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National Guidelines for Antenatal Care

For Service Providers

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The Republic of The Union of Myanmar Ministry of Health and Sports

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MCSP is a global USAID initiative to introduce and support high-impact health interventions in 25 priority countries to help prevent child and maternal deaths. MCSP supports programming in maternal, newborn, and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. MCSP will tackle these issues through approaches that also focus on household and community mobilization, gender integration, and digital health, among others.

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3TC	Lamivudine
ACT	Artemisinin-based combination therapy
AFB	Acid-fast bacillus
AIDS	Acquired immunodeficiency syndrome
ALT	Alanine aminotransferase
ANC	Antenatal care
ART	Antiretroviral treatment
ARVs	Antiretroviral medicines
ATD	After test dose
BHS	Basic health staff
BMI	Body mass index
CHW	Community health worker
DBP	Diastolic blood pressure
DOT	Directly observed treatment
EDD	Estimated date of delivery
eMTCT	Elimination of MTCT
EFV	Efavirenz
EPI	Expanded program of vaccination
FANC	Focused antenatal care
FHS	Fetal heart sounds
FTC	Emtricitabine
GBV	Gender-based violence
HBeAg	Hepatitis B e-antigen
HBsAG	Hepatitis B surface antigen
HBV	Hepatitis B virus
HIS	Health information system
HIV	Human immunodeficiency virus
HTSP	Healthy timing and spacing of pregnancy
IEC	Information, education, communication
IM	Intramuscular

ITN	Insecticide-treated net
IUGR	Intrauterine growth restriction
IV	Intravenous
LLIN	Long-lasting insecticide-treated bednet
LMP	Last menstrual period
MCPC	*Managing complications in pregnancy and childbirth* (WHO IMPAC Manual)
MCSP	Maternal and Child Survival Program
MDR-TB	Multi-drug-resistant tuberculosis
MMA	Myanmar Medical Association
MOHS	Ministry of Health and Sports
MRH	Maternal and reproductive health division of MOHS
MTCT	Maternal-to-child transmission (of HIV)
NGO	Nongovernmental organization
OG	Obstetrics and gynecology
OGTT	Oral glucose tolerance test
PMTCT	Prevention of mother-to-child transmission
RHC	Rural health center
RPR	Rapid plasma reagin (test for syphilis)
SBP	Systolic blood pressure
STI	Sexually transmitted infections
Td	Tetanus diphtheria immunization
TDF	Tenofovir disoproxil fumarate
TT	Tetanus toxoid
USAID	United States Agency for International Development
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organization

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Forward

In keeping with Myanmar's National Health Plan 2017–2020, which aims to strengthen Myanmar's health system and improve access to quality essential health services and interventions for the entire population, the Maternal and Reproductive Health Division of the Ministry of Health and Sports is issuing these National Guidelines for Antenatal Care for Service Providers. The goal of the National Guidelines for Antenatal Care is to enable service providers at all levels of the health system to use evidence-based knowledge and skills to deliver quality antenatal care (ANC) that leads to improved outcomes for pregnant women and their newborns.

The National Guidelines for Antenatal Care provide information on the structure and content of ANC as a platform to ensure timely and consistent health promotion, screening and diagnosis, disease prevention, and service provision in the context of respectful care, in an integrated manner. They serve as a basic standard for provision of evidence-based care and monitoring and evaluation of quality of services.

The National Guidelines for Antenatal Care are timely as the World Health Organization (WHO) released the *WHO recommendations on antenatal care for a positive pregnancy experience* in 2016.[1] WHO recommends at least eight contacts during the antenatal period to prevent, detect, and manage potential problems and thus reduce the incidence of stillbirths while increasing women's satisfaction with their care. These recommendations, as well as clinical guidance on management of complications, are reflected in the National Guidelines for Antenatal Care.

Although about 73% of women in Myanmar have at least four antenatal contacts, only 36% give birth in a health facility.[2] Quality ANC services can serve to increase the number of women with at least eight ANC contacts and, with adequate counseling on birth preparation/complication readiness, can increase the number who give birth with a skilled service provider in a health facility that provides quality services.

Improving the health of mothers and their newborns benefits Myanmar society as a whole. We hope that these National Guidelines for Antenatal Care for Service Providers will contribute to the efforts of all who diligently care for women in this critical period.

[1] World Health Organization (WHO). *WHO recommendations on antenatal care for a positive pregnancy experience.* Geneva: WHO, 2016.
[2] UNICEF. Statistics, Myanmar. https://www.unicef.org/infobycountry/myanmar_statistics.html.

Acknowledgements

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Introduction

Because pregnancy is a critical period for both the mother and the unborn baby, quality care during pregnancy is essential. ANC services link the woman and her family with the formal health system, increase the chance of the mother using a skilled attendant at birth, and contribute to optimal health through the life cycle. Inadequate ANC can interrupt the continuum of care, affecting both women and babies. To achieve the quality and continuity of services, various approaches have been employed. In the 1990s, the traditional approach to ANC was criticized for irregular visits, long waiting times, little communication with women and maternity units, and lack of focus on the psychosocial aspects of pregnancy.

To overhaul the deficiencies of the traditional approach, the WHO adopted focused antenatal care (FANC) in 2002, an evidence-based and goal-orientated approach. The new approach was based on a model of four ANC visits and low- and middle-income countries widely embraced it. However, globally only 64% of pregnant women had the recommended four visits during 2007–2014. Furthermore, studies showed that FANC had little or no effect on cesarean section rates or maternal mortality, and was likely associated with more perinatal deaths than models with at least eight visits. Therefore, FANC is no longer recommended.[1]

A set of reviews was undertaken to determine the best way to improve maternal and newborn outcomes through improved uptake of ANC services. The results are included in the 2016 *WHO recommendations on antenatal care for a positive pregnancy experience* and ANC models with a minimum of eight contacts are now recommended to reduce perinatal mortality and improve women's experience of care[3]. Myanmar reflects the experience of other low and middle-income countries with only 59% of pregnant women having four or more ANC visits. With 87% of pregnant women receiving iron tablets or syrup, 60% of women undergoing blood or urine testing, and 72% of women with tetanus immunization in their last pregnancy, there is significant room for improvement for both timing and quality of services for ANC in the country.

To address these gaps and deliver essential quality services, these guidelines can serve as a catalyst to ensure that all women, regardless of ethnicity, place of residence, level of education, or financial status, receive ANC beginning as early as possible and continuing throughout their pregnancy. Further, the guidelines can be deployed as a platform for placing ANC as a component of the national essential health care package, and can ensure that the health system is prepared to provide quality and equitable ANC services at all levels of the health system.

[3] World Health Organization. Ibid.

Part A: Basics of Antenatal Care

1. Guiding Principles of Antenatal Care

Antenatal care focuses on both the medical and psychosocial needs of each pregnant woman, within the context of the health care system and the culture in which the woman lives. WHO defines ANC as "the care provided by skilled health care professionals to pregnant women and adolescent girls in order to ensure the best health conditions for both mother and baby during pregnancy. The components of ANC include: risk identification; prevention and management of pregnancy-related or concurrent diseases; and health education and promotion.[1]" WHO's recommendations include results from itsrecent scoping review that reveal that women desire a positive pregnancy experience that includes:

- Maintaining physical and sociocultural normality
- Maintaining a healthy pregnancy for mother and baby (including preventing and treating risks, illness, and death)
- Having an effective transition to positive labor and birth
- Achieving positive motherhood (including maternal self-esteem, competence, and autonomy)

Also essential are:

- Placing the woman at the center of care
- Promoting innovative, evidence-based approaches to ANC
- Enhancing the woman's experience of pregnancy and ensuring that babies have the best possible start in life
- Aligning with the Sustainable Development Goals to expand care beyond survival, prioritizing person-centered health and wellbeing, not only the prevention of death and morbidity

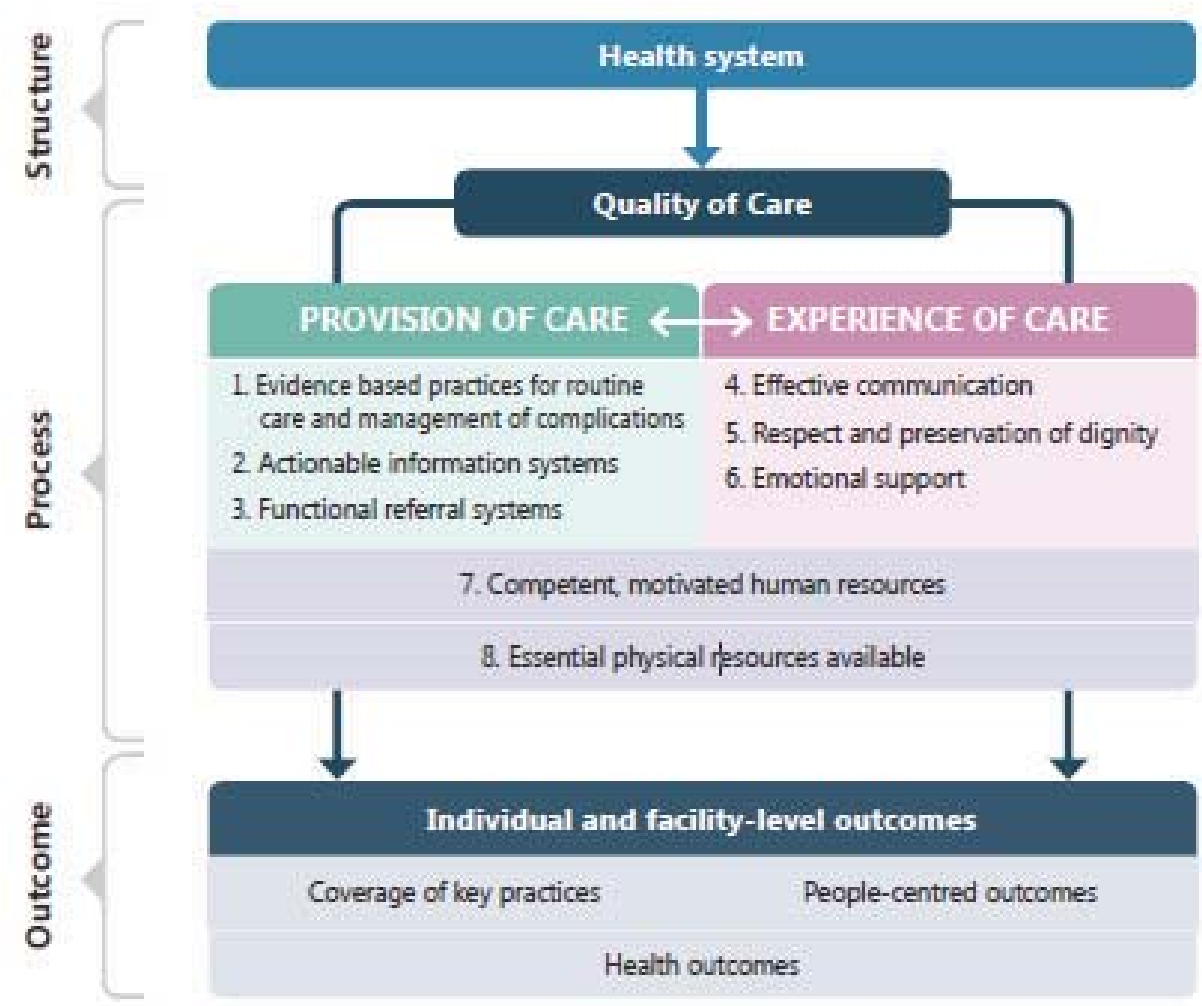
To improve perinatal outcomes and maternal satisfaction, WHO calls for a minimum of eight contacts during pregnancy. It explicitly replaces the word "visit" with "contact," to imply active engagement between the pregnant woman and the service provider; "contact" is used in this document. A contact can also take place in the community through outreach activities by skilled service providers (i.e., midwives). In some geographic areas, auxiliary midwives can also provide certain elements of care. The first ANC contact should take place in the first trimester, two contacts should take place in the second trimester and five in the third trimester. This new model aims to reduce the incidence of stillbirths and increase the woman's satisfaction with her care. The model should be instituted within a framework of quality services that promotes empowerment and engagement of women and families in their care.

To deliver quality ANC, lay providers (maternal and child health promoters, community health workers [CHW]), community support groups, etc.) should support service providers by acting as coordinators between providers and the community and educating women about the importance of ANC. Equity of service provision is paramount to ensure that all women receive quality and timely ANC. Evidence shows that women in low and middle-income countries who are poor, less educated, and living in rural areas have lower ANC coverage and worse pregnancy outcomes than more advantaged women do in the same countries (WHO, Equity 2015). Thus, ANC interventions can potentially reduce health differences among various groups of women. Ensuring the quality of care must be an inherent and essential component of all services to improve the health of mother and her unborn baby.

2. Principles of Quality Care

As important as equity in delivering ANC services is the quality of the services. Using the WHO definition, quality of care is "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered."[4] WHO designed a quality of care framework by identifying domains that should be targeted to assess, improve, and monitor care in health facilities in the context of the health system.[5] The process of care includes provision of care, use of evidence-based practices for routine and emergency care, information systems in which record keeping allows review and auditing, and functioning systems for referral between different levels of care. Experience of care consists of effective communication with women and their families about the care provided, their expectations and their rights; care with respect and preservation of dignity; and access to the social and emotional support of their choice. The cross-cutting areas of the framework include the availability of competent, motivated human resources and physical resources that are prerequisites for good quality of care in health facilities (see Figure 1).

Figure 1. WHO Framework for the Quality of Maternal and Newborn Health Care[4]



[4] Tunçalp Ö, Were WM, MacLennan C, et al. *Quality of care for pregnant women and newborns—the WHO vision.* BJOG. 2015;122(8):1045-9.
[5] WHO. *Standards for improving quality of maternal and newborn care in health facilities.* Geneva: WHO, 2016.

The following are required for achieving quality care:

- Respectful maternity care including continuous communication with women and families in the context of linguistically and culturally appropriate services
- Use of standard precautions for infection prevention and control
- Organization of services
- Clinic management and client flow
- Effective referral mechanisms

Respectful Maternity Care

Service providers should be aware of the rights of women who receive maternity care services. The following points are from WHO's 2017 IMPAC (Integrated Management Of Pregnancy And Childbirth) manual, *Managing complications in pregnancy and childbirth, 2nd edition:*

- Every woman receiving care has the right to information about her health.
- Every woman has the right to discuss her concerns in an environment in which she feels confident.
- A woman should know in advance the type of procedure that is going to be performed.
- A woman (or her family, if necessary) should give informed consent before the service provider performs a procedure.
- A woman (or her family, if necessary) has the right to decline any treatment or procedure offered.
- Procedures should be conducted in an environment in which the woman's right to privacy is respected.
- A woman has the right to determine how her health information is used and to whom her information is disclosed by service providers.
- A woman should be made to feel as comfortable as possible when receiving care.
- A woman has the right to express her views about the services she receives.

Service providers should use basic communication techniques when talking to a woman about her pregnancy or a complication. These techniques help the service provider establish an honest, caring, and trusting relationship with the woman. If a woman trusts her service providers and feels that they have her best interests at heart, she is more likely to return to the facility.

All staff in the ANC clinic should understand how to make women and their companions feel welcome, and treat them with kindness and respect. Service providers should speak the local language or have a translator available and must use terms easily understood by the woman. Opportunities should be given for the woman to ask questions (and have her questions answered) throughout the visit.

Service providers should explain why exams and tests are being done and obtain permission from the woman before performing them (informed consent). The woman has the right to accept and refuse treatment and to be fully aware of the risks and benefits of accepting or refusing the care. If treatments or medications are indicated, the woman should be informed about the reason for them and understand how to use them (dose, timing, whether they may be taken with food, possible side effects, etc.). Service providers must understand local culture, norms, and taboos to improve communication and build trust with women and their husbands,

partners, or other support persons. Service providers should evaluate and revise communication strategies to support informed decision making by women and their families using evidence-based information.

The clinic space should be organized to provide visual and auditory privacy. All staff should understand that women have the right to confidentiality and their personal information is never shared with other service providers or outside the clinic. Client records and registers must be kept where only responsible service providers have access to them.

Linguistic and Cultural Diversity

Myanmar is one of the most linguistically diverse countries in Southeast Asia, having more than 100 indigenous languages and dialects spoken within the country. Women from linguistic and culturally diverse backgrounds have specific issues and concerns. Women's experiences also differ depending on residential status, educational level, and prior experience of pregnancy and childbirth.
Women from different cultural backgrounds may perceive the social worker, interpreter, and/or service provider to be in a position of authority, and thus are unwilling to divulge personal health information. Even the perception of authority may have a negative impact on the clinical consultation as women may have had previous unpleasant encounters with authorities. Therefore, it is very important for people working with women from different cultures to find a way to gain their trust at the outset. One approach is to be aware and talk about the woman's background and culture. This breaks down barriers between the woman and service providers, and helps her open up about her health and concerns. In addition, service providers should be mindful that the gender of the interpreter can have an impact on the outcome of the consultation, especially where sensitive health issues are involved.

Variations in language can lead to misinterpretations if an unqualified interpreter is used. For example, the service provider may not be aware that there are several versions of a language (e.g., Karen), and may not ask an appropriate interpreter to assist. In addition, family members may be fluent in different languages, which makes explaining even simple concepts difficult. A situation may arise where the husband is fluent in both Karen and Burmese, but his wife can understand only Karen. An interpreter who speaks only Burmese must explain what the service provider is saying to the husband, which makes his wife reliant on him to relay the message to her in Karen.

Hence, service providers are encouraged to develop an understanding of the issues facing women and babies from the culturally and linguistically diverse groups that they regularly work with and to use this information to improve care.

Use of Standard Precautions for Infection Prevention and Control

All clinical services should use infection prevention and control practices to protect service providers and the women they serve. These include:

- Washing hands with soap and water, or using alcohol-based hand rub, before and after seeing a client, donning and doffing gloves, and whenever hands are visibly soiled
- Wearing exam gloves for non-sterile procedures such as drawing blood or inspection of external genitalia
- Wearing exam gloves for procedures such as vaginal exams, unless ruptured membranes are suspected
- Using single-use syringes, needles, and lancets when giving injections or drawing blood and disposing of them after each use, avoiding re-capping needles
- Disposing of needles and other sharps in puncture-proof containers and incinerating them when three-quarters full
- Disposing of used gloves and other contaminated items in leak-proof receptacles that will be buried or burned

- Wiping down exam tables and other equipment daily, or when soiled, with 0.5% chlorine solution

Organization of Services, Clinic Management and Client Flow, and Effective Referral Mechanisms

Effective organization of services and management of clinics, facilities, and client flow and effective referral protocols and mechanism that followed are critical to ensuring that women receive equitable and quality services. See Part B: Providing Antenatal Care for guidance on these areas.

3. Populations with Special Needs

Women with special needs require care in addition to the core components of basic care. An important goal in caring for women with special needs during pregnancy is to determine whether their needs require special care/referral or whether the service provider can address them appropriately during the ANC contact. It is the service provider's responsibility to ensure that all relevant information ismade available to other providers in the same health facility or in another level of care if she is referred. This may include:

- Providing all information related to the special needs that have been identified.
- Making special recommendations about the woman's care during the antenatal, labor/birth, and postpartum periods, referral to special care, or supportive services as indicated.
- Facilitating linkages as appropriate with local sources of support (adolescent/youth corners, one stop crisis center, social welfare, public health agencies, peer support groups, community service organizations, etc.)

In these guidelines, women with special needs include:

- Adolescents (10—19 years old)
- Women living with HIV
- Women encountering gender-based violence (GBV)
- Those in remote areas because of their greater vulnerabilities and health care needs

Adolescents (10–19 years old)

While assessing and caring for adolescents, use good interpersonal skills. Important goals in providing care to adolescents are to:

- Provide them with the information they need to meet immediate challenges; for example, knowledge of and linkage to services for antenatal, delivery and newborn care; basic parenting skills; and postpartum care, including family planning.
- Support them to identify and overcome obstacles and receive quality care through linkages for services like transportation and social support from the local community.
- Advocacy/counseling to parents, caregivers, and family members about pregnant adolescents' special needs.

