THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH, COMMUNITY DEVELOPMENT,
GENDER, ELDERLY AND CHILDREN

ANTENATAL CARE GUIDELINES

November 2018

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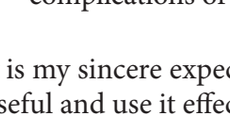
FOREWORD

Many problems in pregnant women can be detected, prevented, and treated during antenatal care (ANC) contacts with trained health care providers. The World Health Organization (WHO) recommends a minimum of eight ANC contacts comprising interventions such as nutrition, maternal and foetal assessment, and common physiologic conditions of pregnancy, preventive measures, and health systems strengthening. According to the Tanzania Demographic and Health Survey 2015–16, 98% attended an ANC contact at least once during, pregnancy but only 51% of gravid women completed the recommended four or more ANC contacts, per the previous focused ANC model. This is an increase in the use of ANC services, but large expansion in ANC coverage is still needed.

To achieve wide coverage of ANC, including an increase in how many attend the recommended minimum eight ANC contacts, the following are recommended in this guideline:

- Organise ANC services, including scheduling clinic attendance where appropriate to ensure that all gravid women in the country can access the services. Work with community leaders, community health workers, and other influential parties to ensure that the community understands the benefits of ANC, especially the need for early ANC booking.
- ANC is an ideal platform for FP education and counselling because pregnant women interact with health care providers on a regular basis throughout pregnancy and can prepare to initiate an FP method after childbirth.
- Provide appropriate health education to all gravid women, their partners, and families on healthy lifestyle, healthy diet, physical activity, substance abuse and alcohol cessation where required, preparation for parenthood, and preparing women for the birthing process.
- Ensure that the client is attended to respectfully and in a suitable environment.
- Record the findings in the maternal health booklet and ANC register.
- Refer all pregnant women requiring specialised medical care and all women with signs of complications of pregnancy

It is my sincere expectation that all health care providers at ANC clinics will find this document useful and use it effectively to improve the quality of care and pregnancy outcomes.



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Permanent Secretary (Health)

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ABBREVIATIONS

ANC	antenatal care
BP	blood pressure
DM	diabetes mellitus
FANC	focused antenatal care
GBV	gender-based violence
GDM	gestational diabetes mellitus
IPTp	intermittent preventive treatment for malaria in gravidity
LLIN	long-lasting insecticide-treated net
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
PMTCT	prevention of mother-to-child transmission
RCHS	Reproductive and Child Health Section
RDT	rapid diagnostic test
Rh	Rhesus
SFH	symphysis-fundal height
SP	sulphadoxine-pyrimethamine
STI	sexually transmitted infection
TT	tetanus toxoid
USAID	US Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY

The Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC), through its Reproductive and Child Health Section, strives to ensure equitable provision of comprehensive reproductive, childbirth, and child health services along the continuum of care to all of its citizens. Much of the emphasis is on improving the health status of women and children.

This antenatal care (ANC) guideline was developed with the overall aim of providing high-quality ANC to women and their partners/families based on equity and human rights approaches. It is designed to be used by supervisors, managers, health care providers, and all taking care of pregnant women in Tanzania.

This guideline is based on the 2016 World Health Organization ANC model, where a minimum of eight contacts is recommended for a positive pregnancy experience. Among the new recommendations are:

- Nutritional interventions: All pregnant women should be counselled on healthy eating and physical exercise for a healthy pregnancy. They should receive iron and folic acid supplementation, and calcium supplementation where required, restrict caffeine intake, and regulate alcohol consumption.
- Maternal and foetal assessment: All pregnant women should be screened for anaemia, gender-based violence, gestational diabetes mellitus, tobacco use, substance use, HIV, syphilis, malaria, and TB. One ultrasound scan should be done at 20 weeks gestation if there is no indication that an earlier or later ultrasound scan is needed.
- Preventive measures: The following should be instituted for women diagnosed as Rhesus-negative who give birth to Rhesus-positive newborns: antihelminthic drugs, tetanus toxoid, and intermittent preventive treatment of malaria in pregnancy should be given to all women, and HIV treatment should be given to all HIV-positive pregnant women.
- Interventions for common physiological conditions, including nausea and vomiting, heartburn, leg cramps, lower back and pelvic pain, oedema, and varicose veins
- Health systems strengthening to improve quality and utilisation of ANC services, such as women-held case notes, community-based interventions to improve communication and support, task shifting, recruitment and retention of staff in rural and remote areas, and the ANC contact schedule

Additional chapters on infection prevention control on counselling will also help to remind the reader of the best practices for a good pregnancy outcome. The current guidelines will serve as the main document on ANC for pregnant women in Tanzania mainland. These guidelines are expected to solve the existing challenges in provision of ANC services, resulting in improved maternal and perinatal outcomes.

INTRODUCTION

Background and Context

The Government of Tanzania's priority is to ensure universal, quality, comprehensive, and equitable health services for all of its citizens, with emphasis on improving the health status of women and children.

Globally, recent estimates indicate that 303,000 women died of pregnancy and delivery-related causes in 2015.[1] This estimates further show that two-thirds of the deaths occurred in sub- Saharan Africa, which contains only 17% of the world's population. While the overall global decline in the maternal mortality ratio between 1990 and 2005 was 5.4%, the annual decline was less than 1% in Africa. The situation was noted to be worse in sub-Saharan Africa, where the decline was 0.1%. It is worth noting that in the regions, the number of maternal deaths increased between 1990 and 2005, probably due to high prevalence of HIV infection.

Tanzania, like most developing countries, could not attain Millennium Development Goal number 5, aimed at reducing maternal mortality to 193 maternal deaths per 100,000 live births by 2015.[2] The national demographic and health surveys show that maternal mortality ratios have not changed over the past 15 years. In 2005, there were 578 deaths per 100,000 live births. In 2010, there were 454 deaths per 100,000 live births. In 2015–2016, there were 556 deaths per 100,000 live births.[3] These are all within the same confidence interval.

The majority of maternal deaths are due to direct obstetrics causes, including obstetric haemorrhage (28%), abortion complications (19%), hypertension in pregnancy, (17%), obstructed labour (11%), and sepsis (11%).[4] Death due to direct obstetric causes can be prevented with timely and quality emergency obstetric and newborn care services. The indirect causes of maternal deaths, including noncommunicable illnesses, malaria, and HIV, are increasing.

Tanzania reported significant progress in reducing under-5 mortality between 1990 and 2015, with overall under-5 mortality dropping from 166 to 67 per 1,000 live births. Infant mortality

1 WHO, UNICEF, United Nations Population Fund, World Bank Group, United Nations Population Division. 2015. Trends in Maternality Mortality: 1990 to 2015. Geneva: WHO.

2 National Road Map Strategic Plan, 2008-2015

3 MoHCDGEC [Tanzania Mainland], Ministry of Health (MOH) [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), ICF. 2016. *Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015–16*. Dar es Salaam, Tanzania, and Rockville, Maryland, USA: MoHCDGEC, MOH, NBS, OCGS, and ICF.

4 Human Rights Watch. 2005. World Report. New York City: Human Rights Watch.

dropped from 99 to 43 per 1,000 live births. Despite this achievement, newborn mortality minimally decreased, from 40 to 25 per 1,000 live births. Newborn mortality contributes significantly to under-5 mortality (40%). Up to half of newborn deaths occur in the first 24 hours of life, with over 75% occurring during the first week of life.[5] This is a good indication that these deaths are associated with pregnancy, labour, and delivery, so there is a need to improve the quality of care during the antenatal period and during labour and delivery.

The Tanzania Demographic and Health Survey 2015–16 shows that 98% of women attend antenatal care (ANC) at least once, but only 63% delivered in health facilities, and 64% of deliveries were attended by a skilled birth attendant.

Rationale for the Guideline

In 2002, Tanzania adapted the World Health Organization (WHO) recommendation on focused ANC (FANC), in which four individualised, goal-oriented contacts were targeted to improve care given to pregnant women in a comprehensive manner.[6] FANC was intended to align all-important services and care that promote the early detection of complications and the initiation of early and appropriate treatment, including timely referral, if necessary. There is growing evidence that a minimum of eight ANC contacts can reduce perinatal deaths by up to eight per 1,000 births when compared to a minimum of four visits (WHO, 2016).[7] Furthermore, there are no important differences in maternal and perinatal health outcomes between ANC models that included at least eight contacts and those that included 11 to 15 contacts.

