfarin.

Some commonly used medicines that should not be used during pregnancy and breastfeeding include:
- Tetracycline: Cause abnormalities of lens/cornea, skeletal and muscular growth and tooth development.
- Doxycycline: Risk of cosmetic staining of primary teeth is undetermined, excreted into breast milk.
- Primaquine: Harmful to newborns who are relatively Glucose-6
- Phosphatase Dehydrogenase (G6PD) deficient
- Halafantrine: No conclusive studies in pregnant women, has been shown to cause unwanted effects including death of the fetus in animals.
- Ciprofloxacin: Not recommend during the first trimester due to possibility of congenital malformations including spina bifida, limb defects, hypospadias, inguinal hernia, eye/ear defects, heart and skeleton defects and teeth discoloration.
- Dapsone: Increases the risk of fetal abnormalities if administered during all trimesters

Harmful Habits During Pregnancy
- Advise the pregnant women to refrain from smoking, drugs, alcohol and herbal medicines as may cause bad effects on pregnancy.
- Advise the pregnant women to avoid eating non-nutritive substances (PICA)
- Advise pregnant women on dangers of female genital mutilation
- Advise pregnant women on safer sex especially use of condom.

Breastfeeding
- Early and exclusive breastfeeding is beneficial for mother and baby therefore the mother needs to be prepared psychologically and physically.
- Benefits of breastfeeding to the mother and infant:
- Breast milk is the best for the baby because it contains adequate water and nutrients that the baby requires.
- First yellowish milk (colostrum) protects the baby from diseases and it is rich in Vitamin A and antibodies
- Is cost-effective/affordable
- Promotes mother-baby bonding
- Successful breastfeeding depends on diversified diet and increased food intake (three meals and two snacks/bites), adequate fluid intake and rest.
• Health care providers should provide support to mothers for early initiation (within 1 hour after delivery) and proper positioning and attachment during breastfeeding.
• Emphasize on exclusive breastfeeding up to 6 months of age and add complimentary feeding while continuing breastfeeding up to 2 years and beyond.
• Breastfeeding on demand stimulates adequate production of breast milk and prevents breast engorgement.
• Advise the mother to breastfeed from one breast until it is empty before offering the other so that the baby gets both fore milk (high content of water) and hind milk (rich in fat and nutrients).
• For HIV + Mothers counsel on infant feeding options; exclusive breast feeding or replacement guided by AFASS as per guideline.

Note: For successful breastfeeding partner, family and community support is needed.

Family Planning
• Birth spacing 3 to 5 years apart is recommended for better health of both mother and child.
• Advise women to use family planning methods which include modern and natural.
• Safe methods for postpartum/lactating mothers are those methods which will not interfere with breastfeeding such as LAM.
• HIV positive mothers should be advised to use effective family planning methods that provide dual protection, that is prevention of pregnancy and STIs including HIV/AIDS (use of condoms).

Immediate Postpartum Family Planning Method:
Lactational Amenorrhea Method (LAM)
• Modern, temporally, postpartum contraceptive choice of women who breast feed
• Based on natural infertility resulting from certain pattern of breast feeding
• Advantages: can be used immediately postpartum; universally; with no cost; and by any woman who fulfills the criteria
• Three criteria must be met to practice LAM safely:
  – Infant less than 6 months
  – Amenorrhea (menses has not returned)
  – Fully breast feeding
• If any of these three factors change, the client has to switch to another method to prevent pregnancy. It is useful to begin planning for another type of method to be used before the end of six months

• Prevention from STIs/HIV (safer sex)
Educate the pregnant woman on HIV including other STIs (e.g., syphilis,
gonorrhea, chlamydia) and their effects to woman, her partner and unborn baby.

- Advice the woman on safer sex which include:
  - ABSTINENCE or
  - BEING FAITHFUL to one partner or
  - CONDOM use consistently and correctly

Note: Sexual intercourse during pregnancy is not harmful.

GATHER Model for Interpersonal Communication (IPC)
- Discuss CARE skills in counseling and use of GATHER Model (Annex 9).

Expected Performance Standard
The health care provider makes clinical decisions based on findings from the history, physical examination and laboratory investigation results and properly conducts individualized care, including counseling and provision of IPTp and ITN voucher against malaria, based on national guidelines.

Summary Element 2
- All pregnant women should be counseled to take
  - 2 doses of SP by DOT, taking IFA tablets throughout pregnancy, and 1 dose of Mebendazole for deworming by DOT.
  - diversified diet and 3 meals and a snack in between daily.
- Advise pregnant women on reduced energy expenditure, prevention of infections through personal hygiene and a clean environment.
- Encourage pregnant women to avoid harmful habits and use of medicines particularly during the first trimester unless advised by a health care provider.
- Health care providers should provide support to mothers for early initiation of breastfeeding within 1 hour after delivery and emphasize on exclusive breastfeeding up to 6 months of age.
- Advice pregnant women on use of family planning.
- HIV positive mothers should be advised to use condom for dual protection.

ELEMENT 3: Session 1.2.3 Individual Birth Plan (IBP) and Complications Preparedness

Learning objective
- Explain components of Individual Birth Plan and complication preparedness
- Discuss related performance standard(s) and verification criteria from the ANC QI tool

Individual Birth Plan and Complications Preparedness
Each pregnant woman must be assisted to develop an Individual Birth Plan (IBP) as part of birth preparedness because the complications can not be predicted. The plan includes:
• Reminding the woman on her EDD
• Identifying place of birth.
• Identifying someone to take care of her family in her absence.
• Preparing essential items necessary for a clean birth and warmth for both mother and baby such as khangas or vitenge.
• Identify at least two blood donors.
• Preparing transport or funds and any other available resources in case of emergency during labour.
• Identifying decision making family member to accompany the pregnant woman to the health facility.
• Helping the pregnant woman to recognize the importance of delivering in a health facility.

**Important questions about individual birth plan**

• Do you know your Expected Date of Delivery (EDD)?
• To which health facility would you like to deliver?
• Is there any skilled health service provider?
• Do you know signs and symptoms of labour?
• Have you prepared two people to donate blood for you if required?
- Did you prepare essential items/things needed during delivery?
- Who is the decision maker in your family?
- Who will accompany you to the health facility?
- Who will take care of your family in your absence?
- Do you know the danger signs and symptoms during pregnancy, labour, post partum period and the baby?
- To which health facility would you need to be transported if you develop a complication during pregnancy or labour?
- Where is it located?
- How far is it from your home?
- How long will it take to get there?
- Have you made this journey before?
- How will you get there?
- Is there any community transport in case of emergency?
- Have you identified the transport already?
- How much will it cost to reach there?
- How would you raise the funds for this

**I.B.P and complication preparedness plan!!**

- Making it safe for **BABY AND MOTHER**!
- Mother, prepare your **individual birth plan** now!
- And prepare for any emergency

**Summary**

- Each woman must be assisted to develop an Individual Birth Plan (IBP) as part of birth preparedness.
- Each pregnant woman she should know place to deliver and how to reach there.
- During all ANC visits, the health provider should establish with the client, the IBP areas that may require more clarification before the woman leaves the clinic.
- Client’s knowledge about danger signs is the basis for early detection and management of complications
ELEMENT 4: Session 1.2.4 Danger Signs and symptoms in the mother and the newborn

Learning objective
- Identify danger signs during pregnancy, labour, post partum, and in the newborn
- Discuss related performance standard(s) and verification criteria from the ANC QI tool

Danger Signs and symptoms during Pregnancy
Definition:
A danger sign is a feature experienced by the woman that indicates a life threatening condition in pregnancy that requires immediate action.

If any of these signs are noted, the pregnant woman must report to the health facility immediately:
- Lethargy, fatigue, breathlessness that could indicate severe anaemia or a haemoglobin of less than 8.5gm/dl or 60%
- Vaginal bleeding during pregnancy
- Severe headache and/or blurred vision which could indicate imminent eclampsia
- Blood pressure of 140/90 mmHg or more OR a systolic blood pressure rise of 30 mmHg or diastolic pressure rise of 15mmHg or more from the baseline blood pressure
  (Note: A Baseline blood pressure of a pregnant woman is any blood pressure taken before 20 weeks of gestational age. BP tends to be slightly low at 20 weeks due to vasodilatation effects of progestrone.)
- Loss of consciousness or convulsions
- Severe oedema (hands or face)
- Severe abdominal pain.
- Leaking of amniotic fluid from the vagina
- Foul-smelling vaginal discharge
- Fever, chills, vomiting which could indicate malaria
- Foetal malpresentation after 36 weeks
- Decreased or absent foetal movement
- Contractions before 37 completed weeks (premature labour).

Note: Every pregnant, delivering or postpartum woman is considered to be at risk of serious life threatening complications

Symptoms and Signs of normal labour
- Regular, progressive uterine contractions (pain in the lower abdomen that radiates to the lower back).
- Bloody mucous discharge from the vagina (show).
- Progressive effacement and dilatation of the cervix.

Note: The woman should go to the health facility immediately if she has any of these signs
Danger signs and symptoms during labour

- Vaginal bleeding
- Severe headache and/or blurred vision which could indicate imminent eclampsia
- Blood pressure of 140/90 mmHg or more OR a systolic blood pressure rise of 30 mmHg or diastolic pressure rise of 15 mmHg or more from the baseline blood pressure
- Loss of consciousness or convulsions
- Difficult breathing
- Rupture of the membranes in the early 1st stage of labour
- Cord prolapse
- Prolonged labour guided by use of partograph.
- Fever.

*Note: The woman should go to the health facility immediately if she has any of these signs*

Danger signs and symptoms during the postpartum period

- Blood pressure of 140/90 mmHg or more OR a systolic blood pressure rise of 30 mmHg or diastolic pressure rise of 15 mmHg or more from the baseline blood pressure
- Severe headache/blurred vision/fits (convulsions)
- Abnormal vaginal bleeding
- Placenta not delivered within one hour after delivery
- Difficulty breathing
- Fever
- Severe pain in abdomen or around vagina
- Breast or nipple pain; unable to breastfeed
- Foul vaginal discharge.

*Note: The woman should go to the health facility immediately if she has any of these signs*

Danger Signs and symptoms in the Newborn

- Difficult breathing
- Pitched cry and irritability.
- Difficult feeding (unable to suckle)
- Fits (convulsions) or loss of consciousness
- Blueness of lips, tongue or hands
- Hot to touch (hyperthermia) or cold to touch (hypothermia)
- Unable to pass urine and stool or both within 24 hours after delivery
- Low birth weight including prematurity.
- Bleeding from the cord

*Note: The woman should take the baby to the health facility immediately if he/she has any of these signs*
Summary Element 4
- Every pregnant, delivering or postpartum woman is considered to be at risk of serious life threatening complications
- Any woman who experiences any of the danger signs should be referred to the health facility for immediate action by a skilled health care provider
- Children with dangers signs should be sent to the health facility for immediate action

Element 5: Session 1.2.5 Focused ANC Visits and referral
Learning Objectives
- Describe focused ANC visits
- Explain referral and follow up of ANC client
- Discuss related performance standard(s) and verification criteria from the ANC quality improvement tool

Focused ANC Visits
It is recommends that each pregnant woman should make four antenatal clinic visits during her pregnancy, the first visit within the first trimester and three visits after quickening. Each pregnant woman should receive at least two doses of IPT after quickening.


