**Antenatal Care Services**

**Goals and Principles**

Antenatal care (ANC) is the care of the woman during pregnancy. The primary aim of ANC is to promote and protect the health of women and their unborn babies during pregnancy so as to achieve at the end of a pregnancy a HEALTHY MOTHER and a HEALTHY BABY.

**Goals**
- To reduce the mortality and morbidity of women and children
- To improve the physical, mental, and social well being of women, children, and their families.

**Objectives**
- To ensure that the pregnant woman in a good health status before pregnancy.
- To ensure that the pregnant woman and her unborn child are in the best possible health prior to delivery.
- To ensure that all pregnant women understand (i) the complications of pregnancies that may lead to death, (ii) the best approach to safe delivery, and (iii) the best way of bringing up their babies.

**Principles and Scope of Services**
- Antenatal care provides an essential link between women and the health system and offers essential health care services in line with national policies, including:
  - Counseling about the danger signs of pregnancy and delivery complications and where to seek care in case of emergency
  - Counseling on birth preparedness, emergency readiness, and the development of a birth plan
  - Providing advice on proper nutrition during pregnancy
  - Detecting conditions that require additional care and providing appropriate treatment for those conditions
  - Detecting complications that influence choice of birthing location
  - Supplying Iron and Folate supplement
  - Supplying low dose supplement of vitamin A
  - In certain settings, providing treatment for conditions that affect women’s pregnancies, such as malaria, tuberculosis, hookworm infection, iodine deficiency, and sexually transmitted infections, including HIV/AIDS
  - Providing tetanus toxoid immunization
  - Rapid test for Syphilis.
  - Providing voluntary HIV testing and counseling
  - Providing information about breastfeeding and contraceptives
Annex 4 – Role of each facility as defined by BPHS in provision of certain ANC tasks and dealing with specific conditions during the pregnancy

<table>
<thead>
<tr>
<th>Tasks/Conditions</th>
<th>HP</th>
<th>BHC</th>
<th>CHC</th>
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<tr>
<td><strong>ANC Tasks</strong></td>
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<tr>
<td>Personal and Social History</td>
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<td>Medical History</td>
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<td>Obstetric History</td>
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<td>Physical exam</td>
<td>Partial</td>
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<td>Laboratory tests</td>
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<td>Counseling</td>
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<td>Birth Planning</td>
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<td><strong>Specific Conditions</strong></td>
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<td>Family history of genetic diseases</td>
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<tr>
<td>Diabetes</td>
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<td>History of heart disease</td>
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<td>History of asthma, TB, thyroid diseases, MS, lupus, and any other significant diseases</td>
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<td>History of renal disease, including bacteriuria</td>
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<td>History of infertility</td>
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<td>History of previous stillbirth, abnormal fetus, and low-birth weight</td>
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<tr>
<td>History of multi-fetal pregnancy</td>
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<td>Consult-Manage</td>
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<tr>
<td>History of Rh incompatibility</td>
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<tr>
<td>History of previous growth-restricted fetus</td>
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<td>Consult-Manage</td>
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<tr>
<td>History of previous caesarian section or any delivery complications</td>
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<td>Consult-Manage</td>
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<tr>
<td>History of previous hospital admission for eclampsia or pre-eclampsia</td>
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<td>Consult-Manage</td>
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<tr>
<td>Age less than 18 or more than 35</td>
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<td>Consult-Manage</td>
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<tr>
<td>New pregnancy less than 3 years from the previous one</td>
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<td>Primigravida</td>
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<td>Blood pressure higher than 140/90 mmHg</td>
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<td><strong>Symptom</strong></td>
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<tr>
<td>Uterus height more than 3 centimeter different from gestational age</td>
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<td>Consult</td>
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<tr>
<td>Unconsciousness</td>
<td>Emergency referral</td>
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<td>Convulsion</td>
<td>Emergency referral</td>
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<td>Spotting</td>
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<td>Vaginal bleeding</td>
<td>Emergency referral (1)</td>
<td>Emergency referral (1)</td>
<td>Emergency referral (1)</td>
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<td>Signs of severe anemia and hemoglobin less than 70 g/l (&lt;7g%)</td>
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<td>Consult</td>
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<tr>
<td>Signs of mild to moderate anemia and hemoglobin 70-110 g/l (7-11 g%)</td>
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<td>Consult</td>
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<td>Signs of drug abuse</td>
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<td>Refer</td>
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<td>HIV positive patient</td>
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<td>Abdominal pain/contractions</td>
<td>Refer</td>
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<td>Fever</td>
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<td>Rupture of amniotic membrane before week 38 or after week 38 without other signs and symptoms indicating start of delivery</td>
<td>Emergency referral</td>
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<td>Rupture of amniotic membrane after week 38 with other signs and symptoms indicating start of delivery</td>
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<td>Shortness of breath without any other signs and symptoms</td>
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<td>Bacteriuria</td>
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<td>Abnormal fetal heart sound/ fetal movement</td>
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<td>Suspicion of fetal growth restriction</td>
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<td>Suspicion of multi-fetal pregnancy</td>
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<td>Morning vomiting with or without diarrhea, without any other signs and symptoms</td>
<td>Yes</td>
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<td>Morning vomiting with any other sign and symptom</td>
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<td>Evidence of pre-eclampsia</td>
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<td>Lower extremities edema without any other sign and symptoms</td>
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<td>Lower extremities edema with any other sign and symptoms</td>
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<td>Inappropriate weight gaining with other signs and symptoms of pre-eclampsia</td>
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<tr>
<td>Inappropriate weight gaining without other signs and symptoms of pre-eclampsia</td>
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<td>Suspicion of breech presentation</td>
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<td>Delayed delivery</td>
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<td>Provision of Iron and Folate supplements</td>
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<td>Service</td>
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<td>Injection of Tetanus toxoid</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Advising on prompt treatment seeking and use of insecticide treated nets in malaria endemic areas</td>
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<tr>
<td>Treatment of malaria cases</td>
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<tr>
<td>Treatment of VDRL positive cases</td>
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<td>Injection of RhoGAM</td>
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<td>Counseling</td>
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</tbody>
</table>