Recently, WHO recommended increasing ANC contacts from four to eight. Under these recommendations, the first contact is recommended before 12 weeks gestation, the second at 20 weeks, and the third at 26 weeks. The fourth, fifth, sixth, seventh, and eighth contacts are at 30, 34, 36, 38, and 40 weeks, respectively. WHO also included guidance that pregnant women who had not delivered after 40 weeks should attend an ANC contact at 41 weeks. The new guidelines provide details on the care/services that should be provided during each of the eight contacts.

WHO changed its guidance from four to eight contacts because there is evidence suggesting that:

There are more perinatal deaths under a four-contact ANC model.

Safety is improved during pregnancy with increased frequency of maternal and foetal assessments to detect complications.

There is improved health system communication and support around gravidity for women and families.

More contact between gravid women and respectful, knowledgeable health care workers is more likely to lead to a positive pregnancy experience.

Despite the reduction of maternal and newborn deaths, the current levels are still unacceptably high for Tanzania to contribute to achieving Sustainable Development Goal 3, aimed at reducing the global maternal mortality ratio to less than 70 per 100,000 live births and reducing newborn mortality to at least as low as 12 per 1,000 live births by 2030. Ninety-eight per cent of pregnant women received ANC from a skilled provider at least once, but only 51% attended four or more contacts.[8] More frequent contacts means more opportunities for health care providers to provide

5 MoHCDGEC, MOH, NBS, OCGS, ICF. 2016. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015–16. Dar es Salaam, Tanzania, and Rockville, Maryland, USA: MoHCDGEC, MOH, NBS, OCGS, and ICF.

6 Ndesaulwa AP, Kikula J. 2016. The impact of innovation on performance of small and medium enterprises (SMEs) in Tanzania: a review of empirical evidence. Journal of Business and Management Sciences. 4(1):1–6. doi: 10.12691/jbms-4-1-1.

7 WHO 2016.

8 MoHCDGEC, MOH, NBS, OCGS, ICF. 2016. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015–16. Dar es Salaam, Tanzania, and Rockville, Maryland, USA: MoHCDGEC, MOH, NBS, OCGS, and ICF.

information and support to women and families, detect complications, and deliver interventions aimed at preventing adverse pregnancy outcomes.

As a result, the MoHCDGEC is working to accelerate the reduction of maternal and newborn mortality by the end of 2020, with the following clear impact indicators outlined in One Plan II[9]:

1. Reduce maternal mortality from 556 to 292 per 100,000 live births by 2020.
2. Reduce the newborn mortality rate from 25 to 16 per 1,000 live births by 2020.
3. Reduce the infant mortality rate from 43 to 25 per 1,000 live births in 2020.
4. Reduce the under-5 mortality rate from 67 to 40 per 1,000 live births by 2020.

In addition to several interventions, the MoHCDGEC revised the guidelines to set standards for the provision of ANC to be used countrywide to increase the proportion of pregnant women receiving high-quality care and to be able to track indicators for monitoring the progress of this care.

Aim and Objectives

The aim is to provide high-quality ANC to women and their partners/families based on equity and human rights approaches. The specific objectives are:

- To provide high-quality and equitable ANC for better well-being and survival of Tanzanian women and their partners/families (at least eight comprehensive contacts, in which all components of appropriate care are provided at defined time intervals)
- To provide ANC tailored to the needs of women and their partners, families, and communities
- To provide ANC aimed at illness detection, not risk categorisation (all pregnant women are at risk)
- To promote evidence-based practices at all levels of ANC provision in the country based on human rights principles
- To promote and support community engagement in service provision, including male involvement, as part of the broader multisectoral support for care provision at all levels

Target Audience

These ANC guidelines are designed to be used by supervisors, managers, health care providers, and all those taking care of pregnant women at all levels of health care in public, private, nongovernmental organization, and faith-based organisation health facilities. The aim is to ensure uniform implementation of ANC services using the guidelines and standards for high-quality services, as all stakeholders will be informed on and accountable for the services provided.

Scope of the Guideline

Improve coverage of high-quality and culturally appropriate ANC, with emphasis on detection of gravidity-related complications and prevention of concurrent illnesses at routine ANC contacts. These are not clinical guidelines but a technical document guiding provision of routine ANC for all pregnant women, their unborn foetuses, and newborns. It does not provide details on management or referral of women with complications or illnesses, so it has to be complemented

9 MoHCDGEC. 2016. The National Road Map Strategic Plan to Improve Reproductive, Maternal, Newborn, Child and Adolescent *Health in Tanzania (2016–2020)*. Dar es Salaam, Tanzania: MoHCDGEC.

by other existing guidelines, including malaria, prevention of mother-to-child transmission (PMTCT) of HIV, basic and comprehensive emergency obstetric and newborn care, and any other relevant clinical guidelines.

Methodology Used to Review the Guidelines

A stakeholders' meeting was conducted, with the aim of reviewing the ANC guidelines. The stakeholders, including policymakers from the MoHCDGEC, WHO, Jhpiego, the Tanzanian Midwives Association, the Tanzania Food and Nutrition Centre, and the Association of Gynaecologists and Obstetricians of Tanzania, reviewed the 2016 WHO recommendations for a positive gravidity experience. They then decided on the recommendations that fit well with the Tanzanian context and, together with the best practices from the previous ANC guidelines, developed these ANC guidelines. The first draft was shared with stakeholders in a second meeting, and their comments and changes were incorporated into the document before it was pre-tested. The lessons learned from the pre-test were used to fine-tune the final document before it was shared in the third and last meeting.

Guiding Principles for Operationalization of the Guidelines

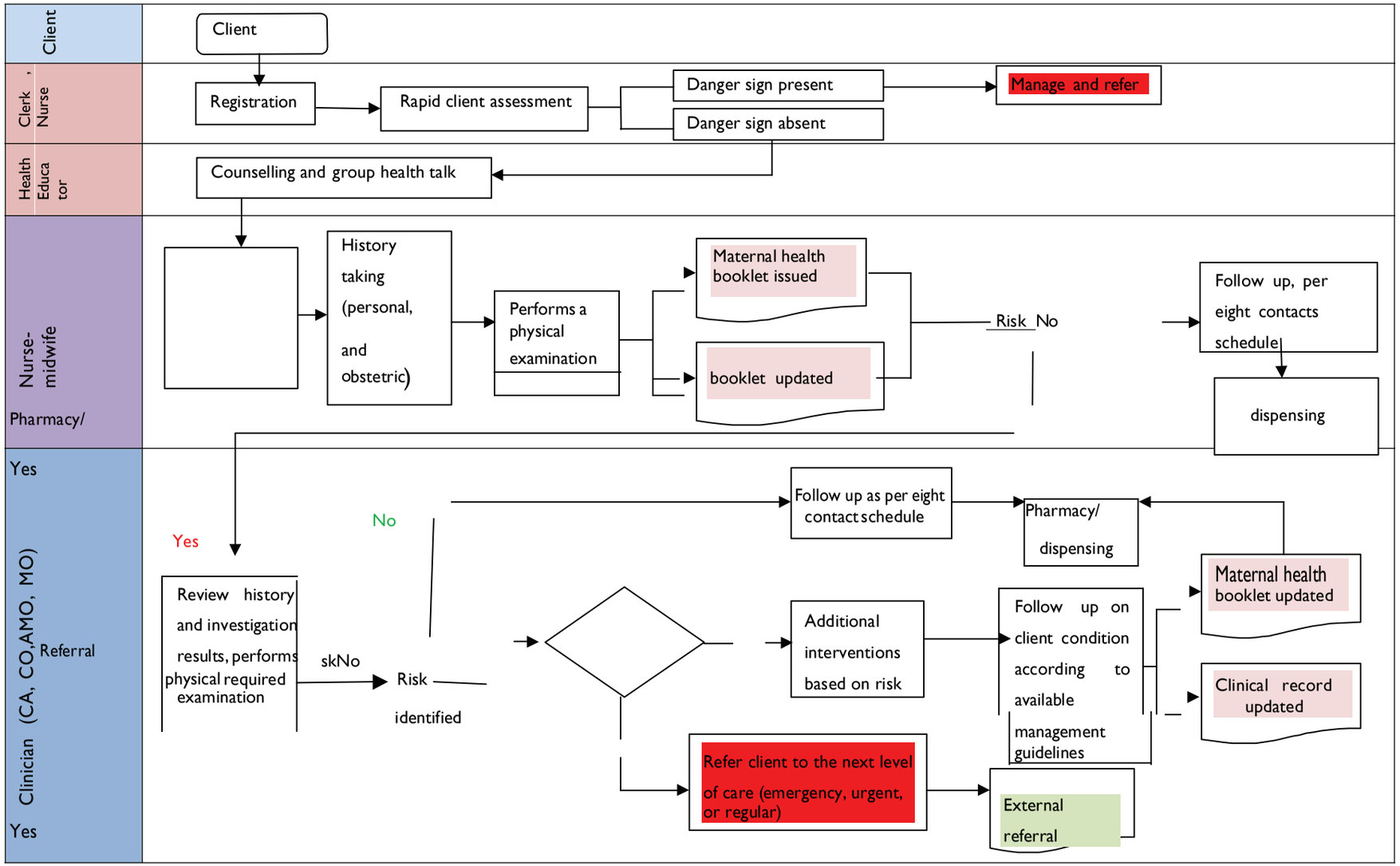
These guidelines should be used after training health care providers and their supervisors. The trainings will be conducted by trainers approved by the MoHCDGEC, using the MoHCDGEC ANC Learning Resource Package. The use of this document should be complemented with the annexes therein and other MoHCDGEC guidelines in the management of illnesses specific to pregnancy and in general terms. Other important documents include the *National Operational Guidelines for Integration of Maternal, Newborn, Child Health, and HIV/AIDS Services*; the *National Malaria for Diagnosis and Treatment Guidelines, management of STI*; and other relevant guidelines. For cases in which one a specific resource should be referenced, that resource is indicated in the relevant section of this document. These 2019 ANC guidelines provide general principles, guidance, and descriptions of ANC provision at *all health facility levels.*