(Quickening is the first noted movement of the fetus and usually occurs after 16 weeks of gestation)

It is recommended that:
- Women with normal pregnancy should receive at least 4 thorough, comprehensive, individualized antenatal visits, spread out during the entire pregnancy.
- Pregnant women with complications need more visits depending on individual condition.
- Early referral to appropriate level of care whenever a complication is detected should take place.

The minimum recommended number of ANC visits is four:
- 1\textsuperscript{st} visit: before 16 weeks of gestation
- 2\textsuperscript{nd} visit: from 20 to 24 weeks of gestation
- 3\textsuperscript{rd} visit: from 28 to 32 weeks of gestation
- 4\textsuperscript{th} visit: from 36 to 40 weeks of gestation

Note:
- All pregnant women attending ANC should be given services accordingly depending on the gestational age of the pregnancy.
- If a pregnant woman comes outside the scheduled visits she SHOULD NOT BE TURNED AWAY, but should be given the necessary services.
• Next appointment will depend on her condition and gestational age.
• A pregnant woman who has reached 36 weeks should be encouraged to come on a weekly basis thereafter, or whenever she has concerns or complications.

1st ANC Visit
During the first antenatal visit, the following services should be offered:
• History taking
• Detecting that the woman is pregnant and detecting diseases, other complications
• Beginning to develop the individualized birth plan and complication preparedness.
• Immunizations - Tetanus Toxoid (TT) vaccine according to schedule
• Counseling and testing for HIV status, syphilis, haemoglobin and other laboratory investigations
• Advice on the importance of using ITNs and give the ITN voucher.
• Screening, detecting and treating or referring conditions such as anaemia, syphilis and malaria.
• Give Iron and Folic acid tablets to cover up to the next visit to all pregnant women regardless of Hb status and explaining how to take and manage side effects
• Advise on dietary diversification i.e. meals containing protein, carbohydrates, vitamins, fats, minerals and water.
• Give single dose of Mebendazole/Albendazole (DOT) if the pregnancy is more than 12 weeks
• Advise on essential diet and nutrition, personal hygiene, clothing, family planning and prevention of STIs and HIV/AIDS etc.

If the service provider is not able to complete any of these functions because of shortages of ANC supplies, the provider should encourage the client to return when it is expected that the supplies will be available.

Note: Use Annex 3, 4 and 14

2nd and 3rd ANC Visits
During the second and third antenatal visit, the following services should be offered:
• Services provided during the first visit.
• SP as Intermittent Preventive Treatment (IPTp) given as DOT
  – 1st dose after quickening - after 16 weeks (2nd trimester) and
  – 2nd dose to be given during the 3rd trimester. The second dose should not be given less than 4 weeks from the first dose.

Note: 1st dose in 2nd trimester- after 16 weeks (between 16-28 weeks)
2nd dose in 3rd trimester- (between 28-40 weeks)
2nd dose should not be given less than 4 weeks from first dose
• Give single dose of Mebendazole/Albendazole (DOT) after 1\textsuperscript{st} trimester (if not given during the first visit)
• Confirm fetal heart sounds
• Detect, treat and manage any abnormalities such as multiple gestation, pre-eclampsia and anaemia
• Confirm lie of the foetus
• Remind about Individual Birth Plan and danger signs.

\textit{Note: Use Annex 4 and 14}

4\textsuperscript{th} ANC Visit

• Services provided during the first visit.
• Confirm whether the pregnant woman has received all services which should be provided in previous visits.
• Confirm lie and presentation of the fetus. In case of any mal-presentation take appropriate action.
• Detect, manage and refer any abnormalities such as multiple gestation, pre-eclampsia and anaemia.
• Remind the pregnant woman about the Individual Birth Plan, danger signs and complication preparedness.

\textit{Note: Use Annex 3, 4 and 14}

Before the pregnant woman leaves the clinic, ask her about the following questions and check on her ANC card:

• Have you been given iron and folic acid/Fefo tablets and explained how to take them?
• Have you taken Mebendazole/Albendazole (if due)?
• Have you taken SP (if due)?
• Have you been advised about the use of ITNs and given and ITN voucher?
• Do you sleep under a treated mosquito net (ITN)?
• Have you been advise on essential nutrition, personal hygiene, clothing and prevention of STIs and HIV/AIDS?
• Have you been advices on Family Planning?
• Have you been a return appointment for the next ANC visit?
• Do you know your expected date of delivery?
• Do you know the danger signs and symptoms for your self and your baby during pregnancy, labour and post partum period?
• Do you have your Individual Birth Plan (IBP)?
• Have you screed for syphilis?
• Has your haemoglobin been checked?
• Have you been advices on infant feeding?
• Have you been counseled and tested for HIV status?
• Do you know your general health status?

She’s ready to go!
Referral and Follow-up of ANC Client
Referral and follow-up should be given to pregnant women with complications.

- Preparation for referral include:
  - Equipment, drugs and supplies for emergency
  - Transport preparations
  - Skilled service provider
  - Family and community at large

- Pregnant woman who needs referral include:
  - Those with danger signs and symptoms or
  - Those with previous caesarean section
  - Those who have had neonatal death.
  - Those who are Rhesus factor negative (Rh-)
  - Those who get their first pregnancy after thirty five years of age.
  - Those who had delivered more than five times.
  - Those with abnormality of pelvic

Note: Community involvement is important to ensure prompt referral from household/community level to health facility

Expected Performance Standard
The health care provider evaluates the care given, plans the return visit with the pregnant woman and ensures proper filling of findings in the appropriate registers and cards.

Summary Element 5
- Minimum recommended number of ANC visits for a normal pregnancy is four. However, if a pregnant woman comes outside the scheduled visits she should not be sent away but should be given the necessary services.
- Use the “stop” questions to check whether the pregnant woman has received all necessary care before she leaves the clinic
- In case of any complications, early referral to the appropriate level of service delivery should take place.

ELEMENT 6: Session 1.2.6 Mother to Child Transmission (MTCT) of HIV

Learning Objectives
Explain the overview of HIV prevalence globally and in Tanzania
- Define Mother to Child Transmission (MTCT) and Prevention of Mother to Child Transmission (PMTCT) of HIV
- List factors increasing MTCT of HIV
- Explain strategies of PMTCT of HIV
- Discuss related performance standard and verification criteria from the ANC quality improvement tool.
Overview of HIV/AIDS
- Over the past two decades the world has experienced an HIV pandemic. Decreased immune system functions lead to opportunistic infections caused by bacteria, fungi and parasites.
- The number of people infected with HIV has progressively increased with devastating effects to individuals, families, community and national at large.
- It is estimated that worldwide nearly 5 million children are currently living with HIV/AIDS. Most of these are born to HIV positive mothers.

Overview of HIV/AIDS
- HIV prevalence in Tanzania is 7.7% Females, 6.3% males (NACP 2005)
- In Tanzania, HIV prevalence rate among pregnant women is around 8.2% (NACP 2006)
- The estimated average prevalence is about 8.7%. This means that without interventions and given the transmission rate of 40%, about 48,800 babies will be infected every year.

Mother to Child Transmission (MTCT) of HIV/AIDS

Definition:
- Mother to child transmission is the vertical transmission of HIV from an infected mother to her baby.
- MTCT is the main transmission route for HIV infection to babies and children.
- Without intervention MTCT is about 40% divided as follows:
  - 10% during pregnancy
  - 20% labour and delivery
  - 10% during breastfeeding.

Factors increasing chances of MTCT of HIV

Maternal Factors
- **Viral**
  High viral load e.g. in mothers with recent HIV infection or advanced disease/AIDS hence the use of ARV Prophylaxis/Treatment reduce viral load.
- **Immuno Suppression**
  Compromised immunological status such as when AIDS disease is advanced, leads to higher transmission rates.
- **Nutrition**
  Deficiency in micronutrients such as zinc and vitamin A is associated with increased transmission.
- **Clinical Status**
  AIDS and other chronic conditions such as diabetis or other underlying chronic infections.
- **Behavioural** - e.g. smoking, drug abuse and unprotected sex.
- **Obstetrical**
- Prolonged rupture of membranes (more than four hours)
- Placenta abruption with live baby
- Mode of delivery e.g. instrumental delivery like vacuum due to possible trauma
- Episiotomy at which, blood increases exposure of the newborn to the HIV.

Infant Factors
- Prematurity:
  - Due to fragile skin
  - Gastro intestinal tract ulceration
  - Undeveloped immune status of the new born
- Twin delivery – First twin is more at risk in cases of vaginal delivery.

Breastfeeding factors
- Mixed feeding – Giving other feeds e.g. water, juice, porridge, artificial milk etc. while breast-feeding.
- Prolonged breastfeeding for more than 6 months
- Breast conditions:
  - Infections such as mastitis
  - Cracked nipples
- High viral load in breast milk.

Elements of Prevention of Mother To Child Transmission (PMTCT) of HIV:
Definition
PMTCT elements refer to strategies/intervention used for prevention of the transmission of HIV from the infected woman to her baby. There are four elements to prevent the transmission of HIV from mother to child:

PMTCT Element One
Primary prevention of HIV infection among women of childbearing age and their partners
- Behaviour modification to reduce risk:
  - Abstinence
  - Be faithful
  - Condom use - consistently and correctly
  - Discourage practices that increase risk of transmission, e.g. female genital mutilation, wife inheritance, etc
  - Use of sterile instruments for invasive procedures
- Improved access to condoms
- Prevention, early diagnosis and proper treatment of STIs.

PMTCT Element Two
Prevention of unintended pregnancies among women infected with HIV
- Access to counselling and testing for women and their partners
- Effective family planning that provides dual protection of both pregnancy and HIV
- Access to safe and effective contraception including post-exposure contraception in case of rape (emergency contraception)

**PMTCT Element Three**
**Prevention of HIV transmission from HIV infected pregnant mothers to their infants**
For women who are already infected and pregnant, PMTCT programmes offer a range of services and interventions that reduce the risk of MTCT:

**Antenatal care:**
- Offer HIV counselling and testing to all pregnant mothers with same day results
- History and physical examination with emphasis on identification of opportunistic infections and clinical staging of HIV infection
- The use of prophylactic ARVs to reduce MTCT
- Counselling and support for infant feeding options.