Perform basic assessments with the following additions and/or emphases:

- Determine the circumstances surrounding the pregnancy.
- If the pregnancy is the result of any form of sexual abuse, see the section on Populations with Special Needs, Women Encountering Gender-Based Violence for additional information about assessment and provision of care.
- Identify physically and mentally challenged adolescents and refer them to specialized services.
- Focus on identifying barriers to care as well as harmful behaviors and practices.
- Confirm pregnancy through history, physical examination, and investigation (urine or serum pregnancy tests and ultrasound exam), and provide appropriate ANC and counseling.

Women Living with HIV

Women living with HIV/AIDS should be offered quality care during the pregnancy, birth, and the postpartum period, including prevention of mother-to-child transmission (PMTCT), family planning, and HIV-related treatment, prevention, and care.

Support for women living with HIV includes:

- Initiation of antiretroviral therapy (ART) as early as possible and life-long treatment, regardless of clinical stage or CD4 count, according to global and national recommendations (WHO 2016, National AIDS Program 2017).
- Assistance in choosing an appropriate contraceptive method. Whatever method is chosen, transmission of HIV and other sexually transmitted infections (STIs) warrants special consideration during family planning counseling, including dual protection.
- Linkages to international nongovernmental organizations (NGOs) and other NGOs for support services they may need.

Women Encountering Gender-Based Violence

Special consideration should be given to women who may be encountering violence.[6] Intimate partner violence affects women's physical and mental health, including their reproductive health. While not all service providers are trained to deal with this problem, unexplained bruises and other injuries may be indications of abuse. The following are recommendations on how to respond and support women living with violence.

- Help her recognize her right to high-quality care: be sure that she feels welcome, knows what services are available, and understands how to access these services.
- Demonstrate sympathy and understanding.
- Help her feel safe by ensuring a pleasant environment and using a kind, nonjudgmental approach to communication.
- Provide a space where the woman can speak in privacy where her partner or others cannot hear. Do all possible to guarantee confidentiality, and reassure her of this.
- Gently encourage her to tell you what is happening to her. Ask indirect questions to help her tell her story.
- Listen to her in a sympathetic manner. Listening can often be of great support. Do not blame her or make light of the situation. She may defend her partner's action. Reassure her that she does not deserve to be abused in any way.
- Help her to assess her present situation. If she thinks she or her children are in danger, explore together the options to ensure her immediate safety (e.g., can she stay with her parents or friends? Does she have, or could she borrow, money?)
- Explore options with her. Help her identify local sources of support, either within her family, friends, and local community or through NGOs, shelters, or social services, if available. Remind her that she has legal recourse, if relevant.
- Suggest that she keep a bag packed with money, clothes, and important papers—in case it is necessary to leave home quickly, and plan and rehearse an "escape route".

[6] WHO, UNICEF, UNFPA. *Pregnancy, childbirth, postpartum and newborn care: A guide for essential practice.* 3rd edition. Geneva: WHO, 2015.

- Offer her an opportunity to see you again. Violence by partners is complex, and she may be unable to resolve her situation quickly.
- Document any forms of abuse identified or concerns in the file.
- Be aware of, and gently responsive to, a possible fear of vaginal examinations or any invasive procedure.
- If she is suspected or reported to be a survivor of sexual assault, follow the national 2017 GBV guideline 2017.

Women Living in Hard-to-Reach Areas

Rates of infant and under-5 deaths are significantly higher among women living in rural areas (Maternal and Newborn Health Country Profiles, Myanmar of UNICEF, 2011). In rural and remote areas, the rate of maternal deaths is also higher than in urban areas (Thematic Report on Maternal Mortality, 2014 Myanmar Population and Housing Census).

Women living in hard-to-reach areas may have difficulties accessing appropriate ANC due to limited availability and/or accessibility of services. They may incur extra costs, and experience lack of practical and emotional support, inappropriate or culturally unsafe health care, and temporary separation from family members.

Support for women living in hard-to-reach areas includes:

- Provision of information about ANC and promotion of health literacy
- Linkages to services providing quality care
- Establishment of a community-based referral system

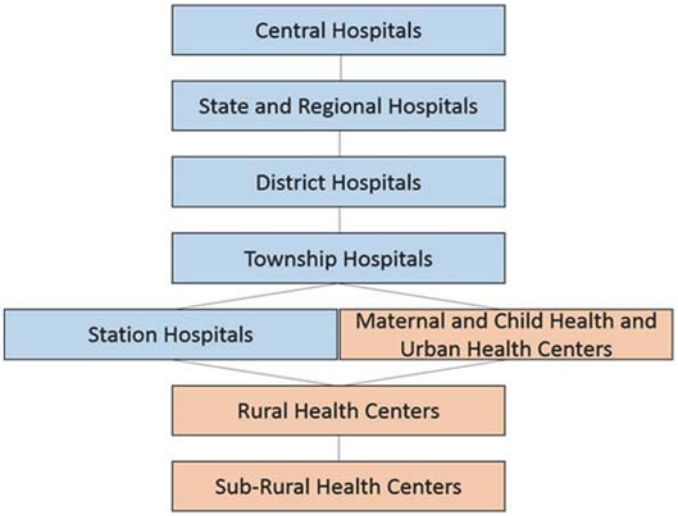
Part B: Providing Antenatal Care

To provide effective ANC services, each level of the health system should have defined resources to ensure readiness so that service providers can fulfill the needs of the women they care for. It is crucial to organize and manage services efficiently including conducting quick checks for prioritization of care, maintaining appropriate client flow, and developing proper referral mechanisms.

1. Level of Care

In Myanmar, health services are provided through networks of health facilities and health centers down to the village level (Figure 2). Regional/state health departments manage regional and state tertiary hospitals (200–500 beds), services, and referrals. The next level down, township health departments manage township hospitals (25–100 beds), the first referral hospitals for the patients from station hospitals (16–25 beds), rural health centers (RHCs), and sub-rural health centers (sub-RHCs). Each RHC has four sub-RHCs associated with it. Under the township hospitals, station hospitals serve as basic health units for curative services with essential elements such as general medical, surgical services, and obstetric care. They are accessible to the rural population and usually situated about 10 to 20 kilometers away from the township hospitals.

Figure 2. Flow of Health Service Facilities



Staff associated with RHCs include one public health supervisor grade I, four public health supervisors grade II (one at each sub-center), six midwives (two at the RHC and one at each of the four sub-centers), one lady health visitor, and one health assistant at the RHC. They are responsible for maternal and child health (clinic or home care), school health, nutritional promotion, immunization, community health education, environmental sanitation, disease surveillance and control, treatments of common illnesses, referral services, birth and death registration, and training of volunteer health workers (CHWs and auxiliary midwives).

To facilitate effective service provision and implementation, care in these guidelines is described according to the level of health facility: **health center level** and **hospital level**. Health center level includes RHCs and sub-RHCs, maternal and child health centers, and urban health centers. Hospital level includes station hospitals and above.

2. Service Delivery at the Health Center and Hospital Levels

Organization of Services

Antenatal clinics should ensure that their opening hours are convenient for the clients they serve and that they are clearly posted. ANC clinics will differ depending on the type of facility but all clinics should offer:

- Clean and neat waiting areas with adequate seating for clients and their companions
- Culturally appropriate posters or other written material that address local health concerns such as nutrition, breastfeeding, family planning methods, etc.
- Toilet facilities that are clean and allow clients to wash their hands

- Handwashing facilities for service providers with water source, soap and individual towels
- Consultation room with privacy and clean examination beds for counseling and examination
- Clean, well-organized area to maintain client records and registers that is accessible only to designated clinic staff
- See Appendix 3 for basic equipment and supplies required for an ANC clinic.

Clinic Management

Staff should check before and after each clinic session to see that the area is clean, trash and sharps are discarded properly, surfaces are wiped down, and all equipment and supplies are available and organized.

A designated person should ensure that equipment and supply inventories are up to date, and that ordering is done regularly. Reports should be completed and sent to related authorities as appropriate.

Standardized records and proper documentation should be used. Women should be encouraged to keep their own records to track health data until national health information systems are able to ensure recording and recovery of health data at all points of care.

Client Flow

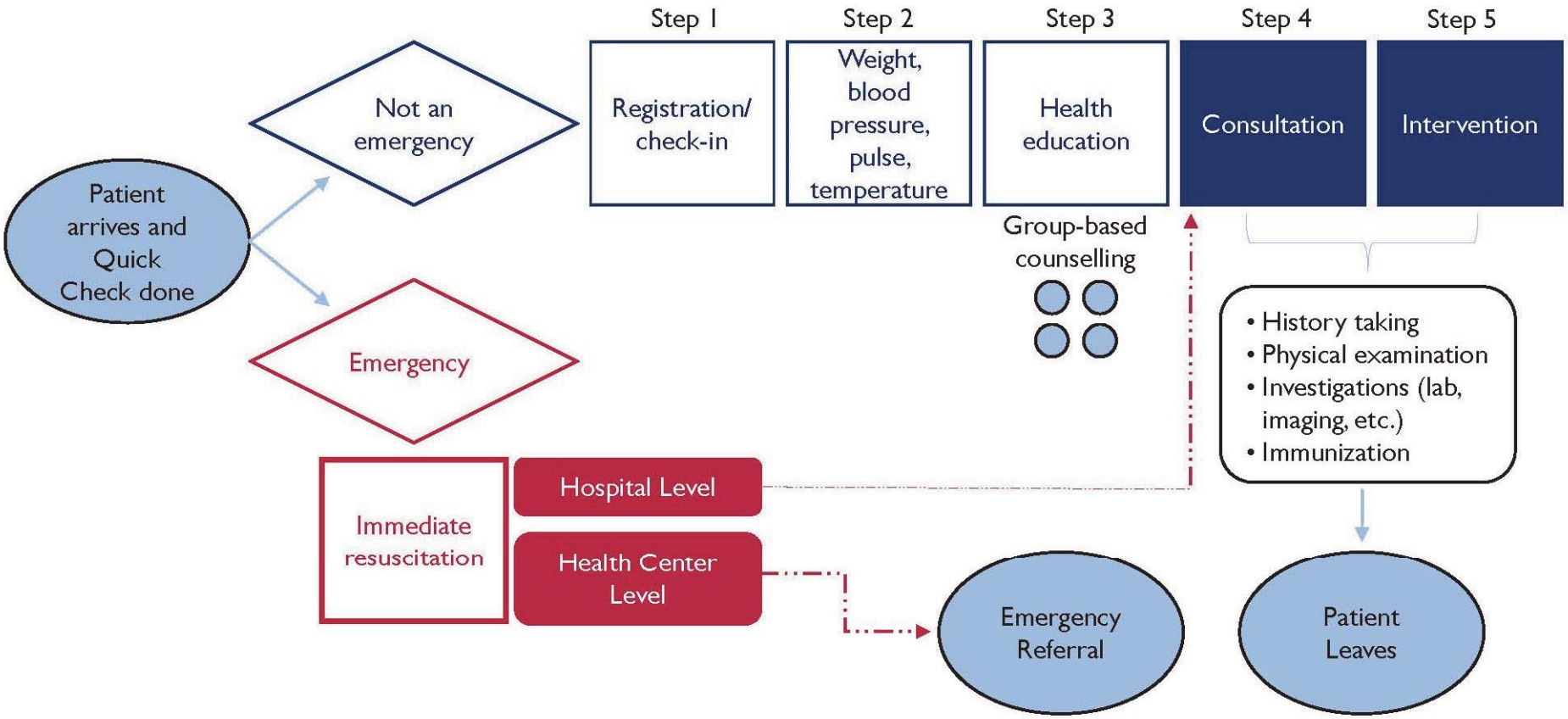
Upon arriving at the ANC clinic, every woman should be asked about and observed for danger signs and if they are present, a service provider should assess the woman immediately (see Quick Check).

ANC clinics should organize group-based educational sessions for women and their companions while they wait to see the service provider. The sessions should be interactive, cover relevant topics, and include culturally appropriate audio-visual aids whenever possible.

After checking in, the woman should see the same service provider (if possible) throughout the visit to ensure continuity of care. This includes history-taking, physical examination, laboratory tests and results, prescription of medications and counseling on their use, general counseling, birth preparation and complication readiness, responding to the woman's questions and concerns, and scheduling of next visits. Laboratory exams should be done at the time of the visit and if possible results given and discussed immediately.

Thank the woman for coming to the clinic and ensure that she knows when to return for her next contact. Figure 3 describes a pathway for the woman from the time she enters the health facility to the time she leaves or is referred.

Figure 3. ANC Process Map



Rectangles represent activities in the cycle of care, diamonds represent decision nodes, and dotted lines represent referral pathway.

Quick Check

Upon arrival at the clinic, all women should have a "quick check" done by a designated person. This does not need to be a service provider, but must be someone trained to ensure that women in obvious distress (i.e., bleeding, convulsing, unconscious, in severe pain, in advanced labor) are evaluated immediately by a service provider and not made to wait in line or in a waiting room (see Box 1). If clinic waiting times are long, a designated person should periodically do a Quick Check in the waiting room to ascertain if any woman is experiencing danger signs, and if so send her for immediate evaluation.

Each clinic must have a designated space to provide rapid assessment and management of emergencies. The space should be equipped with an exam table; lamp or hand-held torch; sterile gloves; intravenous fluids, cannulas, and drip sets; blood pressure cuff and stethoscope; Pinard fetoscope and/or electronic Doppler; thermometer; urinary catheters; rapid diagnostic tests for malaria; blood-drawing supplies; and medications such as magnesium sulfate, antihypertensives, antimalarials, and oxytocin. Handwashing supplies, a puncture-proof container, containers for contaminated trash, and relevant forms and documents should also be available.

Box 1: Quick Check—pregnant women with these symptoms require immediate attention:

- Loss of consciousness/fainting
- Convulsions
- Respiratory distress
- Vaginal bleeding
- Acute abdominal pain
- Severe headaches, blurred vision, and vomiting
- Fever
- Contractions (signs of labor)
- Leaking of liquor (rupture of membranes)

The rapid assessment and management area should have up-to-date guidelines available and/or posted about management of airway, breathing, and circulation (ABC) and about common emergencies such as severe anemia, bleeding during pregnancy, severe pre-eclampsia/eclampsia, severe malaria, etc.

Refer to the WHO manual *Pregnancy, childbirth, postpartum and newborn care: A guide for essential practice* and/or *Managing complications in pregnancy and childbirth* (MCPC), 2nd edition 2017, for management of specific complications during pregnancy.

Referral Mechanism

Every facility should have a referral mechanism that includes:

- Emergency transport system
- Indications for referral and a flow chart of referral pathways
- A designated staff member to make decisions on referral of emergencies. After management of the emergency requiring stabilization and referral, the designated person should discuss the decision for referral with the woman and her companion/relative
- A way to inform the referral facility of the emergency, i.e., phone, SMS
- A referral form with all pertinent information (see Appendix 1 for referral and feedback record forms)
- A service provider who can accompany the woman by a service provider to provide continuing care during transport and who can ensure safe delivery if necessary
    - If necessary, a person who can donate blood should accompany the woman
- Availability of essential drugs and supplies, i.e., IV fluids, magnesium sulfate, oxytocin, misoprostol
- A record of all treatment/medications given

3. Content of First and Return ANC Contacts

Main ANC Goals

The ultimate goal of all ANC is a healthy outcome for the mother and her newborn, as well as a positive experience with the health system. In ANC, this is accomplished through the following:

- Risk identification
- Prevention and management of pregnancy-related or concurrent diseases
- Heath education and health promotion

Risk Identification

An important component of ANC is identifying women at risk for problems that can complicate their pregnancy. ANC promotes targeted assessment, during which the service provider interviews, examines, and tests the woman to determine her risk of developing pregnancy-related complications and her risk of conditions that are common in the population served.

One way of establishing risk is by taking a thorough history to determine if the woman has had hypertension in previous pregnancies, which could increase her risk of complications in the current pregnancy. It underscores the need to take a woman's blood pressure at every ANC visit to screen for existing hypertension or hypertension that develops later pregnancy. A list of the risks that should be identified are given below under "Diagnosis" in "How to Conduct the First ANC Contact".

Prevention and Management of Pregnancy-Related or Concurrent Diseases

Another component of targeted assessment is detection of signs and symptoms of pregnancy complications (such as abruptio placenta) and pre-existing diseases (such as diabetes). The service provider should manage complications or provide initial management and stabilization, including life-saving measures as needed. Facilitating management or referral to a higher level of care is an important role of the ANC provider.

Health Education and Health Promotion

Antenatal care should promote discussions of important health issues at each visit. The service provider should ensure that the woman and her family have the information they need to make healthy decisions during pregnancy, childbirth, and the postpartum/newborn period—as well as sufficient guidance in applying that information in their specific situation. This includes, but it not limited to, healthy eating during and after pregnancy, exercise, counseling about exclusive breastfeeding, healthy timing and spacing of pregnancies, and methods of postpartum family planning.

Specific components of the first and subsequent ANC contacts are described in Table 2.

How to Conduct the First ANC Contact

Objectives

- Perform risk assessment and detect signs/symptoms of complications or diseases
- Calculate estimated date of delivery (EDD)/gestational age by last menstrual period (LMP) and physical exam
- Provide health education and health promotion
- Initiate development of the birth plan and complication readiness plan

History: ASK

- Name, age, address, phone number, occupation, marital status
- Menstrual history: date of first day of LMP; current or previous breastfeeding, and contraception; calculation of EDD and gestational age
- Obstetric history: number of previous pregnancies and outcome of each; previous cesarean sections; problems and complications including bleeding and high blood pressure
- Gynecological history
- Medical history including hypertension, convulsions, diabetes, tuberculosis, and other past and current medical problems; current medications including use of medications and herbal/traditional remedies, drug history including allergies
- History of present pregnancy including any complications to date
- Surgical history (including presence of uterine scar)
- Family history (e.g., genetic disorders)
- Nutrition history: how many meals/day, usual content of meals
- Social history including use of alcohol, tobacco, exposure to second-hand smoke, betel chewing, caffeine in large quantities (>300 mg/day), or other harmful substances; screening for intimate partner violence as appropriate

Physical exam: LOOK, LISTEN, AND FEEL

- Vital signs: weight, height, calculate body mass index (BMI)[7] (Appendix 2), pulse rate, respirations, and temperature. Blood pressure should be taken in sitting position, feet flat on floor, with apparatus at heart level, and the correct size blood pressure cuff.
- General condition and level of consciousness
- Presence of conjunctival and palmar pallor or jaundice; facial edema
- Condition of breasts and nipples (lesions or inverted nipples)
- Extremities for presence of varicosities, calf tenderness
- Abdominal inspection for tenderness and scars
- Obstetric examination: assessment of uterine size to confirm gestational age; fetal movement; fetal heart sounds; fetal position after 36 weeks
- Inspection of external genitalia for lesions or discharge as indicated

[7] Body mass index (BMI) is derived from a person's weight in kilograms divided by the square of height in meters (kg/m2) and is a measure of body fat. It is assumed that there is not a great difference between pre-pregnancy weight and weight obtained in the first trimester, thus, the BMI chart for pre-pregnancy weight should be used (see Appendix 2).