Organisation of Antenatal Services

The antenatal clinic should have a waiting area for clients, a place for registration, a place for taking physical measurements, and rooms for consultations. The infrastructure should allow for a small laboratory and pharmacy/dispensing room. The services should be organised in such a way that client gets all services under one roof and within the shortest time possible.

Once the client arrives, registration is done and a rapid assessment is performed to identify any danger signs that may warrant emergency treatment. When a client is found to have danger signs, emergency treatment should be given immediately; she can be referred/transferred to the ward for definitive treatment. Later, physical measurements will be taken, followed by a performance of the routine investigations for respective gestational age. After the client receives the investigation results, she will be managed accordingly, including a thorough history taking and physical examination. Depending on what is diagnosed, she will be treated or referred for further management (see Figure 1).

Figure 1. Antenatal clinic ow diagram



Rapid Assessment and Management

A **quick check** is performed by a health care service provider to identify pregnant women who need immediate attention. Providers should follow these steps:

- Assess general condition of the woman immediately on arrival at antenatal clinic by observing her general appearance (e.g., facial appearance and expression, pallor, sweating, shivering, difficulty in breathing).
- Ask general screening questions, such as:
    - Why did you come to clinic today?
    - What is your gestation age?
    - What is your concern?
- Record all information given. If the woman is very sick and cannot respond, talk to her companion.
- Ask, look, and feel if the woman is/has:
    - Bleeding vaginally
    - Headache and visual disturbance
    - Severely pale
    - Severe vomiting
    - Convulsing
    - Looking very ill (lethargic, drowsy)
    - A fever
    - Unconscious
    - Severe pain
    - Severe difficulty breathing
    - In labour
    - Imminent delivery

In case of any problem, stabilise, treat, and/or refer the woman immediately.

A **health talk** should cover all necessary topics for counselling gravid women, including:

- Healthy diet, taking micronutrients supplementation, restricting caffeine, and avoiding alcohol use
- Physical activity
- Personal hygiene, including clothing
- Danger signs in pregnancy

In these conditions, it is important for a pregnant woman to take supplements to meet the growing needs of her body and the foetus.

Increased investment in nutrition-specific interventions and delivery strategies to reach poor segments of the population at greatest risk can make a substantial difference in improving maternal nutrition.

On the other hand, maternal undernutrition is another problem during pregnancy that leads to weight loss for the pregnant women, resulting in delivery of low-birthweight babies. Optimum weight gain during pregnancy is important for the health of the woman during pregnancy and lactation. The total weight gain for the duration of pregnancy depends on the -pregnancy body mass index.

Table1. Recommended weight gain during pregnancy

Pregravidity Body Mass Index (kg/m^2)	Recommended Weight Gain (kg)
< 18.5 (underweight)	12.5–18
18.5–24.9 (normal weight)	11.5–16
25–29.9 (overweight)	7–11.5
> 30 (obese)	5–9

- Furthermore, the percentage of underweight women of reproductive age in Tanzania has remained static at 10%, but the percentage of women of reproductive age who are overweight/obese has increased by 10% in the last 10 years.[10],[11]Individual birth plan
- Emergency preparedness and complication readiness
- Use of drugs and immunisation
- Protection from malaria (intermittent preventive treatment of malaria in gravidity [IPTp], long-lasting insecticide-treated nets [LLINs], and other protective measures)
- Family planning
- Breastfeeding
- Management of common physiological symptoms (nausea, vomiting, heartburn, e.t.c)
- Avoiding harmful habits
- Prevention of sexually transmitted infections (STIs)/HIV (safer sex)

Clinic Setup

General

- Auditory and visual privacy is provided using simple partitions, such as curtains or wood panels.
- Confidentiality is respected and assured.
- Clinic days are scheduled to ensure that the clients, their partners, and the community are able to utilise services maximally.
- Clinic setup promotes partner/support person participation

Waiting Area

- There is comfortable waiting area that is clean, well ventilated, and has enough sitting space for all clients and their support people.
- A simple diagram is available that describes the client flow so clients know what to expect.
- There is access to clean and well-maintained client and staff toilets with running water and soap.
- The waiting area can be equipped with useful client educational audio-visual materials on pregnancy, childbirth, and newborn care, such as posters, radio, and TV/video.

10 Pembe AB, Paulo C, D'mello BS, van Roosmalen J. 20014. Maternal mortality at Muhimbili National Hospital in Dar-es-Salaam, Tanzania in the year 2011. BMC Pregnancy Childbirth. 14:320. doi: 10.1186/1471-2393-14-320.

- There is supply of clean water (from tap or potable container with tap) and cups.

Consulting Rooms

- The rooms are clean and well ventilated.
- There is a reliable source of light (artificial or natural).
- There is guaranteed privacy and confidentiality.
- There is comfortable seating for providers, clients, and companions that supports good eye contact that can be maintained.
- The writing table should not be positioned to form a barrier between client and provider (as in the office setting).
- Examination couches or table is.are comfortable and easy for pregnant woman to get on and off.

Emergency Care Treatment Point

There is an equipped, screened-off area for management of acute emergencies.

Related Services

Services such as basic laboratory services and a dispensing unit must be preferably located within the antenatal clinic setup or within easy reach of the clinic.

Guidelines on Workplace and Administrative Procedures

Workplace

- Service hours should be clearly posted.
- Available services should be posted.
- Ensure flow pattern is clear and not confusing to clients (e.g., put notice on doors or guide all clients to appropriate services).
- There should be a comfortable waiting area with adequate space that is free from rain or direct sunlight.
- Regularly clean the facility.
- Ensure clean toilets and handwashing facilities (i.e., water and soap) are available.
- There are separate toilets for clients and staff.
- Ensure safe drinking water is available.
- Ensure clients are provided with reading materials, video shows, health education talks, etc.
- Serve clients in the order of first come, first served.
- Before beginning the service, check if the equipment is clean and functioning, and that supplies and drugs are in place.
- At the end of services:
    - Discard waste and sharps safely.
    - Prepare for disinfection. Clean and disinfect equipment.
    - Replace linen and prepare for washing.

- Replenish supplies and drugs.
- Ensure routine cleaning of all areas.

- Hand over essential information to the colleague next on duty, if needed.
- A suggestion box should be available, with a pen and papers at clients' disposal.

Daily and Occasional Administrative Activities

- Establish staffing list and schedules.
- Ensure availability of suggestion box.
- Ensure updates by sharing information, conducting on-the-job training, and supporting each other.
- Ensure supportive supervision of staff/coworkers.
- Maintain reproductive and child health policy guidelines and standards for service provision.
- Keep record of equipment, supplies, drugs, and vaccines (set up an inventory).
- Set a regular time for equipment checkup and maintenance.
- Check availability and identify functioning equipment (order stocks and supplies, drugs, vaccines, and other important material before they run out).
- Work on comments from suggestion box for service improvement.
- Monitor and evaluate facility activities.
- Organise regular meetings at least once per month.

MAIN CONTENT OF ANC

Nutritional Interventions

Importance of Maternal Nutrition

The WHO 2016 nutrition intervention recommendations reinforce the importance of the nutritional status of women at the time of conception and during pregnancy, ensuring both the health of the mother and foetal growth and development.

