Maternal health is concerned with the reproductive health of women and safe motherhood. This begins in the pre-conceptual period (i.e. the pubertal period before the first pregnancy) and extends throughout childbearing years until menopause.

Pre-conceptual care includes screening, health education and other interventions among women of reproductive age to reduce factors that may affect future pregnancies. This is particularly important in Trinidad and Tobago where there is high prevalence of teenage pregnancy, anaemia, diabetes, hypertension and cervical cancer.

The goal of antenatal care is the prevention and early detection of potential complications in pregnancy and referral for appropriate specialist management. Postnatal care encompasses recovery from childbirth, care of the newborn, breastfeeding and family planning.

Maternal health care services are intended to be integrated and evidence-based towards the reduction of maternal morbidity and mortality and the achievement of universal access to reproductive health.
Section 1.1 Pre-conceptual Care

Pre-conceptual care is aimed at preparing prospective parents for a happy, healthy pregnancy by ensuring that the mother is in good health in order to reduce complications of pregnancy. A healthy body requires care from birth, through childhood, to adolescence and adulthood for both males and females. Pre-conceptual care aims to prepare individuals and families for the physical, psycho-social and economic adjustments of parenthood.

Overall Objective
To facilitate and provide a system of care which would potential parents to take full responsibility of their reproductive health.

Specific Objectives
- Provide information on menstruation and menstrual health
- Promote family planning to reduce the incidence of unplanned pregnancies
- Optimize good health by encouraging proper nutrition, correction of vitamin and mineral deficiencies and control of pre-existing medical conditions
- Reduce the incidence of sexually transmitted infections
- Promote and support early and exclusive breastfeeding
- Ensure appropriate immunization in potential mothers
- Provide sensitization about good parenting

Indicators to be used
- Percentage of women who access family planning services
- Percentage of women with an updated Rubella vaccination status at booking

Any visit to a health facility should be used as an opportunity for health professionals to promote pre-conceptual care.

Pre-conceptual care focuses on:
- Good health including nutrition, exercise and dental care
- Menstrual problems
- Provision of appropriate vaccines e.g. Tetanus and Rubella boosters
- Promoting safe sexual practices
- Information on methods of contraception and provision of contraceptives
- Prevention and detection of sexually transmitted infections
- Encouragement of pre-conceptual screening for health problems
- Pre-conceptual counselling about known medical conditions
- Avoidance of tobacco, alcohol and illegal substances
- Importance of early booking at antenatal clinic
Section 1.2 Antenatal Care

Objective
To provide quality care to pregnant women to ensure the best possible maternal and fetal outcomes.

Indicators to be used
• % of women registered before 12 weeks gestation
• Number of antenatal visits per pregnancy
• % of women with Haemoglobin (Hb) levels 11 g/dl or more
• % of women classified as high-risk in pregnancy
• % of high-risk women referred to the Obstetrician
• % of women fully immunized prior to first antenatal visit
• % of pregnant women counseled, tested and received results for HIV test
• % of women newly diagnosed as HIV positive during pregnancy

Standards of Care
Every pregnant woman should have:
• Antenatal care initiated by the 12th week of pregnancy with confirmation of pregnancy
• A complete history and physical examination performed by a Medical Officer at the first visit and reassessment at 36 weeks gestation.
• Blood tests for Hb levels, glucose, blood group, Rhesus factor, sickle cell, VDRL and HIV at the first antenatal visit.
• Screening for Gestational Diabetes
• Assessment of immunization status (Td and Rubella)

Equipment
• Weighing scale
• Height measure
• Sphygmomanometer and stethoscope
• Fetal Doppler/ Pinards
• Blood glucose monitor
• Urine Dipsticks
• Measuring tape

Standard Procedures for Clinic Visits
First Visit to the Antenatal Clinic:
On her first visit to the antenatal clinic, a complete history of the patient should be taken and a thorough physical examination by the midwife and doctor.
• Register the client
• Advise on clinic procedures and educational material
• Locate any previous medical records to confirm past medical history
• Screening to determine whether she is high-risk and arrange appropriate referral.
• All pregnant women should be advised on the following:
  • Care of herself
  • Care of the newborn
  • The importance of keeping scheduled visits
• The woman should be given a copy of her antenatal record for safekeeping and presentation at every clinic visit and on admission to the place of delivery
Section 1.2 Antenatal Care