Testing: SIGNS

Table 1. Testing for Health Centers and Hospitals

Health Center	Hospital
Hemoglobin (hemoglobin color scale)	Full blood count
Urine protein (test strip)	Routine exam of urine, including urine protein
Refer for testing if signs of urinary tract infection are present	Asymptomatic bacteriuria (via routine exam)
Syphilis, HIV; HBsAg (if test strip available)	Syphilis, HIV, blood group and Rh; HBsAg (if test strip available)
Malaria rapid diagnostic test (RDT) at first visit for all women in highly endemic areas or as indicated by signs/symptoms	Malaria RDT at first visit for all women in highly endemic areas or as indicated by signs/symptoms
Refer to hospital for oral glucose tolerance test (OGTT) as appropriate[8]	OGTT as appropriate
Obstetric ultrasound scan before 24 weeks (preferably in 1st trimester) when LMP is unknown or uterine size does not correlate with gestational age by LMP	Obstetric ultrasound scan before 24 weeks, and preferably in 1st trimester, to estimate gestational age and identify multiple pregnancies and fetal anomalies; if anomalies identified refer to specialist for anatomy scan at 20–22 weeks

Diagnosis: CLASSIFY

Risk Identification

All women need to be assessed for:

- Age: less than 18 years or ≥40 years
- History of:
  - Heart or kidney disease
  - Prior delivery by cesarean section
  - Assisted delivery
- More than 5 previous births
- Obstetric complication such as heavy bleeding, convulsions, 3rd degree laceration, stillbirth or early newborn death, low birthweight/preterm birth

In current pregnancy:

- Current or history of vaginal bleeding
- High blood pressure
- Transverse lie or other malpresentation after 36 weeks
- Suspected/confirmed multiple pregnancy
- Desires postpartum IUD or implants
- Other complications

[8] Obesity, first-degree relative with diabetes, history of gestational diabetes, macrosomia, unexplained stillbirth.

Women with one or more of the conditions should give birth at hospital level with appropriate explanation and development of birth and complication readiness plans.

TREAT/ADVISE

- Administer tetanus diphtheria (Td) immunization, two doses at least one month apart in each pregnancy if there is no evidence of previous Td immunization. A newborn is protected against neonatal tetanus if the mother has received any of the following:
    - Two Td injections during the present pregnancy
    - Two or more injections, the last one within three years of the current pregnancy
    - Three or more injections, the last one within five years of the current pregnancy
    - Four or more injections, the last one within 10 years of the current pregnancy
    - Five or more injections at any time prior to the current pregnancy
- When the mother has active immunity, the antibodies pass through the placenta, protecting the newborn. A woman is protected when she has received two vaccine doses at least four weeks apart, with an interval of at least four weeks between the last vaccine dose and pregnancy termination. Women who last received a vaccination series (five injections) more than 10 years before the present should be given a booster. In most women, a booster is recommended in every pregnancy.
- Folic acid 0.4 mg daily starting in first trimester and up to 37 completed weeks, and then twice daily up to delivery. Criteria for taking higher doses of folic acid (a daily dose of 5 milligrams) prior to pregnancy and in the first trimester:
    - History of a previous pregnancy affected by spina bifida
    - History of spina bifida in one of the couple (woman or her partner)
    - History of taking certain medications for epilepsy
    - History of coeliac disease or diabetes
    - BMI is 30 or more
    - History of sickle-cell anemia or thalassemia
- Vitamin B1 10 mg daily one month before pregnancy, during pregnancy, and three months after delivery
- Preventive anthelminthic treatment after the first trimester
- Provide insecticide-treated net (ITN) or long-lasting insecticide-treated net (LLIN) if woman does not have one, or explain where she can obtain one and how to use it
- Treat or advise about relief of common physiological symptoms during pregnancy (refer to Part C)

Health Education and Health Promotion

Messages appropriate to gestational age should be discussed, such as a birth preparedness and complication readiness plans, healthy eating and physical activity, tobacco and substance use, limiting caffeine, healthy timing and spacing of pregnancies, use of ITNs or LLINs, if available (where to access and how to use them), and danger signs and what to do if they occur.

Communicate

Discuss findings of the physical examination and laboratory testing with the woman; ask if she or her companion have questions. Answer questions using easily understood terms; provide any treatments/medications.

Give date and time of next ANC contact and stress importance of follow-up visits.

How to Conduct Subsequent ANC Contacts

Objectives:

- Perform risk assessment and detect signs/symptoms of complications or diseases
- Confirm EDD and progress
- Provide health education and health promotion
- Review birth and complication readiness plans and adjust accordingly

History: ASK

- Interim history (how has the woman felt since the last visit; description of any problems)

Physical exam: LOOK, LISTEN, AND FEEL

- Vital signs: weight, height, pulse, respirations, temperature; take blood pressure in sitting position, feet flat on floor with apparatus at level of heart, and correct size blood pressure cuff
- General condition and level of consciousness
- Presence of conjunctival and palmar pallor or jaundice, facial edema
- As indicated:
    - Condition of breasts and nipples (lesions or inverted nipples)
    - Extremities for presence of varicosities, calf tenderness
    - Inspection of external genitalia for lesions or discharge
- Obstetric examination: assessment of uterine size to confirm gestational age, fetal movement, fetal heart sounds, fetal position after 36 weeks

Testing: SIGNS

- Hemoglobin level (either complete blood picture or with hemoglobinometer) if not previously done or if indicated
- Syphilis, HIV, HBsAg, and OGTT if appropriate, if not previously done
- Screening for asymptomatic bacteriuria if not previously done
- Malaria and other testing as appropriate
- Obstetric ultrasound scan, if not previously done and if <24 weeks (appropriate referral if not available when LMP is unknown or uterine size does not correlate with gestational age by LMP)

Diagnosis: CLASSIFY according to risk:

Indications	Recommended place of birth	Comments

• Age less than 18 years
• History of:
  • Heart or kidney disease
  • Prior delivery by cesarean
  • Assisted delivery
  • More than 5 previous births
  • Obstetric complications such as heavy bleeding, convulsions, 3rd degree laceration, stillbirth or early newborn death, low birthweight/preterm birth
• In current pregnancy:
  • Current or history of vaginal bleeding
  • High blood pressure
  • Transverse lie or other malpresentation after 36 weeks
  • Suspected/confirmed multiple pregnancy
  • Other complications
• Desires postpartum IUD or implants
	Station or Township Hospital	Explain need to give birth at referral level; develop birth and complication readiness plans

None of the above	Rural health center level	Develop the birth and complication readiness plans

TREAT/ADVISE:

- Administer tetanus diphtheria (Td) immunization, two doses at least one month apart in each pregnancy if there is no evidence of previous Td immunization
- Folic acid 0.4 mg daily starting in first trimester and up to 37 completed weeks, and then twice daily up to delivery
- Iron supplementation 60 mg of elemental iron daily after first trimester; if anemia is detected follow guidelines for treatment of anemia
- Vitamin B1 10 mg daily one month before pregnancy, during pregnancy, and 3 months after delivery
- Preventive anthelminthic treatment after the first trimester
- Provide ITN or LLIN if woman does not have one, or explain where she can obtain one and how to use it

Health Education and Health Promotion

Messages appropriate to gestational age should be discussed, such as nutrition; hygiene; physical activity and rest; early and exclusive breastfeeding; healthy timing and spacing of pregnancies; smoking, alcohol and substance use; prevention of mother-to-child transmission (PMTCT) of HIV; use of ITNs or LLINs if available (where to access and how to use them); intimate partner violence; birth preparedness/complication readiness plan (danger signs and what to do if they occur).

Communicate

Discuss findings of the physical examination and laboratory testing with the woman; ask if she or her companion have questions and answer using easily understood terms; provide any treatments/medications.

Give date and time of next ANC contact and stress importance of follow-up visits.

Table 2. Summary of Components of ANC Contacts

Activity	First Contact (In 1st trimester)	Second and Third Contacts (In 2nd trimester, around 20 and 26 weeks)	Fourth–Eighth Contacts (In 3rd trimester, around 30, 34, 36, 38, and 40 weeks)
Assessment (History, Physical Exam; Lab Tests)	**In order to:** • Perform risk assessment and detect signs/symptoms of complications or diseases • Calculate EDD/gestational age by LMP and physical exam • Provide health education and health promotion • Initiate development of the birth plan and complication readiness plan **Conduct a quick check upon entry to ANC clinic:** • Rapid assessment and management of problems/danger signs; referral as necessary **Conduct a thorough assessment:** • History: Menstrual and contraceptive history, present pregnancy, obstetric history, medical history, surgical and social history • Physical examination: General wellbeing, vital signs/blood pressure, conjunctiva, palms, breasts, abdomen, uterine size, extremities, external genitalia • Testing at health center level: Hemoglobin (hemoglobin color scale), urine protein (test strip), syphilis and HIV, hepatitis B (if test strip available), malaria RDT for all women in high endemic areas, otherwise perform if fever or other signs/symptoms are present; obstetric ultrasound scan prior to 24 weeks (preferably in 1st trimester) when LMP is unknown or uterine size is abnormal for gestational week • Testing at hospital level: Full blood count, ABO group and Rhesus, urine protein (test strip), syphilis and HIV, hepatitis B (if test strip available); microscopic urine exam as necessary; malaria RDT for all women in high endemic areas; otherwise perform if fever or other signs/symptoms are present; obstetric ultrasound scan prior to 24 weeks	**In order to:** • Perform risk assessment and detect signs/symptoms of complications or diseases • Confirm EDD and progress • Provide health education and health promotion • Review birth and complication readiness plans and adjust accordingly **Conduct a quick check upon entry to ANC clinic:** • Rapid assessment and management of problems/danger signs; referral as necessary **Conduct a targeted assessment:** • History: Problems/changes since last visit; presence of fetal movement • Physical examination: General wellbeing, blood pressure; obstetric exam (uterine size, fetal heart sounds after 20 weeks and other elements as indicated) • Testing at health center level: Hemoglobin, syphilis, HIV (if not done in previous visits), hepatitis B (if test strip available and not done in previous visits), malaria RDT if indicated • Testing at hospital level: Any tests not done at first ANC visit; OGTT[9] for clients with BMI above 30 kg/m^2; first degree relatives with diabetes; previous macrosomic baby (≥4.5 kg);	**In order to:** • Perform risk assessment and detect signs/symptoms of complications or diseases • Confirm EDD and progress • Provide health education and health promotion • Review birth and complication readiness plans and adjust accordingly **Conduct a quick check upon entry to ANC clinic:** • Rapid assessment and management of problems/danger signs; referral as necessary **Conduct a targeted assessment:** • History: Problems/changes since last visit, presence of fetal movement • Physical examination: General wellbeing, blood pressure; obstetric exam (uterine size, fetal heart sounds, and position after 36 weeks), other elements as indicated • Testing at health center level: Hemoglobin, syphilis, HIV (if not done in previous visits), hepatitis B (if test strip available and not done in previous visits), malaria RDT if indicated • Testing at hospital level: Any tests not done at previous visits, OGTT for clients with BMI above 30 kg/m^2; first degree relatives with diabetes; previous macrosomic baby (≥4.5 kg); unexplained

[9] OGTT = oral glucose tolerance test; perform at 16-18 weeks if the woman had gestational diabetes mellitus previously, followed by OGTT at 28 weeks if the first test is normal. Do OGTT at 24-28 weeks if the woman has any other risk factors (such as obesity, history of macrosomic baby, etc.)

Activity	First Contact (In 1st trimester)	Second and Third Contacts (In 2nd trimester, around 20 and 26 weeks)	Fourth–Eighth Contacts (In 3rd trimester, around 30, 34, 36, 38, and 40 weeks)
	(preferably in 1st trimester) to estimate gestational age, identify multiple pregnancy and fetal anomalies; refer to specialist for follow-up scans if anomalies identified	unexplained stillbirth or previous gestational diabetes, family origin with a high prevalence of diabetes	stillbirth or previous gestational diabetes, family origin with a high prevalence of diabetes
Care Provision and Counseling	• Appropriate care/referral for problems identified per the Classify/Treat and Advise tables for common complications • Development of birth plan (including financial planning) • Health information regarding danger signs and what to do if they occur **Preventive measures:** • Folic acid 0.4 mg daily in first trimester • First dose of tetanus and diphtheria (Td) vaccine if there is no evidence of previous immunization • Health education and health promotion on nutrition, hygiene, physical activity and rest, early and exclusive breast feeding, healthy timing and birth spacing, malaria prevention with ITNs, PMTCT of HIV counseling, tobacco and substance uses, advise on common discomforts • Provide ITN or LLIN; if not available, provide information on how it can be obtained • Provide date for next ANC contact	**Preventive measures:** • Iron and folic acid, 60 mg of elemental iron and 0.4 mg of folic acid daily through 37 completed weeks and then twice daily up to delivery • Give 2nd dose of Td if at least one month since 1st dose; if no prior Td, give 1st dose • De-worming after 1st trimester, one time • Health education and health promotion as needed • Review of birth plan and review danger signs • Ensure continued ITN or LLIN use • Continuation or revision (if appropriate) of plan of care • Appropriate care/referral for problems identified per the Classify/Treat and Advise tables for common complications • Provide date for next ANC contact	• Continuation or revision (if appropriate) of plan of care • Appropriate care/referral for problems identified per the Classify/Treat and Advise tables for common complications • If birth has not occurred by 41 weeks, refer for delivery • Continuation of preventive measures: • Iron and folic acid, 60 mg of elemental iron and 0.4 mg of folic acid daily through 37 completed weeks and then twice daily up to delivery • If no Td this pregnancy, give 1st dose; give 2nd dose now if one month since 1st dose • Health education and health promotion as needed; method of birth spacing chosen • Review of birth plan and review danger signs • Ensure continued ITN or LLIN use • Continuation or revision (if appropriate) of plan of care • Provide date for next ANC contact; return at 41 weeks if birth has not occurred
Record Results	Record results in clinic's and woman-held case notes	Record results in clinic's and woman-held case notes	Record results in clinic's and woman-held case notes

4. Counseling and Health Promotion

A critical component of effective ANC services is the provision of counseling to provide women with proper knowledge and psychosocial support to improve their health behaviors and attitudes. Counseling for maternal and newborn health is an interactive process between the service provider and the woman and her partner/family. During counseling, information is exchanged and support is provided so that the woman can make decisions, design a plan, and take action to improve her health. To counsel and help women successfully, the counseling process should encompass six components: assessing the situation; defining problems, needs, and information gaps; generating alternative solutions; prioritizing solutions; developing a plan; and reviewing and evaluating the plan at subsequent contacts. It is necessary to engage women and partners/families in interactive discussion, asking questions for better understanding of individual needs and challenges. Service providers should then review situations that might prevent the woman and her family from carrying out the plan, including lack of resources and support. Discuss selection of potential alternative solutions taking into account the advantages and disadvantages of each and review the agreed upon plan during the next ANC contact[10].

Counseling can build trust while helping to ensure positive pregnancy outcomes. This section discusses key points to include in counseling on nutrition, hygiene, physical activity and rest; early and exclusive breastfeeding; healthy timing and spacing of pregnancy; tobacco, alcohol, and substance use; safer sex; and danger signs of pregnancy.

Nutrition

The nutritional status of a woman before and during pregnancy plays a vital role in fetal growth and development. In pregnancy, increased nutrient requirements for energy, protein, iron, calcium, etc., mean the woman needs an additional 300 calories, 10 g of protein, and 1,000 mg of calcium daily, including the foods from three main groups:

- Energy providing foods
- Body building foods
- Disease preventing foods

Healthy Eating during Pregnancy and Breastfeeding

Consuming a variety of nutritious foods is particularly important during pregnancy and breastfeeding. Meals should include foods from three main groups to ensure a balanced diet and appropriate nutrition. The three groups are:

- Cereals, grains, vegetable oils (energy providing foods)
- Varieties of meat and fish, eggs, milk, peas and beans (body building foods)
- Vegetables and fruits (disease preventing foods)

Pregnant women should consume iron and folate rich foods such as liver, beef, poultry, bean curd, dark green vegetables, and leafy vegetables to prevent deficiencies. Wholegrain foods (e.g., brown rice, corn, whole wheat) are also valuable sources of iron and zinc and fiber.

Vegetable and fruit consumption before and during pregnancy makes an important contribution to health outcomes for women and their children. Vegetables should be cooked together with meat, fish, or prawns.

[10] Adapted from *Counselling for maternal and newborn health care: a handbook for building skills*. WHO: 2013.

Fruits and vitamin C-enriched juices should be taken after meals in order to ensure the absorption of iron. Iodized salt should be used in cooking to fulfill the requirement for iodine during pregnancy.

Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans: Lean red meat and chicken are a good source of protein, iron, and zinc. Maternal consumption of fish during pregnancy is likely to have a number of health benefits but the fish should be low in mercury. Nuts, seeds, and legumes/beans are important foods for people who choose vegetarian or vegan diets as they can provide an alternative source of nutrients. For several nutrients, including iron, calcium, and vitamin B12, animal foods are highly bioavailable sources and care should be taken to ensure a variety of alternatives if these foods are excluded. Vitamin B1 is essential during pregnancy and lactation to prevent beriberi—B1 deficiency. Varieties of beans, whole grain, lean meat, and steamed rice with the shell are rich B1 sources. To avoid B1 deficiency, rice should be steamed and should not be heavily rinsed. Eating only fish, fried chicken, and plain soup in the antenatal or postpartum period will lead to vitamin B1 deficiency.

Milk, yogurt, cheese, and their alternatives are good sources of calcium. Reduced-fat milk, yogurt, and cheese products are recommended during pregnancy.

Water: Pregnant women have an increased water requirement because of expanding extracellular fluid space and the needs of the baby and amniotic fluid.

Foods that should be limited:

Foods containing saturated fat, added salt, added sugars: Intake of these foods should be limited in general and during pregnancy. The additional energy requirements of pregnancy should be met through additional portions of foods from the three food groups.

Caffeine: WHO recommends limiting intake to less than 300 mg of caffeine during pregnancy (not more than 2 cups of coffee or six cups of tea a day) to reduce the risk of pregnancy loss and low birth weight. Other caffeinated beverages (e.g., colas, energy drinks, green tea) should also be limited.

Dietary Taboos and Family Participation

Discuss dietary taboos and encourage a variety of food groups using fresh, hygienic foods and safe water. Include partners and other family members so they understand the need for adequate nutrition in pregnancy and during breastfeeding.

To avoid the reduced absorption of iron, drinking tea and eating tea leaf salad need to be avoided 1 hour before and 2 hours after a meal.

Nutritional supplements

There is evidence to support routine supplementation with folic acid preconception and in the first trimester. Iron supplementation may prevent iron deficiency in women with limited dietary iron intake. Vitamin B12 supplementation may be needed if a woman has a vegetarian or vegan diet. Multivitamin and mineral supplements may be needed for women who are vegetarian, drink alcohol, use cigarettes or drugs, have been on a weight-loss program, and adolescents with poor nutrition. Other nutritional supplements do not appear to be of benefit unless there is an identified deficiency.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with information, education, and communication (IEC).

Special considerations: spend more time with adolescents, women living with HIV, underweight women, and women not gaining weight.

Hygiene

Encourage:

- Regular bathing and clean clothes, address taboos about bathing in pregnancy
- Hand washing after using the bathroom and before preparing food and eating
- Hand washing before touching the baby and after touching/handling the baby's waste
- Preparation of clean clothes for mother to use during labor and after birth, including sanitary cloths; prepare clothes for newborn.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: spend extra time with women who have diarrheal disease, skin lesions

Oral Hygiene Care during Pregnancy

Counsel women about maintaining good oral hygiene by avoiding sugary drinks and foods, regular brushing, and use of a dental stick. Routine dental care during pregnancy is safe, as is treatment of periodontal problems. Women should inform the service provider if their gums are red, bleed easily, or if tooth or gum pain is noted. Women should be aware that improved oral health can decrease transmission of cavity-causing bacteria to their infants and thus reduce their chance of dental caries.[11]

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: Women with active periodontal disease should be advised to seek dental care as soon as possible to avoid/treat infections that could compromise nutrition and general health.

Physical Activity and Rest

Physical activity is defined as any body movement that involves the use of one or more of the large muscle groups and raises the heart rate. This includes sports, exercise, and recreational and incidental activity that accrue throughout the day (e.g., walking to do errands and shopping, climbing stairs).

- At least 30 minutes/day or at least 150 minutes/week of moderate-intensity physical activity on most, preferably all days, are recommended for all adults.
- Moderate-intensity activity causes a slight, but noticeable, increase in breathing and heart rate (e.g., brisk walking, working in the garden, or medium-paced swimming).
- Vigorous activity during pregnancy, such as heavy lifting and prolonged standing or bending, is not recommended.
- A pregnant woman should take an hour-long nap daily and rest when fatigued.
- The partner and family should be encouraged to assist women with their duties as necessary.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

[11] American College of Obstetricians and Gynecologists. *Oral health care during pregnancy and through the lifespan. Committee Opinion No. 569.* Obstet Gynecol. 2013;122:417–22 (reaffirmed 2017).