A pregnant woman needs to consume a healthy diet so she can get the necessary nutrients important to the well-being of the woman and growing foetus. She also needs to build enough reserve of the necessary nutrients to use during lactation. Pregnant women should ensure that they get adequate energy, protein, vitamins and minerals through the consumption of a variety of foods, including green and orange vegetables, meat, fish, dagaa, beaas, nuts, whole grains and fruits. However, for many pregnant women, dietary intake of vegetables, meat, fish, dairy products and fruits is often insufficient to meet these needs, particularly in Low and Middle Income Countries (LMICs) where multiple nutrition deficiencies often co-exit.

Oftentimes, pregnant women do not get the required daily amounts of the necessary nutrients. As a result, they can succumb to a number of ailments caused by their deficiencies (macro and micronutrients). Major problems facing pregnant women include iron deficiency, which results in maternal anaemia, and protein-energy deficiency, which results in wasting.

Maternal anaemia in pregnancy is a clinical condition caused by lack of iron and folic acid in the diet. In Tanzania, the prevalence of any anaemia in pregnancy is very high—57% in pregnancy, and 46% in breastfeeding women.[12] Women who are undernourished have a risk of delivering low-birthweight newborns. Therefore, pregnant women in our setting need to be counselled on healthy eating and continuing physical activity during gravidity so they end up with good gravidity outcomes.

The following are important measures to undertake during the antenatal period at **each** ANC contact:

Dietary interventions: Counselling on healthy eating and keeping physically active during pregnancy is recommended for pregnant women to stay healthy and to prevent excessive weight gain during pregnancy. Eating three meals daily that follow a healthy, balanced diet, with healthy snacks in between meals, is recommended. A balanced diet contains all necessary nutrients (carbohydrates, proteins, fat, vitamins, and minerals) in required amounts. Healthy snacks include nuts, yoghurt, fruits, etc.

Iron and folic acid supplements: During pregnancy, there is an increased demand for iron and folic acid. Because of the high prevalence of anaemia in Tanzania, daily oral iron and folic acid supplementation— 60 mg of elemental iron and 400 mcg (0.4 mg) of folic acid—is recommended for pregnant women to prevent maternal anaemia, puerperal sepsis, low birthweight, and preterm birth. Therefore, every pregnant woman should be given 200mg of ferrous sulphate and 0.4 mg of folic acid daily. Do not provide 5 mg of folic acid if a client is to be given sulphadoxine-pyrimethamine (SP).

12 MoHCDGEC, MOH, NBS, OCGS, ICF. 2016. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015–16. Dar es Salaam, Tanzania, and Rockville, Maryland, USA: MoHCDGEC, MOH, NBS, OCGS, and ICF.

Calcium supplements:Gravid women with a calcium deficiency are at risk of developing eclampsia/pre-eclampsia. According to two studies, 20% of maternal deaths in Tanzania are caused by eclampsia/pre-eclampsia.[13] This is a significant problem in our setting. Daily calcium supplementation (1.5–2 g oral elemental calcium) is recommended for pregnant women to reduce the risk of pre-eclampsia.

Maternal and Foetal Assessment

The major goal of ANC is to ensure that at the end of the,pregnancy the mother and newborn are healthy. The goal of the assessment should be to recognise signs of illnesses/ailments so the required interventions can be started in time to result in a good outcome for the mother and newborn.

Maternal Assessment

Health care providers must perform a thorough assessment (detailed history and physical examination) on every pregnant woman to make a proper diagnosis.

History Taking

Health care providers should take a thorough history from every pregnant woman to determine the duration of pregnancy, find out about any medical or surgical history that may have implications in the pregnancy, and find out about other risk factors based on social history, including low socioeconomic status and gender-based violence (GBV).

Physical Examination

When conducting a physical examination, the woman may remain seated or lying down and relaxed.

General Examination

The following should be checked:

- General appearance of the patient
- Nutritional status
- Facial puffiness
- Blood pressure
- Weight (recorded on first contact and in all follow-up contacts during pregnancy to monitor maternal weight gain)
- Height
- Pulse rate
- Temperature (if indicated)
- Respiration rate
- Pallor (conjunctiva, palms, tip of the tongue, gums)
- Breasts and lymph nodes

Note: The human body as a mirror and should be examined concurrently on both sides (for structures that appear one on each side).

13 Maonga AR, Mahande MJ, Damian DJ, Msuya SE. 2016. Factors affecting exclusive breastfeeding among women in Muheza Distict Tanga Northeastern Tanzania: a mixed method community based study. *Matern Child Health J*. 20(1):77–87. doi: 10.1007/s10995-015-1805-z.

Abdominal Examination

Complete the following:

- Inspection (scars, movement with respiration, shape of the abdomen)
- Fundal height: May be assessed by abdominal palpation or symphysis-fundal height (SFH) using tape measure. SFH using tape measure should be done from 20 weeks gestation (lie and presentation are only important after 36 weeks).
- Listening for the presence of foetal heart from 24 weeks gestation

Pelvic Examination

Pelvic examination should be done only when indicated. It may help to diagnose women who have vaginal bleeding, bnormal vaginal discharge, sores, and swellings.

Antenatal Screening

Every gravid woman must be screened for the following conditions, which can be coupled with necessary laboratory investigations as outlined below:

Anaemia:The haemoglobin level must be checked at every contact. Women who are diagnosed with anaemia in pregnancy should be treated and will need to be checked at least once every month during the pregnancy. Full blood count testing is the recommended method for diagnosing types of anaemia.

GBV:Clinical inquiry about the possibility of GBV and other forms of violence should be strongly considered at each ANC contact when assessing conditions that may be caused or complicated by GBV in order to improve clinical diagnosis and subsequent care.

Gestational diabetes mellitus (GDM): A glucose stick should be used to check for glucose in urine (glucosuria) in all pregnant women at 12 (or first ANC contact), 26, and 34 weeks gestation. Women found to have glucose in their urine should have their random blood sugar checked. Hyperglycaemia first detected at any time during pregnancy should be classified as either GDM or diabetes mellitus in pregnancy, and should be treated immediately according to the Tanzania standard treatment guideline.

Albuminuria: An albumin stick should be used to check for albumin in urine (albuminuria) in all pregnant women at 12 (or first ANC contact), 26, and 34 weeks gestation or any time that may be seen as necessary.

Tobacco use:Health care providers should ask all pregnant women about their tobacco use (past and present) and exposure to secondhand smoke as early as possible in the pregnancy and at every ANC contact. Pregnant women who are current smokers or recently quit using tobacco should be offered counselling and psychosocial interventions for tobacco cessation.

***Substance use*:**Health care providers should ask all pregnant women about their use of alcohol and other substances (past and present) as early as possible in the pregnancy and at every ANC contact. Women found to be dependent on alcohol or drugs should be counselled to cease substance use and be referred to medical-assisted therapy services.

***HIV*:**Provider-initiated testing and counselling for HIV should be done for all pregnant women attending ANC for the first time (booking contact to eliminate mother-to-child transmission of HIV. The test should be repeated at 26 and 34 weeks pregnancy. Women who are found to be HIV-positive should be started on treatment according to the existing HIV treatment guidelines.

Syphilis: During the booking contact pregnant women should also be tested for syphilis and have

the test repeated at 26 and 34 weeks. If found positive, the woman should be treated together with her partner after he has been tested. The newborn of a mother who tested positive for syphilis should also be treated.

Note: Where facilities permit, HIV and syphilis testing should be done together as one test (dual testing).

***Malaria*:**All pregnant women must be screened for malaria with a rapid diagnostic test (RDT) at first ANC contact and whenever they have a history or signs of fever. Treatment should be started promptly once a woman is diagnosed with malaria in pregnancy per national malaria diagnosis and treatment guidelines,

TB:All pregnant women should be actively screened for active TB. Gravid women infected with TB should start treatment immediately per guidelines, and the newborn, once delivered, should be given preventive treatment. Screening should be done at 12 (or the first ANC contact), 26, and 34 weeks.

Foetal Assessment

During pregnancy, it is important to examine foetal well-being by examining the pregnant woman as follows:

SFH Measurement

To assess foetal growth, SFH should be measured at each ANC contact from 20 weeks gestation. Abdominal palpation may also be done in place of the SFH measurement in case a tape measure is not available. Abdominal palpation for other parameters of examination of the pregnant uterus should also be done.