**1-Basic Health Unit (BHU)**

- Ante Natal Care (ANC)
- Post Natal care (PNC)
- Family Planning (FP)
- Behavioral Change Communication (BCC), and Information, Education, and Communication (IEC)
- Referral of complicated cases to the higher levels (HC/ or nearest hospital)
- Reporting

**Manpower:**

- One medical assistant
- One village midwife/ or skilled birth attendant (SBA)
- Nurse
- Community Volunteers
2- Rural Health Centre (RHC)

- All services provided by BHU
- Intra natal services, including Basic EmOC
- Post Abortion Care (PAC)
- Basic Laboratory Investigations
- Pharmacy with standard list of drugs
- Short term admission services (≤ 24 hours)
- Referral of complicated cases to higher level (rural hospital)
- Feedback for cases referred from BHUs.

Manpower:

- Trained Medical Officer (MO)
- Health visitor
- Medical assistant
- Assistant pharmacist
- Laboratory assistant
- Nurse

3- Rural Hospital

(RH)

Service

- All the above services
- Comprehensive EmONC
- Long term admission services.
- Basic and in-service trainings for medical and paramedical staff, on RH services
- Referral of complicated cases to higher level (secondary hospital)
- Feedback for cases referred from RHCs, and BHUs

Maternal Death Auditing (MDA) interventions.
Manpower

- 3 medical officers trained on : (C-EmONC, PAC, FP)
- Health visitor
- 2 Nurse midwives
- 2 theatre attendants
- 2 assistant anesthetists
- 2 laboratory technicians
- 2 assistant pharmacists
- 2 nutrition instructors
- 20 clinical nurses
- Driver

Urban Health Center (UHC)

- Ante Natal Care (ANC)
- Intra natal Care (INC)
- Post Natal care (PNC)
- Family Planning (FP)
- Post Abortion Care (PAC)
- Basic and advanced Laboratory Investigations
- X ray services
- Feedback for referrals from BHUs, and RHCs.
- Pharmacy with standard list of drugs
- Behavioral Change Communication (BCC), and Information, Education, and Communication (IEC)
- Referral of complicated cases to higher level (hospital)

Reporting

Manpower:

- 3 medical officers trained on : (EmONC, PAC, FP)
POSTPARTUM CARE

DEFINING THE POSTPARTUM PERIOD

The postpartum period (also called the puerperium) starts after the birth of the placenta. Usually an interval of about one hour after that moment is considered to be part of childbirth; during that time the immediate care of the mother (e.g. assessment of her condition, suturing, control of blood loss, etc.) and the infant (assessment of its condition, maintaining body temperature, initiating breastfeeding, etc.) take place. There is a smooth transition between childbirth and the postpartum period. Traditionally the postpartum period is 42 days (6 weeks) in duration.