**Modified obstetric care**
- Avoid
  - Artificial Rupture of Membranes (ARM)
  - Routine episiotomy
  - Vacuum, forceps delivery unless necessary
  - Routine suction for newborn
- Use of ARVs during labour and for the newborn.

**Providing Infant feeding options to HIV positive mother/couple**
- Exclusive breastfeeding for 6 months and abrupt weaning
- Modified breastfeeding
  - Early cessation of breastfeeding before 6 months
  - Heated expressed breast milk
- Exclusive Replacement feeding for 6 months if Affordable, Feasible, Accessible, Sustainable and Safe (AFASS) applies.
  - Commercial infant formula
  - Home modified animal’s milk.

**PMTCT Element Four**
**Provision of treatment, care and support to women infected with HIV and their partners, infants and families**

- Linkages between RCH services and community based programs for follow-up and ongoing health care
- Linkage to health programmes for special needs such as malaria, STIs, TB, care and treatment of HIV and AIDS
- Shared responsibility to build community teams.
Expected Performance Standard:
The health provider manages HIV positive woman according to the PMTCT national guidelines.

Summary Element 6
- The number of people infected with HIV has globally progressively increased with devastating effects.
- MTCT is the main transmission route for HIV infection to babies and children.
- Factors influencing MTCT are categorised under maternal, infant and breastfeeding.
- The recommendation is to integrate into RCH services the four strategies for prevention of Mother To Child Transmission.

ELEMENT 7: Session 1.2.7 Management of clients’ records

Learning Objectives
- Explain rationale for accurate record keeping
- Describe sources of ANC data
- Outline roles of health care providers in the management of ANC client’s records
- Discuss related performance standards and verification criteria from the ANC QI tool.

Rationale for accurate record keeping
- Planning clients’ care, enabling continuity of care over time
- Facilitating communication among health care workers at different levels and with community/clients
- Managing health services and making decisions at health facilities, district, regional and at national levels
- Measuring service uptake, provision of evidence-based practices by providers, and the health status of women and babies.

Sources of ANC Data
- Antenatal card (RCH card number 4)
- MTUHA Books:
  - Book 2: Health Facility Monthly Report
  - Book 3: Community Based Data
  - Book 4: Ledger (Control and Supplies)
  - Book 6: ANC Register
  - Book 10: Quarterly Health facility register
  - Book 12: Delivery Register
- Tally sheet form for TT and Vitamin A
- Other registers such as ITN vouchers and PMTCT registers
**Roles of ANC health care providers**

Ensure all record books are constantly available
- Prepare/update records regularly
- Ensure all data collection tools are recorded accurately, completely and stored properly.
- Review data periodically at staff meetings and make decisions based on the data

**Expected Performance Standard**

- The health care provider **evaluates the care given**, **plans the return visit** with the pregnant woman and ensures **proper recording of findings in the appropriate registers and cards**
- The clinic staff **records, summarizes and reports** data on maternal and child health on quarterly basis according to the standards, and analyzes and uses the information for **decision making purposes**

**Summary Element 7**

Proper management of ANC client records is important for the improvement of ANC services and for decision making
CHAPTER 2
MALARIA AND ANAEMIA IN PREGNANCY

SESSION 2.1: MALARIA IN PREGNANCY

Learning Objectives
- Describe malaria situation in Tanzania
- Explain facts about Malaria in Pregnancy (MIP)
- Explain why pregnant women are vulnerable to malaria
- Describe effects of MIP to the pregnant woman and the newborn
- Describe strategies to reduce morbidity and mortality from malaria in pregnancy
- Describe ways to prevent MIP
- Demonstrate ability on how to treat mosquito nets with insecticide

Malaria Situation in Tanzania
- 90% of malaria infections are caused by *Plasmodium falciparum* which has high morbidity and mortality rates
- Malaria is the number one cause of outpatient attendances at all health facilities
- About 1.7 million Tanzanian pregnant women are at risk of malaria each year
- Malaria accounts for over 30% of the national disease burden
- About 1.7 million Tanzanian pregnant women are at risk of malaria each year
- Malaria contributes to 20% of maternal deaths.
  *Note: Source: National Malaria Control Programme Report 2006*

Malaria in Pregnancy
- The malaria parasites hide in the placenta, therefore routine finger prick blood sample testing may not detect the parasites. The parasites may thus still be present and cause damage to the placenta and fetus.
- The parasites rarely pass into the blood circulation of the baby but can obstruct the passage of nutrients and oxygen to the unborn baby hence slowing down its normal growth.
- Initially malaria infection can occur without symptoms. Anaemia may be the only recognizable clinical feature.

Why Pregnant Women are More Vulnerable to Malaria
- The effects of malaria on pregnancy are dependent on the malaria epidemiology and the immunity of the women.
- There is a decline in immunity which is most pronounced in the first and second pregnancies and teenage pregnancies.
- Pregnant women tend to get malaria more easily than women who are not pregnant because of the loss of ability to fight malaria infection (low immunity).
• Low birth weight prevalence in primigravida adolescents is double that of adult primigravidae.

Effects of MIP

Malaria infection with P. falciparum during pregnancy results in a wide range of adverse consequences to the pregnant woman, the developing fetus and the newborn infant

Adverse consequences of malaria during pregnancy

<table>
<thead>
<tr>
<th>On the pregnant woman</th>
<th>On the foetus</th>
<th>On the newborn</th>
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<tbody>
<tr>
<td>• Anemia</td>
<td>• Abortion</td>
<td>• Low birth weight</td>
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<tr>
<td>• Hypoglycaemia</td>
<td>• Intrauterine growth-restriction</td>
<td>- Prematurely</td>
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<tr>
<td>• Cerebral malaria</td>
<td>• Stillbirth</td>
<td>- Growth retardation</td>
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<tr>
<td>• Febrile illness</td>
<td>• Congenital infection</td>
<td>• Congenital neonatal malaria</td>
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<tr>
<td>• Puerperal sepsis</td>
<td></td>
<td>• Death</td>
</tr>
<tr>
<td>• Death</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How to Reduce Morbidity and Mortality from Malaria in Pregnancy

• Intermittent Preventive Treatment (IPT) of malaria with Sulfadoxine/Pyrimethamine (SP)
• Preventing malaria transmission due to mosquito bites by using Insecticide Treated Nets (ITNs)
• Early diagnosis of malaria and prompt case management
• Quality focused ANC

What is SP?

• SP is a combination of two different drugs - Sulfadoxine and Pyrimethamine, which act synergistically.
• One tablet contains 500 mg of sulfadoxine and 25 mg of pyrimethamine.
• Fansidar® (SP) is the most common brand name, but other brands with the same medicine are: Falcidin®, Laridox®, Malostat®, Orodar®, and Metakelfin®.
• SP remains the drug of choice for IPTp even though it is no longer the first line drug for uncomplicated malaria treatment.

Note: Chloroquine remains the recommended drug of choice for chemoprophylaxis for pregnant women with sickle cell disease

Intermittent Preventive Treatment (IPTp)

• Intermittent Preventive Treatment (IPTp) is the administration of drug (medicine) therapy in full therapeutic doses at predetermined intervals during pregnancy even if individuals have no signs of malaria
• The aim of IPTp is to prevent the worst effects of malaria infection in pregnancy rather than to cure a potentially life-threatening illness.
• Women taking IPTp can still become sick with malaria
• IPTp is not chemoprophylaxis
• Currently SP is the drug of choice for IPTp.
• IPTp assumes that pregnant women in malarial areas are infected with malaria, therefore SP should be given to reduce the adverse effects of malaria.
• The recommended schedule for IPTp is: first dose to be given after quickening i.e. after 16 weeks of gestation (during the second trimester) and the second dose during the third trimester.
• The health provider should devise an individual schedule for the pregnant woman that ensures that IPT is given during the second and third trimester and the doses are not given less than 4 weeks apart.
• If a pregnant woman gets first dose of IPT after 16 weeks, (i.e. 2nd Trimester) the service provider should ensure that the second IPT dose is given in the third trimester. (i.e between 28-40 weeks)
• SP can be given at any point in pregnancy between 16 weeks and the last trimester as long as they are four weeks apart.
• Evidence shows that, if used as recommended, SP is safe and effective for both the pregnant woman and foetus.

Administering SP to pregnant woman during ANC Visits
• Always ask about allergy to sulfa drugs before giving SP
• In cases of known allergy to sulfa drugs and no available alternatives to SP for IPTp, the use of ITNs is strongly advised.
• Pregnant women should take SP with clean and safe drinking water, under Direct Observed Treatment (DOT) at the antenatal clinic.
• Infection Prevention measures should be adhered to (use clean cups for each client)
• If the pregnant woman vomits SP within 30 minutes, the dose should be repeated
• After giving SP record on the antenatal card and in the register MTUHA Book 6.
• Explain to the woman the importance of returning for the second dose, four weeks apart being the minimum period required.
• SP and tetanus toxoid may be given during the same visit.
• If malaria is confirmed any time after administration of IPTp with SP, a full treatment with antimalarials should be given according to the national guidelines.
Routine SP Dosage for IPTp

**FIRST DOSE**

Single dose of 3 tablets once after 16 weeks (2\textsuperscript{nd} trimester)

**SECOND DOSE**

Single dose of 3 tablets once during the 3\textsuperscript{rd} trimester (not less than 4 weeks after the first dose)

*SP can be given at any point in pregnancy between 20 weeks and last trimester as long as they are at least 4 weeks apart*

**SP! SP!**

Keeps the placenta parasite-free!
Steven-Johnson Syndrome (SJS)
Is a very rare hypersensitivity reaction due to SP and is characterized by severe itching of the skin, skin rashes, blisters, excoriation and dis-colouration that involves the mucus membranes

- Very rare condition occurring in about 1 in 100,000 people who use SP
- So far there is no test to discover a person who might get Steven-Johnson Syndrome before SP is given
- A pregnant woman with a history of allergy to sulphur containing drugs may be a good clue
- SJS has been associated with use of SP as a weekly prophylaxis.

Management of SJS
- Hospitalize the patient
- Give I.V. fluids preferably Ringer’s Lactate (Hartman’s) solution or normal saline
- Give steroids - containing antibiotic eye drops
- Give broad spectrum antibiotics
- Maintain hygiene and prevent infection
- Protect the patient under a mosquito net all the time
- Advise on nutrition and diversified diet.
- Avoid giving sulfa drugs in the future.
- Refer patient when necessary.