Ultrasound Scan

One ultrasound scan, preferably before 20 weeks gestation, is recommended. This will help estimate gestational age, localise the pregnancy, and reduce induction of labour for post-term pregnancy, to improve detection of foetal anomalies and multiple pregnancies, and improve a woman's pregnancy experience. Additional early or late ultrasound scans may be done if indicated. There is no added advantage of an additional ultrasound scan when there is no indication.

Preventive Measures

During ANC, it is important to assess women for the following conditions that may lead to poor pregnancy outcomes.

Anti-D Immunoglobulin Administration

Rhesus (Rh) D-negative women who deliver an Rh-positive baby or are otherwise exposed (via previous birth or abortion) to Rh-positive red cells are at risk of developing anti-D antibodies. Rh D-positive foetuses/newborns of these mothers are at an increased risk of developing haemolytic disease of the newborn, which can be associated with serious morbidity or mortality. Babies born to women who are Rh-negative should be tested once delivered to check their Rh status. If they are positive, the mother should be given anti-D immunoglobulin to prevent RhD alloimmunisation. It should be given within 72 hours postdelivery or within 72 hours after abortion if the partner is Rh-positive.

Preventive Antihelminthic Treatment

All gravid women should be given preventive antihelminthic treatment after the first trimester as part of worm infection reduction programmes:

- Give mebendazole 500 mg to every woman once from the second trimester of gravidity. If mebendazole is not available, albendazole may be used (400 mg). Antihelminthic drugs should be given on an empty stomach.
- For a 500 mg tablet, give one tablet stat.
- For a 100 mg tablet, give five tablets stat.

Note: Do **not** give antihelminthic drugs in the first trimester.

Tetanus Toxoid

Tetanus toxoid (TT) vaccination is recommended for all pregnant women depending on their previous tetanus vaccination exposure to prevent newborn mortality from tetanus. All women who are due for their TT vaccine should be immunised Check the woman's TT immunisation status by card or history. If immunisation status is unknown, give the first dose of TT. Plan to give the second dose in 4 weeks.

Malaria in Pregnancy

Malaria Prevention Strategies

WHO currently recommends a three-pronged approach to reduce the burden of malaria infection among all gravid women:

- LLINs
- IPTp
- Prompt diagnosis and effective treatment of malaria cases

Use of LLINs

Sleeping under LLINs is probably the most effective method for preventing mosquito bites at night when pregnant women are asleep. All pregnant women should be educated on using LLINs correctly.

Use of IPTp

IPTp is based on the assumption that every pregnant woman living in areas of high malaria transmission has malaria parasites in her blood or placenta, whether she has symptoms of malaria or not. Pregnant women with malaria infection who do not present with clinical symptoms still suffer health consequences, such as anaemia, low birthweight, and foetal death. Providing intermittent treatment for malaria in these settings has been shown to improve both maternal and foetal health outcomes.

The best available method to clear placental malaria infections and its resulting complications is SP.

WHO now recommends a minimum of three doses of SP instead of two to provide continuous preventive effects. Furthermore, administration time is now based on ANC contacts in the second and third trimester instead of predetermined periods of gestational age.

- The first IPTp-SP dose (three tablets) should be given as early as possible during the second trimester and at each scheduled contact, provided they are 4 weeks apart.
- The last IPTp-SP can be administered late, after 36 weeks (up to the time of delivery), without safety concerns. It is also safe to take on an empty stomach,
- Folic acid at daily dose equal or above 5 mg should **not** be given together with SP, as

this counteracts its efficacy as an antimalarial.

- Pregnant women who are known to have hypersensitivity to sulphonamides should not receive take for IPTp. Always ask about allergy to sulpha drugs before giving SP. In cases of known allergy to sulpha drugs when there are no available alternatives to SP for IPTp, using LLINs is strongly advised.
- Pregnant women should take SP with clean and safe drinking water under directly observed therapy at the ANC 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 this on the antenatal card and in the register health management information system book 6.
- If malaria is confirmed any time after administration of IPTp with SP, a full treatment with antimalarials should be given according to the national malaria treatment guidelines.
- Explain to the woman the importance of returning for the next scheduled ANC contact, and thus the second dose of SP; 4 weeks apart is the minimum period required.
- All pregnant women should be counselled on danger signs that indicate malaria infection and on other gravidity-related problems.

Note: In gravid women with sickle cell disease, malaria infection may lead to life-threatening complications with severe consequences, as it may precipitate sickle cell crisis. A gravid woman with sickle cell disease should take SP, but she should stop taking 5 mg of folic acid for 7 days. SP is contraindicated in HIV-positive women receiving co-trimoxazole prophylaxis.

PMTCT of HIV

In developed countries, the rate of mother-to-child transmission of HIV is under 2% because of various interventions, including access to antiretroviral therapy. Without any intervention, the risk of an HIV-infected mother passing the virus to her infant during pregnancy is about 30–40% during the antenatal period. A pregnant woman identified to be HIV-positive should be offered the same services as other pregnant women.

Maternal Nutritional Counselling and Support

HIV-positive women will need advice on a healthy diet and may need nutritional support during gravidity. Advice on healthy diet depends on availability, cost, cultural considerations, and HIV-related symptoms. They should be advised to eat small, frequent meals to increase absorption.

All pregnant women who are HIV-positive should be given antiretroviral therapy immediately after being diagnosed, according to PMTCT guidelines.

Iron and Folic Acid Supplementation

Tanzania has a high prevalence of anaemia during pregnancy and the postpartum period. Every pregnant woman must be given daily oral iron and folic acid supplementation—300 mg of ferrous sulphate and 0.4 mg of folic acid—to prevent maternal anaemia, puerperal sepsis, low birthweight, and preterm birth.

Iron and folic acid should be given to all gravid women:

- Routinely once daily in gravidity and until 3 months after delivery
- Twice daily as treatment for anaemia (double dose) until the haemoglobin level returns to normal, then continue with once daily dosing

Check each woman's supply of iron and folic acid at each contact and provide a 1-month supply.

Management of Sickle Cell Disease in pregnancy

Preconception Care

When managing patients with sickle cell disease who are considering, pregnancy institute the following measures:

- Have them take folic acid supplementation of 5 mg per day.
- Assess them for:
- Frequency of crisis
- End organ damage (nephropathy, heart failure, stroke)
- Pulmonary hypertension (associated with 30–50% increase in maternal mortality, thus pregnancy is not advised)

Management of Sickle Cell Disease during Gravidity

- Provide good, hospital-based ANC that aims to prevent severe anaemia and infection, effectively treat other medical and obstetric complications, and promote proper management of other sickling complications.
- Give folic acid supplementation of 5 mg once daily.
- Due to the risk of iron overload, iron treatment should be reserved for haematologically proven iron deficiency.
- Antimalarial prophylaxis (IPTp with SP) is also important for avoiding additional haemolytic effects of malaria, which can lead to megaloblastic anaemia. She should **stop** taking 5 mg of folic acid for 7 days after taking SP.
- Haemoglobin estimation must be done at every contact. The woman's results must be known before she leaves the clinic.

Antenatal Syphilis Screening

Syphilis still affects many pregnant women worldwide and continues to be an important cause of adverse outcomes of pregnancy. It is a sexually transmitted bacterial infection caused by the spirochetes *Treponema pallidum*. It can be acquired through contaminated blood products and can also be spread by skin or mucosal contact with an infectious lesion (through nonsexual direct contact, such as skin contact or kissing). During pregnancy, infected women may cause vertical transmission from mother to foetus. Syphilis infection can result in premature birth, low birthweight, foetal death in utero, perinatal death, and congenital syphilis with physical malformations in the foetus. It enhances the transmission of HIV, especially in its primary stage.

All women should have syphilis serological testing—VDRL or rapid plasma reagin, SD-bioline, depending on what is available—performed during the first trimester or at the first ANC contact, then repeated at 26 and 34 weeks.

Treatment *of the Mother According to Stage of Disease*

Early syphilis (less than 2 years duration, based on serology results) can be primary, secondary, or latent (asymptomatic). Give:

Benzathine penicillin 1.8g (2.4 million units) IM as single dose (drug of choice)
OR

1.2 MU in each buttock

OR

Procaine penicillin 1.5 g IM daily for 10 days

For patients who are hypersensitive to penicillin, give erythromycin orally 500 mg three times daily for 7 days in early syphilis.

TB Screening

In 2015, 62,180 cases of TB notification were made in Tanzania. Of these, 79% had pulmonary TB.[14] To reduce TB transmission, active case finding should be done in the ANC clinic as well. Every gravid woman should be screened for TB at 12 (booking), 26, and 34 weeks. TB should be suspected at each subsequent contact if the patient complains of cough for ≥ 2 weeks, accompanied with fever, night sweats, and weight loss.