THE NEEDS OF WOMEN AND THEIR NEWBORNS

Based on the scarce data in the literature, the needs of women and infants can be formulated as follows:

In the postpartum period women need:

- information/counseling on
  - changes that happened in their bodies – including signs of possible problems,
  - nutrition,
  - self care – hygiene and healing,
  - care of the baby and breastfeeding,
  - immunization for mother and baby,
  - contraception, and
Sexual life.
- support from health care providers, and husband and family – emotional and psychological, 
- health care for suspected or manifest complications, 
- time to care for the baby, 
- help with domestic tasks, 
- maternity leave, 
- social reintegration into her family and community, and 
- Protection from abuse/violence.

**Goals**

The aims of care in the postpartum period are:

1. Support of the mother and her family in the transition to a new family composition, and response to their needs.
2. Prevention, early diagnosis, and treatment of complications of mother and newborn, including the prevention of vertical transmission of diseases from mother to infant.
3. Referral of mother and infant for specialist care when necessary.
4. Counseling on baby care and infant development
5. Support of breastfeeding.
6. Counseling on maternal nutrition, and supplementation, if necessary.
7. Counseling and service provision for contraception and the resumption of sexual activity.
8. Immunization of the infant.

**Frequency of postpartum visits**

The general recommendation for Sudan is that, with limited resources, a contact with health care system at least during the first twenty-four hours and before the end of the first week would be most effective. Another visit around six weeks postpartum is also highly recommended.

**The care providers**

Postpartum care starts right after the delivery. If the delivery occurs in a health facility, the initial caregivers are those attendants at the delivery: physician, midwife or nurse. In case of a difficult delivery, or of problems with the newborn, an obstetrician and/or pediatrician may have attended. If there are serious problems, these specialists may remain involved. It
is impossible to predict potential problems in the near future; a careful observation in the first week by a midwife, nurse or nursing aide is much more rational. All postpartum women should be counseled in warning signs. If all is well, a healthy mother and baby need not stay in a health facility for more than 6 hours after the birth. If the delivery occurs at home, the caregivers are skilled attendants and family members.

The check-up consultation of the woman 6 weeks after delivery is best done by the midwife or physician who attended the delivery, because he or she can best answer questions on labour and delivery. Of course this will not always be feasible, but then the person who is giving the consultation should be very well informed about the events and complications during birth. During this consultation there should be enough time to listen to the woman and her husband, to answer questions and to counsel on breastfeeding and family planning. Throughout the world the attendance of women at these check-ups is low. One of the reasons

**COMPREHENSIVE EMONC**

**A-INSTRUMENTAL VAGINAL DELIVERY (FORCEPS / VENTOUSE)**

Assisted operative delivery may be undertaken when the following indicators are present:

1. Maternal exhaustion.
2. Prolonged second stage of labour.
3. To shorten second stage of labour (e.g. in pre-eclampsia, known cardiac or pulmonary disease, previous cerebrovascular accident or subarachnoid hemorrhage).

**FETAL**

1. Fetal distress.
2. Beech – after coming head.

The operator must be familiar with the procedure and have a willingness to abandon the procedure at commencement if the procedure appears difficult or there is no descent after three consecutive pulls.
CONTRA-INDICATIONS

1. Prematurity – avoid ventouse if < 34/40 or weight < 1500g.
2. Unengaged head - < 2/5 palpable abdominally.
3. Inability to define position – DO NOT USE FORCERS.
4. Malpresentation – face or brow.
5. Suspected and actual cephalopelvic disproportion.

B- OXYTOCIN INFUSION

Oxytocin is used to:

a) Induce labour
b) Accelerate labour when progress is slow
c) Active management of labour
d) In case of retained placenta till 30 min after the 3rd stage of labour

C- PRE-ECLAMPSIA

Treatment of pre-eclampsia should be at hospital.