History
- Determine last normal menstrual period and calculate the estimated gestational age and the expected date of delivery
- Past obstetric history to determine any previous complications of pregnancy
- Past medical, surgical and gynaecological history
- Assessment of immunization status
- Known allergies
- Family medical history
- Nutritional history
- Social history to assess socio-economic conditions, alcohol and tobacco use, substance abuse, psychological state, domestic abuse and violence
- Previous neonatal outcomes including ICU admission and death

Physical Examination
- Counsel the client about the procedure for the physical examination and ask her to empty her bladder.
- Check and record:
  - Height and weight – calculate BMI [weight (kg)/height² (m²)]
  - Vital Signs: Blood pressure, pulse, respiration
  - Urinalysis: glucose, protein
- A complete physical examination should be performed with special attention to dentition, breasts and nipples, previous scars, body art and piercing.
- Palpate the abdomen and record:
  - Height of fundus and compare with gestational age (See Appendix I)
  - Fetal lie, position and presentation
  - Presence and rate of fetal heart sounds
  - Assess for signs of multiple gestation
- A pelvic examination is performed if indicated to:
  - Examine external genitalia for abnormal discharge, warts and other vulval lesions
  - Determine if any pelvic abnormalities are present

Laboratory Investigations
- Haematological:
  - Fasting Blood Sugar and HbA1c on:
    - Admission - 1st trimester
    - during the 2nd Trimester - if 1st is normal
    - and during the 3rd trimester - if 2nd is normal
  - Oral Glucose Tolerance Test (OGTT)
    - We are now piloting a 75 g OGTT in our population in the first trimester and the third trimester if the first is normal
  - Haemoglobin (Hb)
  - Group and Rh factor

- Urine Microscopy, Culture and Sensitivity if indicated
- Stool analysis for ova, cysts and parasites if indicated
Section 1.2 Antenatal Care

Pregnancy Risk Management Plan
Based on the clinical assessment and risk profile, a management plan is documented in the medical record and is reviewed at each subsequent visit.

Immunization
Establish the client’s immunization status:
- An accurate record of all vaccinations should be kept by client and also at the health centre.
- Td vaccine can be administered at any stage during pregnancy. A primary series is only started when there is no documentation and no history of immunization.
- Boosters doses should be given in the following instances:
  - If there is a history of immunization but no records;
  - If the last immunization was given more than 10 years previously.
- Administration of the MMR vaccine is contraindicated in pregnancy.

Education
At the first visit, the client should be made familiar with clinic procedures and advised about proper nutrition during pregnancy and the need to avoid alcohol, tobacco and illicit substances. Every visit should be an opportunity for discussion and relevant counseling of the mother. Education should be consistent with the period of gestation. Attendance at childbirth preparation classes should be encouraged. The importance of breast feeding should be emphasized and information on family planning services offered.
Section 1.2.1 High Risk Pregnancies

Definition
Any pregnancy that imposes an increased risk to the life or health of the mother and/or fetus during pregnancy.

Identification of High Risk Pregnancy
Clients should be evaluated for high-risk factors and every visit and referred for specialist care in a timely manner.

The criteria for classification as 'high risk' pregnancy are as follows:

a) Patients with significant medical conditions, e.g.
- Hypertension and Pre-eclampsia
- Diabetes Mellitus
- Iron-deficiency Anaemia and Haemoglobinopathies
- Sexually Transmitted Infections (e.g. HIV/AIDS, HPV)
- Cardiac disease
- Pulmonary disease (e.g. asthma, COPD)
- Renal disease
- Autoimmune disorders
- Epilepsy
- Thyroid disease