Interventions for Common Physiological Conditions

Pregnant women may experience a number of discomforts and complications as a result of the pregnancy and associated hormonal changes. The most common physiological conditions include nausea and vomiting, heartburn, leg cramps, lower back and pelvic pain, increased urinary frequency, constipation, oedema, and varicose veins. Health care providers should assess pregnant women for danger signs. Once they are satisfied that there are no danger signs, they should reassure women that these are normal physiological changes and encourage the women to use natural remedies to alleviate these ailments as much as possible.

General Principles for Diagnosing and Managing the Common Discomforts of pregnancy

Assess the woman to determine if her symptoms are within the normal anatomic/physiological range of changes in pregnancy. If they are present:

- Reassure her that her symptoms are normal.
- Explain in simple language the anatomic/physiological reasons for her symptoms.
- Counsel her on prevention and/or relieving measures.
- Advise her to come back for additional care or referral if symptoms remain troublesome or worsen (educate her on danger signs during pregnancy).

Health System Interventions to Improve the Utilisation and Quality of ANC

In Tanzania, approximately 98% of pregnant women receive ANC services at least once during pregnancy. Unfortunately, this percentage declines with subsequent visits. There is a need to devise interventions that improve utilisation of quality ANC, including women-held case

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notes, community-based interventions to improve communication and support, task-shifting components of ANC delivery, recruitment and retention of staff in rural and remote areas, and ANC contact schedules.

Women-Held Case Notes

During pregnancy, each pregnant woman should carry her own maternal health booklet and discharge summary (if she was admitted during pregnancy) containing all relevant information to improve continuity, quality of care, and her pregnancy experience. In health facilities using electronic formats, it is advised that both the maternal health booklet and electronic record of service printout be given to the mother.

Community-Based Interventions to Improve Communication and Support

Implementing community mobilisation through facilitated participatory learning and action cycles with women's groups is recommended to improve maternal and newborn health, particularly in rural settings with low access to health services. Participatory women's groups represent an opportunity for women to discuss their needs during pregnancy, including barriers to reaching care, and increase support for gravid women.

Packages of interventions that include household and community mobilisation and antenatal home contact are recommended to improve ANC utilisation and perinatal health outcomes, particularly in rural settings with low access to health services. To facilitate this, it is advised to have a register of all pregnant women in the community and follow up with women 6 weeks after delivery.

Task-Shi ing Components of ANC Delivery

Task shifting is the promotion of health-related roles for maternal and newborn health to a broad range of cadres, including community health workers, medical attendants, nurses, midwives, and doctors, to provide services, such as recommended nutritional supplements and IPTp.

ANC Contact Schedules

Antenatal contact is an ANC which involves an active connection between a pregnant woman and a health care provider. Pregnant women should have a minimum of eight contacts with a health care provider during the period of pregnancy. The eight contacts coupled with quality services are expected to reduce maternal and perinatal morbidity and mortality, as compared to the four contacts in FANC.

Table 2. Antenatal contact schedule

Recommended antenatal contacts	
Trimester	**Week of contacts**
First trimester	Up to 12 weeks
Second trimester	20 weeks
	26 weeks
Third trimester	30 weeks
	34 weeks
	36 weeks
	38 weeks
	40 weeks
Return for delivery at 41 weeks if woman has not given birth.	

Table 3. Antenatal care protocol chart

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
Firt Contact	Before 12 weeks	- Ensure best practices in antenatal care (ANC) initiated. - Perform comprehensive patient assessment. - Plan for ANC as a positive gravidity experience. - Give health education. - Start preventive interventions. - Develop birth and emergency plan.	- Last normal menstrual period - Confirm estimated date of delivery and gestational age - Quick check (danger signs) - Obstetric - Contraceptive use - Medical - Surgical - Sexually transmitted infection (STI) - Screen for TB - Social: smoking, alcohol/drugs	- General exam, including blood pressure (BP), Pulse Rate(PR), weight, height, (calculate body mass index) - Breast exam - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Pelvic exam *(opt)*	- Syphilis test (rapid plasma reagin) - HIV test - Check urine for albumin, glucose - Check haemoglobin - Determine blood and Rhesus group - Malaria rapid diagnostic test - Urine analysis	- Educate on ANC. - Address any observed or volunteered problems. - Involve husband/ support person in ANC as desired by client. - Develop birth and emergency plan. - Teach danger signs during gravidity. - Discuss STI/HIV/ AIDS and condom use. - After HIV test, provide counselling. If HIV- positive, ask to come back at 14 weeks to begin antiretrovirals for prevention of mother-to-child transmission (PMTCT).	- Give the first dose of tetanus toxoid (TT1). - Give iron/folic acid, calcium. - Provide HIV counselling, testing, and post-test counselling. - If HIV-positive, begin PMTCT immediately. - If BP > 140/90 mmHg, give antihypertensive. - If has glucose in urine, do more tests to diagnose or rule out gestational diabetes mellitus (GDM) or diabetes mellitus (DM) in pregnancy. - If a urinary tract infection, give antibiotics. - If malaria, give antimalarials. - If Rhesus-negative, test the partner, explain to them that the newborn may need to be tested, and give mother anti-D immunoglobulin within 72 hours after delivery. - Treat any problems.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
			-Gender-based violence (GBV) - Social support			- Discuss an advise on common gravidity discomforts, sexual relations, and self-care. - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid - Provide long-lasting insecticide-treated net (LLIN) and counsel on its uses.	- Counsel woman. -Set appointment for next contact. - Record all findings. - Give the woman the maternal health booklet to carry home. If not yet 13 weeks, schedule contact at 13 weeks to begin intermittent preventive treatment of malaria in gravidity using sulphadoxine-pyrimethamine (IPTp-SP).
Second Contact	20 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	- Quick check - Ask date of first foetal movements -Interval history -Social: smoking, alcohol/drugs, intimate partner violence - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Abdominal exam -Check foetal heartbeat	- Obstetric ultrasound scan - Check haemoglobin	- Address any observed or volunteered problems. - Involve partner/ support person in ANC as desired by client. - Update birth and emergency plan. - Review danger signs in gravidity. - If HIV-positive, counsel on PMTCT. - Counsel on LLIN use. - Advise on common discomforts of gravidity.	- Give TT2. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - Give mebendazole. - If HIV-positive, begin PMTCT. - Treat any problems. - Counsel woman. - Record all findings. -Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
						- Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	
ird Contact	26 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	- Quick check - Interval history - Social: smoking, alcohol/drugs, GBV - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Abdominal exam - Check foetal heartbeat	- If BP > 140/90 mmHg, check urine for albumin - Check haemoglobin - Syphilis test (rapid plasma reagin) - HIV test - Check urine for glucose - Urine analysis	- Address any observed or volunteered problems. - Involve partner/ support person in ANC as desired by client. - Update birth and emergency plan. - Review danger signs in.pregnancy - If HIV-positive, counsel on PMTCT. - Counsel on LLIN use. - Advise on common discomforts of.pregnancy - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin Immediately - If a urinary tract infection, give antibiotics. - If glucose in urine, do more tests to diagnose or rule out GDM or DM in gravidity. - Treat any problems. - Counsel woman. - Record all findings. - Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
Fourth Contact	30 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	-Quick check -Interval history -Social: smoking, alcohol/drugs; GBV - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Abdominal exam - Check and count foetal heartbeat	- If BP > 140/90 mmHg, check urine for albumin - Check haemoglobin	- Address any observed or volunteered problems. - Review danger signs in gravidity. - Discuss labour. - Update birth and emergency plan. - Discuss family planning. - If HIV-positive, counsel on PMTCT. - Counsel on LLIN use. - Advise on common discomforts of.pregnancy - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin PMTCT Immediately. - Counsel to use dual protection for family planning/HIV. - Record all findings. - Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
Fi h Contact	34 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	-Quick check -Interval history -Social: smoking, alcohol/drugs, GBV - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Assess foetal lie and presentation - Abdominal exam - Check and count foetal heart rate	- If BP > 140/90 mmHg, check urine for albumin - Check urine for glucose - Check haemoglobin - Urine analysis - Repeat HIV test - Repeat syphilis test	- Address any observed or volunteered problems. - Review danger signs in.pregnancy - Discuss labour and danger signs in labour. - Update birth and emergency plan. - Teach PMTCT in labour, birth, and postpartum. - Counsel on LLIN use. - Discuss family planning and HIV prevention again. - Teach about postpartum care and danger signs. - Teach care of newborn: danger signs in newborn, early and exclusive breastfeeding, thermal care, cord care. - Advise on common discomforts of pregnancy - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin PMTCT Immediately. - If a urinary tract infection, give antibiotics. - If glucose in urine, do more tests to diagnose or rule out GDM or DM in pregnancy, then treat or refer. - Treat any problems. - Counsel to use dual protection for family planning/HIV prevention during the postpartum period. - Counsel woman. - Record all findings. - Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
Sixth Contact	36 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	- Quick check - Interval history - Social: smoking, alcohol/drugs; GBV - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Assess foetal lie and presentation - Abdominal examination - Check and count foetal heart rate	- If BP > 140/90 mmHg, check urine for albumin - Check haemoglobin	- Address any observed or volunteered problems. - Review danger signs in.pregnancy - Discuss labour and danger signs in labour. - Update birth and emergency plan. - Teach PMTCT in labour, birth, and postpartum. - Counsel on LLIN use. - Discuss family planning and HIV prevention again. - Teach about postpartum care and danger signs. - Review care of newborn: danger signs, early and exclusive breastfeeding, thermal care, cord care. - Advise on common discomforts of gravidity.	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin PMTCT Immediately. - Treat any problems. - Counsel to use dual protection for family planning/HIV prevention. - Record all findings. - Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
						- Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	
Seventh Contact	38 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	- Quick check - Interval history - Social: smoking, alcohol/drugs; GBV - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Assess foetal lie and presentation - Abdominal exam - Check and count foetal heart rate	- If BP > 140/90 mmHg, check urine for albumin - Check haemoglobin	- Address any observed or volunteered problems. - Review danger signs in pregnancy - Discuss labour and danger signs in labour. - Update birth and emergency plan. - Teach PMTCT in labour, birth, and postpartum. - Counsel on LLIN use. - Discuss family planning and HIV prevention again. - Teach about postpartum care and danger signs. - Review care of newborn: danger signs, early and	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin PMTCT Immediately. - Treat any problems. - Counsel to use dual protection for family planning/HIV prevention. - Record all findings. - Set appointment for next contact. - Give the woman the maternal health booklet to carry home.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
						exclusive breastfeeding, thermal care, cord care. - Advise on common discomforts of.pregnancy - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	
Eighth Contact	40 weeks	- Provide evidence-based, individualised care. - Continue preventive interventions. - Check maternal well-being and foetal growth. - Provide health education.	-Quick check -Interval history -Social: smoking, alcohol/drugs; intimate partner violence - Social support	- Measure BP, weight - Assess uterine size (symphysis-fundal height/ abdominal palpation) - Assess foetal lie and presentation - Abdominal exam - Check and count foetal heart rate	- If BP > 140/90 mmHg, check urine for albumin - Check haemoglobin	- Address any observed or volunteered problems. - Review danger signs in.pregnancy - Discuss labour and danger signs in labour. - Update birth and emergency plan. - Teach PMTCT in labour, birth, and postpartum. - Counsel on LLIN use.	- If BP > 140/90 mmHg, give antihypertensive. - Refill iron/folic acid, calcium. - Give IPTp-SP if 1 month has passed since previous dose. - If HIV-positive, begin PMTCT Immediately. - Treat any problems. - Counsel to use dual protection for family planning/HIV prevention during postpartum period. - Record all findings.