Insecticide Treated Nets
- Insecticide treated nets (ITN) prevent physical contact with mosquitoes through either killing or repelling them.
- Use of ITN is effective because mosquitoes usually bite at night when the client is asleep.
- ITN kill or repel other insects like: Lice, ticks, bedbugs and cockroaches

Advantages of ITNs
Reduce
- 38% of peripheral parasitemia
- 21% of anemia (Hb less than 11g/dl) of all causes
- 47% of anemia due of severe malaria
- 23% of presence of plasmodium in the placenta
- 28% low birth weight babies.
- The number of malaria episodes
- The frequency of abortion
ITNs contribute to increase in fetal development
How to Treat a Mosquito Net with Insecticide

• Make sure the net is clean, dry and unfolded
• When treating nets put on protective gloves.
• Avoid getting insecticide in your face
• Read the instructions on the insecticide packet, measure the amount of water and use the recommended insecticide for the net(s) to be treated
• Dip the clean and dry net into the solution and ensure that the net is evenly wet and no solution is left in the container
• Place the net to dry flat on a clean surface away from direct sunlight (e.g. on a bed, plastic sheet or empty grain sack)
• When the net is dry, hang it at the ceiling or support frame so that it covers the sleeping space to protect the person sleeping under the net
• Remember to re-treat the net(s) according to the insecticide manufacturer’s instructions
• Dispose insecticide container and gloves according to the manufacturer’s instructions and out of reach of children (e.g. in a pit latrine).

Summary

• Malaria is number one cause of outpatient attendances at all health facilities in Tanzania and it contributes to 20% of maternal deaths.
• Most pregnant women tend to get malaria more easily than women who are not pregnant because of the loss of ability to fight malaria infection (low immunity)
• Malaria infection in pregnancy results in adverse consequences to the woman, fetus and the newborn infant
• In order to reduce malaria in pregnancy, ITN, IPT and early diagnosis of malaria and prompt case management through quality focused ANC and community health education and promotion are recommended.

SESSION 2.2 CASE MANAGEMENT OF UNCOMPLICATED AND SEVERE MALARIA IN PREGNANCY

Learning Objective

• Describe management of uncomplicated and severe MIP
• Discuss the role of the community in the prevention and control of malaria in pregnancy.
• Discuss related performance standard and verification criteria from the ANC quality improvement tool

Symptoms and Signs of Uncomplicated Malaria

• Headache
• Fever
• Joint pains and malaise
• Poor appetite
• Nausea and/or Vomiting
• Diarrhoea
• Chest pain
• Pallor

*Note: Some patients may be asymptomatic*

**Case management of uncomplicated Malaria**

- Early diagnosis and effective management are important to prevent progression of uncomplicated to severe malaria or death
- Whenever malaria is suspected laboratory confirmation of the parasite should be performed
- Treatment should be commenced immediately if laboratory test is not possible based on clinical presentation
- A negative result does not exclude malaria infection
- Blood slide can be negative even if parasites are present, as they may be hidden in the placenta.

*Note: During the first trimester of pregnancy Oral Quinine should be used as drug of choice for treatment of uncomplicated malaria*

- Quinine is safe during pregnancy
- Artemether/Lumefantrine (ALu) **is not recommended in the first trimester.** However if quinine is not available and the patient is in danger then ALu tablets may still be used.

*Note: During second and third trimesters of pregnancy Artemether/Lumefantrine (ALu) should be used as drug of choice for treatment of uncomplicated malaria*

- ALu is an oral fixed combination tablet of 20 mg Artemether - a derivate of artemisinin, and 120 mg Lumefantrine.
- ALu has a rapid action against *P. falciparum* with clearance of the parasites from the blood within 2 days.
- Due to the long body elimination time of Lumefantrine (up to 10 days), ALu is not recommended to mothers who are breastfeeding children below 5 kgs.

**ALu Administration**

- The first dose of ALu should be administered at the health facility as DOT
- The second dose should be strictly given 8 hours after the first dose.
- Subsequent doses could be given twice daily (morning-evening) in the second and third day of treatment until completion of 6 doses.
- Give paracetamol tablets 1gram 6 hourly for three days to relieve pain and fever when giving ALu.

*Note:*
- If the drug is vomited or spat out within 30 minutes after administration, the dose should be repeated
- ALu should be taken with meals or drinks such as milk to enhance its absorption.
## ALu Administration

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>AGE</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 15 kg</td>
<td>3 months up to 3 years</td>
<td>☀️</td>
<td>☀️</td>
<td>☀️</td>
</tr>
<tr>
<td>15 - 25 kg</td>
<td>3 years up to 8 years</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
</tr>
<tr>
<td>25 - 35 kg</td>
<td>8 years up to 12 years</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
</tr>
<tr>
<td>35 kg and above</td>
<td>12 years and above</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
<td>☀️ ☀️</td>
</tr>
</tbody>
</table>

*First dose 0 hours
2nd dose strictly 8 hours after first dose
3rd dose 12 hours after 2nd dose and it must be taken in the morning.
3rd and 4th doses must be taken on the same day not less than 10 hours apart.
Side effects and contraindications of ALu

Side effects
- Incidence is low

Contraindications
- Patients with hypersensitivity to ALu

Not recommended
- 1st trimester of pregnancy
- Lactating mothers with a child below 5 kgs
- Children below 5 kgs body weight
- Patients with severe malaria.

Management of Failed response to malaria treatment with ALu
- If within 4 to 14 days after treatment with ALu a patient returns to you complaining of continued symptoms of malaria, a blood smear (and not RDT as does not reveal parasite count) should be examined. If malaria parasites are not found, other causes of symptoms should be investigated.
- If malaria parasites are present, this indicates drug failure. Quinine* should be started immediately with strict follow up after a full history and examination.
- Malaria cases should be followed up on the third day if symptoms persist or immediately if the condition worsens, and cases that fail to respond should be referred.

*Quinine tablets should be given for 7-10 days, at a dose of 10mg/kg every 8 hours

Health Education for pregnant women with Uncomplicated Malaria
Health education messages should focus on the following:
- Importance of compliance with medications (doses and schedule)
- When to return immediately (e.g. if fever remains high, there is excessive vomiting)
- Continue with food and fluid intake
- When to return for follow up
- Use of ITN and other protection measures
- Environmental sanitation.

Clinical Features of Severe Malaria in Pregnancy

Pregnant women infected with malaria are more likely to develop severe malaria. They commonly present with one or some of the following:
- High fever
- Severe headache
- Hyperparasitemia
- Low blood sugar
- Severe malarial anaemia
- Haemoglobinuria
- Cerebral malaria
- Pulmonary oedema.

Management of Severe Malaria in Pregnancy

Severe malaria is a medical emergency and demands early diagnosis based on a complete history, physical examination and blood smear/RDT

General Management:
- Clear and maintain the airway to ensure breathing
- Place the patient in semi-prone position or on her side
- Take vital signs (pulse rate, respiration, blood pressure and temperature)
- Take blood slide for malaria parasites in order to initiate immediate treatment (do not wait for results)
- Take blood for urgent Hb estimation and blood for sugar if possible.

Injectable Quinine is the drug of choice for treatment of severe malaria during pregnancy.
- Quinine does not cause abortion at therapeutic doses
- Severe malaria can cause abortion or premature delivery
- Give quinine injection without delay
- Hypoglycaemia is a common problem in severe malaria. Use of quinine may worsen the condition. Therefore, give 5ml/kg of 10% dextrose solution as bolus, OR give 2.5 ml/kg of 25% dextrose as bolus, OR give 50ml of water by mixing 20 gm of sugar (4-level teaspoons) with 200 ml of safe water. Give glucose solution ORALLY or by naso-gastric tube if unconscious.

Intra-muscular (IM) Quinine:
If administration of IV Quinine is not possible, Quinine can be administered intramuscularly after appropriate dilution.
- Use Quinine dihydrochloride injection (300 mg/ml)
- Give a dose of 10 mg of salt/kg bodyweight (maximum 600 mg) every 8 hours until the patient is able to take oral therapy.
- Dilute in four-fold of water for injection or normal-saline (1:4) to a concentration of 60 mg/ml

Note: Give paracetamol tablets 1 gram 6 hourly for 3 days.
Dilution of quinine for intra-muscular (IM) use:

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Weight (kg)</th>
<th>Volume undiluted quinine sol. in ml (300 mg/ml)</th>
<th>Volume diluent in ml (to add To each dose)</th>
<th>Total volume diluted quinine solution in ml (60 mg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 up to 14 years</td>
<td>36 up to 50</td>
<td>1.4 ml</td>
<td>5.6 ml</td>
<td>7.0 ml</td>
</tr>
<tr>
<td>14 up to 16 years</td>
<td>50 up to 60</td>
<td>1.8 ml</td>
<td>7.2 ml</td>
<td>9.0 ml</td>
</tr>
<tr>
<td>16 and above</td>
<td>Over 60</td>
<td>2.0 ml</td>
<td>8.0 ml</td>
<td>10.0 ml</td>
</tr>
</tbody>
</table>

The calculated dose should be divided into two halves and then administered by deep IM preferably into the anterior-lateral thighs (one injection on each side). If no improvement refer the patient.

Administration of intravenous (IV) Quinine
- Quinine dihydrochloride salt 10 mg/kg weight
- Diluted in 5-10 ml/kg weight of 5% dextrose
- Infused over a period of 4 hours, rest for 4 hours, but keep the IV line open, then continue with IV Quinine until the patient is able to take orally
- Change to Quinine tablets 10 mg/kg every 8 hours to complete 7 days of treatment or if not in 1st trimester give full course of ALu to complete treatment (ALu administration should be started 12 hours after the last dose of quinine)
- Also give 1 gram of paracetamol tablets 6 hourly for 3 days to lower fever and relieve headache/pain
- Administration of I/V Quinine may cause hypoglycaemia, therefore close monitoring is vital
- Refer the patient if necessary.

The **drop rate** is calculated as follows:
- Drop rate per minute =

\[
\frac{\text{amount of fluid to be infused (in ml)} \times 20 \text{ (drop factor)}}{\text{time period to be infused (in minutes)}}
\]

Note:
- It is important to monitor the rate of Infusion because Quinine if allowed to run too rapidly may cause hypotension and hypoglycaemia may develop.
- On the other hand if the Infusion is too slow, inadequate blood levels of the drug may be achieved.