b) Obstetric complications in a previous pregnancy, e.g.
- Recurrent miscarriages
- Pre-term births
- Pre-eclampsia, Gestational Diabetes
- Previous Caesarean section, myomectomy or hysterotomy
- Postpartum haemorrhage
- Stillbirth
- Neonatal complications (Group B Streptococcal infection, small or large for gestational age, neonatal death, congenital abnormality)

c) Obstetric complications in present pregnancy, e.g.
- Maternal age less than 16 years or greater than 35 years
- Grand multipara (more than 5 pregnancies over 28 weeks gestation)
- Uterine size inconsistent with period of gestation
- Antepartum haemorrhage
- Malpresentation over 36 weeks: breech, unstable lie, transverse lie
- Multiple pregnancy
- Difficulty with palpation of fetal parts
- Detection of another pelvic mass
- Rh factor incompatibility
- Post-dates (>40 weeks gestation)

d) Psycho-social problems

Management of 'High Risk' Pregnancies
Once a pregnant woman has been classified as 'high-risk', she should be referred to the Obstetrician for further management. Clients should be counselled about the reasons for referral.
Section 1.2.2 Subsequent Visits

For women with normal pregnancies, re-visits should be scheduled as follows:
- monthly until 28 weeks gestation;
- then fortnightly until 36 weeks gestation;
- then weekly until delivery.

Management of subsequent visits
- Measure and record weight, vital signs and urinalysis
- Review history and physical examination and record any changes elicited since last visit
- Record fundal height, fetal lie and presentation
- Record fetal heart rate
- Antenatal education (including promotion of childbirth preparation)
- Refer client for ultrasound as per protocol in Appendix II

At 32 - 36 weeks:
- Repeat Hb and HIV test
- Assessment by Medical Officer to verify suitability for vaginal delivery
- Summarize antenatal record in a referral to appropriate hospital for delivery which should include:
  - LMP
  - EDD
  - Purity
  - Any complications during pregnancy
  - Any significant medical or surgical history
  - Known allergies
  - Blood and ultrasound reports
- Finalize arrangements for delivery.
- Discuss preparations for birth and labour.
- Reinforce health education messages about breastfeeding, care of the newborn, postpartum care and family planning.

Section 1.2.3 Home Visit

Indications for Home Visits
Home visits should be made in the following instances:
- Consider routinely for all antenatal mothers at least once during pregnancy
- As necessary in “high-risk” cases
- In cases booked for home delivery in order to assess suitability of the home conditions
- For antenatal clinic defaulters
Section 1.2.4 Criteria for Selection of Place of Confinement

Criteria for Selection of Place of Confinement
It is intended that all deliveries should be supervised by a skilled birth attendant in an appropriate health facility or at home if a home delivery is approved.

Home Delivery can be considered in the following circumstances:
- Normal pregnancy - not classified as high-risk
- 2nd to 5th pregnancy
- Normal past obstetrical history
- Normal progress of present pregnancy
- Suitable home conditions
- Midwife available for home confinement
- Client’s wish, provided that other criteria are satisfied

Section 1.2.5 Preparations for Confinement

Articles for mother
- clean linen – towels, sheets and pillowcases (for home)
- clean night dresses and dressing gown
- supportive nursing brassiere
- three packets of sanitary pads
- personal toiletries

Articles for baby
- 2 sets of clean baby clothes
- plain toilet soap and soap dish
- towels, face cloth
- napkins
- one small packet of cotton wool
- basket, crib or cot – for home
- one piece of rubber, plastic or oil cloth adequate for protecting the mattress
- set of cot sheets
- soft hair brush and comb
- petroleum jelly

For domiciliary cases, give instructions for the preparation of the room for delivery e.g. boiling of water, arrangement of furniture.
Advise mother to notify midwife at onset of labour.
Section 1.2.6 Health Information during Pregnancy

Counselling:
- Patient must be given individual counselling at every prenatal visit, on the deviations from normal which may occur, so that they can seek early care if there are problems.
- At the first visit, clients should be made familiar with the clinic procedures.

General Education:
- Reason for attendance and importance of clinic visits
- Body changes that take place during pregnancy
- Maintenance of good physical and mental health.
- Information on antenatal and postnatal home visits.
- Information on coitus during pregnancy.