Contact	Timing of Contact	Goals	History Taking	Examination	Laboratory Investigations	Health Promotion	Actions
						- Discuss family planning and HIV prevention again.	- Set appointment for next contact. - Give the woman the maternal health booklet to carry home.
						- Teach about postpartum care and danger signs. - Review care of newborn: danger signs, early and exclusive breastfeeding, thermal care, cord care. - Advise on common discomforts of.pregnancy - Counsel on healthy eating, physical activity and avoiding harmful habits. - Counsel on daily use of Iron Folic Acid	
- If the woman has not delivered by the end of 40 weeks, she will be required to come back to the clinic at 41 weeks.							

Managing Common Obstetric Complications in pregnancy

Pregnant women may suffer a number of obstetric conditions that may impair both the maternal and foetal outcomes. It is important for health care providers to diagnose these conditions early and offer immediate management. These patients should not follow the routine ANC schedule.

Pre-Eclampsia and Eclampsia

Hypertensive disorders in pregnancy are among the common complications encountered in pregnancy. They contribute significantly to maternal and perinatal morbidity and mortality. A pregnant woman with gestational hypertension (without proteinuria or pathological oedema), pre- eclampsia (hypertension and proteinuria with or without pathological oedema), eclampsia (pre- eclampsia complicated with convulsions and/or coma), chronic hypertension, or pre-eclampsia/eclampsia superimposed on chronic hypertension warrants close antenatal follow-up.

Rh Incompatibility

Rhesus-negative women who give birth to Rhesus-positive newborns should be given anti-D immunoglobulin within 72 hours of delivery to prevent isoimmunisation.

Management of Abortion

It is estimated that at least 15% of all pregnancies will end in spontaneous abortion. In Tanzania, unsafe abortion is believed to be the most underreported, and therefore the most hidden, cause of maternal death. All health providers must provide quality emergency care to every woman who has lost or is losing her pregnancy.

De nition of Abortion

Termination of pregnancy before foetal viability (WHO = 22 weeks, but in Tanzanian context, 28 weeks)

Counsel a client who has threatened abortion on bed rest and avoiding strenuous work, and provide analgesics. Manage other types of abortions as emergencies.

Diabetes Mellitus in Gravidity

Diabetes mellitus is a chronic metabolic disorder due to either insulin deficiency or peripheral tissue resistance to the action of insulin that results in hyperglycaemia. Women who develop hyperglycaemia for the first time during pregnancy are termed to have GDM.

Patients with GDM need more frequent antenatal supervision with periodic checkup of fasting blood glucose levels. The control of high blood glucose is done with restriction of diet and exercise with or without insulin.

Risk assessment for GDM is undertaken at the first prenatal visit. Glucose in urine should be checked at booking, 26 weeks, and 34 weeks.

Care of Women with Special Needs

Women with special needs are women with mental or physical disabilities. Examples of women with special needs include adolescents, survivors of GBV, women in humanitarian crises, and women with physical disabilities. These women may need help in the following areas:

- Communication
- Movement
- Self-care
- Decision-making

Important *Points for Provision of Care for pregnant Women with Special Needs*

It might be necessary when providing ANC to refer women with special needs to other levels of care or to support group(s). However, if this is not possible, counselling and support should be provided at the antenatal clinic. This may be in the form of:

- ***Emotional support:*** When giving emotional support to a woman with special needs, it is particularly important for the health care provider to observe counselling skills and respectful care.
- ***Other possible sources of support:*** The key role of the health care provider is to link health services with the community and other support services available. Existing links should be maintained, and, when possible, needs and alternatives for support should be explored.

Special Considerations for Supporting the Woman Living with Violence

GBV against women affects women's physical and mental health, including their reproductive health. Women may disclose violence to you, or you may see unexplained bruises and other injuries that make you suspect she may be suffering abuse. Health care workers should provide appropriate care and support.

Support the Health Service Response to Needs of Women Living with Violence

- Help raise awareness among health care providers about violence against women and its prevalence in the community the clinic serves.
- Find out if training is available to improve the support that health care providers can provide to those women who may need it.
- Display posters, leaflets, and other information that condemn violence, and information on groups that can provide support.
- Make contact with organisations working to address violence in your area. Identify those that can provide support for women in abusive relationships. If specific services are not available, contact other groups such as churches, women's groups, elders, or other local groups and discuss with them support they can provide or other roles they can play, like resolving disputes. Ensure you have a list of these resources available.

Supporting pregnant Women in Humanitarian Crises

A humanitarian crisis is defined as an event that is threatening in terms of health, safety, or well-being of a community or large group of people. It may be an internal or external conflict and usually occurs throughout a large land area. Local, national, and international responses are necessary in such events. Natural disasters are also part of humanitarian crises. Gravid women in humanitarian crises live in fear and uncertainty. They may not have enough to eat and may have lost family members who used to take care of them. Health care providers should provide appropriate care and support.

Support for Women with Disabilities

This is a special group that is often forgotten, even when designing infrastructure for service delivery. They include women with physical and mental disabilities who require special attention as a motivation to go through pregnancy well. In some instances, such women require companions to navigate the challenges in the health system so they can receive the required care in a timely manner. Care for these women should be tailored to suit each individual, as all women have the right to exercise their reproductive rights.

Note: Special considerations should be made when managing women with special needs.