Special considerations: spend more time with women who are anemic, not gaining weight, or mention heavy workloads.

Early and Exclusive Breastfeeding

Breastmilk is best for the wellbeing and development of the infant and is the only source of nutrition needed by the infant for the first six months of life. It is easily digestible and ingredients can be absorbed with ease. It contains the precise amount of fat, glucose, vitamins, and minerals needed at various ages by the infant. Breastfeeding in the hour following birth is crucial to successful long-term breastfeeding and allows the newborn to absorb colostrum, the substance produced during pregnancy, which is rich with antibodies that prevent infection.

Exclusive breastfeeding refers to giving the newborn and infant only breastmilk during the first six months. Breastmilk contains adequate water and as long as the infant breastfeeds on demand and for as long as desired, no additional liquids are required, even in hot weather. Women should be educated about good breastfeeding techniques, and about resources they can turn to if questions arise.

Benefits of Exclusive Breastfeeding

Breastmilk is the first and most valuable "vaccination" for newborns and can reduce the incidence of diarrhea, respiratory tract infections, and chronic diseases. It can strengthen the bond between mother and baby and, as long as criteria for lactational amenorrhea are met, it can delay pregnancy.[12] Breastfeeding has also been shown to reduce breast and ovarian cancers.[13,14]

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: Extra time should be taken when counseling adolescents and women living with HIV.

Healthy Timing and Spacing of Pregnancy

Healthy timing and spacing of pregnancy (HTSP) is an approach to family planning that helps women and families delay, space, or limit their pregnancies to achieve the healthiest outcomes for women, newborns, infants, and children. HTSP works within the context of free and informed contraceptive choice and takes into account fertility intentions and desired family size.

In June 2006, WHO and the United States Agency for International Development (USAID) recommended that:[15]

- After a live birth, the recommended minimum interval before attempting the next pregnancy is at least 24 months in order to reduce the risk of adverse maternal, perinatal, and infant outcomes.
- After a miscarriage or induced abortion, the recommended minimum interval to next pregnancy is at least six months in order to reduce risks of adverse maternal and perinatal outcomes.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: spend more time with women who are anemic, not gaining weight, or mention heavy workloads.

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[12] Moorea Z, Pfitzer A, Gubin R, et al. *Missed opportunities for family planning: an analysis of pregnancy risk and contraceptive method use among postpartum women in 21 low- and middle-income countries*. Contraception. 2015:92; 31 – 39.
[13] Jordan SJ, Cushing-Haugen KL, Wicklund KG, Doherty JA, Rossing MA. *Breastfeeding and risk of epithelial ovarian cancer.* Cancer Causes Control. 2012:23(6); 919–927.
[14] Islami F, Liu Y, Jemal A, et al. *Breastfeeding and breast cancer risk by receptor status—a systematic review and meta-analysis*. Annals of Oncology. 2015:26; 2398–2407.
[15] USAID, ESD. HTSP 101: *Everything You Want to Know About Healthy Timing and Spacing of Pregnancy.* Washington: USAID, 2006.

Smoking, Betel Chewing, Alcohol and Substance Use

- Discuss harmful effects of tobacco,[16] betel chewing,[17] alcohol, and other substances[18] on the woman, the pregnancy and the fetus/newborn.
- Discuss with the woman's partner and family members the need to avoid second-hand smoke; there should be no smoking in the house or around the pregnant woman, babies, and children.
- Reduce indoor pollution from cooking fires, insect sprays, mosquito coils, etc.
- Discourage betel chewing, which may lead to low birthweight.

Health education and counseling method: Group and individual sessions; sharing of experiences by women who successfully decreased or stopped use of harmful substances during pregnancy. Consider formation of support groups for women who are already using tobacco, alcohol, or other substances; consider referral to other services if available.

Special considerations: Consider referral for women who abuse alcohol or other substances that can lead to newborn complications.

Safe Sex in Pregnancy

Pregnant woman should be informed that sexual intercourse in pregnancy is not known to be associated with any adverse outcomes. However, some conditions such as placenta previa require abstinence and genital infections in partners carry risks for both mother and fetus.

Protection against STIs, including HIV/AIDS, is a concern for many women. Counsel women and their partners about their options for protection against STIs. Issues for women and their partners to consider are:

- People with multiple partners are at higher risk of acquiring STIs.
- Often people do not know if they or their partners have an STI as they may have no symptoms.
- A person with an STI, including HIV, can look and feel healthy.
- Those at risk of STI should know that screening tests are available.
- If the woman is sexually active (and not 100% sure that her partner is not infected) then consistent and correct condom use is the only way to protect against most STIs.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: Ensure close attention to adolescents, women living with HIV, women who are not sure if their partners have an STI, and women encountering intimate partner violence.

Danger Signs during Pregnancy

If any of the following signs occur, the woman should be taken immediately to the hospital or health center.

- Loss of consciousness/fainting

[16] WHO. *WHO recommendations for the prevention and management of tobacco use and second-hand smoke exposure in pregnancy*. Geneva: WHO, 2013.
[17] Senn M, Baiwog F, Winmai J, et al. *Betel nut chewing during pregnancy, Madang province, Papua New Guinea.* Drug and Alcohol Dependence. 2009:105; 126–131.
[18] WHO. *Guidelines for the identification and management of substance use and substance use disorders in pregnancy.* Geneva: WHO, 2014.

- Convulsions
- Respiratory distress
- Vaginal bleeding
- Acute abdominal pain
- Severe headaches, blurred vision, and vomiting
- Fever
- Contractions (signs of labor)
- Leaking of liquor (rupture of membranes)

All pregnant women, their partners and families should be aware of the signs of complications and emergencies and know when to seek care from a service provider.

Actions on Danger Signs

It is important to ensure that women and family members act without delay when problems occur. Explain in familiar terms (using local words) the danger signs, so that the woman, her family, and others in the community can recognize them if they should occur. Ensure they know where to go in case of an emergency. Refer to the section on birth and emergency plans, as many elements, including transport, where the nearest health facility is located, and logistical details regarding persons to support the family, should be discussed and planned before the third trimester.

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: Adolescents; women who live far from health facilities; women from different cultural and language backgrounds.

Pregnant Women and Violence

Given the sensitive nature of intimate partner violence, ensure privacy and confidentiality before discussing issues of violence. Explore this issue with women whom you suspect are experiencing domestic violence (such as inadequately explained injuries, bruises, miscarriage, vaginal bleeding in pregnancy, STIs, persistent aches and pains without a clear cause, and psychological issues such as anxiety, depression, and substance abuse). It is important to do so in a supportive way. Service providers can offer initial support by paying attention to women's concerns with respect and empathy. It is important to reassure the woman continuously that the situation is not her fault and reinforce her self-esteem. Never ask about abuse within earshot of the woman's husband/partner, or his relatives and do not write anything down about the abuse unless it can be kept confidential.

Following are questions that can be used to explore the situation:

- How is the relationship with your husband (or partner)?
- Has your husband (or partner) or someone at home ever threatened to hurt you or physically hurt you in some way? If yes, when did it happen?
- Were you ever forced into sex or to have sexual contact you did not want?

- Does your husband (or partner) or someone at home bully you, try to control you, put you down, or stop you doing things you want to do?
- Are you afraid of your husband (or partner)?
- Has your husband (or partner) threatened to kill you?

If a woman answers "yes" to any of these questions, you should use open-ended questioning and active listening skills to encourage her to give you a full account of what happened (or happens). Refer to GBV section, also carefully review the November 2017 National GBV Guidelines.
Individual Counseling: understand and become familiar with local availability of support services for women encountering violence, and how women can access these services.

Special considerations: Take time to discuss potential violence with women of any age, especially those who appear to be in immediate danger. Explore the local resources to which you can refer women encountering violence.

Prevention of Mother-to-Child Transmission of HIV Counseling and Testing

The aim of offering or recommending HIV testing to a client or a group of clients is to provide clear and concise information including:

- The benefits of HIV testing
- The services available in case of an HIV-positive diagnosis, including where antiretroviral therapy (ART) is provided
- The potential risks of transmitting HIV to the infant
- Measures that can be taken to reduce mother-to-child transmission, including the provision of ART to benefit the mother and prevent HIV transmission to the infant

Please refer to the section in C-4 on HIV and the detailed information for post-test counseling for HIV negative- or positive-pregnant women and the *Guidelines for the Clinical Management of HIV Infection in Myanmar* (2017).

Health education and counseling method: Group and individual sessions—health talk, discussion, demonstration, counseling with IEC.

Special considerations: Adolescents and women who do not know if their partners are monogamous; those who fear stigma.

5. Birth Preparation and Complication Readiness

Birth preparedness and complication readiness is an intervention included by WHO as an essential element of the ANC package.[5] If a woman is well prepared for normal childbirth and possible complications, she is more likely to receive the timely and life-saving care from a service provider. As part of ANC, the service provider assists the woman and her family in developing her birth plan at every contact. The birth plan helps to ensure that necessary preparations for normal childbirth are made well in advance of the estimated delivery date. And since every woman and her family must be prepared to respond appropriately in an emergency, the service provider should also address complication readiness.

The main components of a birth plan include:

- Desired place of birth and the preferred provider; explain that even for low-risk women giving birth at the facility is preferable as complications can arise at any time.
    - A facility will have skilled staff, equipment, supplies, and drugs that will not be available at a home birth and referrals can be made rapidly.
    - For a home birth, a skilled service provider should be present.
- Location of the closest facility for birth and referral in case of complications
- Funds for any expenses related to birth and in case of complications
- Transport to a facility for birth or in the case of a complications
- A selected decision-maker in case of complications or need for transport
- A family member to act as labor and birth companion
- Support persons to look after the home and other children while the woman is away
- Identification of compatible blood donors in case of complications
- Supplies and materials to bring to the facility
- Knowledge of signs of labor and danger signs

Skilled service provider

Assist the woman in arranging for a service provider to attend the birth and obtain a clean delivery kit; this person should be trained in supporting normal labor and childbirth, managing complications if they arise, and making rapid referrals to a higher level of care. Make sure the woman knows how to contact the service provider or health care facility at the appropriate time. Record the woman's phone number on her clinic card, and give her a contact number for the health facility.

Place of birth

Support the woman in arranging the place of birth based on her risk status—whether it is a referral hospital or primary health care facility, or home delivery with a skilled health worker.

Depending on her individual needs and risks, you may have to recommend a specific level of health care facility as the place of birth, or simply support the woman in her choice of where to give birth.

Referral to a higher level of care in case of complications

Transportation/emergency transportation

Make sure that the woman knows what her transportation system will be and that she has made specific arrangements for:

- Transportation to the place of birth (if not the home)
- Emergency transportation to an appropriate health care facility if she experiences danger signs or is referred by a health worker in a facility.

If applicable, discuss emergency means of transportation available through national, district, community, and/or facility programs.

Funds/emergency funds

Ensure that the woman has personal savings or other funds that she can access when needed to pay for care during normal birth and/or an emergency.

If relevant, discuss emergency funds that are available through the community and/or facility.

Decision making

Discuss who usually makes decisions in her family and decide:

- How decisions will be made when labor begins or if danger signs arise (who is the key decision-maker?)
- Who else can make decisions if that person is not present?

Support

Assist the woman in deciding on and arranging for necessary support, including:

- A family member of her choice to stay with her during labor and childbirth and accompany her during transport, if needed
- Someone to care for her house and children during her absence

Blood donor

In areas where adequate blood transfusion services are not available, ensure that the woman has identified an appropriate blood donor and that this person will be accessible in case of an emergency.

Items needed for a clean and safe birth and for the newborn

Make sure the woman has gathered necessary items for a clean and safe birth including a clean delivery kit. Discuss the importance of keeping items together for easy retrieval when needed. Advise the woman to bring her home-based maternal and child health handbook to the facility where she will deliver or to other facilities where she may be referred to in an emergency.

- **For the birth**: bucket for clean water and a way to heat the water; perineal pads/cloths; soap; clean bed clothes; placenta receptacle; new, unused razor blade; waterproof/plastic cover; cord ties; etc.
- **For the newborn**: clean cloths for drying the baby and wrapping the baby; blankets, nappies, hat, clothes; chlorhexidine digluconate 7.1% for cord care.

Note: Items needed depend on the individual requirements of the intended place of birth, whether in a facility or in the home.

Signs of labor and danger signs

Signs of labor include a bloody, sticky discharge; painful contractions at least every 20 minutes; and/or waters have broken.

Ensure that the woman knows the danger signs that indicate that the complication readiness plan must be put into action:

- Loss of consciousness/fainting
- Convulsions
- Respiratory distress

- Vaginal bleeding
- Acute abdominal pain
- Severe headaches, blurred vision, and vomiting
- Fever
- Contractions (signs of labor)
- Leaking of liquor (rupture of membranes)

Fever, headache, convulsions, and loss of consciousness can also be signs of malaria; headache and convulsions (fits) can indicate severe malaria.

Responding to an Emergency

Responding to an emergency promptly and effectively requires that members of the clinical team know their roles and how the team should function. Team members should also know:

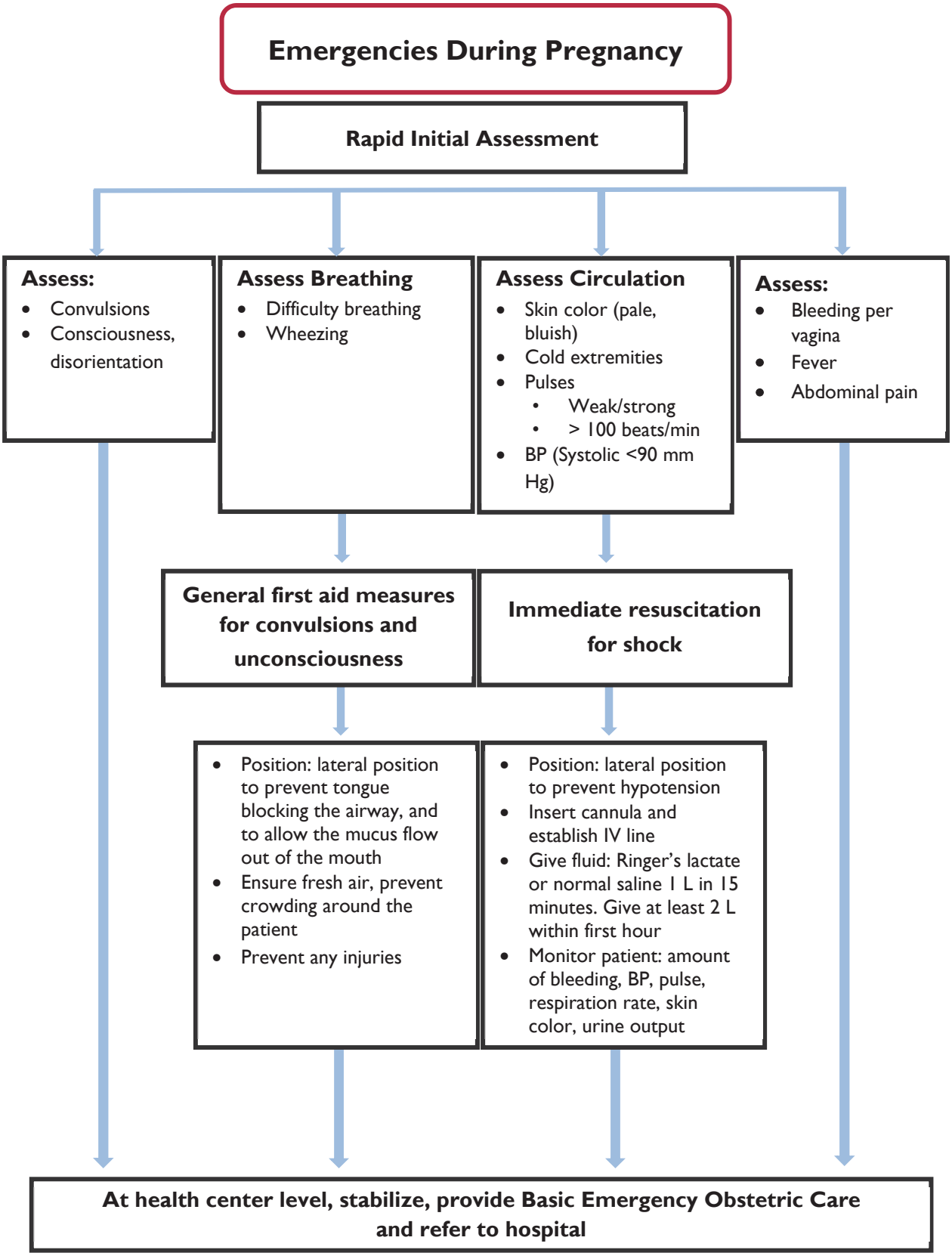
- Clinical situations and their diagnoses and treatments (Figure 4)
- Medicines and how they are used, administered, and their side effects
- Emergency equipment and how it functions

When managing an emergency:

- Introduce yourself.
- Ask the woman her name; if she is unconscious, ask for the woman's name from her companion.
- Encourage the companion to stay with the woman.
- Explain all procedures; ask permission and keep the woman informed as much as you can about what you are doing. If the woman is unconscious, talk to her companion.
- Ensure and respect the woman's privacy during examination and discussion.
- Do not leave the woman unattended.
- Ensure that the emergency transport that the woman used to get to the health facility is retained at the facility until a clear plan of management is in place.

The ability of a facility to deal with emergencies should be assessed and reinforced by frequent practice emergency drills.

Figure 4. Flow Diagram for Emergency Assessment and Initial Resuscitation



Part C. Clinical Care during Pregnancy

1. Identification and Management of Physiological and Psychological Symptoms and Complications during Pregnancy

Physiological Symptoms

Nausea and vomiting

Ginger, chamomile, and vitamin B6 are recommended for the relief of nausea in early pregnancy, based on a woman's preferences and available options. Women with severe symptoms and signs of dehydration, reduced urine output, and dark-colored urine should be referred to hospital level

Heartburn

Advice on diet and lifestyle is recommended to prevent and relieve heartburn in pregnancy. Antacid preparations can be offered to women with troublesome symptoms that are not relieved by lifestyle modification.

Leg cramps

Non-pharmacological treatment options (muscle stretching, dorsiflexion, relaxation, heat therapy, massage) can be used for the relief of leg cramps in pregnancy, based on a woman's preferences and available options.

Low back and pelvic pain

Regular exercise throughout pregnancy is recommended to prevent low back and pelvic pain. There are a number of different treatment options, such as physiotherapy and support belts based on a woman's preferences and availability. Refer to hospital level if exercise does not improve symptoms.

Constipation

Dietary modifications should include increasing intake of fruits, vegetables, high fiber foods and water; if these fail, fiber supplements can used to relieve constipation in pregnancy based on a woman's preferences and available options.

Varicose veins and edema

Non-pharmacological options, such as compression stockings and leg elevation can be used for the management of varicose veins and edema in pregnancy, based on a woman's preferences and available options. Refer to hospital level if symptoms are severe.

Psychological Symptoms

The childbearing cycle is a time of challenges and opportunities for women. It may be associated with a range of emotions including excitement, ambivalence, mood changes and fatigue. Strategies that the service provider can use to help the woman manage these changes and identify opportunities to increase her general knowledge about the pregnancy and develop skills to manage her situation include:

- Show empathy and understanding of the woman's concerns and let her know that you take them seriously.
- Reassure the woman that the changes she notes are a common result of the hormonal fluctuations during pregnancy.
- Use gentle, constructive suggestions rather than judging or criticizing the woman.

- Help the woman find solutions to her concerns, such as taking naps; engaging in gentle exercise; talking to her partner, family, and friends about her feelings, etc.; and praising her for problem-solving.
- With the woman's permission, let the woman's partner, companion, or family know how they can help her.