Diet in Pregnancy and Lactation:
- Need to eat right kinds of food - iron rich diet
- Need for a balanced food intake
- Need to increase some foods and fluids intake
- Avoid high sugar and “energy” drinks
- Avoid excessive vitamin usage especially Vitamin A
- Increase calcium intake
- Vegetarian mothers to be advised accordingly
- Clients should be given health literature on nutrition.

Consequences of not having a balanced diet:
- Feeling of tiredness and being “run down”
- Inadequate weight gain
- Excessive weight gain, obesity and gestational diabetes mellitus
- Low birth-weight baby

Hygiene and General Advice:
- Care of the body with emphasis on teeth, breast care
- Advice on clothing eg. supportive brassiere
- Use of comfortable shoes
- Emphasis on cleanliness of the environment
- Importance of regular daily exercise (both pre- and post-natal)

Preparation for Delivery:
- Requirements for delivery
- Signs and symptoms of labour
- When and to which hospital

Breastfeeding:
- Preparation for breastfeeding
- Benefits of breastfeeding
- Breast care during feeding
- Duration for breastfeeding (exclusive feeding for six (6) months)
- Informed choice on breastfeeding for the HIV positive mother.
Section 1.2.6 Health Information during Pregnancy

Care of Baby:
- Advice on cleaning and bathing of baby
- Clothing for baby
- Sleeping position and arrangements
- Skin care including the diaper area.

Registration of Births:
- All births need to be registered within three (3) months after delivery.
- If the mother was married to the baby’s father at the time of the birth, the mother may register the birth without the father being present.
- If the mother and father were not married at the time of the birth, the father’s details can only be entered into the register if both parents attend together to register the birth. If the father’s details are not entered at the time of registration, it may be possible for this to be done at a later date.
- A legal guardian or person present at the birth can also register the birth.

Attendance at Child Health Clinic:
- All mothers and their infants should visit the clinic within two weeks after delivery.

Family Planning and Contraceptive Care:
- Reasons for family planning
- Methods
- Where services available

Post-Natal Care and Follow-up:
- Reasons for post-natal care
- Need for post-natal exercise
- Times when and where services are available.
Section 1.2.7 Management of Disorders of Pregnancy

MINOR DISORDERS

a) Morning Sickness:
   • Eat a light, bland meal before getting out of bed. Avoid fatty and highly seasoned foods.

b) Heartburn:
   • Avoid foods known by the patient to cause discomfort
   • Avoid fatty and highly seasoned foods.

c) Constipation:
   • Consume 6-8 glasses of fluid, high fibre diet, fruits, vegetables and exercise
   • Try to establish regular toilet routine
   • If constipation persists, seek medical help from your doctor.

d) Backaches:
   • Rest when possible, during the day
   • Exercise and wear sensible shoes.
   • Lie on a comfortable bed with a firm mattress or on the floor on the back with pillows under legs or on the sides with pillows between legs.
   • If the backache persists, refer to a Physiotherapist or Medical Officer.

e) Varicose Veins:
   • Do not wear tight bands or garters around the waist or leg to impede the circulation. A support panty hose may be used.

f) Haemorrhoids:
   • Explain causes.
   • Avoid constipation.
   • Apply cold compresses, then soothing haemorrhoidal ointment/cream in mild cases. Refer to M.O. if there is bleeding which is not relieved by the above treatment. Follow-up at six (6) weeks postpartum visit - refer if necessary.

g) Itching of the Skin:
   • Sponge the skin with a solution of bicarbonate of soda, one (1) teaspoonful to one (1) pint of water.
   • Apply calamine lotion or cold cream.
   • Refer to Medical Officer to exclude conditions such as obstetric cholestasis.

h) Personal and Genital Hygiene:
   • Check for abnormal vaginal discharge.
   • Advise on good personal hygiene.
   • Test urine for sugar and proteinuria.
   • Advise against douching.

i) Leg Cramps:
   • Apply warm compresses.
   • Elevate legs and do gentle massage/exercise.
   • Increase milk intake (calcium).