The primary aims in the management of pre-eclampsia are to treat maternal hypertension, avoid eclampsia and deliver the fetus in optimal condition.

D- RETAINED PLACENTA

Steps of Management of Retained placenta:

1) When the placenta has failed to deliver by controlled cord traction thirty minutes after physiological 3rd stage, catheterize the bladder.
2) The senior registrar may perform a gentle vaginal examination to ascertain whether the placenta can be removed from the vagina without resorting to manual removal of the placenta. Analgesia must be adequate prior to this procedure.

3) If unsuccessful a manual removal needs to be performed under general or spinal anaesthesia in theatre.

4) Inform anaesthetist and move women to theatre.

5) In the absence of bleeding then manual removal should be formally performed at approximately 1 hour after delivery. Avoid long delays as significant blood loss can occur.

6) Monitor pulse, blood pressure, blood loss and general condition.

7) Explanation should be given and consent obtained.

8) An intravenous cannula should be sited and blood grouped, cross matched and saved.

9) An infusion of Oxytocin 20 i.u. in 500mls of normal saline should be commenced and continued for one hour.

10) Under aseptic conditions the uterus should be checked for placental remnants, perforations and configuration.

11) The perineum/ vagina should be checked and any suturing performed.

12) Prophylactic antibiotics are to be given.

**MANAGEMENT OF MASSIVE OBSTETRIC HAEMORRHAGE**

Perceived blood loss> 1000 mls or any clinical signs of shock during pregnancy, labour and delivery or within 28 days of delivery.

**General Measures:**

Simultaneously:

Communicate, Resuscitate, Monitor, Investigate, Stop the bleeding and Accurately Assess the Amount of Blood Loss.

**POST – PARTUM HEAMORRHAGE**

**DEFINITION**
Primary post-partum hemorrhage (P.P.H.) is a blood loss of 500 mls. Or more from the genital tract within twenty-four hours of delivery. In practical terms blood loss of 500 mls. Often requires no more than careful observations and the following guidelines should be brought into action once it is clear that the blood loss sufficient to cause hemodynamic instability.

**E- SCARRED UTERUS**

1) Patients may have a scarred uterus following:

- L.S.C.S.
  - Classical Caesarean Section – always CS thereafter
  - Hysterectomy – always CS thereafter.
  - Myomectomy – CS thereafter if uterine cavity entered with the myomectomy.
  - Uterine Perforation
  - Uterine corrective operations, e.g., Strassman's operation – always CS thereafter.

**FAMILY PLANNING SERVICE GUIDELINES FOR BIRTH SPACING**

The FP strategy focuses on three objectives:

1. Improving access to and quality of FP services;
2. Strengthening information, education, and behavior change communication for FP birth spacing; and
3. Creating an enabling environment for utilization of FP services.

**Overview of Family Planning Methods**

There are two types of FP methods:

**Traditional methods:**
- Fertility awareness based methods (cervical mucus method, basal body temperature method, sympto-thermal method, and calendar method)
- Breast feeding.
- Coitus interruptus (withdrawal)

**Modern methods:**
- For spacing births: condoms, oral and injectable contraceptives, and intrauterine devices
- For limiting births: tubal ligation and no-scalpel vasectomy

The way in which different contraceptive methods interrelate with changes in the menstrual cycle is described below.

<table>
<thead>
<tr>
<th>Method</th>
<th>How contraceptive methods interrelate with the menstrual cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility awareness-based method</td>
<td>The prediction of the fertile period is dependent on the length of the menstrual cycle (8th day after onset of menstruation to the 19th day).</td>
</tr>
<tr>
<td>Oral contraceptives</td>
<td>Oral contraceptives must be started within the 1st to 5th day of the menstrual cycle (1st day preferred) in order to be fully effective as a contraceptive in the first cycle.</td>
</tr>
<tr>
<td>Injectables</td>
<td>The preferred time of initiation of the injection is within seven days after onset of menstruation (rationale as described above).</td>
</tr>
<tr>
<td>IUD</td>
<td>The preferred time of insertion is within the first 12 days after the onset of menstruation. During this period, the cervical os is open and this allows easy insertion of the IUD.</td>
</tr>
<tr>
<td>Tubal ligation</td>
<td>The preferred time for the procedure is within five days after the onset of menstruation (rationale as described above under hormonal contraceptives).</td>
</tr>
<tr>
<td>Fertility awareness-based method</td>
<td>The prediction of the fertile period is dependent on the length of the menstrual cycle (8th day after onset of menstruation to the 19th day).</td>
</tr>
</tbody>
</table>
Oral contraceptives: Oral contraceptives must be started within the 1st to 5th day of the menstrual cycle (1st day preferred) in order to be fully effective as a contraceptive in the first cycle.