Dilution schedule and drop rate for intravenous Quinine administration
<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Weight (kg)</th>
<th>Quinine dose</th>
<th>Volume of undiluted quinine solution (300mg/ml)</th>
<th>Amount of fluid to be infused (in 4 hours)</th>
<th>Drop rate per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 up to 4 months</td>
<td>4 up to 6 kg</td>
<td>60 mg</td>
<td>0.2 ml</td>
<td>50 ml</td>
<td>4 drops</td>
</tr>
<tr>
<td>4 up to 9 months</td>
<td>6 up to 8 kg</td>
<td>90 mg</td>
<td>0.3 ml</td>
<td>100 ml</td>
<td>8 drops</td>
</tr>
<tr>
<td>9 up to 12 months</td>
<td>8 up to 10 kg</td>
<td>120 mg</td>
<td>0.4 ml</td>
<td>100 ml</td>
<td>8 drops</td>
</tr>
<tr>
<td>12 up to 3 yrs</td>
<td>10 up to 14 kg</td>
<td>150 mg</td>
<td>0.5 ml</td>
<td>100 ml</td>
<td>8 drops</td>
</tr>
<tr>
<td>3 up to 5</td>
<td>15 up to 19 kg</td>
<td>180 mg</td>
<td>0.6 ml</td>
<td>150 ml</td>
<td>13 drops</td>
</tr>
<tr>
<td>5 up to 8</td>
<td>19 up to 25 kg</td>
<td>210 mg</td>
<td>0.7 ml</td>
<td>200 ml</td>
<td>17 drops</td>
</tr>
<tr>
<td>8 up to 12</td>
<td>25 up to 36 kg</td>
<td>300 mg</td>
<td>1.0 ml</td>
<td>250 ml</td>
<td>21 drops</td>
</tr>
<tr>
<td>12 up to 14</td>
<td>36 up to 50 kg</td>
<td>420 mg</td>
<td>1.4 ml</td>
<td>350 ml</td>
<td>30 drops</td>
</tr>
<tr>
<td>14 up to 16</td>
<td>50 up to 60 kg</td>
<td>540 mg</td>
<td>1.8 ml</td>
<td>500 ml</td>
<td>42 drops</td>
</tr>
<tr>
<td>16 and above</td>
<td>60 kg and above</td>
<td>600 mg</td>
<td>2.0 ml</td>
<td>500 ml</td>
<td>42 drops</td>
</tr>
</tbody>
</table>

Note: Quinine drip (Infusions) should be discontinued as soon as the patient is able to take oral quinine medication. Patients should be properly instructed to complete the 7-day treatment. Alternatively, a full course of ALu may be administered to complete treatment.

**Management of failed response to quinine therapy**

**Failed response to quinine therapy should be suspected if there is:**
- Persistence of clinical features of severe malaria
- Failure of clearance of parasites after 5 days of treatment
- Other possible causes of illness which have not been investigated.

Note: Patients with malaria who have not responded to quinine therapy should be given parenteral Artemether 3.2mg/kg weight (loading dose) IM followed by 1.6mg/kg weight daily for 6 days.

**Health Education for Women with Severe Malaria**

Health education messages should focus on the following:
- If malaria symptoms persist after taking right dose of quinine therapy the patient might be having non response to the treatment. The patient MUST thus go to a higher level of care for re-evaluation and further management.
- Advise on the use of ITNs
- Advise on environmental sanitation and Indoor Residual Spray (IRS) to control mosquitoes.
- Advise pregnant women, family members and other support persons to seek early treatment when they feel sick.
- Continue with food and fluid intake.
- Importance of compliance to finish the dose.

**The Role of the Community in Prevention and Control of Malaria**
The role of the community includes community mobilization for:

- Early first attendance to ANC clinics as soon as the woman realizes that she is pregnant preferably before 16 weeks
- Health seeking behaviour for early diagnosis and adequate treatment in case of sickness
- Use of ITNs especially among pregnant women and children under five years of age
- Use of IPTp among pregnant women
- Village Health Workers (VHW) to follow-up agreed upon interventions in a village
- Healthy eating habits particularly during pregnancy
- Closing windows and doors before dark
- Use of mosquito gauze to windows and doors
- Environmental sanitation to reduce mosquito breeding places.

Review: How can we control malaria in pregnancy?

**Expected Performance Standards**

The health care provider manages uncomplicated and severe malaria according to the national guides

**Summary**

- Pregnant women with uncomplicated malaria are likely to develop severe malaria.
- Early diagnosis and effective case management of malaria are crucial in preventing the progression to severe disease and death.
- Treatment should be commenced immediately based on clinical presentation if laboratory test is not possible
• During the first trimester of pregnancy *Oral Quinine* should be used as drug of choice for treatment of uncomplicated malaria
• During second and third trimesters *Artemether/Lumefantrine (ALu)* should be used as drug of choice for treatment of uncomplicated malaria
• Injectable Quinine (IM/IV) is the drug of choice for treatment of severe malaria during pregnancy.
• Hypoglycaemia is a common problem in severe malaria. Use of quinine may worsen the condition.
• The role of the community is key in malaria control.

SESSION 2.3 ANAEMIA IN PREGNANCY

Learning Objectives
• Give an overview of anaemia in pregnancy
• Define anaemia in pregnancy
• Identify main causes of anaemia in pregnancy
• Describe symptoms and signs of anaemia in pregnancy
• Describe clinical management of anaemia in pregnancy
• Describe preventive measures for anaemia in pregnancy.
• Discuss related performance standard and verification criteria from the ANC quality improvement tool

Overview of Anaemia in Pregnancy
• In Tanzania, the prevalence of anaemia in pregnancy is about 58%, ranging from 23% in areas of low malaria transmission to 82% in areas of high transmission (*TDHS 2004/05*)
• In primigravidae and teenage pregnancy malaria is a major cause of anaemia
• MIP worsens pre-existing anaemia
• Anaemia increases the risk of maternal mortality, especially in the face of complications such as abortion and hemorrhage
• Anaemia can also contribute to low birth weight and stillbirth.

Anaemia in Pregnancy

Definition
Reduction of red blood cells or haemoglobin concentration or both below the normal range
• A pregnant woman with Hb less than 11g/dl or haemotocrit less than 33% is considered anaemic
• There are two major classifications
  - Mild to Moderate anaemia: 7 – 11g/dl
  - Severe anaemia: less than 7g/dl

*Note: Converting gm per dl to %, multiply g/dl by 7.(gm x 7 =%)*
  *Converting % into gm per dl, divide % by 7.(%/7 = g/dl)*

Causes of Anaemia in Pregnancy
• Infections e.g. Malaria, HIV/AIDS and TB
• Infestations e.g. Hookworm and schistosomiasis
• Nutritional - Iron and folate/folic acid deficiency (due to poor dietary intake, and increased demand due to pregnancy)
• Short birth intervals (less than 3 years)
• Blood disorders e.g. sickle cell and leukaemia.

Three Approaches in Solving Maternal Anaemia
• Detection
• Clinical Management
• Prevention

Clinical features of Anaemia in Pregnancy
• Impaired transportation of Oxygen leads to symptoms and signs of tissue hypoxia:
  – Body weakness and fatigue (feeling tired)
  – Dizziness, light headedness, lack of concentration
  – ‘Pins & needles’ i.e. pinches in the skin
  – Leg cramps (muscle pain in the legs)
  – Angina pectoris (pain in the chest).
• Blood redistribution from tissue with low oxygen requirement (skin, mucous membrane, kidneys) to those with high oxygen requirement (brain, heart). Hence, paleness of conjunctiva, lips, tongue, palms, nail beds, and soles.
• Increased cardiac activity leading to:
  – Tachycardia, palpitation and pounding pulse
  – Shortness of breath on exertion
  – Prominence of neck veins (Jugular veins)
  – Cardiac enlargement
  – Severe oedema of lower limbs, this being sign of congestive cardiac failure. Congestive cardiac failure may lead to death.

Other Symptoms and Signs
• Loss of appetite
• Pica - desire to eat non-nutritive substances for example eating soil (geophagia)
• Dysphagia - difficulty in swallowing
• Koilonychia - spoon - shaped finger nails.
Ask These Questions to Rule Out Anaemia

- Do you feel dizziness that stops you from walking?
- Do you feel tired when walking?
- Do you experience any awareness of your heart beats? (palpitations)
- Do you have buzzing in the ears?
- Do your legs feel heavy and swollen?

*Note: If the answer is yes for any of the above questions check Hb or REFER.*

Management of Anaemia in Pregnancy

**Mild to Moderate anaemia (7-11g/dl):**
- Find and treat the cause of anaemia
- Give the following drugs:
  - Ferrous sulphate 200 mg three times a day
  - Folic acid 5 mg daily
  - Antihelminthics: Mebendazole/albendazole 500 mg (DOT) once after the first trimester

*Note: Treat schistosomiasis after delivery.*

**Severe Anaemia (less than 7g/dl):**
- At dispensary/health centre level where blood transfusion services are not available, give pre-referral treatment (diuretics – frusemide) then refer to hospital accompanied by blood donors
- At hospital level
  - Before 36 weeks if the patient is not in heart failure the treatment should be as for mild to moderate anaemia
  - After 36 weeks whether in heart failure or not, blood transfusion is required **before the woman goes into labour.** This is due to shunting of blood from the placental bed into the general circulation which can precipitate heart failure.

**Therefore:**
- Admit the patient
- Treat as severe malaria
- Also Treat other possible causes
- Prop up the patient with pillow or clothing
- Administer oxygen
- Take blood for grouping and cross matching
- Give blood transfusion (preferably packed red blood cells)
- Continue with ferrous sulphate and folic acid up to 3 months after delivery
- Follow up patient every 14 days until Hb reaches 11g/dl.

**Prevention of Anaemia in Pregnancy**

- Give combined ferrous sulphate 200mg plus folic acid 0.25 mg (FeFol) once daily throughout pregnancy or
- If uncombined give Ferrous sulphate 200mg plus folic acid 1mg once daily throughout pregnancy

♦ **How to take iron tablets**
  - Take between meals or before going to bed
  - Take tablets with a little water or juice
  - Do not take tablets with tea or coffee as they inhibit iron absorption

♦ **Side effects that sometimes occur when taking iron tablets**
  - Nausea
  - Constipation
  - Black stools
  - Upset stomach

*Note: These side effects are not serious and should subside in a few days.*

- Two doses of IPTp as recommended
- Early detection of anaemia by Hb estimation
- Proper use of latrine
- De-worming after the first trimester
- Treatment of any underlying condition
- All pregnant women should be advised to take diversified diet and promote use of food rich in iron which are locally available.
- Advise the woman on personal malaria protection using ITN
- Advise on family planning
Expected Performance Standard
The health care provider manages moderate and severe anemia according to the national guidelines

Summary
• Malaria is one of the main contributors to anaemia in pregnancy.
• Anaemia is associated with higher maternal mortality from other life-threatening complications like APH and post partum hemorrhage.
• Anaemia contributes to low birth weight and stillbirth.
• Effective treatment of anaemia and any other life threatening conditions like Ante Partum Hemorrhage (APH) and Post Partum Haemorrhage (PPH) is important in reducing morbidity and mortality.

Are We Together?

What are the:
• Measures to prevent maternal anaemia?
• Measures to detect maternal anaemia?
• Measures that will improve treatment of maternal anaemia?