Counselling

Counselling is an interpersonal communication (face-to-face conversation) where one person helps another to make an informed decision and to work on it. It can be individualised (when the provider speaks with only one client with or without her partner) or with a group (as is the case of health talk in the ANC clinic with more than one pregnant woman). It is important to use good communication skills when counselling the client.

Counselling targets both the pregnant woman and her partner during the ANC contacts. It aims to assist them in developing the individual birth plan and complication preparedness. Advise them on health promotion aspects, such as nutrition, use of LLINs, and personal hygiene. Effective counselling follows the GATHER steps reinforced by CARE skills.

When counselling a pregnant woman in the ANC clinic, the following information should be discussed:

- Nutrition
- Physical activity
- Self-care and hygiene
- Substance abuse/alcohol
- Family planning
- GBV
- Routine and follow-up care
- Danger signs
- Work
- Air travel
- Car travel
- Medication
- Rest
- Sexual activity
- Development of an individual birth plan
- Emergency preparedness and complication readiness
- Advice on labour signs
- Prescribing and recommending treatment and preventive measures for the woman and/or her baby

Infection Prevention and Control

Standard Precautions and Cleanliness

Observe these precautions to protect the woman and yourself as a health provider from infection with blood-borne pathogens, including HIV and hepatitis B viruses. Implement standard precautions according to the current infection prevention and control guidelines.

Sterilised or high-level disinfected instruments may be used immediately or stored in cool, well-covered containers. Instruments that have not been used for 7 days will need to be sterilised or high-level disinfected again before use. Refer to national infection prevention and control guidelines during service provision.

Monitoring and Evaluation Framework

Vital health information management system data are essential to inform service provision, including informing resource prioritisation for quality and effective care at all levels of service provision and administration. Data completeness and timeliness are important.

Monitoring and Evaluation of ANC Services

Data collection tools: Data on services provided during routine ANC services at every health facility in Tanzania mainland must be captured in three data collection tools in real time (once the service has been provided):

Client Card RCH 4

Register Number 6

Daily Tally Sheets Number 6

At the end of the month, data collected using the Daily Tally Sheets is summarised onto Monthly Summary Form Number 6. Information on commodity stock levels is collected daily using ledger book number 4 and summarised monthly using the Reporting and Requesting Form.

Service delivery data elements currently being recorded in data collection tools:

Age of the client

Gestational age

Previous pregnancies history (gravidity, parity, abortions, stillbirths, early perinatal deaths, live births, age of last child)

Key information (height, haemoglobin level, previous cesarean section scar, TT vaccination [TT1, TT2+], any pregnancy at under age 20, first pregnancy above age 35, sugar in urine)

Syphilis screening results (client, spouse/partner)

Management of syphilis infection (client, spouse/partner)

- HIV pre screening counselling (client, spouse/partner)
- HIV screening results (client, spouse/partner)
- Post-HIV screening counselling (client, spouse/partner)
- Second HIV screening results (client, spouse/partner)
- Counselling on feeding options
- Malaria RDT results and given LLIN

- IPTp 1–4
- Supply of iron/folic acid
- Number of ANC contacts
- Referrals

Indicators that can be currently calculated using data elements collected:

- Percentage of clients under age 20
-

numerator from among data elements in health management information system/DHIS2 and denominator from National Bureau of Statistics projections or from among data elements in health management information system/DHIS2.

All clinical records and other documentation must be maintained and filed appropriately. Some ANC monitoring and evaluation framework indicators related to ANC are highlighted in Table 4.

Table 4: Antenatal care (ANC)-related indicators in Tanzania

SNO	Indicator Name	Definition	Numerator	Denominator
1	Adolescent pregnancy	Percentage of pregnant women < 20 years of age who attended ANC clinic	Number of pregnant women < 20 years of age attended ANC clinic	Total number of pregnant women attending ANC first contact
2	Elderly primigravida	Percentage of pregnant women > 35 years of age at first pregnancy	Number of pregnant women > 35 years of age at first pregnancy x 100	Estimated number of pregnant women
3	ANC coverage: First ANC contact before 12 weeks	Percentage of pregnant women who started ANC before 12 weeks of gestation	Number of pregnant women who start ANC before 12 weeks gestation x 100	Estimated number of pregnant women
4	ANC coverage: ≥ 8 ANC contacts	Percentage of pregnant women who completed 8 ANC contacts	Number of pregnant women who completed 8 ANC contacts x 100	Estimated number of pregnant women
5	ANC Referral rate	Percentage of pregnant women attending ANC referred to another facility	Number of pregnant women referred to another facility x 100	Total number of pregnant women attending ANC first contact
6	Tetanus toxoid (TT) coverage	Percentage of pregnant women who received TT2+	Number of pregnant women who received TT2+ x 100	Total number of pregnant women attending ANC first contact
7	Pregnant women tested for malaria at first ANC contact	Percentage of pregnant women attending ANC for the first time who were tested for malaria (mRDT and BS)	Number of pregnant women attending ANC for the first time who were tested for malaria using (mRDT and BS) x 100	Total number of pregnant women attending ANC first contact.
8	Pregnant women who tested positive for malaria parasites	Percentage of pregnant women attending ANC with positive malaria test by mRDT/BS among those tested at the first ANC contact	Number of pregnant women attending ANC with positive malaria tests by mRDT and BS x 100 x 100	Total number of pregnant women tested for malaria at first ANC contact
9A	Intermittent preventive treatment of malaria in pregnancy with sulphadoxine-pyrimethamine (IPTp-SP coverage among pregnant women	Percentage of pregnant women who received IPTp2 (SP) during ANC	Number of pregnant women who received IPTp2 x 100	Total number of pregnant women attending ANC first contact
9B		Percentage of pregnant women who received IPTp3 during ANC	Number of pregnant women who received IPTp3 x 100	Total number of pregnant women attending ANC first contact

10	Antenatal syphilis screening coverage	Percentage of pregnant women tested for syphilis	Number of pregnant women tested for syphilis x 100	Total number of pregnant women attending ANC first contact
11	Pregnant women who tested positive for syphilis	Percentage of pregnant women who tested positive for syphilis	Number of pregnant women who tested positive for syphilis	Total number of pregnant women tested for syphilis at first ANC contact
12	Pregnant women treated for syphilis	Percentage of pregnant women treated for syphilis	Number of pregnant women treated for syphilis	Number of pregnant women who tested positive for syphilis
13	ANC HIV testing coverage	Percentage of pregnant women tested for HIV	Number of pregnant women tested for HIV x 100	Total number of pregnant women attending ANC first contact
14	HIV prevalence at first ANC contact	Percentage of pregnant women who tested positive for HIV at first ANC contact	Number of pregnant women who tested positive for HIV at first ANC contact x 100	Number of pregnant women tested for HIV at first ANC contact
15	HIV discordant couples	Percentage of couples who are discordant	Number of couples who are discordant x 100	Total number of couples tested for HIV
16	Coverage of long-lasting insecticide-treated nets (LLINs) among pregnant women	Percentage of pregnant women who received LLINs during ANC contact	Number of pregnant women who received LLINs at an ANC clinic x 100	Total number of pregnant women attending ANC first contact
17	Pregnant women who received ferrous sulphate with folic acid	Percentage of pregnant women who received ferrous sulphate with folic acid	Number of pregnant women who received ferrous sulphate with folic acid.	Total number of pregnant women attending ANC first contact +_re-contact
18	Family planning (FP) counselling in ANC	Percentage of pregnant women receiving FP counselling at first ANC contact	Number of pregnant women receiving FP counselling at first ANC contact x 100	Total number of pregnant women attending ANC first contact

RESEARCH

Researchers in Tanzania can use this information to do research and find out answers pertaining to maternal and newborn health interventions that work well for Tanzanian women. A number of WHO recommendations for a positive pregnancy experience that fall in this category include:

- Asymptomatic bacteriuria in pregnancy
- Group ANC provided by qualified health care professionals
- Multiple Micronutrient Supplementation in pregnancy

Table 5. Outcomes of interest for research in maternal and foetal/newborn health

Maternal Outcomes	Foetal/Newborn Outcomes
Infections	Newborn infections
Anaemia	Small for gestational age
Pre-eclampsia/eclampsia	Low birthweight
Maternal mortality	Preterm birth
Maternal satisfaction and/or women's rating of usefulness of treatment	Congenital anomalies
	Foetal/newborn mortality
Test Accuracy Outcomes	**Health System Outcomes**
Sensitivity and specificity	Antenatal care coverage
	Facility-based delivery

Source: *WHO recommendations on antenatal care for a positive pregnancy experience*, 2016