Injectables: The preferred time of initiation of the injection is within seven days after onset of menstruation (rationale as described above).

IUD: The preferred time of insertion is within the first 12 days after the onset of menstruation. During this period, the cervical os is open and this allows easy insertion of the IUD.

Tubal ligation: The preferred time for the procedure is within five days after the onset of menstruation (rationale as described above under hormonal contraceptives).

NEWBORN CARE SERVICES

1- Basic Definitions

Birth planning:
A process that empowers pregnant women, families, and communities to prepare for safe delivery and for motherhood.

Birth weight:
Birth weight is the first weight of a live or stillborn baby, which should preferably be taken within the first hour of life and certainly during the first day of life.
Care during pregnancy:
Care throughout pregnancy until the onset of labor, including care both at home and in the formal health care system, such as in an antenatal clinic.

Care during delivery:
Care from the onset of labor until the delivery of the placenta.

Emergency newborn care:
Identification, stabilization, and management of sick babies with conditions such as neonatal sepsis, asphyxia, and jaundice.

Emergency preparedness:
An approach to promote early recognition of complications for mother and baby at any time during pregnancy, delivery, or after delivery and to maximize the likelihood of timely referral and management. This involves preparedness in the community and in the formal health care system.

Essential newborn care:
Basic preventive care for all newborns, especially warmth, cleanliness, breastfeeding, cord and eye care, and immunizations.

Extra newborn care:
Identification of and additional support for babies who are born weighing less than 2,500 grams. Mortality rates for babies with birth weight between 1,750-2,500 grams can be improved significantly with simple interventions. Babies weighing less than 1,750 grams at birth are likely to require more specialized care.
This may also apply to other babies who are not LBW, but have other special requirements, such as babies born to HIV-positive mothers.

Fetal death:
Death prior to the complete expulsion or extraction from his/her mother of a product of conception, irrespective of the duration of pregnancy. Death is indicated by absence of any signs of life.

Live birth:
Live birth is complete expulsion or extraction from the mother of a product of conception (irrespective of the duration of pregnancy) and which after such separation, the baby breathes or shows any other evidence of life such as heart beat, pulsation of umbilical cord, or definite movements of the attachment of the placenta/cord.

Low birth weight (LBW):
Birth weight less than 2,500 grams

Newborn period or Neonatal period:
The first 28 days of life; divided into early neonatal period (first 7 days) and late neonatal period (days 8-28).

Newborn care:
Care from birth until the 28th completed day of life, including care both at home and in the formal health care system.
Postpartum care:
Care from delivery until 42 days after delivery, including care both at home and in the formal health care system.

Post-term birth:
Live birth after 42 completed weeks of gestation.

Pre-pregnancy health:
The health of the woman before she becomes pregnant.

Pre-term birth:
Live birth before 37 completed weeks of gestation.

Prinatal care:
Care from 28 completed weeks of gestation until 7 days after delivery, including care both at home and in the formal health care system.

Stillbirth:
Baby born showing no sign of life who weighs over 1 kg or is over 22 weeks of gestation.