YES, We Are Together!
CHAPTER 3.0
SYMPHILIS IN PREGNANCY

SESSION 3.1 SYMPHILIS IN PREGNANCY

Learning Objectives
• Explain overview of syphilis in Tanzania
• Describe the different modes of transmission and factors associated with the risk of syphilis in pregnancy
• Describe the symptoms and signs of syphilis according to the different stages
• Describe the effects of syphilis in pregnancy
• Describe laboratory investigations during pregnancy
• Describe management of syphilis during pregnancy
• Discuss related performance standard and verification criteria from the ANC quality improvement tool

Overview of Syphilis
• Syphilis is one of the Sexually Transmitted Infections (STIs). It causes considerable morbidity and is known to facilitate sexual transmission of Human Immunodeficiency Virus (HIV).
• The prevalence of syphilis in Tanzania is 6.7% within 15 regions of Tanzania Mainland (Surveillance Report of HIV and Syphilis Infections Among Antenatal Clinic Attendees 2005/2006).
• A community-based randomized intervention trial was done in a rural area of Mwanza region of Tanzania to evaluate the impact of improved sexually transmitted infection (STI) case management at primary health care level on the incidence of HIV infection. It was concluded that improved STIs treatment reduced HIV incidence by about 40% in that rural population. (Impact of improved treatment of STIs on HIV infection in rural Tanzania: randomized control trial, Lancet 1995;346:530-36)
• It is recommended that each pregnant woman has to have a syphilis test on booking, and if test result is positive, treatment should be given to her, partner(s) and the newborn.

Definition and mode of transmission
Definition: Syphilis is a disease caused by a spirochaete called *Treponema Pallidum*.

Mode of Transmission
• Predominantly through unprotected sex with an infected partner
• Mother to child transmission during pregnancy
• Transfusion of unsafe blood
• Contact with infected body fluids

Note: Syphilis can be passed from the mother to the foetus, sexual partner and blood recipients at all stages of infection whether symptomatic or asymptomatic

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Factors Associated with an increased Risk of Syphilis

History of:
• Genital ulcer syndrome or disease
• Multiple sexual partners
• Unsafe sex practices
• Unsafe blood transfusion.

Symptoms and Signs of Syphilis
Symptoms and signs of syphilis vary according to the stage of the disease. There are three main stages of syphilis infection:
• Primary Syphilis
• Secondary Syphilis
• Tertiary Syphilis.

Primary Syphilis
This occurs within a week to 3 months of initial infection and manifests itself as a hard non-painful ulcer (chancre), which appears at site of entry of the causative organism. Common sites for the ulcer are genital parts but may also appear on other parts of the body like the anus and mouth depending on the type of sex practiced.

Secondary Syphilis
Secondary syphilis occurs approximately 3 months up to 2 years of untreated or partially treated initial (primary) infection. By then, the initial lesions may have healed on their own. It may present as:
- Non-itching symmetrical skin rash on the body, limbs, palms and soles
- Cracked lining of the mouth and genitals (Rhagades)
- Enlarged rubbery and painless lymph nodes in the armpits and groins
- Raised, flat, moist and soft lesions of the mucosa surfaces of the mouth, vulva and anus (condylomata lata)

Note: Both primary and secondary syphilis are very infectious. In some cases the two stages may overlap

Tertiary Syphilis
Tertiary syphilis may remain asymptomatic for many years after initial infection (10 to 15 years) and it results from untreated or partially treated primary and/or secondary syphilis. During the asymptomatic period, the organisms in the body cause progressive tissue destruction and may present in different forms as follows:
- Systemic manifestations such as fever, malaise, anæmia and weight loss,
- Localized lesions (Gumma) on the heart, blood vessels leading to aneurisms and central nervous system leading to psychosis. Gumma can also occur on labia and glans penis
- Liver, eyes and kidneys may be affected
- Patchy hair loss on the scalp (Alopecia)
**Effects of Syphilis in Pregnancy**
Untreated or partially treated maternal syphilis may lead to several dangerous effects on the pregnant woman, foetus and new born.

**The effects of syphilis in pregnancy include:**
- Intrauterine foetal deaths (still births)
- Abortion (once or recurrent)
- Premature deliveries
- Congenital Syphilis
- Low birth weight
- Infant deaths

*Note: In our settings the greatest adverse effect of untreated or partially treated Syphilis in pregnancy is stillbirths*

**Congenital Syphilis**
- It is a serious disfiguring and debilitating condition. It occurs approximately in one-third of newborns of mothers with untreated or partially treated syphilis infection
- The infected child may have no symptoms at birth and therefore congenital syphilis may not be diagnosed until weeks or months later
- Congenital syphilis may manifest itself in two forms:
  - Early: symptoms and signs occur within the first two years of life
  - Late: symptoms and signs occur after the first two years of life
- Diagnosis of congenital syphilis needs a high index of suspicion of symptoms and signs shown in the table below.

**Symptoms and Signs of Congenital Syphilis**

<table>
<thead>
<tr>
<th>Early congenital Syphilis:</th>
<th>Late congenital Syphilis:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaundice</td>
<td>Malformations (stigmata) such as chondritis/osteitis of the facial, skull bones and lower limbs</td>
</tr>
<tr>
<td>Hepatosplenomegaly</td>
<td>Hutchison’s teeth (notched upper and lower incisors)</td>
</tr>
<tr>
<td>Syphilitic rhinitis (running nose mixed with blood)</td>
<td>Inflammatory lesions leading to keratitis, deafness and clutton joints in adolescents</td>
</tr>
<tr>
<td>Skin eruptions such palmar and plantar bullae</td>
<td>Palatal deformities</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>Neurosyphilis (auditory and optic symptoms, cranial nerve palsies)</td>
</tr>
<tr>
<td>Meningeal irritation</td>
<td>Nasal septal perforation and collapse of nose.</td>
</tr>
<tr>
<td>Failure to thrive</td>
<td>Anaemia due to cold agglutinins</td>
</tr>
<tr>
<td>Epitrochlea lymphnode enlargement</td>
<td></td>
</tr>
<tr>
<td>Pseudo paralysis</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Diagnosis and treatment of syphilis should be done very early in pregnancy*
Summary
• Syphilis is one of the Sexually Transmitted Infections. It causes considerable morbidity and is known to facilitate sexual transmission of Human Immunodeficiency Virus (HIV).
• Untreated or partially treated maternal syphilis may lead to several dangerous effects on pregnant woman, foetus and new born.

SESSION 3.2 LABORATORY INVESTIGATIONS

Learning Objectives:
• Describe the different types of laboratory investigations used to diagnose syphilis
• Provide pre test information and post test counsel mother and her partner for syphilis screening and treatment
• Demonstrate ability to perform RPR test
• Discuss related performance standard and verification criteria from the ANC quality tool

Laboratory Investigations
There are two main categories of laboratory tests for syphilis in Tanzania:
- Non-treponemal antigen tests
- Treponemal antibody tests
These tests do not detect the causative organism but detect antibodies against the spirochaete.

Non-treponemal Antigen Tests (Non specific)
• These tests are used for screening purposes only. The tests include:
  - VDRL (Venereal Disease Research Laboratory)
  - RPR (Rapid Plasma Reagin)
• RPR is an improved and simplified version of VDRL. Currently, RPR is the commonly used test and is recommended because it is affordable and easy to use.
• Both the VDRL and RPR tests have their limitations.
  - They may give false positive results in the presence of other diseases such as malaria, leprosy, systemic lupus erythematosus and typhoid.
  - They are ‘non specific’ tests.
  - Both tests may remain positive for many months to years despite adequate treatment hence documenting treatment against syphilis on the Antenatal Card (RCH Card No. 4) is very important for future references.
**Treponemal Antibody Tests**

- These tests are usually carried out to confirm a positive result by a screening test (confirmatory tests).
- The appropriate use of the test is in situations where there is uncertainty on the screening test results e.g. biologic false positive tests (BFP) and positive syphilis test despite previous history of adequate and complete treatment.
- Are used in diagnosing congenital syphilis.
- The confirmatory tests include:
  - TPHA – Treponema Pallidum Haemagglutination Assay
  - FTA– ABS (Fluorescent Treponemal Antibody Absorbed)
- The tests are available at the regional and consultant hospitals.

*Note: Treponemal specific tests remain positive for the rest of one’s life*

**Performing RPR Test**

To perform this test refer to the testing checklist Annex 12

*Note:*
- *The reagents for syphilis tests should be used at room temperature and returned to refrigerator at the end of the day*
- *The procedure for testing should be according to the manufacturer’s instructions*

**Quality Assurance for Syphilis Screening**

- Re-test every tenth sample in the district laboratory to compare the test results.
- District laboratory technicians should supervise ANC on quarterly basis to ensure the quality of the RPR tests.

**Counseling for Syphilis Screening**

Counseling for syphilis should be done before and after screening.

**Pre test counseling**

- Prepare the pregnant woman for the counseling session
- The pre counseling should focus on:
  - What is syphilis
  - Modes of transmission
  - Symptoms and signs
  - Importance of screening
  - Waiting for the results
  - Effects of the disease to her and the foetus if not properly treated
  - Partner notification.

**Post test counseling**

- **If the screening test is positive:**
  - Importance of treating the pregnant woman and her partner (s)
  - Importance of compliance to treatment
The fact that RPR may remain reactive for 6 months to one year despite proper treatment
Safe sex to avoid re-infection

• **If the screening test is negative:**
  – Emphasize on safe sex to avoid infection.

**Summary**
- Each pregnant woman has to have a syphilis test on booking, and if test result is positive, treatment should be given to her, partner(s) and the newborn.
- Counseling for syphilis should be done before and after Screening. In both cases; positive and negative results, respective clients should be on advised on safe sex to avoid infection and or re-infection
- Both tests may remain positive for many months to years despite adequate treatment hence documenting treatment against syphilis on Antenatal card (RCH Card No. 4) is very important for future references.

**SESSION 3.3 TREATMENT, MANAGEMENT AND REFERRAL OF A PREGNANT WOMAN WITH SYPHILIS**

**Learning Objectives:**
- Describe the treatment of syphilis, follow-up and referral
- Describe treatment of allergic reaction to Penicillin
- Describe prevention and control of syphilis
- Discuss related performance standard and verification criteria from the ANC quality improvement tool

**Treatment of Syphilis:**

**Pregnant woman and her partner(s)**
- Treat all pregnant women who are reactive to RPR/VDRL and their partners with a single dose of Benzathine penicillin 2.4 MU intramuscularly. (This dose is given as two divided dose on each buttock)
- If there are clinical reasons to suspect that the patient has tertiary syphilis, give a second and third dose of Benzathine Penicillin 2.4 MU stat, seven days apart.
- In patients who are allergic to Penicillin, give Erythromycin tablets 500 mg 6 hourly for 15 days.
- For suspected tertiary syphilis in patients who are allergic to Penicillin, give Erythromycin tablets 500 mg 6 hourly for 30 days
- In patients who are allergic to Penicillin, give Erythromycin tablets 500 mg 6 hourly for 15 days.
- For suspected tertiary syphilis in patients who are allergic to Penicillin, give Erythromycin tablets 500 mg 6 hourly for 30 days

**Note:**
- Do NOT give Tetracycline or Doxycycline to pregnant women as they are contraindicated.
- Contact tracing is very important!