j) Monilia (Thrush):
   • Apply appropriate anti-fungal treatment in consultation with the doctor.

k) Trichomoniasis:
   • Take appropriate anti-parasitic treatment e.g. vaginal metronidazole (do not use before 2nd trimester).
   • It is important to treat partners also in consultation with the doctor.
Section 1.2.7 Management of Disorders of Pregnancy

SEVERE DISORDERS

1. Anaemia in pregnancy

Classification of anaemia during pregnancy:
- Normal Hb: 11.0 g/dl or higher
- Mild to moderate anaemia: 7.0 to 10.9 g/dl
- Severe anaemia: < 7.0 g/dl

Use of iron and Folic Acid supplementation of pregnant women:

Client should be given the following:
- Hb 11.0 g/dl and above: Consider 60 mg iron daily, 400 µg folic acid daily.
- Hb 7.0 - 10.9 g/dl: 60 mg iron daily, 400 µg folic acid daily.
- Hb < 7.0 g/dl: Refer patient to specialist; investigate cause.

In iron deficiency:
- Less than 28 weeks and asymptomatic: 120 mg iron daily plus 400 µg folic acid daily.
- 28 weeks to 33 weeks, asymptomatic: 120 mg iron daily plus 400 µg folic acid daily or parenteral iron.
- More than 34 weeks, or symptomatic: Refer to hospital for parenteral iron or blood transfusion.

2. Bleeding in pregnancy.

Bleeding in early pregnancy can be due to:
- Threatened miscarriage
  - Before 12 weeks gestation if bleeding is mild, discharge patient on bed rest with follow-up. After 12 weeks, admit to hospital for bed rest.
- Incomplete miscarriage
  - Admit to hospital for evacuation of retained products of conception and start antibiotics.
- Ectopic pregnancy
  - Rule out by transvaginal ultrasound scan on all patients bleeding and pregnant.
  - Admit urgently to ward for management. Septic miscarriage
  - Admit for intravenous antibiotics and evacuation of retained products of conception.
- Cervical erosion/polyps
  - Rule out by gentle speculum examination and treat and reassure patient.
- Vaginal varicosities
  - Pregnancy can sometimes cause varicose veins to develop in the vulvar area which can burst and cause bleeding.
SECTION 1 Maternal Health

Section 1.2.7 Management of Disorders of Pregnancy

Bleeding in late pregnancy can be due to:
- Ante-partum haemorrhage
- Abruptio placenta
  - In this condition the placenta becomes partially detached from the uterus causing potentially severe bleeding. Beyond 34 weeks gestation and heavy bleeding, the baby should be delivered as an emergency. Less than 34 weeks, if NST is satisfactory, admit to the ward, give dexamethasone, do daily non stress tests and deliver at 34-36 weeks.
- Placenta praevia
  - In this condition the placenta is abnormally located near or over the cervix. Routine ultrasound scan will identify these patients and avoid unnecessary examinations and exacerbations of haemorrhage. Preservation of the pregnancy past 34 weeks and delivery by Caesarean Section will reduce maternal morbidity and mortality.
- Vasa praevia

3. Hypertensive Disorders of Pregnancy: Pregnancy Induced Hypertension (PIH), Pre-Eclampsia and Eclampsia.

Gestational hypertension (Transient hypertension or Pregnancy Induced Hypertension (PIH) is defined as the development of hypertension (≥2140/90 mmHg) after the 20th week of pregnancy, without proteinuria, any other known etiology. Pre-eclampsia (PE) is defined as the development of hypertension and significant proteinuria. Eclampsia is the presence of seizures occurring usually with preceding PIH or PE.

The Management of PE may be divided into:

a) Mild Pre-Eclampsia
   - Is defined as blood pressure between 140/90 mmHg to 160/110 mmHg. The proteinuria is between 300 mg to < 3 g/24 hr urine. The proteinuria is one + plus on routine urine testing.

   This condition can only be definitely treated by the delivery of the fetus. Management of this patient also depends on the gestation age of the fetus. Where the gestational age is 36 weeks, or more, delivery should be considered. At a gestational age less than 36 completed weeks, delivery will not necessarily be the first option.