If you note that the woman's symptoms go beyond the common changes of pregnancy and suspect that she may have depression, anxiety, or other emotional disorders, arrange for referral to an appropriate level of care for further evaluation and management.

2. Identification and Management of Complications during Pregnancy

Vaginal bleeding prior to 22 weeks

History: ASK

- Do you think you are pregnant and if so how far along? When was your last normal menstrual period? Have you received ANC in this pregnancy?
- Have you or someone else tried to induce an abortion?
- When did the bleeding start, are you still bleeding, how much blood have you lost (how many cloths have been soaked)?
- Is it getting better or worse?
- Have you fainted recently or felt very faint?
- Do you have abdominal pain?

Physical exam: LOOK, LISTEN, AND FEEL

- Take vital signs (blood pressure, temperature, pulse, respirations)
- Check conjunctiva and palms for pallor
- Assess abdomen for tenderness; assess uterine size abdominally if appropriate
- Inspect external genitalia for amount of bleeding and presence of foul-smelling discharge
- Conduct a speculum exam as indicated by signs/symptoms

Testing: INVESTIGATIONS

Health Center	Hospital
• Pregnancy test (UCG) • Measure hemoglobin with hemoglobinometer • Determine blood group and Rh factor, if able	• Pregnancy test (UCG) • Full blood count • Determine blood group and Rh factor • Obstetric ultrasound

Diagnosis: CLASSIFY; TREAT/ADVISE

Vaginal bleeding	Diagnosis	Health Center	Hospital
• Bleeding and any of the following: • Temperature >38°C • Abdominal pain/tenderness • Foul-smelling vaginal discharge • Evidence of induced abortion	Complicated abortion	• Insert an intravenous line and infuse Ringer's lactate or normal saline • Give loading dose of antibiotics: ampicillin 2 g IM/IV and gentamycin 80 mg IM • Refer urgently to hospital	Treat according to tertiary hospital guideline or WHO 2017 MCPC guidelines
• Light vaginal bleeding • Closed cervix • Uterine size corresponds to dates	Threatened miscarriage	• Refer to hospital	Treat according to tertiary hospital guidelines or WHO 2017 MCPC guidelines
• Heavy bleeding • • Dilated cervix • • Uterus smaller than dates	Incomplete miscarriage	• Insert an intravenous line and infuse Ringer's lactate or normal saline • Refer urgently to hospital	Treat according to tertiary hospital guideline or WHO 2017 MCPC guidelines
• Heavy bleeding • Dilated cervix • Uterus larger than dates • Uterus softer than normal • Partial expulsion of products of conception, which resemble grapes	Molar Pregnancy	• Insert an intravenous line and infuse Ringer's lactate or normal saline • Refer urgently to hospital	Treat according to tertiary hospital guideline or WHO 2017 MCPC guidelines
• Light bleeding • Abdominal pain • Closed cervix • Uterus slightly larger than normal • Cervix and isthmus softer than normal (+Hegar's sign)	Ectopic pregnancy	• Refer urgently to hospital	Treat according to tertiary hospital guideline or WHO 2017 MCPC guidelines
• Heavy bleeding • Dilated cervix • Uterus corresponds to dates	Inevitable abortion	• Insert an intravenous line and infuse Ringer's lactate or normal saline • Refer urgently to hospital	Treat according to tertiary hospital guideline or WHO 2017 MCPC guidelines
• History of heavy bleeding but now decreasing or stopped • Light bleeding • Closed cervix • Uterus smaller than dates • Uterus softer than normal	Complete abortion	• Refer to hospital	Treat according to tertiary hospital guideline or WHO MCPC guidelines

Vaginal bleeding after 22 weeks

History: ASK

- Has she had ANC and if so look at records if available
- When did the bleeding start?

- How many pads have been soaked?
- Is she having contractions and/or abdominal pain? If so when did they start?

Physical exam: LOOK, LISTEN, AND FEEL

- Take vital signs (blood pressure, temperature, pulse, respirations)
- Conduct an abdominal exam to assess uterine size, tenderness, tonus, fetal movement, fetal heart rate, fetal position (after 36 weeks)
- Inspect external genitalia for amount of bleeding but **DO NOT DO VAGINAL EXAM**

Testing: INVESTIGATIONS

Health Center	Hospital
• Measure hemoglobin with hemoglobinometer • Determine blood group and Rh factor, if able	• Full blood count • Determine blood group and Rh factor • Obstetric ultrasound

Diagnose: CLASSIFY; TREAT/ADVISE

Vaginal Bleeding	Diagnosis	Health Center	Hospital
Any amount of bleeding is dangerous	• Preterm labor • Placenta previa • Abruptio placenta • Ruptured uterus	• Insert an IV line and infuse Ringer's lactate or normal saline rapidly if woman is in shock • Refer urgently to hospital	Treat according to tertiary hospital guidelines or WHO 2017 MCPC guidelines

Hypertension during pregnancy

History: ASK

- Assess gestational age.
- Confirm blood pressure measurements from previous ANC contacts.
- Is there a history of pre-eclampsia or eclampsia in previous pregnancies?
- Is there a history of other chronic conditions, such as hypertension, kidney disease, or diabetes?
- Has the woman recently noted severe headache, visual changes/blurred vision, or epigastric pain?

Physical exam: LOOK, LISTEN, AND FEEL

- Measure blood pressure in sitting position with both feet supported on the ground (also can be measured in left lateral position).
- The brachial artery (elbow) and cuff should be at the level of the heart.

- Use an appropriate-size blood pressure cuff.
- If systolic blood pressure is ≥ 140 mmHg and/or diastolic pressure is ≥ 90 mmHg, repeat after resting for one hour.
- If systolic blood pressure is still ≥ 140 and/or diastolic blood pressure still ≥ 90, check urine for protein.

Testing: INVESTIGATIONS

Health Center Level	Hospital Level
Urine protein; if positive, refer to hospital	• Urine protein: Dipstick • Full blood count • Liver function tests • Renal function tests: • Urea • Creatinine • Uric acid • Fundoscopic exam (ophthalmoscope) • Management per tertiary care or WHO 2017 MCPC guidelines

Diagnosis: CLASSIFY; TREAT/ADVISE

Blood Pressure	Diagnosis	Health Center	Hospital
• Systolic blood pressure (SBP) 140 mmHg or higher and/or diastolic blood pressure (DBP) 90 mmHg or higher before the first 20 weeks of gestation	Chronic hypertension	• Nutritional advice (no salt restriction, but restrict added salt) • Refer to hospital level (to determine target organ involvement and review antihypertensive drugs). • If blood pressure is under control with nifedipine, refer for assessment at hospital level. If stable can continue treatment and ANC at health center.	• Give nutritional advice (no salt restriction, but restrict added salt). • If proteinuria or other signs and symptoms of pre-eclampsia are present, consider superimposed pre-eclampsia and manage as pre-eclampsia. (Refer to tertiary hospital guidelines or WHO 2017 MCPC guidelines). • If the SBP is 160 mmHg or more or the DBP is 110 mmHg or more, treat with antihypertensive medications. • (Refer to tertiary hospital guidelines or WHO 2017 MCPC guidelines) • Monitor fetal growth and condition. • If there are no complications, manage timing and mode of delivery per hospital guidelines.

Blood Pressure	Diagnosis	Health Center	Hospital
• SBP 140 mmHg or higher and/or DBP 90 mmHg or higher before 20 weeks of gestation • After 20 weeks: proteinuria 2+ on dipstick or any pre-eclampsia features	Chronic hypertension with superimposed pre-eclampsia	• Give nifedipine (10–20 mg orally) and refer to hospital.	• Manage as for mild or severe pre-eclampsia (Refer to tertiary hospital guidelines or WHO 2017 MCPC guidelines).
• Two readings of SBP 140 mmHg or higher but lower than 160 mmHg and/or DBP 90 mmHg or higher but lower than 110 mmHg four hours apart after 20 weeks of gestation • No proteinuria • No features of pre-eclampsia	Gestational hypertension	• Refer to hospital level • • After treatment at hospital and if stable: • Monitor blood pressure • Monitor protein level • Monitor danger signs • Refer immediately if danger signs detected	• Manage on an outpatient basis: • Monitor blood pressure, urine (for proteinuria), and fetal condition weekly. • Treat (refer to tertiary hospital guidelines or WHO MCPC guidelines). • If blood pressure. worsens or the woman develops features of pre-eclampsia, manage as pre-eclampsia. • If there are signs of severe fetal growth restriction or fetal compromise, admit the woman to the hospital for assessment and possible expedited birth. • Counsel the woman and her family about danger signs indicating severe pre-eclampsia or eclampsia. • If all observations remain stable, allow to proceed with spontaneous labor and childbirth. • In women with gestational hypertension, if **spontaneous labor has not occurred before term**, induce labor at term.

Blood Pressure	Diagnosis	Health Center	Hospital
• Two readings of SBP 140 mmHg or higher but lower than 160 mmHg and/or DBP 90 mmHg or higher but lower than 110 mmHg four hours apart after 20 weeks of gestation • Proteinuria 2+ on dipstick	Mild pre-eclampsia	• Refer to hospital; if recommended at hospital level, the woman can be followed at health center level as follows (refer back to hospital if she does not remain stable): • Monitor blood pressure daily. • Monitor reflexes and fetal condition • Monitor for danger signs associated with features of severe pre-eclampsia. • Counsel the woman and her family about danger signs associated with severe pre-eclampsia or eclampsia. • Do not give anticonvulsants or antihypertensives unless clinically indicated. • Do not give sedatives or tranquilizers. • Encourage the woman to eat a normal diet.	Treatment: • (Refer to tertiary hospital guidelines or 2017 WHO MCPC guidelines). • If maternal and fetal conditions remain stable, the goal is to reach 37 weeks of gestation. • If blood pressure and signs of pre-eclampsia remain unchanged or normalize, follow up with the woman as an outpatient twice a week; evaluation of induction of labor. • Monitor blood pressure, reflexes, and fetal condition. • Monitor for danger signs associated with features of severe pre-eclampsia. • Counsel the woman and her family about danger signs associated with severe pre-eclampsia or eclampsia. • Encourage the woman to eat a normal diet. • If reliable follow up as an outpatient is not possible admit the woman to the hospital. • If greater than 37 weeks evaluate for induction of labor.

Blood Pressure	Diagnosis	Health Center	Hospital
• SBP 160 mmHg or higher and/or DBP 110 mmHg or higher after 20 weeks of gestation • Proteinuria 2+ on dipstick • Headache (increasing frequency, unrelieved by regular analgesics) • Vision changes (e.g. blurred vision) • Oliguria (passing less than 400 mL urine in 24 hours) • Upper abdominal pain (epigastric pain or pain in right upper quadrant) • Difficulty breathing (rales on auscultation of lungs due to fluid in lungs) • Nausea and vomiting • Hyperreflexia or clonus	Severe pre-eclampsia	• Prior to immediate referral, administer 10 g of 50% magnesium sulfate solution, 5 g in each buttock as deep IM injection with 1 mL of 2% lidocaine in the same syringe. • Ensure aseptic technique when giving magnesium sulfate deep IM injection. Warn the woman that she will note a feeling of warmth as the drug is administered. • If SBP remains over 160 mmHg and/or DBP remains over 110 mmHg, administer nifedipine 5–10 mg orally and repeat after 30 minutes if necessary, for a total of not more than 30 mg. • Arrange for immediate referral to an appropriate facility.	• Give intramuscular regimen: Loading dose (IV and IM): • Insert an IV line and infuse normal saline or Ringer's lactate slowly (3 ml/minute). • Give 4 g of 20% magnesium sulfate solution IV over 5 minutes. • Follow promptly with 10 g of 50% magnesium sulfate solution: Give 5 g in each buttock as a deep IM injection with 1 mL of 2% lidocaine in the same syringe. • Ensure aseptic technique when giving magnesium sulfate deep IM injection. • Warn the woman that she will note a feeling of warmth as the drug is administered. • For antihypertensive drug treatment, refer to tertiary hospital guidelines or 2017 WHO MCPC guidelines.
• Convulsions • SBP 140 mmHg or higher or DBP 90 mmHg or higher after 20 weeks gestation	Eclampsia	• Same regime as above for severe pre-eclampsia and refer urgently	• Same regimen as above for severe pre-eclampsia

Anemia

History: ASK

- Do you become tired easily?
- Is shortness of breath noted even when doing routine work?
- Prior to pregnancy did you have heavy menstrual periods, closely-spaced pregnancies or vaginal bleeding in this pregnancy?
- Have you had hemorrhoids (piles)?
- Have you recently had malaria?
- What are your eating habits?

Physical exam: LOOK, LISTEN AND FEEL

- Obtain vital signs including blood pressure, pulse and respirations
- Check conjunctiva and palms for pallor and classify it as moderate or severe

Testing: INVESTIGATIONS

Health Center	Hospital
Hemoglobin (hemoglobinometer color scale)	• Full blood count • Platelets • Other tests as appropriate

Diagnosis: CLASSIFY; TREAT/ADVISE (take into account gestational age in management of all degrees of anemia)

Hemoglobin Value	Diagnosis	Health Center	Hospital
• > 11 g/dl • No pallor	No clinical anemia	• Give usual daily dose of iron and folic acid and counsel on compliance. • Provide counseling on nutrition.	• Prescribe usual daily dose of iron and folic acid.
• 7–11 g/dl • OR • palmar or conjunctival pallor	Moderate anemia	• Give a double dose of daily iron for 3 months and counsel on compliance and nutrition; re-assess at next ANC contact or sooner if danger signs occur. • If hemoglobin ≤8 g/dl or symptoms occur (shortness of breath, dizziness) urgently refer to hospital.	• Give a double dose of daily iron for 3 months and counsel on compliance and nutrition; re-assess at next ANC contact or sooner. • If symptoms occur, do further clinical and laboratory assessment and treat accordingly.
• <7 g/dl and/or severe palmar and conjunctival pallor OR • any pallor with respirations >30/minute or breathlessness at rest	Severe anemia	• Refer urgently to hospital.	• Conduct further clinical and laboratory assessment and treat accordingly. • Counsel to give birth at a facility with transfusion capacity.

Reduced Fetal Movement

History: ASK

- When did the baby last move?
- Ask about changes in the pattern and amount of movement over time
- Assess presence of associated complications (i.e. pre-eclampsia)
- Assess if woman smokes

Physical exam: LOOK, LISTEN, AND FEEL

- Listen for fetal heart sounds (FHS) with Pinard after 18–20 weeks of pregnancy (if electronic Doppler available, listen after 12 weeks).
- If no heartbeat heard, listen again 15 minutes after the woman changes position (the fetus may also have changed position).
- Assess fundal height for compatibility with gestational age; assess for fetal movements.
- If no movements are felt, wait for 2 hours and re-assess.
- At hospital level confirm fetal status with ultrasound.

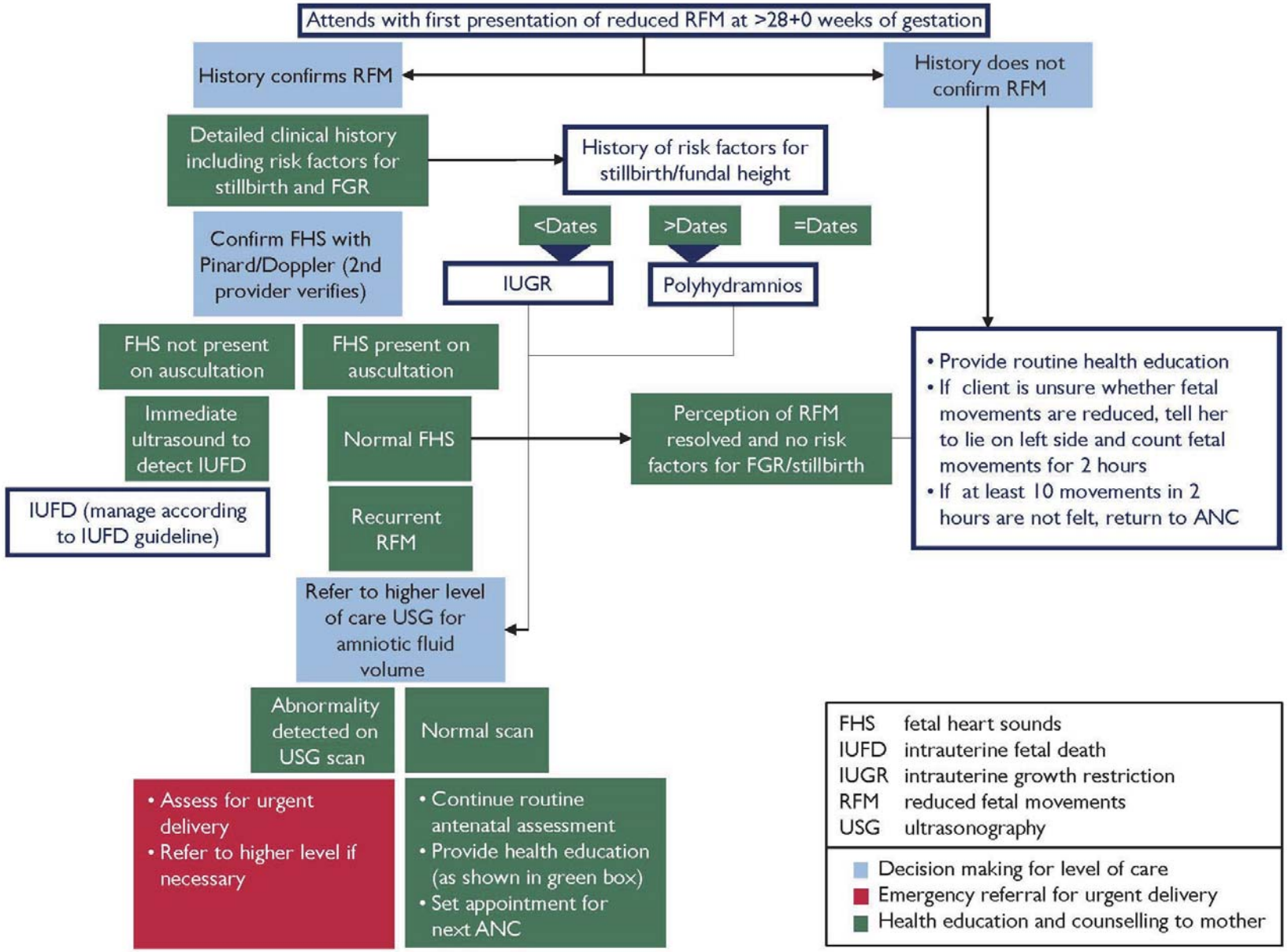
Testing: INVESTIGATIONS

Health Center	Hospital
• Check for fetal heart sounds with Pinard (trumpet) or electronic Doppler if available	• Check for fetal heart sounds with electronic Doppler • Obstetric ultrasound as necessary to confirm viability and fetal wellbeing

Diagnosis: CLASSIFY; TREAT/ADVISE

Exam result	Diagnosis	Health Center	Hospital
Fetal movement more than 10 times in 2 hours and normal FHS	Fetus well	• Reassure and continue routine care	• Reassure and continue routine care
Reduced fetal movement (confirmed after 2 hour wait) but FHS heard	Potential fetal compromise	• Refer for further investigation	• Further investigation and management
• No fetal movement felt by mother or palpated by health worker AND • No FHS by Pinard; if possible confirm with Doppler and/or ultrasound	Likely fetal demise	• If Doppler is not available, refer to hospital. • If no fetal heart with Doppler refer to hospital, and in a sensitive manner inform the woman of the possibility of a fetal demise, but stress that the diagnosis will need to be confirmed with ultrasound at a higher level.	• Confirm by obstetric ultrasound. • Manage according to tertiary hospital guidelines or WHO 2017 MCPC guidelines.

Figure 5. Flow Chart for Reduced Fetal Movement



Watery Discharge

History: ASK

- When did the watery discharge begin?
- What is the estimated date of delivery and gestational age?
- Ask about fetal movement and whether it has decreased.