New born
- All infants born with clinical evidence of congenital syphilis or those who develop the symptoms and signs later need to be monitored closely (The baby must be admitted) and treated with:
  - Procaine Benzyl penicillin 50,000 IU/kg by intramuscular injection, as a single daily dose for 10 days
  OR
  - Crystalline penicillin 100,000 IU/kg/day administered as 50,000 IU/kg/dose IV every 12 hours (twice a day), during the first 7 days and thereafter for a total of 10 days.
  OR
  - Benzathine benzylpenicillin 50,000 IU/kg of body weight, intramuscularly, in a single dose.
- All infants born to mothers with syphilis should have treatment against syphilis with Benzathine Penicillin 50,000 IU/kg body weight as a single dose regardless of whether the mother had treatment or not during ANC.

- For babies who are allergic to penicillin, give Erythromycin syrup 7.5 - 12.5 mg per kg orally 4 times daily for 30 days.

  Note:
  - There is no need to test the baby because it is not useful in the management
  - Babies need to be examined for signs of syphilis at birth and monthly when attending under five clinics

Management of Allergic Reactions to Penicillin
- The reaction is characterized by acute anxiety, profuse sweating, a body rash and collapse. Treatment should be started when any of these symptoms occur
- Every clinic that provides penicillin must be equipped to handle cases that may develop anaphylactic reaction.
- The clinics should have resuscitation kit containing Adrenalin, Hydrocortisone, Infusion fluids (normal saline or Ringer’s lactate), giving sets, syringes and cannula.

  Note: Any delay in recognition or diagnosis of the allergic reaction and lack of prompt treatment may lead to death

If a reaction occurs, immediately do the following:
- Inject Adrenalin 0.5 – 1mg (IM) repeated every 15 minutes until improvement occurs
- Lie the patient flat and elevate the legs
- Restore the blood pressure with a fast IV infusion of normal saline or ringers lactate
• Inject hydrocortisone 200mg IV every 6 hours for 24 hours. This will prevent further deterioration
• Give oxygen 4 – 6 liters per minute if available

**Jarisch-Hexheimer Reaction**
• This is a syndrome characterized by sweating, tachycardia, headache and hypotension due to endotoxins released by the dying Treponema Pallidum following treatment with penicillin
• The syndrome manifests within 12 – 24 hour post-treatment

**Management**
• Admit the mother and treat as in allergic reaction to Penicillin.
• The syndrome can cause pre-mature labour and foetal distress.

**Follow-up and Referral**
• A pregnant woman with primary syphilis should return 7 days after treatment for follow-up.
• A pregnant woman with tertiary or unknown duration of syphilis should come for follow up in 3 consecutive weeks to have three injections of Benzathine Penicillin as indicated in the treatment schedule.
• Repetition of RPR test after adequate treatment is not necessary.
• Pregnant women found to have syphilis should be counseled to undergo testing for HIV.
• Ensure the sexual contact(s) is traced, counseled and appropriate treatment is offered.
• In situations where there is uncertainty about the result of a positive test, treat mother or refer for confirmatory test.
• Mothers who missed a syphilis test during pregnancy should be tested during the post natal visits and if positive, mothers and their babies should be treated.

**Prevention and Control**
• Promote community awareness on syphilis and its effects and that interventions against syphilis are available
• Promote early ANC clinic attendances by all pregnant women
• Screen all pregnant women for syphilis, who come to antenatal clinic at first visit and offer appropriate and timely treatment
• Screen all those who were not screened at first visit and treat them accordingly
• Contact tracing
• Screen for other STIs and treat them accordingly
• Promote Abstinence, Be faithful and Condom use (ABC) model of HIV prevention
• Document results and treatment offered in the antenatal card and other registers.
Expected Performance Standard
The health care provider manages Syphilis of all stages according to the national guidelines

Summary
• Early detection of syphilis, proper counseling and treatment are key components to decrease the progression of the disease and its complications.
• Mothers who missed a syphilis test during pregnancy should be tested during the post natal visits and if positive, mothers and their babies should be treated.
CHAPTER 4.0 ANC QUALITY IMPROVEMENT

SESSION 4.1 INFECTION PREVENTION AND CONTROL AND LOGISTIC MANAGEMENT

Learning Objectives
• Define the term standard precautions
• Identify components of standard precautions
• Describe IP practices related to ANC services
• Demonstrate IP practices related to ANC
• Describe shortly the ordering of supplies and equipments
• Discuss related performance standard(s) and verification criteria from the ANC quality improvement tool.

Standard Precautions

Definition
These are simple effective practice guidelines aimed at creating a physical, mechanical and/or chemical barrier to protect health care workers and patients/clients from infection with wide range of pathogens including blood-borne pathogens.

Standard Precaution components
• Hand hygiene such as hand washing and alcohol hand rub
• Use of personal protective equipment (PPE)
• Handling of sharps including injection safety
• Processing instruments
• Healthcare waste management
• Traffic flow and activity pattern
• House keeping.

Note Consider every person as potentially infectious and susceptible to infection

IP Practices: Hand Hygiene
Hand hygiene includes care of hands, nails, skin, and the use of lotions and surgical scrub. Hand hygiene can be accomplished by:
• Hand washing with soap and running water
• Use of antiseptic agent
• Surgical hand scrub
• Antiseptic hand rub using a waterless, alcohol-based antiseptic agent.
  – More effective than hand washing in visibly clean hands.
Hand Washing
Definition:
Is a process of mechanical removal of soil, debris and organisms from the skin using plain water and soap.
*Note: Hand washing is the single most important procedure in preventing infection.*

Hand washing must be done:
- Before and after having any direct contact with the patient/client
- Before putting on and after removing gloves
- After exposure to mucus membranes, blood or any body fluids, handling any soiled instruments and any other items.

IPC Practices: Personal Protective Equipment (PPE)

Proper use of gloves
- Select appropriate gloves
  - Examination and Surgical procedures (sterile/single use)
  - Gloves for other procedures (non-sterile)
- Heavy duty/utility/household gloves
- A separate pair of gloves must be used for each client to avoid cross contamination

IPC Practices:
Personal Protective Equipment (PPE)

Other personal protective equipment
Are mechanical barriers that help prevent the spread of microorganisms from person-to-person (patients, healthcare clients or health workers) and equipment, instruments and environmental surfaces to people. PPE includes caps, eyewear, mask, apron, gowns and boots when splashes of blood and body fluids are anticipated.

IPC Practices: Handling sharp instruments (Injection Safety)
Sharps include all objects and materials that pose a potential risk of injury and infection due to their puncture or cutting properties
- Use each needle and syringe only once
- Do not recap, bend, or break needles before disposal
- Dispose needles and syringes in a safety box/puncture-proof container.

IPC Practices: Instrument Processing Steps
- Decontamination in 0.5% chlorine solution
- Cleaning
- Sterilization or High Level Disinfection (HLD)
- Storage
INSTRUMENT PROCESSING STEPS

1. DECONTAMINATION
Soak in 0.5% Chlorine solution for 10 minutes

2. CLEANING
THOROUGHLY
WASH AND RINSE
Wear glove and other protective barriers (glasses, visors or goggles)

Preferred method

Chemical Soak
10-24 hours

Autoclave
106 k Pa pressure
(15 lbs./in²)
121°C (250°F)
20 min. unwrapped
30 min. wrapped

Dry Heat
170°C
60 minutes

Boil or Steam
Lid on
20 utes

Chemical Soak
20 minutes

Acceptable methods

IP Practices: Formula for making 0.5% chlorine solution from powder bleach
If using bleach powder instead of liquid bleach, calculate the ratio of bleach to water using the following formula:

\[
\text{grams of powder for each liter of water} = \left(\frac{\% \text{ Chlorine desired}}{\% \text{ Chlorine in bleach powder}}\right) \times 1000
\]

Example: To make 0.5% chlorine solution from calcium hypochlorite powder containing 35% available chlorine:

\[
\left(\frac{0.5}{35}\right) \times 1000 = 0.0143 \times 1000 = 14.3
\]

Therefore you must dissolve 14.3 grams calcium hypochlorite powder in one litre of water in order to get a 0.5% chlorine solution.

Note: Chlorine is highly corrosive therefore do not leave instruments in chlorine solution for more than the recommended time

IP Practices: Formula for making 0.5% chlorine solution from liquid bleach

Note: The processed equipment/instruments must remain dry.
Chlorine is bleach which comes in different concentrations. You can use any concentration to make a 0.5% (standard measure) chlorine solution by using the following formula

\[
\frac{\text{% chlorine in liquid bleach} - 1}{\text{total parts of water for each part bleach}} = 0.5\%
\]

**Example:** To make a 0.5% chlorine solution from a 3.5% chlorine concentrate, you must use one part chlorine and six parts water

\[
\frac{3.5\% - 1}{0.5\%} = 6 \text{ parts of water for each part of chlorine (1:6)}
\]

*Parts can be used for any unit of measure (for example, cup, litre or gallon) and need to represent a defined unit of measure (for example, pitcher or container)*

### IP Practices: Healthcare waste management

- The purpose of waste disposal is to prevent the spread of infection to providers who handle the waste, to the local community
- Waste should be separated at the point of generation
- Contaminated waste includes blood and other body fluids, and items that come into contact with them, such as dressings
- Liquid waste should be disposed off through the sewerage system or pit latrine where applicable
- Always wear utility gloves when handling healthcare waste
- All waste should be disposed off immediately by incineration, burning or burying

### IP Practices: Traffic Flow

- There should be instructions to direct clients/patients where to go or to exit to obtain health service in different rooms/places.

- People should be restricted from frequenting all areas where **sterile procedures** are being performed. These include:
  - Operating theatre
  - Central sterilizing unit
  - Labour ward
  - Intensive care unit
  - Neonatal unit
  - Laboratory rooms etc.

- **Potentially infectious areas** should also be restricted from people, animals and birds. These include:
  - Incinerators
  - Waste dumping areas
  - Isolation wards

### IP Practices: Housekeeping
House keeping refers to the general cleaning of hospitals and clinics including floors, walls, certain type of equipment, furniture and other surfaces.

- Routine care; cleaning and disinfection of equipment and furniture should be done
- Clean all surfaces contaminated during the procedure by wiping them with a cloth soaked in 0.5% chlorine solution
- The floor, walls and windows should be mopped daily. Mops should be cleaned and dried under the sun
- Thorough scrubbing of the floor, cleaning of windows and walls should be done at least once a week
- The facility compound should be kept clean on daily basis and grass cut short.