Table 1 Interventions that benefit both mother and newborn
<table>
<thead>
<tr>
<th>Benefit to Mother</th>
<th>Intervention</th>
<th>Benefit To Newborn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>During pregnancy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce risks of infection, pelvic inflammatory disease (PID), infertility, other STI complications</td>
<td>Treatment of STIs (especially syphilis)</td>
<td>Reduce stillbirth, preterm birth, IUGR, ophthalmitis, infection, and death</td>
</tr>
<tr>
<td>Decrease severe anemia, severe malaria, and death</td>
<td>Prevention/treatment of malaria</td>
<td>Reduce risks of stillbirth, preterm birth, IUGR, and death</td>
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<tr>
<td>Reduce risk of tetanus (rare)</td>
<td>Administration of tetanus toxoid vaccine</td>
<td>Protect against neonatal tetanus (common)</td>
</tr>
<tr>
<td>Decrease iron deficiency anemia</td>
<td>Provide iron and folic acid; treat hookworm</td>
<td>Reduce risk of LBW, asphyxia, stillbirth, and some birth defects</td>
</tr>
<tr>
<td>Reduce “depletion syndrome”</td>
<td>Targeted protein-calorie supplements</td>
<td>Reduce risk of LBW, preterm birth, and perinatal death</td>
</tr>
<tr>
<td>Reduce risk of eclampsia and adverse outcomes, including death</td>
<td>Identification and management of pregnancy induced hypertension and pre-eclampsia</td>
<td>Reduce risk of LBW, asphyxia, stillbirth, neonatal death</td>
</tr>
<tr>
<td>Decrease prolonged labor, ruptured uterus, sepsis, morbidity and mortality</td>
<td>Identification of major risk of obstructed labor (dystocia)</td>
<td>Reduce risk of asphyxia, fetal-neonatal death, birth trauma</td>
</tr>
<tr>
<td><strong>During delivery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early identification and management of complications and reduced death and morbidity</td>
<td>Delivery with skilled attendant and access to emergency obstetric care</td>
<td>Reduce neonatal asphyxia; provision of neonatal resuscitation if needed</td>
</tr>
<tr>
<td>Reduce risk of infection, sepsis, and infertility</td>
<td>Clean delivery</td>
<td>Reduce risks of tetanus, sepsis, and death</td>
</tr>
<tr>
<td>Reduce risk of infection, sepsis, and infertility</td>
<td>Antibiotics for prolonged and/or preterm rupture of membranes</td>
<td>Reduce risk of sepsis and death</td>
</tr>
<tr>
<td>No known benefit</td>
<td>Corticosteroids in preterm labor</td>
<td>40% – 60% reduced risk of respiratory distress</td>
</tr>
</tbody>
</table>

Immediate postpartum period

| Reduce risk of death (40% of maternal deaths occur within first week after delivery) | Integrated maternal and newborn postpartum care | Reduce risk of death (66% of neonatal deaths occur within the first week after birth) |
| Reduce risk of postpartum hemorrhage, and breast abscess | Promotion of early breastfeeding | Prevent early hypoglycemia and dehydration; reduced risks of early neonatal jaundice and sepsis/ALRI |

Benefit to Mother Intervention Benefit To Newborn

| Reduce maternal stress due to infant illness | Appropriate cord, eye, and skin care | Reduce risks of sepsis, tetanus, and ophthalmitis |
| Enhance bonding | Promote skin-to-skin contact | Enhance thermal regulation |
| Reduce Vitamin A deficiency, and night blindness | High-dose Vitamin A to mother | Possible reduction in neonatal infection |
| Reduce maternal depletion, especially if pregnancy and breastfeeding overlap | Family planning counseling | Reduce risk of early malnutrition if mother stops breastfeeding after she becomes pregnant again |
The concept has major five components as follows:

1. Treatment of incomplete abortion and complications which are potentially life-threatening.
2. Counseling to identify and respond to women’s emotional and physical health needs.
3. Contraceptive and family planning services to help women to avoid unplanned pregnancies.
4. Link to reproductive and other health services at one-site or through planned referral.
5. Community and service provider partnership to prevent unplanned pregnancy, mobilize resources to help women to receive appropriate and timely care for complications of abortion and reflect that community expectations and needs were met.

Definitions:

*Abortion* is defined as; partial or complete expulsion of the products of conception prior to 24 weeks gestation. The word abortion is used here to mean miscarriage (Spontaneous abortion) because the concept is PAC.

*Unsafe abortion* is defined as termination of unplanned or unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards.

**POSTABORTION CARE FAMILY PLANNING**

*Breaking the Cycle of Unsafe Abortion*
Key topics are:
- Understand the importance of postabortion family planning.
- Identify the appropriate contraceptive.
- Family planning counseling.
- Understand the methods used in abnormal circumstances.