Physical exam: LOOK, LISTEN, AND FEEL

- Look at pad or underwear for evidence of:
  - Amniotic fluid
  - Foul-smelling vaginal discharge
- If no evidence, ask the woman to wear a pad. Check again in 1 hour.
- Measure temperature, pulse rate and blood pressure.
- Perform abdominal exam for uterine size, estimated fetal size, fetal heart sounds, presence of contractions, uterine tenderness.
- DO NOT perform digital vaginal examination.

Diagnosis: CLASSIFY; TREAT/ADVISE

Exam result	Diagnosis	Health Center	Hospital
• Fever ≥38°C • Maternal tachycardia • Fetal tachycardia • Tender uterus • Foul-smelling watery discharge	Chorioamnionitis	• Give first dose of antibiotics: • Ampicillin 2 G IV; gentamicin 5 mg/kg IV • Refer urgently to hospital.	• Treat according to tertiary hospital guideline or 2017 WHO MCPC guidelines.
• No fever; not in labor; non-odorous watery discharge	Pre-labor rupture of membranes	• Refer to hospital. • Advise woman against inserting anything into the vagina or taking herbal remedies to start labor. • If less than 34 weeks pregnant, alert referral hospital.	• Assess for use of antenatal corticosteroids.

3. Identification and Management of Infections during Pregnancy

As infections in pregnancy can cause severe complications in both mother and fetus, proper prevention, early diagnosis, and appropriate management are essential. In this section, investigation and management of malaria, tuberculosis, HIV, syphilis, and infections of the respiratory, genital, and urinary tracts are discussed.

Malaria

History: ASK

- Has the woman had a fever, either with or without chills/rigors? If so, when did it start?
- Does she have other symptoms such as headache, muscle aches, burning on urination, or back pain?
- Has she noted loss of consciousness or prostration?
- Are symptoms getting worse?
- Has she taken any medication since the fever began?
- Has she been treated for malaria within the preceding 1–2 months?
- Has she resided in or traveled to a malaria-endemic region in the last 1–2 months?
- Look at her ANC record for significant findings during the pregnancy

Physical exam: LOOK, LISTEN, AND FEEL

- Vital signs (blood pressure, temperature, pulse, respirations)

Testing: INVESTIGATIONS

Health Center	Hospital
• Malaria RDT • Measure hemoglobin with hemoglobinometer	• Malaria RDT • Blood smear for malaria parasites • Full blood count

Diagnosis: CLASSIFY; TREAT/ADVISE

Test result	Diagnosis	Health Center	Hospital
Positive RDT or blood smear and one or more of the following clinical features: • Axillary temperature ≥37.5°C and/or history of recent fever, with/without chill and rigor, and/or presence of anemia	Uncomplicated malaria	***Plasmodium* falciparum malaria in 1st trimester:** • Oral quinine salt 10 mg/kg every 8 hours for 7 days, PLUS, if available, clindamycin 10 mg/kg orally twice daily for 7 days • AL (artemether-lumefantrine) for 3 days is indicated only if this is the only treatment immediately available, or 7-day treatment with quinine-clindamycin fails, or if there is uncertainty of compliance with 7 day treatment • Do not give primaquine ***P.* falciparum malaria in 2nd and 3rd trimesters:** • Artemether-lumefantrine (Coartem): 20 mg/120 mg, 4 tablets orally every 12 hours for 3 days (to be taken after a fat-containing meal or drink) • Do not give primaquine ***P.* vivax malaria in all trimesters:** • Chloroquine 150 mg base; 4 tablets on Day 0 and Day 1; 2 tablets on Day 2 • Directly observe first dose of prescribed medication and emphasize need to finish all medication	***P.* falciparum malaria in 1st trimester:** • Oral quinine salt 10 mg/kg every 8 hours for 7 days, PLUS, if available, clindamycin 10 mg/kg orally twice daily for 7 days • AL (artemether-lumefantrine) for 3 days is indicated only if this is the only treatment immediately available, or 7-day treatment with quinine plus clindamycin fails, or if there is uncertainty of compliance with 7 day treatment • Do not give primaquine ***P.* falciparum malaria in 2nd and 3rd trimesters:** • Artemether-lumefantrine (Coartem): 20 mg/120 mg, 4 tablets orally every 12 hours for 3 days (to be taken after a fat-containing meal or drink) • Do not give primaquine ***P.* vivax malaria in all trimesters:** • Chloroquine 150 mg base; 4 tablets on Day 0 and Day 1; 2 tablets on Day 2

Test result	Diagnosis	Health Center	Hospital
Positive RDT or blood smear and one or more of the clinical features or laboratory findings in Table 3. Severe Malaria	Severe malaria	• Parenteral artesunate 2.4 mg/kg IV bolus or IM injection as loading dose and refer urgently. • If artesunate is unavailable, artemether should be given: 3.2 mg/kg body weight IM as a single dose. • If artesunate is not available, then parenteral quinine should be started immediately until artesunate is obtained: Infuse quinine dihydrochloride 20 mg/kg body weight in IV fluids (5% dextrose) over 4 hours. • Counsel on nightly use of ITN	• Treat shock: ensure airway; position on side with legs elevated; ensure warmth; start IV infusion; perform relevant laboratory tests; treat convulsions and fever (refer to tertiary hospital guidelines or 2017 WHO MCPC guidelines). • Counsel on nightly use of ITN prior to discharge
Negative RDT or blood smear	The woman does not have malaria, but the cause of her fever and other symptoms should be identified and treated.	• Physical exam and other investigations to ascertain cause of symptoms; refer to hospital as appropriate. • Counsel on nightly use of ITN	• Physical exam and other investigations to ascertain cause of symptoms and treat as appropriate. • Counsel on nightly use of ITN

Table 3. Clinical and Laboratory Features of Severe Malaria

Women with one or more of the following clinical features or laboratory findings in the presence of malaria should be treated for severe malaria.

Clinical Features	Laboratory Findings
• Altered or decreased consciousness (e.g., confusion, delirium, coma) • Convulsions, more than 2 episodes in 24 hours • Persistent vomiting (this may also be a neurological manifestation) • Prostration (i.e., generalized weakness so that the patient is unable to walk or sit up without assistance) • Hyperpyrexia (≥ 39°C, dry skin) • Severe anemia • Renal failure—decreased urine output • Pulmonary edema (difficulty in lying flat due to breathing problem, usually with cough) • Circulatory collapse (shock)—weak, rapid pulse and cold and clammy limbs • Spontaneous bleeding • Hemoglobinuria (black urine) • Jaundice of sclera • Failure to respond to treatment within 3 to 7 days • Please note: uterine cramping or contractions can occur in pregnant women with both severe and uncomplicated malaria, and should be managed per national guidelines.	• Hypoglycemia (blood glucose < 2.2 mmol/l or < 40 mg/dl) • Metabolic acidosis (plasma bicarbonate < 15 mmol/l); hyperlactatemia (lactate > 5 mmol/l) • Severe normocytic anemia (Hb < 7 g/dl, packed cell volume < 20%) • Hemoglobinuria • Hyperparasitemia is defined as parasite densities > 100,000/microliter (or > 2.5% of red blood cells parasitized) in low transmission areas or 250,000/ microliter (or > 5% of red blood cells parasitized) in areas of high stable malaria transmission. • Renal impairment (serum creatinine >265 µmol/l) • Pulmonary edema (radiologic) • Plasma or serum bilirubin > 50 µmol/L (3 mg/dL) with a parasite count > 100,000/µL)

Respiratory Tract Infection

History: ASK

- How long have you been coughing?
- How long have you had difficulty breathing?
- Do you have chest pain?
- Do you have blood in your sputum?
- Do you smoke tobacco?
- Are you exposed to other people's smoke at home?

Physical exam: LOOK, LISTEN, AND FEEL

- Measure temperature, pulse, respirations, and blood pressure
- Look for breathlessness (shortness of breath)
- Listen to lungs for wheezing

Test: INVESTIGATIONS

Health Center Level	Hospital Level
Women with positive screening per the history above: provide counseling and refer to nearest township or district hospital	• Sputum for acid-fast bacillus (AFB) and culture • Full blood count and erythrocyte sedimentation rate • Chest x-ray with full precautions if condition requires (except 1st trimester) • Peak expiratory flow rate at district level hospital

Diagnosis: CLASSIFY; TREAT/ADVISE

Exam result	Diagnosis	Health Center	Hospital
At least two of the following signs: • Fever > 38°C • Breathlessness • Chest pain	Possible pneumonia	• Give 1st dose of appropriate antibiotics (i.e. amoxicillin) • Refer urgently to appropriate level of care	Treat according to MCPC and tertiary hospital guidelines.
At least one of the following signs: • Cough or breathing difficulty for > 3 weeks • Blood in sputum • Wheezing	Possible chronic lung disease	• Refer to hospital for further assessment • If severe wheezing, refer urgently	Treat according to WHO 2017 MCPC guidelines and tertiary hospital guidelines.
Acute onset of symptoms; associated underlying medical diseases (hypertension, heart disease, pulmonary embolus)	Other causes of cough and difficult breathing	• Urgent referral	Treat according to WHO 2017 MCPC guidelines and tertiary hospital guidelines

Syphilis

History: ASK

- Have you and/or your partner been treated for syphilis during this pregnancy?
- Are you allergic to penicillin?

Test: INVESTIGATIONS

- At health centers the following is used: immunochromatographic test (ICT), a rapid test for syphilis.
- At hospitals, serologic tests (VDRL [Venereal Disease Research Laboratory] and the RPR [Rapid Plasma Reagin]) are used for confirmation and the dilution method is used for monitoring of disease.

Health Center Level	Hospital Level
• ICT for syphilis • Rapid test	• ICT for syphilis • Rapid test • VDRL/RPR (confirmation)

Diagnosis: CLASSIFY; TREAT/ADVISE

Test result	Diagnosis	Health Center	Hospital (Station/Township/STI teams)
Positive rapid test for syphilis or VDRL	Possible syphilis	• Refer to hospital level • Advise treatment of partner and correct and consistent use of condoms	• Benzathine penicillin 2.4 million units IM after test dose (ATD) 1st dose must be given to all pregnant women with positive rapid test for syphilis without waiting for confirmation result • Pregnant Women with Early Syphilis • First line treatment: • Benzathine penicillin G 2.4 million units (ATD) once intramuscularly • Second line treatment: • Procaine penicillin 1.2 million units intramuscularly (ATD) once daily for 10 days • When benzathine or procaine penicillin cannot be used (e.g., due to penicillin allergy where penicillin desensitization is not possible) or are not available (e.g., due to stock-outs), use with caution: • Ceftriaxone 1 g intramuscularly once daily x 10-14 days OR • Azithromycin 2 g once orally OR • Erythromycin 500 mg orally 4 times daily x 14 days • Pregnant women with late syphilis or unknown stage of syphilis: • First line treatment: 1. Benzathine penicillin G 2.4 million units (ATD) weekly for 3 consecutive week • Second line treatment: 2. Procaine penicillin 1.2 million units intramuscularly (ATD) once daily for 20 days • When benzathine or procaine penicillin cannot be used (e.g., due to penicillin allergy where penicillin desensitization is not possible) or are not available (e.g., due to stock-outs), use with caution: 3. Erythromycin 500 mg orally 4 times daily for 30 days. • Although erythromycin and azithromycin treat the pregnant woman, they do not cross the placental barrier and, as a result, the fetus is not treated. • Plan to treat the newborn. • Advise treatment of partner and correct and consistent use of condoms.

Urinary Tract Infection

History: ASK

- Have you had a fever, chills/rigors? When did they start?
- Have you had burning on micturition? When did it start?
- Are there other symptoms, such urgency or dysuria?

- Do you have lower abdominal (suprapubic) or back pain?

Physical exam: LOOK, LISTEN, AND FEEL

- Check temperature and pulse
- Examine for flank pain (renal angle tenderness)

Testing: INVESTIGATIONS

Health Center	Hospital
Refer to hospital	• Examine urinary sediment for red and white blood cells and bacteria • Perform urine culture while treating with antibiotics

Diagnosis: CLASSIFY; TREAT/ADVISE

Test result	Diagnosis	Health Center	Hospital

• Mild symptoms (i.e., dysuria, urgency) without fever with +/- positive urine microscopy
• Severe symptoms including fever ≥ 38 °C, flank pain, and dysuria, urgency, burning on micturition
	• Lower urinary tract infection
	• Upper urinary tract infection
		• Amoxicillin 500 mg orally 8 hourly for 5 days; ensure all medication is taken as prescribed
		• Refer for presence of fever
		• Start IV infusion with Ringer's lactate at 150 ml/hour
		• Give first dose of ampicillin 2 gm IV if possible, otherwise give IM and refer urgently
			• Amoxicillin 500 mg orally 8 hourly for 5 days
			• If shock is present, initiate immediate treatment and admit to hospital
			• Start an IV infusion and infuse IV fluids at 150 mL per hour
			• Check urine dipstick and urine culture if possible and begin empiric antibiotic treatment promptly (pending results of urine culture, if available).
			• Treat with an IV antibiotic according to hospital guidelines until the woman is fever-free for 48 hours, is drinking well, and is not vomiting. Switch from an IV to an oral antibiotic, for a total of 14 days treatment. Oral antibiotic options include, among others:
			  • Amoxicillin 1 g by mouth every 8 hours to complete 14 days of treatment
			  • Ensure adequate hydration orally or by IV.
			  • Paracetamol 500–1,000 mg orally 3–4 times daily may be given.
			• If there are palpable contractions and/or blood-stained mucous discharge, suspect labor.
			• Note: Clinical response is expected within 48 hours. If there is no clinical response in 48 hours, re-evaluate urine culture results (if available) and antibiotic coverage. Re-evaluate diagnosis to be sure that there is not another source of infection.
			• Referral to a higher-level hospital is required if no improvement and urine culture and sensitivity cannot be done at admitted hospital.

Genital Tract Infection

History: ASK

- Ask about nature of discharge (watery, mucoid, yellowish, blood-stained, curd-like, etc.)
- Ask if the woman is experiencing contractions or lower abdominal pain.
- Is the discharge foul smelling or associated with itching or irritation?
- Does her sexual partner have urinary symptoms or urethral discharge?

Physical exam: LOOK, LISTEN, AND FEEL

- After explaining the procedure to the woman and asking her permission, with gloved hands gently separate the labia and inspect for lesions as well as amount of discharge, character (watery/thick), odor, and color.
- Perform sterile speculum examination.

Testing: INVESTIGATIONS

Health Center	Hospital
• Sterile speculum exam • If other than physiologic vaginal discharge, refer to hospital for testing	• Sterile speculum exam • If other than physiologic vaginal discharge suspected, perform high vaginal swab for C&S

Diagnosis: CLASSIFY; TREAT/ADVISE

Test result	Diagnosis	Health Center	Hospital
• White or clear vaginal discharge, non-odorous and non-irritating	Physiologic vaginal discharge	• Advise the woman that this is normal during pregnancy and is a result of cervical and vaginal mucous production. • Counsel the woman on hygiene (gentle vulvar cleansing with non-irritating soap) and keeping undergarments clean and dry.	• Advise the woman that this is normal during pregnancy and is a result of cervical and vaginal mucous production. • Counsel the woman on hygiene (gentle vulvar cleansing with non-irritating soap) and keeping undergarments clean and dry.
• Watery discharge, clear or green-tinged, with or without contractions	Possible pre-labor rupture of membranes or early labor with rupture of membranes	• Management: Refer to section on ruptured membranes	• Management: Refer to section on ruptured membranes

Test result	Diagnosis	Health Center	Hospital
• Abnormal vaginal discharge with initial dysuria (pain at beginning of micturition) • Abnormal vaginal discharge without initial dysuria but partner has initial dysuria	Possible gonorrhea or chlamydia infection	• Cefixime 400 mg orally as a single dose PLUS azithromycin 1 g orally as a single dose • Advise partner treatment and counsel on correct and consistent use of condoms	• First line treatment: ceftriaxone 500 mg IM PLUS azithromycin 1 g orally in a single dose • Second line treatment: cefixime 400 mg orally as a single dose PLUS azithromycin 1 g orally as a single dose • Advise partner treatment and counsel on correct and consistent use of condoms
• Curd-like discharge; intense redness/itching	Possible candida infection	• Cotrimazole 500 mg vaginal tablet in a single application OR • Cotrimazole 200 mg vaginal tablet, one tablet daily for 3 days OR • Miconazole 100 mg vaginal suppository, one suppository daily for 7 days OR • Nystatin 100,000 units vaginal tablet, one tablet daily for 14 days. • Advise on bathing, hygiene, use of cotton underwear	• Cotrimazole 500 mg vaginal tablet in a single application OR • Cotrimazole 200 mg vaginal tablet, one tablet daily for 3 days OR • Miconazole 100 mg vaginal suppository, one suppository daily for 7 days OR • Nystatin 100,000 units vaginal tablet, one tablet daily for 14 days • Advise on bathing, hygiene, use of cotton underwear.
• Watery vaginal discharge with pruritus	Possible trichomonas infection	• Metronidazole 500 mg orally twice daily for 7 days • Advise partner treatment • Advise on use of condoms for duration of pregnancy	• Metronidazole 500 mg orally twice daily for 7 days • Advise partner treatment • Advise on use of condoms for duration of pregnancy
• Watery vaginal discharge with foul odor	Possible bacterial vaginosis	• Metronidazole 500 mg orally twice daily for 7 days	• Metronidazole 500 mg orally twice daily for 7 days OR • Metronidazole 2 g orally in a single dose

Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS)

History: ASK

- Have you had a test for HIV previously? If so, what was the result?
- If negative, consider the following information on pre-test information

HIV counseling and testing[19] pre-test information

The aim of offering or recommending HIV testing to a client or a group of clients is to provide clear and concise information including:

- The benefits of HIV testing
- The meaning of a first reactive rapid test and the importance of immediate referral for confirmatory testing where "screening/testing" is implemented
- The meaning of a confirmed HIV-positive and an HIV-negative diagnosis
- The meaning of an inconclusive result and the importance of retesting after 14 days
- The services available in the case of an HIV-positive diagnosis, including where ART is provided
- The potential risks of transmitting HIV to the infant
- Measures that can be taken to reduce mother-to-child transmission, including the provision of ART to benefit the mother and prevent HIV transmission to the infant
- Discuss possible disclosure of the result and the risks and benefits of disclosure
- Encouragement of partner testing in particular for all persons who test positive

Physical exam: LOOK, LISTEN, AND FEEL

- Perform physical exam based on results of previous HIV tests and current situation

Testing: INVESTIGATIONS (see section below on post-test counseling)

Health Center	Hospital
• Inform women that HIV testing is done routinely unless it is refused (opt-out approach) • Perform screening test (determine test) for HIV; if positive, refer to hospital for confirmatory test	• Inform women that HIV testing is done routinely unless it is refused (opt-out approach) • Perform screening test (determine test) for HIV • Confirmation test (Unigold and stat-pack)

[19] MOHS. *PMTCT Manual for Basic Health Services, 2017*. Myanmar: MOHS, 2017.

Diagnosis: CLASSIFY AND TREAT

Test result	Diagnosis	Health Center	Hospital

Confirmed positive HIV test	The woman is living with HIV	• **Refer immediately** for initiation of ART and explain importance of adherence to the medications prescribed, or prescribe ART based on country guidelines.
		• Assess for signs suggesting advanced HIV infection:
		  • unexplained weight loss (> 10 lbs); unexplained constant or intermittent fever (> 1 month); unexplained chronic diarrhea >1 month; >1 month of enlarged lymph nodes in head, neck and underarms; TB; persistent oral candidiasis; >1 month with cough, fever, shortness of breath, or change in vaginal discharge; skin lesions; oral ulcers/patches suggesting thrush
		• Strongly advise giving birth in a facility with capacity to care for women living with HIV and their newborns.
		• Give appointment for next ANC visit and counsel on importance of regular ANC.
		• When a woman tests HIV+ at the health center, she is referred to the hospital for confirmatory test.
		• When a woman receives ART at hospital level, she might be referred back to the health center for routine ANC as long as she remains stable.
			• Assess for signs suggesting advanced HIV infection:
			  • Unexplained weight loss (> 10 lbs); unexplained constant or intermittent fever (> 1 month); unexplained chronic diarrhea >1 month; >1 month of enlarged lymph nodes in head, neck and underarms; TB; persistent oral candidiasis; >1 month with cough, fever, shortness of breath, or change in vaginal discharge; skin lesions; oral ulcers/patches suggesting thrush
			• Strongly advise giving birth in a facility with capacity to care for women living with HIV and their newborns
			• Give appointment for next ANC visit and counsel on importance of regular ANC
			• Treat with ART drugs:
			  • TDF + 3TC (or FTC)+ EFV
			  • [TDF=tenofovir disoproxil fumarate; 3TC=lamivudine; FTC=emtricitabine; EFV=efavirenz]
			• When a woman receives ART at hospital level, she can be referred back to the health center for routine ANC as long as she remains stable.