Processing Linen
- Consider all used linen infectious
- Staff must wear PPE as indicated when collecting, handling, transporting, sorting and washing soiled linen.
- Carry soiled linen in covered containers or plastic bags to prevent spills and splashes, and confine the soiled linen to designated areas (interim storage areas) until transported to the laundry.
- Do not presort or wash linen at the point of use. Carefully sort all linen in the laundry area before washing.
- Soiled linen must be washed immediately in laundry to avoid staining.

*Note: Decontamination prior to washing is not necessary, unless linen is heavily soiled and will be hand washed. Decontamination of linen only takes place in the laundry.*

Logistics Management

**Logistics:** Is the coordinated effort of planning, procurement, delivery, and inventory systems, and working together to bring supplies to clients.

- A logistic system provides effective customer service by fulfilling the six “rights”:
  - The RIGHT goods in the RIGHT quantities in the RIGHT condition, delivered to the RIGHT place at the RIGHT time for the RIGHT cost

Logistic cycle
Components of inventory management include:

- Determining order quantities
- Receiving commodities
- Storage
- Issuing commodities
- Records
- Reporting

**Average Monthly Consumption Rate (AMCR)**

How to calculate AMCR

\[
AMCR = \frac{\text{Total consumption}}{\text{Total months (in a specified period)}}
\]

Formula for Quantity Needed

The formula for ordering is:

**Quantity to order = AMCR x 3 – Closing Balance**

**Expected Performance Standards**

- The **physical structure is adequate, clean and safe** for providing FANC
• The health care provider requests or checks for laboratory tests and observes infection prevention standard precautions according to the national guidelines
• The laboratory is adequate, correctly performs ANC basic laboratory investigations, has written procedures and observes infection prevention standard precautions
• The facility has in place an appropriate system for final medical waste disposal

Summary
• Standard precaution practices for infection prevention protect healthcare workers, patients/clients and the community from infection with wide range of pathogens.
• Standard precautions for infection prevention related to ANC contribute to safety and total quality of care, hence should be adhered to

SESSION 4.2 FOCUSED ANC QUALITY IMPROVEMENT PROCESS

Learning Objectives
• Describe the focused ANC quality improvement process.
• Describe the four steps of the focused ANC quality improvement process.
• List steps to implement the ANC QI process at a health facility
• Outline performance standards of the ANC Quality Improvement Tool

ANC Quality Improvement Process

The Process:
– Is a practical management approach for improving performance and quality of focused ANC services.
– Is based on use of operational, observable performance standards for on-site assessment.
– Involves the facility team (not only clinicians or administrators) throughout its implementation.
– Uses the ANC QI Tool
• When standards are accomplished (score of 85% or above), the health facility management has to recognize the players formally. This promotes sustainability of quality.
• Implementation process consists of four basic steps.
The Four Steps of ANC Quality Improvement Process

**STEP 1:** Setting Standards
Desired Performance

Set Standards 1

Implement Standards 2

4 Recognize Achievements

3 Measure Progress

How to define Desired Performance: Standards
Performance Standards
The standards tell providers not only
Performance Assessment Tool

➢ what to do
but also
➢ how to do it
Section 1: Focused Antenatal Care

<table>
<thead>
<tr>
<th>Performance Standard</th>
<th>Verification Criteria</th>
<th>Y,N,NA</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1st Client</td>
<td>2nd Client</td>
</tr>
</tbody>
</table>

The health care provider evaluates the care given, plans the return visit with the pregnant woman and ensures proper filling of findings in the appropriate registers and cards.

Observes whether the provider:
- Asks the woman to repeat back the most important points of the counseling
- Asks about, and responds to, any question that the woman asked
- Sets a date for the next visit with the client
- Encourages the woman to return to the next planned visit
- Tells the woman that she can come anytime if she has any of the danger symptoms and signs or any concerns
- Legibly records all required information on RCH Card No.4, TT Cards, MTUHA Book 6 and other registers
- Thanks the woman for coming
- Stores the MTUHA books on shelves, in chronological order

ANC QI Tool Consolidated Results Form

<table>
<thead>
<tr>
<th>Performance Standards</th>
<th>PERFORMANCE standard assessed</th>
<th>% achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

CONSOLIDATED OF RESULTS

Name of Facility: _____________________________ Responsible person(s): _____________________________

Type of assessment: Baseline________________________ Internal Assessment _____________________________

External Assessment #: _____________________________ Date: _____________________________

% ACHIEVED = ACHIEVED STANDARDS / ASSESSED STANDARDS x 100

NB All STANDARDS MUST BE ASSESSED BY OBSERVATION OR INTERVIEW OR RECORD REVIEW
Methods used to collect the information:
• Structured direct observation, review of service and administrative records and documents, and interviews.
• Immediately register the information collected.
• Register “(Y) for Yes”, “(N) for No” or “(NA) for Not Applicable” in the corresponding column.
• Write down all pertinent comments, in a clear and concise fashion, highlighting issues and possible causes.
• Register “Yes” if the item exists or is performed as it is described i.e. the policy/guidelines/standards.
• Register “No” if the item does not exist or is performed incorrectly or incompletely.
• Register “NA” when the item requires a condition that does not exist.

Step 2: Implementing Standards

Measurement of Actual Performance

Implementation Standards Cycle
Baseline Assessment
Baseline Assessment

- Determines actual level of performance using the performance assessment tool
- Establishes actual performance in percentage terms
- Helps to identify performance gaps
  Once gaps are identified, then identify their causes.

Initial identification of gaps

Identify gaps by marking “N” for:
- Practices not performed at all
- Practices performed incorrectly or incompletely
In the comments column:
- As much as possible summarize potential causes for why not done correctly
If there is one or more “N”, the standard is not accomplished.
Implementation Cycle

Desired performance → Gap → Actual performance

Cause analysis → Intervention identification & implementation

Factors of performance: WHY GAPS?

Know how to do (capability) → Knowledge, skills, information

Be enabled to do (Opportunity) → Resources, tools, capacity

Want to do (Motivation) → Inner drive, incentives
Remember that:
- Interventions:
- Can be based on local resources
- May occasionally require external support
- There are factors that are under ANC clinic or facility control while some could be under external control such as extended technical expertise or resources.
- Facility/ANC clinic staff are encouraged to begin the changes addressing the factors that are under their control and produce rapid results.
- Identification of sources of external assistance for the factors that are outside the facility control is paramount.

Step 3: Measure Progress
Steps to Measure Progress

- The same process and tool is used during training, simulation and practicing on site, service monitoring, supervision and evaluation
- Internal monitoring should be done constantly on quarterly basis - three months of interventions to measure progress
- Results will be available at all levels - facility, district, regional and national levels
- External evaluation could be done using the ANC QI tool of which use of results will depend on the reasons for conducting the evaluation.

**Showing Results – by Facilities**
Showing Facility Results by Section

Step 4: Recognize and Reward Achievements

- Set Standards 1
- Implement Standards 2
- 4 Recognize Achievements
- 3 Measure Progress
Ways to Provide Recognition
• Feedback
• Social recognition
• Material recognition

Steps to Implement the ANC QI Tool Process
1. Advocacy-promotion/consensus
2. Identification of actual performance using the ANC QI Tool
3. Cause analysis
4. Identification and design of interventions
5. Implementation of the interventions
6. Verification
7. Certification.

Summary
• Four-step process
• Evidence-based standards
• Not as complicated as it may sound
• Periodic assessment should aim at assessing (direct observation/interview/record review) all standards to facilitate understanding status of performance and comparison of results among facilities
• Puts the power in the hands of local providers and managers
• Requires multiple sources of supervision and support.

SESSION 4.3 FOCUSED ANC PERFORMANCE STANDARDS

Learning Objectives:
• Identify areas of the health facility where ANC performance standards are derived
• Outline Focused ANC performance standards
• Practice assessment of performance in ANC using selected standards in the QI Tool

Sources of ANC Performance Standards
ANC performance standards are derived from different areas of a respective health facility
1. During interaction with ANC client (provision of focused ANC)
2. Information, Education and Communication evidences
3. Infection prevention practices
4. Health facility management systems
5. Human, pharmacy and laboratory resources
ANC Performance standards
1. The facility has the minimum skilled human resources with appropriate language for providing FANC.
2. The physical structure is adequate, clean, attractive and safe for providing FANC.
3. Information about maternal and newborn care, including malaria, HIV/AIDS, PMTCT, syphilis and other STIs, is available in the clinic.
4. The health facility offers pregnant women group educational sessions about maternal and child health, using group education skills.

The healthcare provider:
5. Prepares necessary supplies and equipment including registers and cards used in the provision of ANC.
6. Receives and treats the pregnant women cordially, and conducts a quick check at the first contact.
7. Takes the clinical history, including obstetric, medical, surgical, social aspects and HIV/AIDS status.
8. Conducts a physical and obstetric examination.
9. Requests or checks for laboratory tests and observes infection prevention standard precautions according to the national guidelines.
10. Makes clinical decisions based on findings from the history, physical examination and laboratory investigation results and properly conducts individualized care, including provision of IPTp and ITN voucher against malaria, based on national guidelines.
11. Manages uncomplicated and severe malaria according to the national guidelines.
12. Manages moderate and severe anemia according to the national guidelines.
13. Manages Syphilis of all stages according to the national guidelines.
14. Manages HIV positive woman according to the PMTCT national guidelines.
15. Evaluates the care given, plans the return visit with the pregnant woman and ensures proper filling of findings in the appropriate registers and cards.
16. Ensures that the pharmacy has written procedures for ordering, receiving, storing, controlling and issuing of medicines and medical supplies and has a one month storage of essential FANC medicines.
17. Ensures that the laboratory is adequate, correctly performs ANC basic laboratory investigations, has written procedures and observes infection prevention standard precautions.
18. Ensures that the facility has in place an appropriate system for final medical waste disposal.
19. Ensures that the facility promotes teamwork and periodically evaluates ANC services, including client satisfaction.
20. Ensures that the clinic records summarizes and reports data on maternal and child health on quarterly basis according to the standards, and analyzes and uses the information for decision making purposes.

Expected Performance Standards
• The facility promotes **teamwork** and periodically **evaluates ANC services, including client satisfaction**

• The clinic **records summarizes and reports** data on maternal and child health on quarterly basis according to the standards, and analyzes and uses the information for **decision making purposes**

**Summary**

• ANC QI tool for identification of level of performance outlines key standards that are direct clinical care to clients for focused ANC including malaria, anaemia, syphilis in pregnancy and prevention of maternal to child transmission of HIV.

• The tool also includes the support functions needed for delivery of focused ANC.