Management of this condition includes:
- Bed Rest - If patient can have bed rest at home she can be treated as an outpatient.
  - Note that such patients should also have facilities to monitor their blood pressure; otherwise it may be safer to admit them to a hospital. This mode of management should be selected for patients where the blood pressure is elevated with minimal edema and proteinuria. Frequent visits to hospital for blood tests and fetal monitoring are still required.
- Use of Drugs - There is no need for antihypertensive drugs. Lowering of blood pressure in these cases can compromise the uteroplacental perfusion. Sedatives are not necessary if the patient can have bed rest without them. The patient can be advised to lie on the left side. Restriction to salt intake is unnecessary and could be harmful. Diuretics are contra-indicated.
- Delivery - Delivery is advised at 37 weeks gestation to improve maternal and fetal outcome. If there are signs of fetal compromise, assess the patient and expedite delivery. The pregnancy should not be allowed to go beyond dates, that is, expected date of delivery even if the Blood Pressure has normalized. Note that normalization of the blood pressure may be an indication that fetal demise is imminent.
Section 1.2.7 Management of Disorders of Pregnancy

b) Severe Pre-Eclampsia:

This is defined as blood pressure >160/110 mmHg with proteinuria (greater than 2+ proteinuria on urinalysis or greater than 1g/24 hour urine) and/or headaches, vision disturbances, and oliguria. These patients are diagnosed with Impending Eclampsia.

Such patients should be admitted to hospital immediately. Ideally, delivery should be expected in patients with severe pre-eclampsia regardless of fetal age since the risk of maternal morbidity and mortality is high. In tertiary hospitals, expectant management can be done in selected cases for a short period under specialist management.

Management of Severe Pre-eclampsia:

All cases of severe eclampsia must be managed actively.

- **Lowering the blood pressure**
  - Patient with a BP level >160/110 mmHg
  - Hydralazine 10 mg IV slowly stat and repeated in 30 minutes if diastolic 110 or above or
  - Tabs Nifedipine 10-20 mg orally every 30 minutes to two (2) hourly if diastolic 110 or above
  - and consider Aldomet one (1) g (1000 mg) stat and 500 mg three (3) times a day
  - Monitor the patient every 30 minutes and record the blood pressure

**Impending Eclampsia** - Patient must be delivered immediately, once the woman’s condition has stabilized.

- **Magnesium Sulphate (MgSO4)**
  - This drug is recommended by the World Health Organization (WHO). Magnesium Sulphate can only be used if no contraindications exist. Personnel should be trained to monitor its side effect and Calcium Gluconate (an antidote) should be readily available.
  - Catherise all patients or Magnesium Sulphate.
  - Monitor and record the urine output which should be a maximum of 25 ml of urine per hour.
  - The drug should not be administered if the urine output is less than 100 ml in one (4) hours.
  - Monitor and record the respiratory rate. Medication should not be administered if the respiratory rate is less than 16 per minute.
  - Monitor patellar reflex.

If the patient has Eclampsia, give Magnesium Sulphate if available:

**Loading dose**:
- Give four (4) grams of IV MgSO4 of 50% (diluted) over five (5) minutes.

**Maintenance dose**:
- Give one (1) gram of 50% MgSO4 per hour IV;
- Continue treatment for 24 hours after delivery or the last convolution

**Monitor patient to ensure that**:
- Respiratory rate is at least 16 per minute - Patellar reflexes are present
- Urine output is at least 25 ml per hour over the last four hours
Section 1.2.7 Management of Disorders of Pregnancy

Delivery:
- Delivery should be performed immediately if:
  - Eclampsia develops
  - Severe HELLP syndrome or other complications including renal failure, pulmonary oedema, abruption placentae, epigastric pain and persistent central nervous system symptoms
  - Mother's life is in danger
  - Uncontrolled severe hypertension

Delivery may be delayed if:
- The baby is pre-term e.g. less than 34 weeks to allow the administration of Dexamethasone 12 mg IM stat and repeated in 12 hours
- If the blood pressure responds quickly to treatment and the gestational age is less than 36 weeks

Avoid a prolonged second stage of labour.

c) Eclampsia
Eclampsia is defined as a new onset of grand mal seizures in a patient with pre-eclampsia. The principles of management include maintaining a clear airway, controlling/preventing convulsions, controlling hypertension and expediting delivery. The patient should be delivered immediately.