Negative HIV test	The woman is not living with HIV, but may still be at risk for acquiring it	• Post-test counseling as below	• Post-test counseling as above

Test result	Diagnosis	Health Center	Hospital
HIV test refused; or previous test results not available; or not willing to disclose previous test results	Unknown HIV status	• Assess for signs suggesting advanced HIV infection as above • If advanced disease suspected, **IMMEDIATELY** refer for advanced care to a facility that can ART and care for pregnant women living with HIV/AIDS	• Assess for signs suggesting advanced HIV infection as above • Counsel on HIV testing

Post-test counseling

Services for pregnant women with negative test results:

- Explain the test result.
- Explain that mother-to-child transmission can occur if the mother is infected during pregnancy or during breastfeeding and thus it is important to remain negative.
- Educate people with on-going risk of acquiring HIV on methods to prevent HIV acquisition and promotion of condom use.
- Emphasize the importance of knowing the status of sexual partner(s) and information about the availability of partner and couples testing services.
- Prioritize referral and linkage to relevant HIV prevention services for people with on-going HIV risk, particularly people from key populations, including harm reduction and other interventions.
- Note that for most people with negative HIV test results, additional retesting to rule out being in the "window period" is not necessary. However, recommend retesting for HIV-negative persons, based on the client's risk of exposure for the following two scenarios:
    - A person with recent and specific risk that occurred in the last 6 weeks should return for retesting in 4 to 6 weeks.
    - An HIV-negative person with on-going risk of exposure such as key populations and persons in sero-discordant relationship(s) may benefit from testing every 6 months.
- Advise persons who do not report recent or on-going risk to return for testing only if their personal situation changes and if they are potentially exposed to HIV infection.

Services for pregnant women with positive test results

- Explain the test results and diagnosis (status).
- Give the client time to consider the results and help the client cope with emotions arising from the diagnosis of HIV infection.
- Discuss immediate concerns and help the client decide who in her social network may be available to provide immediate support.
- Assess the risk of suicide, depression, and other mental health consequences of a diagnosis of HIV infection.
- Provide clear information on ART and its benefits for maintaining health and reducing the risk of HIV transmission, as well as where and how to obtain ART.

- Explain that the care and treatment site will retest once more for verification prior to enrolment. Arrange a specific date and time for active referral.
- Provide information on how to prevent transmission of HIV, including information on the reduced transmission risks to the child when the mother is virally suppressed on ART.
- Provide male and/or female condoms, lubricants, and guidance on their use. Consistent use of condoms is particularly important for people with HIV infection to prevent HIV transmission to sexual partners until they are virally suppressed on ART.
- Emphasize the importance of knowing the status of sexual partner(s) and information about the availability of partner and couples testing services.
- Ensure screening for tuberculosis and testing for other infections such as syphilis.
- Counsel on adequate maternal nutrition, including iron and folic acid.
- Advise the woman on infant feeding options and support to carry out the mother's infant feeding choice.

Counseling for HIV-positive pregnant women

In addition to the HIV testing services mentioned above, the following counseling should be provided for pregnant women whose status is HIV-positive:

- During the pregnancy
    - Initiate ART as soon as possible (3 drugs)
    - Life-long ART is the best for woman's own health and for the future of her baby
    - Importance of adherence to ART (also adherence to prophylaxis and treatment for opportunistic infections)
    - Seek ANC regularly
    - Importance of partner testing (if not yet done)
    - HIV testing for children of the client
- During delivery
    - Advise to deliver at health facilities or with skilled service providers
    - Promote safer delivery practices to reduce the exposure of baby to blood and body fluid
- After delivery
    - ART/antiretroviral (ARV) for mother and baby
    - Continue ART for woman (life-long)
    - Start infant ARV prophylaxis (NVP and AZT) immediately after delivery for 6 weeks (or) as recommended by pediatrician.
    - Early infant diagnosis (EID)
        - All HIV exposed infants should have HIV virological testing at 6 weeks of age or at the earliest opportunity thereafter.

        - If the result of virological testing is negative, conduct HIV antibody testing at 9 months of age, and then repeat HIV antibody test at 18 months or 3 months after cessation of breastfeeding (whichever is later).
    - Infant feeding
        - Counsel the woman about infant feeding options, i.e., exclusive breastfeeding or formula feeding including risks and benefits.
        - If breastfeeding is chosen, counsel on exclusive breastfeeding for first 6 months, introducing complementary food thereafter, and continuing breastfeeding for up to 24 months, weaning gradually within 1 month.

Risks and benefits of feeding options

- Exclusive breastfeeding
    - Increases the risk of HIV transmission, but the risk can be reduced if the woman is on ART
    - Breast milk contains antibodies that protects the baby from the diseases including diarrhea, pneumonia and other infectious diseases
    - Breast milk is very nutritious so that it can reduce the risk of malnutrition to the baby
    - It is not costly and easy to carry out
    - It strengthens the maternal/infant bond
- Formula feeding
    - No risk of HIV transmission from breast milk.
    - Lack of maternal antibodies, thus exposing the baby to the risk of infectious diseases including diarrhea, pneumonia, etc.
    - Lack of health benefits of colostrum and many of the nutrients in breast milk.
    - Infection from bacteria in water used to mix formula or spoiled formula can be extremely dangerous.
    - It is expensive.
    - Special conditions/equipment required such as availability of clean water, equipment to boil water (gas stove or electricity), milk bottles, and other utensils.
    - Possible psychological problems for women as a result of not being able to breastfeed.
    - Can cause stigma as it may be inferred that the woman is living with HIV.

Tuberculosis during Pregnancy

History: ASK

- Are you taking anti-tuberculosis (TB) drugs? If yes, since when?
- Does the treatment include injection aminoglycosides (streptomycin, amikacin, kanamycin, or capreomycin)?

Testing: INVESTIGATIONS

Health Center	Hospital
• Sputum for AFB • Collect sputum and if there is lab capacity do microscopy at health center; otherwise send sample to sputum collection center, or nearest township or district TB laboratory	• Sputum for AFB • GeneXpert (if the patient has multi-drug-resistant-TB (MDR-TB) contact and/or history of TB treatment and/or is living with HIV) • Chest x-ray with full precautions (except 1st trimester)

Diagnosis: CLASSIFY; TREAT/ADVISE

Test/examination result	Diagnosis	Health Center Level	Hospital Level
Not taking anti-tuberculosis drugs	Not an active TB case	• Screen for TB through symptom screening. • Refer presumptive TB cases to district hospital or district TB team for sputum for AFB.	• Screen for TB through history/physical exam. Refer presumptive TB cases for sputum AFB. If required, do chest x-ray except in 1st trimester.

Test/examination result	Diagnosis	Health Center Level	Hospital Level
• Taking anti-tuberculosis drugs • Receiving injectable anti-tuberculosis drugs • GeneXpert result shows rifampicin resistance or diagnoses drug-resistant TB	Tuberculosis Multidrug resistant TB (MDR-TB)	• The first line anti-TB drugs are: isoniazid (H), rifampicin (R), pyrazinamide (Z), and ethambutol (E). With the exception of streptomycin, the first line anti-TB drugs are safe for use in any trimester of pregnancy. • Provide health education, counseling, and referral to district hospital or district TB team. • Offer HIV testing and counseling. • If smoking, counsel to stop smoking, and avoid exposure to second-hand smoke. • Advise TB screening of immediate family members and close contacts. • Refer to MDR-TB center	• The first line anti-TB drugs are: isoniazid (H), rifampicin (R), pyrazinamide (Z), and ethambutol (E). With the exception of streptomycin, the first line anti-TB drugs are safe for use in any trimester of pregnancy. • If anti-tubercular treatment includes injection of aminoglycosides (streptomycin, amikacin, kanamycin, capreomycin) refer the woman to district hospital or district TB team for revision of treatment, as injection aminoglycosides are ototoxic to the fetus. • If treatment does not include injection aminoglycosides assure the woman that the drugs are not harmful to her baby, and urge her to continue treatment. • Offer HIV testing and counseling. • If smoking, counsel to stop smoking, and avoid exposure to second-hand smoke. • Advise TB screening of immediate family members and close contacts. • Women with diagnosis of TB who are treated < 2 weeks prior to delivery, screen newborn for TB. If screening is negative, administer intermittent preventive therapy with isoniazid for 6 months and then administer BCG. • Women with diagnosis of TB who take TB treatment > 2 weeks, screen newborn for TB. If screening is negative, administer BCG. • Refer to MDR-TB center.

Hepatitis B during pregnancy

History: ASK

- Does the woman have a history of positive HBsAg (hepatitis B surface antigen) testing?
- Does she have a history of chronic liver disease, and if so how is it being treated?

- Does she have hepatitis B virus (HBV)/HIV co-infection?

Physical exam: LOOK, LISTEN, AND FEEL

- Routine physical and obstetric exams at first and subsequent ANC visits
- Attention to signs of chronic liver disease, including malaise, fatigue, poor appetite

Tests: INVESTIGATIONS

Health Center	Hospital
• HBsAg (if available) • HIV	• HBsAg (if available) • HIV • Liver function tests (ALT [alanine aminotransferase], AST [aspartate aminotransferase]) • HBV viral load

Diagnosis: CLASSIFY; TREAT/ADVISE

Test/exam result	Diagnosis	Health Center	Hospital
• HBsAg positive	• Infected with HBV	• Refer to hospital for further testing • The routine use of antiviral therapy to prevent mother-to-child transmission of HBV is not recommended • Pregnant women who are HBsAg positive should be counseled that their newborns should receive hepatitis B vaccine within 24 hours after birth, followed by two subsequent doses	• Further testing based on : Guidelines for the Prevention, Care and Treatment of Persons with Chronic Hepatitis B Infection (WHO 2015). • Indications for treatment include: women with chronic hepatitis B and clinical evidence of compensated or decompensated cirrhosis (or cirrhosis based on aspartate aminotransferase-to-platelet ratio index [APRI] score > 2 in adults) should be treated, regardless of ALT levels, HBeAg (hepatitis B e-antigen) status or HBV DNA levels. • Continue to monitor women without clinical evidence of cirrhosis (or based on APRI score ≤ 2 in adults), **and** with persistently normal ALT levels **and** low levels of HBV replication (HBV DNA <2000 IU/mLf), regardless of HBeAg status or age. • The routine use of antiviral therapy to prevent mother-to-child transmission of HBV is not recommended. • Pregnant women who are HBsAg positive should be counseled that their newborns should receive hepatitis B vaccine within 24 hours after birth, followed by two subsequent doses

The routine use of antiviral therapy for hepatitis B-infected pregnant women to prevent maternal-to-child transmission is not recommended in the public sector for the time being. Hepatitis B-infected mothers should be encouraged to have their newborns receive a birth dose of hepatitis B vaccine and hepatitis immunoglobulin within 24 hours after delivery, which should be followed by pentavalent vaccine as part of

routine immunizations. If the hepatitis B-infected pregnant woman wants to take antiviral therapy during the pregnancy, she should be referred to the hepatologist for further treatment.

Periodontal infection (periodontitis/gingivitis) during pregnancy

History: ASK

- Does the woman have a history of gingival bleeding (spontaneously or at the time of tooth brushing)?
- Does the woman have a history of caries, toothaches, mobility, and/or hypersensitivity of one or more teeth?
- How often does the woman brush her teeth? Has she sought preventive dental care or treatment in the past?

Physical exam: LOOK, LISTEN, AND FEEL

- Check the oral cavity as a routine dental examination and note halitosis; bleeding, swollen gums; loose teeth; and teeth with advanced caries.

Tests: INVESTIGATIONS

Health Center	Hospital
• Palpation and percussion of symptomatic teeth • Check tooth mobility if indicated • Refer for X-ray assessment if indicated	• Palpation and percussion of symptomatic teeth • Check tooth mobility if indicated • X-ray assessment if indicated

Diagnosis: CLASSIFY; TREAT/ADVISE

Periodontal disease	Diagnosis	Health Center	Hospital
• Swelling of the gums • Bleeding of the gums • Bad breath • Pocket formation • Loose teeth	• Periodontitis	• Refer to dental units or dental specialist center • Counsel about good dental hygiene and need to seek routine preventive dental care	• Non-surgical/non- invasive treatment • Scaling and root planing • Counsel about good dental hygiene and need to seek routine preventive dental care

Scaling is the most effective method for pregnancy-related periodontal infection. The best time to perform scaling is prior to conception. During pregnancy, the second trimester is more suitable to do scaling to reduce related complications such as congenital heart disease and pre-eclampsia. (First trimester interventions could theoretically have an effect on organogenesis and third trimester may be more uncomfortable for the woman). The woman also needs follow-up visits after delivery for continuation of adequate oral care[20].

[20] Newman, M. G., Takei, H. H., Klokkevold, P. R. and Carranza, F. A. (2012). *Clinical Periodontology*. 11th South Asia Edition. Elsevier Inc.

Part D: Health Systems Strengthening to Improve the Utilization and Quality of Antenatal Care

The 2016 WHO *recommendations on antenatal care* for a *positive pregnancy experience* describe interventions that increase the use of ANC and improve the quality of care that women receive. Specific emphasis is given to continuity of care, opportunities for women to communicate productively with their service provider in a variety of settings, and ensuring the presence of adequate supplies and commodities. Education and empowerment of service providers to ensure use of best practices is also a priority.

Among seven interventions recommended are:

- At health center-level level:
    - Maternal and child health handbooks (women-held case notes)
    - Task sharing to community health volunteers
    - ANC contact schedules
- Context-specific:
    - Midwife-led continuity of care
    - Group health education and counseling
    - Community-based interventions to support and improve demand creation and health literacy
    - Recruitment and retention of staff

Women-held case notes are records that provide valuable information and benefit service providers and the health and safety of women themselves as they receive appropriate, quality ANC. To be effective, standardization of case notes is necessary to collect the required information properly as well as to support reporting on national indicators. Information in the case notes needs to be simple, user friendly, and translated into local languages in ethnic areas. It is also important that records are understandable for volunteers so they can help women efficiently. Adequate supplies of case notes in health centers and hospitals should be a priority to ensure their consistent distribution to women and their use by service providers.

In terms of task sharing, currently medical doctors, nurses, and midwives provide ANC services. To reduce the burden on these cadres, it is necessary to strengthen village health committees for effective community mobilization and to train community health volunteers to conduct health education and referrals, if required. Community health volunteers can also assist basic health staff in non-emergency referrals when health staff are unable to accompany clients during the referral.

To implement midwife-led continuity of care, close coordination among health facilities and service providers is required.

An important aspect for effective service delivery is coordination among service providers and community groups. This should include providers from both the public and private sectors. Establishing these links will increase respect and cooperation among diverse groups and promote sharing of locally appropriate health education and services essential for improved maternal and newborn outcomes. The whole community should be empowered to improve the health of its members and the community should have the opportunity to provide suggestions about how to improve health services.

Part E. Documentation and Reporting

Documentation and reporting provide the means to assess coverage, effectiveness, and quality of services delivered and promotes a culture of continual quality improvement within program. Through effective monitoring and evaluation, program results at all level and can be measured to provide the basis for accountability and decision making at both program and policy level.

Using Quality Data for Decision Making at All Levels of the Health System

There are different dimensions of data quality. To ensure appropriate targeting and planning it is crucial that data are **precise, complete, timely, reliable, and accurate**. Each of these dimensions is described below including criteria for their achievement.

- Precise data measure what they intend to measure with sufficient details. To assure that this is the case, standard forms have been developed that record the data needed for programming and reporting. These forms should be adjusted and updated as needed.
- Complete data gather information from all service providers and patients; however, assuring that all data are collected each month is a challenge. Program staff, with support from partners, can ensure that the desired level of completeness is achieved through visits to townships and health facilities and working toward improved communication infrastructure.
- Timely data are up to date and available when needed. A number of surveys and studies are required to ensure updated information.
- Reliable data are not biased by those who collect them. To make certain that data are reliable, standard forms and guidelines are to be used and all staff must be trained in data recording.
- Accurate data are data where errors are minimized to the point of being insignificant. Likewise, it is important that data have integrity, i.e., there is no deliberate bias. Lack of reliable, accurate data can be caused by mistakes or misunderstandings at different levels of the reporting system.[21]

Generally, the data collection tools in the antenatal program are classified into primary and secondary data sources. Primary data resources include ANC registers, which are essential to routine monitoring within the health information system [HIS] and are prerequisite to the calculation of indicators. Secondary data sources include antenatal records and health handbooks. Secondary data sources have important functions within the HIS, but are not directly used to calculate indicators. They play vital roles informing clinical decision making and promoting service quality and performance.

The ANC register tracks each visit made during the antenatal period. A single entry (horizontal row) in the ANC register should contain information from registration at the first visit, to details of pregnancy outcome at the time of delivery. This is an extremely important principle and is the basis on which quality of ANC is retrospectively monitored at the time of delivery.

At registration, basic identifying information and an obstetric history are taken and recorded. Every mother is assigned a unique identifying code (or antenatal number). The same antenatal number should be used throughout pregnancy and recorded in the antenatal record. During repeated visits, this antenatal number can then be used to easily reference and update case information in the register.

All antenatal visits should be documented in an ANC register. The task of filling each entry should be designated to trained health staff in each antenatal clinic. At the end of each week, the supervisor should coordinate the completion of the reproductive health report and ensure that respective sections have made their submission in full and on time. The clinic supervisor is also responsible for monitoring the upkeep of the registers, and for ensuring the completeness of record entries each day.

[21] MOH. *Monitoring-Evaluation Plan, Malaria Prevention and Control.* The Republic of the Union of Myanmar. Myanmar: MOH, 2012.

It is recommended that first ANC contacts take place at RHC or higher levels as some women may require preventive or curative services that are not available at lower levels of the system.[22]

Monitoring and Evaluation: List of ANC Indicators

Table 4: List of ANC Indicators with definitions, frequency and source

Name of Program	Indicator	Numerator	Denominator	Frequency	Sources for monthly report
MRH	Antenatal coverage (at least one visit)	# of pregnant women attending ANC (new ANC)	Estimated number of pregnant women	monthly	ANC register; HMIS
	Percentage of women who received ANC at least 8 times (≥ 8 times)	Total number of pregnant women with a live birth in a given time period that received antenatal care from skilled health personnel (doctors, nurses or midwives) at least 8 times (≥ 8 times)	Estimated number of pregnant women	monthly	ANC register; Form 1
	Percentage of women with close birth interval	Number of (newly) registered pregnant women whose pregnancies were within 24 months of the previous childbirth	Total number of (new) pregnancies registered during the month	monthly	ANC register, Form 1
	Percentage of women referred to higher levels of care (during pregnancy)	Total number of pregnant women, women during pregnancy who require higher levels of care and are referred to higher-level health staff, health centers or hospitals.	Total number of new and return visits registered during the month	monthly	ANC register
	Maternal mortality ratio	Total number of women who died during pregnancy, childbirth, and postnatal period (42 days after childbirth) not including deaths from injuries, murder or suicide.	Total number of live births	annually	Annual report form 3 (collated from the Birth and Death Register 2)
	Prevalence of anemia among pregnant women	The number of (new) registered pregnant women whose hemoglobin level was ≤ 11g/dl	Total number of (new) pregnancies registered during the month	monthly	ANC register

[22] UNHCR. Health Information System. Antenatal Care. http://www.unhcr.org/461e537b2.pdf

Name of Program	Indicator	Numerator	Denominator	Frequency	Sources for monthly report
Nutrition	Percentage of pregnant women receiving de-worming drugs	Total number of women in 2nd and 3rd trimesters who received de-worming drugs as part of ANC during the reporting period.	Estimated number of pregnant women	monthly	ANC register
	Total number of pregnant women who received vitamin B1 tablets after 36 weeks of pregnancy	Total number of pregnant women after 36 weeks of pregnancy who received vitamin B1 supplement tablets ring the reporting period. (B1 tablets 10 mg, i.e. 28 tablets OR B1 tablets 50 milligrams, 7 tablets.)	Estimated number of pregnant women	monthly	ANC register
	Percentage of post-natal women who received iron supplement at least 3 times during pregnancy	Total number of postnatal women who received iron supplements at least 3 times during pregnancy	Estimated number of pregnant women	monthly	ANC register
	Percentage of postnatal women who received iron supplement 4 times or more during pregnancy	Total number of postnatal women who received iron supplements 4 times or more during pregnancy	Estimated number of pregnant women	monthly	ANC register
EPI	Percent coverage of tetanus toxoid (first dose) in pregnant women	Total number of pregnant women who received immunization against tetanus for the first time.	Estimated number of pregnant women	monthly	ANC register
	Percent coverage of tetanus toxoid (second dose) in pregnant women	Total number of pregnant women who received immunization against tetanus for the second time	Estimated number of pregnant women	monthly	ANC register
National AIDS Program (eMTCT)	# of pregnant women attending antenatal care services at PMCT sites who received HIV pre-test counselling	# of pregnant women received pre-test counselling	Not required	monthly	PMTCT Monthly Report

Name of Program	Indicator	Numerator	Denominator	Frequency	Sources for monthly report
	Proportion of pregnant women attending ANC services who received HIV testing	# of pregnant women attending ANC services who received HIV testing	# of pregnant women attending ANC (new ANC)	monthly	HMIS PMTCT Monthly Report
	Proportion of pregnant women who know their HIV status (eMTCT Indicator)	# of pregnant women who received HIV testing and test result with posttest counseling	# of pregnant women attending ANC (new ANC)	monthly	- HMIS - PMTCT Monthly Report
	% of pregnant women attending ANC whose male partners were tested for HIV during pregnancy	# of pregnant women attending ANC whose male partners were tested for HIV during pregnancy	# of pregnant women attending ANC (new ANC)	monthly	HMIS PMTCT Monthly Report
	Percentage of pregnant women (age 15-24) who are HIV infected	# of pregnant women (age 15-24) tested positive for HIV	# of pregnant women (age 15-24) received HIV testing	monthly	HTS Report
	Proportion of HIV-positive pregnant women who received ART during pregnancy (eMTCT Indicator)	# of HIV-positive pregnant women who received antiretrovirals to reduce the risk of mother-to-child-transmission	# of HIV infected pregnant women	monthly	PMTCT Monthly Report
	Percentage of women accessing antenatal care services who were tested for syphilis at any visit (eMTCT Indicator)	# of pregnant women attending antenatal care services who were tested for syphilis during any ANC visit	# of pregnant women attending ANC (new AN)	monthly	HMIS PMTCT Monthly Report
	Proportion of syphilis-positive pregnant women who received syphilis treatment (eMTCT Indicator)	Number of Syphilis-positive pregnant women who received Syphilis treatment	Number of Syphilis-positive pregnant women	monthly	PMTCT Monthly Report

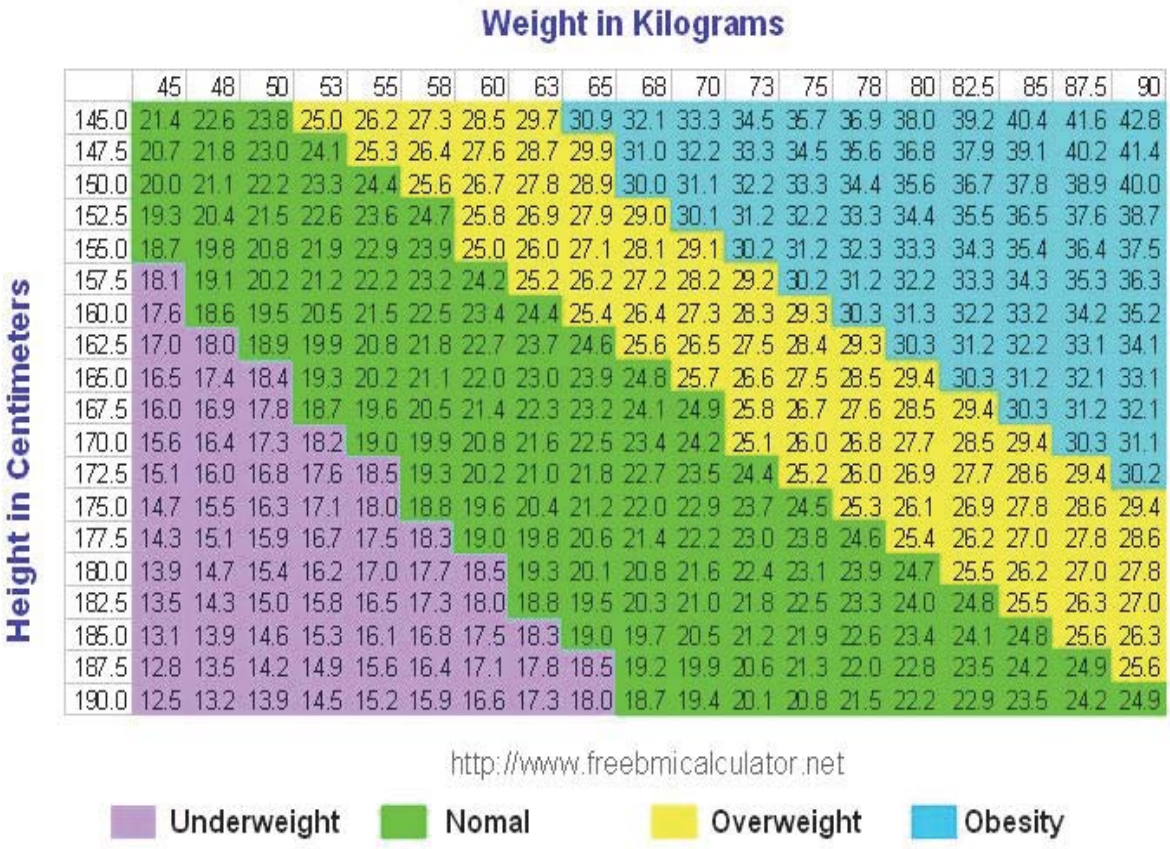
Appendices

Appendix 1: Referral Record and Feedback Record

Maternal/Newborn Referral Record	
WHO IS REFERRING RECORD NUMBER	REFERRED DATE TIME
NAME	ARRIVAL DATE TIME
FACILITY	
ACCOMPANIED BY THE HEALTH WORKER Yes ☐ No ☐ (*If yes, specify name and designation)*	
MOTHER	**BABY**
NAME AGE ADDRESS GRAVIDA ☐ PARA ☐ IF PREGNANT, GESTATIONAL AGE *If postnatal* DATE/HOUR OF DELIVERY PLACE OF DELIVERY	NAME DATE AND HOUR OF BIRTH BIRTH WEIGHT GESTATIONAL AGE AT DELIVERY TERM ☐ PRETERM ☐ POSTNATAL ☐
TYPE OF REFERRAL ☐ Emergency ☐ Non-emergency ☐ To accompany the baby	TYPE OF REFERRAL ☐ Emergency ☐ Non-emergency ☐ To accompany the mother
MAJOR FINDINGS (Clinical and BP, Temp, Lab) DIAGNOSIS/Reasons for referral	MAJOR FINDINGS (Clinical Exam and Temp) DIAGNOSIS/Reasons for referral LAST (BREAST)FEED (DATE &TIME)
PRE-REFERRAL TREATMENTS TREATMENT DATE/TIME	PRE-REFERRAL TREATMENTS TREATMENT DATE/TIME
TREATMENTS DURING TRANSPORT TREATMENT DATE/TIME	TREATMENTS DURING TRANSPORT TREATMENT DATE/TIME
INFORMATION GIVEN TO THE MOTHER AND COMPANION ABOUT THE REASONS FOR REFERRAL ☐ Yes ☐ No If yes, please specify	INFORMATION GIVEN TO THE MOTHER AND COMPANION ABOUT THE REASONS FOR REFERRAL ☐ Yes ☐ No If yes, please specify
Signature	

Maternal/Newborn Referral Record	
Feedback Record: Information From Referral Facility To Lower Level Facility	
NAME OF FACILITY TO WHICH MOTHER/BABY ARE RETURNING	DISCHARGE DATE TIME
MOTHER	**BABY**
NAME AGE	NAME DATE OF BIRTH
ADDRESS	BIRTH WEIGHT AGE AT DISCHARGE (DAYS)
TYPE OF REFERRAL ☐ Emergency ☐ Non-emergency ☐ To accompany the baby	MAIN REASONS FOR REFERRAL ☐ Emergency ☐ Non-emergency ☐ To accompany the mother
DIAGNOSIS TREATMENTS GIVEN AT REFERRAL FACILITY DATE & TIME	DIAGNOSIS TREATMENTS GIVEN AT REFERRAL FACILITY DATE & TIME
TREATMENTS AND RECOMMENDATIONS ON FURTHER CARE AT LOWER LEVEL FACILITY	TREATMENTS AND RECOMMENDATIONS ON FURTHER CARE AT LOWER LEVEL FACILITY
FOLLOW-UP VISIT WHEN WHERE	FOLLOW-UP VISIT WHEN WHERE
PREVENTIVE MEASURES	PREVENTIVE MEASURES
If Death DATE CAUSES	*If Death* DATE CAUSES
Signature	

Appendix 2: BMI Calculator



	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80	82.5	85	87.5	90
145.0	21.4	22.6	23.8	25.0	26.2	27.3	28.5	29.7	30.9	32.1	33.3	34.5	35.7	36.9	38.0	39.2	40.4	41.6	42.8
147.5	20.7	21.8	23.0	24.1	25.3	26.4	27.6	28.7	29.9	31.0	32.2	33.3	34.5	35.6	36.8	37.9	39.1	40.2	41.4
150.0	20.0	21.1	22.2	23.3	24.4	25.6	26.7	27.8	28.9	30.0	31.1	32.2	33.3	34.4	35.6	36.7	37.8	38.9	40.0
152.5	19.3	20.4	21.5	22.6	23.6	24.7	25.8	26.9	27.9	29.0	30.1	31.2	32.2	33.3	34.4	35.5	36.5	37.6	38.7
155.0	18.7	19.8	20.8	21.9	22.9	23.9	25.0	26.0	27.1	28.1	29.1	30.2	31.2	32.3	33.3	34.3	35.4	36.4	37.5
157.5	18.1	19.1	20.2	21.2	22.2	23.2	24.2	25.2	26.2	27.2	28.2	29.2	30.2	31.2	32.2	33.3	34.3	35.3	36.3
160.0	17.6	18.6	19.5	20.5	21.5	22.5	23.4	24.4	25.4	26.4	27.3	28.3	29.3	30.3	31.3	32.2	33.2	34.2	35.2
162.5	17.0	18.0	18.9	19.9	20.8	21.8	22.7	23.7	24.6	25.6	26.5	27.5	28.4	29.3	30.3	31.2	32.2	33.1	34.1
165.0	16.5	17.4	18.4	19.3	20.2	21.1	22.0	23.0	23.9	24.8	25.7	26.6	27.5	28.5	29.4	30.3	31.2	32.1	33.1
167.5	16.0	16.9	17.8	18.7	19.6	20.5	21.4	22.3	23.2	24.1	24.9	25.8	26.7	27.6	28.5	29.4	30.3	31.2	32.1
170.0	15.6	16.4	17.3	18.2	19.0	19.9	20.8	21.6	22.5	23.4	24.2	25.1	26.0	26.8	27.7	28.5	29.4	30.3	31.1
172.5	15.1	16.0	16.8	17.6	18.5	19.3	20.2	21.0	21.8	22.7	23.5	24.4	25.2	26.0	26.9	27.7	28.6	29.4	30.2
175.0	14.7	15.5	16.3	17.1	18.0	18.8	19.6	20.4	21.2	22.0	22.9	23.7	24.5	25.3	26.1	26.9	27.8	28.6	29.4
177.5	14.3	15.1	15.9	16.7	17.5	18.3	19.0	19.8	20.6	21.4	22.2	23.0	23.8	24.6	25.4	26.2	27.0	27.8	28.6
180.0	13.9	14.7	15.4	16.2	17.0	17.7	18.5	19.3	20.1	20.8	21.6	22.4	23.1	23.9	24.7	25.5	26.2	27.0	27.8
182.5	13.5	14.3	15.0	15.8	16.5	17.3	18.0	18.8	19.5	20.3	21.0	21.8	22.5	23.3	24.0	24.8	25.5	26.3	27.0
185.0	13.1	13.9	14.6	15.3	16.1	16.8	17.5	18.3	19.0	19.7	20.5	21.2	21.9	22.6	23.4	24.1	24.8	25.6	26.3
187.5	12.8	13.5	14.2	14.9	15.6	16.4	17.1	17.8	18.5	19.2	19.9	20.6	21.3	22.0	22.8	23.5	24.2	24.9	25.6
190.0	12.5	13.2	13.9	14.5	15.2	15.9	16.6	17.3	18.0	18.7	19.4	20.1	20.8	21.5	22.2	22.9	23.5	24.2	24.9

Appendix 3: List of Equipment, Supplies, and Medications for Community and Hospital Levels

Items	Community	Hospital
General Equipment		
Waiting Area		
Chairs for provider, client, and her support person(s)	√	√
Covered waiting area with adequate seating	√	√
Source of clean water (sink with faucet or bucket with tap)	√	√
Toilets/latrines	√	√
Desk and chair for attendant/receptionist	√	√
Examination Room		
Examination area with auditory and visual privacy	√	√
Writing desk, chairs for provider, client and companion	√	√
Examination table or bed with washable plastic cover	√	√
Step stool	√	√
Adult weighing scale	√	√
Gestational age wheel	√	√
Current calendar	√	√
Adult stethoscope	√	√
Blood pressure cuff	√	√
Oral/axillary thermometer	√	√
Fetal stethoscope (Pinard)	√	√
Fetal stethoscope (electronic Doppler)		√
Measuring tape	√	√
Light source (lamp or hand torch)	√	√
Vaginal specula; small, medium and large	√	√
Obstetric ultrasound machine, transducer, gel		√
Client records, registers as appropriate	√	√
Brochures, pamphlets or other educational material for clients	√	√
Wall posters with educational messages in appropriate language/context	√	√
Watch or clock with second hand that can be seen easily	√	√
Other (specify)		
Other (specify)		
Emergency Trolley Equipment		
Dedicated space for emergency treatment (i.e. exam room)	√	√
Emergency trolley or box easily accessible at all times of day (i.e. keys are always kept onsite by a responsible person)	√	√
Written schedule and checklist for responsible persons to check/ re-stock trolley daily	√	√
Blood pressure cuff, adult stethoscope	√	√
IV administration sets	√	√

Items	Community	Hospital
IV solutions: Ringer's lactate, normal saline, glucose	√	√
Large bore needles or cannula (16 gauge)	√	√
Sterile syringes and needles in varying sizes	√	√
Scissors	√	√
Tape	√	√
Reflex hammer	√	√
Urinary catheters/collection bags	√	√
Supplies for drawing blood: • Tourniquets • Syringes and needles • Tubes • Labels	 √ √ √ √	 √ √ √ √
Urine dipsticks for protein	√	√
Urine dipsticks for bacteria	√	√
Other (specify)		
Emergency Trolley Medications		
Adrenaline (parenteral)	√	√
Atropine sulfate (parenteral)	√	√
Calcium gluconate (parenteral)	√	√
Chlorpheniramine (parenteral)		
Ephedrine (parenteral)	√	√
Frusemide (parenteral)	√	√
Hydrocortisone (parenteral)		
Magnesium sulfate 50% solution (parenteral)	√	√
Naloxone (parenteral)	√	√
Prednisolone (parenteral)	√	√
Promethazine (oral)	√	√
Other (specify)		
Laboratory Investigation Supplies		
Laboratory equipment to test for: • Hemoglobin/hematocrit (color scale) • Complete blood picture • Blood group/Rh • Syphilis • HIV • HBsAg • Malaria • Blood glucose • Urine protein • Urine bacteria • Other (specify)	 √ √ √ √ √ √ √ √ √ √ √	 √ √ √ √ √ √ √ √ √ √ √

Items	Community	Hospital
Supplies for drawing blood: • Tourniquets • Syringes and needles • Tubes • Labels • Other (specify)	 √ √ √ √ √	 √ √ √ √ √
Infection Prevention Supplies		
Alcohol/Betadine/Savlon	√	√
Boiled, cooled water	√	√
Chlorine for making 0.5% chlorine solution for high-level disinfection	√	√
Buckets for high-level disinfection of instruments with 0.5% chlorine solution	√	√
Brooms, mops	√	√
Other disinfectant agents	√	√
Puncture-proof container for sharps disposal	√	√
Single (personal) use hand towel or paper towels	√	√
Soap at all sinks	√	√
Alcohol-based glycerin hand rub	√	√
Sterile gloves, multiple sizes	√	√
Exam gloves, multiple sizes	√	√
Utility or heavy-duty household gloves for cleaning	√	√
Waste baskets with covers for normal waste	√	√
Waste baskets with covers for hazardous waste	√	√
Incinerator or pit to bury hazardous waste	√	√
Clinic Records and Documents		
Antenatal cards	√	√
ANC register or logbook	√	√
Family planning cards	√	√
Family planning register or logbook	√	√
Immunization cards: • For mother • For newborn	 √ √	 √ √
Pens	√	√
Referral forms	√	√
Other (specify)		
Medications		
Refrigerator or cold box (for storage of drugs and vaccines)	√	√
Analgesic: • Paracetamol	√	√
Anti-anemia: • Iron 30 mg tablets and folate 0.4 mg tablets	√	√

Items	Community	Hospital
Antibiotics:		
• Ampicillin (oral/parenteral)	√	√
• Gentamycin (parenteral)	√	√
• Benzathine penicillin or benzyl penicillin	√	√
• Metronidazole (oral)	√	√
• Metronidazole (parenteral)	√	√
• Ceftriaxone (parenteral)	√	√
• Cefixime (oral)	√	√
• Azithromycin (oral)	√	√
• Trimethoprim + sulfamethoxazole	√	√
Anti-helminthics:		
• Mebendazole	√	√
Antihypertensives:		
• Nifedipine (oral)	√	√
• Labetalol (oral)	√	√
• Hydralazine (parenteral)	√	√
• Methyldopa (oral)	√	√
Antimalarials:		
• Chloroquine tablets (oral)	√	√
• Clindamycin (oral)	√	√
• Quinine for injection	√	√
• Artemether/lumefantrine or other	√	√
• ACT	√	√
• Artesunate for injection	√	√
Antiretrovirals:		
• TDF+3TC(or FTC)+EFV	√	√
(TDF = tenofovir disoproxil fumarate; 3TC=lamivudine; FTC=emtricitabine; EFA = efavirenz)		
Anti-tuberculosis drugs:		
• Isoniazid (H)	√	√
• Rifampicin (R)	√	√
• Pyrazinamide (Z)	√	√
• Ethambutol (E)	√	√
Contraceptives:		
• Condoms for protection from STI/HIV	√	√
• IUD with inserter for immediate postpartum use (where trained providers are available)	√	√
Uterotonics:		
• Misoprostol	√	√
• Oxytocin	√	√
Vaccines:		
• Tetanus diphtheria toxoid	√	√
Other (specify)	√	√
Other Equipment/Supplies		
Long-lasting insecticide-treated bed nets (LLIN)	√	√

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