Emergency Procedures:
- Maintain a clear airway through proper positioning of the patient and suctioning of any secretions or vomit
- Catheterize patient and record urinary output - note colour and test for proteinuria, set up IV Infusion 500 ml Ringer’s lactate etc.
- Take blood for Hb, grouping, BUN, creatinine, PT/PTT, Platelet count, LFTs, serum electrolyte.

Treatment/prevention of further convulsions:
- Use Magnesium Sulphate as indicated for pre-eclampsia.

- Treatment of Hypertension:
  - Hydralazine is the drug of choice if BP diastolic > 110 mmHg and above
  - Hydralazine 5-10 mg IV stat; repeat in 20 minutes if diastolic BP 110 mmHg or above.
  - The aim of treatment is to decrease the diastolic blood pressure to 90 – 100 mmHg.

- Management of labour and delivery:
  - The mode and timing of the delivery depends on the clinical condition of the mother, fetus and the state of the cervix.

  - Intrapartum:
    - During labour blood pressure should be monitored hourly until delivery
    - Continue MgSO4
    - Avoid prolonged pushing in the second stage
    - Consider epidural analgesia

- Postpartum Care:
  - The patient should be closely monitored as convulsions can occur after delivery, thus anticonvulsine treatment should be continued for 24 hours after the last seizure or delivery
  - Those patients should be managed by the specialist and discharged when their vital signs return to normal
  - Women who had severe pre-eclampsia and eclampsia should be seen at postnatal clinic after 2 to 4 weeks and have their blood pressure recorded
  - Patients who had severe pre-eclampsia and eclampsia should be advised on contraception and the risk of recurrence in future pregnancies.
Section 1.2.7 Management of Disorders of Pregnancy

Guidelines for early detection of PH/PE
Patients known to have hypertension should have their blood pressure controlled prior to conception. This advice should be given at postpartum or family planning clinics.

Antenatal Care:
- Pregnant women should be advised to start prenatal clinic after missing their second menses
- All women should have their blood pressure recorded at every antenatal clinic visit
- All women should have their urine tested for protein every visit
- All women detected to have an increase of their blood pressure by 30 mmHg of systolic and or 15
  mmHg diastolic from their baseline blood pressure, or those found to have blood pressure 140/90
  mmHg or above should be managed appropriately and referred to a tertiary centre. (The presence
  of protein in Mid-Stream Specimen of Urine (MSU) is significant)
- All women found to have proteinuria, should have urine microscopy to exclude a urinary tract infection.
- If found to be hypertensive, the patient should be managed as previously discussed
- All patients with hypertension, proteinuria and edema should be referred to an obstetrician.

4. Fibroids in Pregnancy
Fibroids are non cancerous growths in the uterus. There is only a 5% risk of miscarriage with fibroids. There is a 20-30% risk of premature labour. In prediction of this risk, dexamethasone can be given at 28 weeks gestation for lung maturity. Uterine fibroids are not an indication for Caesarean Section unless it causes obstruction to the delivery of the baby’s head. Prediction of postpartum haemorrhage should be anticipated and the use of active management of the third stage of labour including drugs such as Duramorph should be utilised. If a Caesarean Section is to be performed in a patient with uterine fibroids one should not be tempted to perform myomectomy due to the risk of haemorrhage. A consultant should be available stand-by in case of the necessity of a Caesarean Hysterectomy and the patient should be asked to sign consent for this before the case.

5. Previous Caesarean Section- VBAC/ ERCS
Pregnant women with previous Caesarean Section may be offered Vaginal Birth after Caesarean (VBAC) or Elective Repeat Caesarean Section (ERCS). The risk of uterine rupture with VBAC is 22-74/10,000.
Indications of uterine rupture:
- Abnormal CTG
- Acute onset scar tenderness
- Severe constant abdominal pain
- Abnormal vaginal bleeding or haematuria
- Maternal tachycardia, hypotension or shock
- Loss of station of the presenting part
- Chest pain or shoulder tip pain
- Cessation of previously efficient uterine activity.
Section 1.2.7 Management of Disorders of Pregnancy

Recent studies done by Dr. D. Levine in a 2010 journal, suggest there is an ultrasonic correlation of the thickness of the lower uterine segment scar and the risk of uterine rupture. A scar less than 3mm is a high predictor of dehiscence and rupture. Identification of these patients and offering ERCS can therefore reduce the risk of maternal and fetal morbidity and mortality.

6. Rhesus Isoimmunization
The development of anti-D antibodies usually occurs as a result of fetomaternal haemorrhage in a rhesus D negative woman with a rhesus D positive fetus. Anti-D Ig should be given to all non-sensitized RhD negative women who:
- Have a spontaneous miscarriage at or after 12 weeks gestation
- At any gestation once there is instrumentation of the uterus
- Bleeding in pregnancy after 12 weeks, antepartum haemorrhage
- Ectopic pregnancy
- Having termination of pregnancy whether medical or surgical at any gestational age
- Invasive prenatal diagnosis eg. Amniocentesis
- Any abdominal trauma
- Fetal death
- Prophylaxis at 28 weeks gestation
- Within 12 hours following delivery of an RhD positive infant.

7. Sexually Transmitted Infections (STIs)
There are various types of STIs that could occur during pregnancy and can have detrimental effects on the fetus if left untreated.

i) Gonorrhoea:
Gonorrhoea is a common sexually transmitted disease which is caused by Neisseria Gonorrhoea. It affects both sexes and is more prevalent in the under-25 age group.

Symptoms
In females, symptoms may go unnoticed. The infection may ascend to affect the fallopian tubes causing salpingitis or even tubo-ovarian abscesses. The charges that occur in the fallopian tubes increase the risk of ectopic pregnancy and infertility. Other sequelae include chronic pelvic pain and menstrual abnormalities.

In males, a purulent discharge from the urethra is the most obvious symptom and is accompanied by burning or micturition. The discharge appears 2 to 7 days after exposure to an infected person.

The Neisseria Gonorrhoea may also be transmitted from mother to neonate while it traverses the birth canal. The neonate developing a gonococcal conjunctivitis characterized by severe eyelid oedema and abundant purulent discharge, which may spurt from the eyes when the eyelids are separated. This appears 2-5 days after birth. The newborn should be hospitalized and treated to prevent secretions from adhering. Topical antimicrobial preparations alone are not sufficient. The diagnosis is confirmed when a gram stain and culture are taken of the discharge (eye swab). Routine use of 1% silver nitrate drops instilled into each eye after delivery is recommended for prevention of neonatal gonococcal conjunctivitis.
Section 1.2.7 Management of Disorders of Pregnancy

ii) Chlamydia:
Chlamydia trachomatis is becoming increasingly prevalent. It can manifest as lymphogranuloma venereum, genital infections and conjunctivitis. Genital infections may be asymptomatic. However, some women may develop mucopurulent cervicitis while some men may develop urethritis. It is also responsible for infertility in both males and females. The infection can be passed on to infants during childbirth.

Treatment:
Tetracycline or erythromycin ointments can be used topically. Oral therapy is preferable as the neonate can develop Chlamydia pneumonia. Erythromycin suspension is given for 10 - 14 days. Silver nitrate is not an effective prophylaxis measure against the conjunctivitis of Chlamydia.

iii) Syphilis:
Syphilis is caused by a spirochete, Treponema pallidum. The infection may be transmitted from one sexual partner to another and pregnant woman to her unborn child. The disease develops in several stages if untreated.

Stage 1 or Primary Syphilis:
A painless ulcer/chancre appears on the site of invasion (usually penis or vagina) within four (4) weeks of infection. After 4 to 6 weeks the chancre usually heals, even if no treatment is given.

5x (6) to 12 weeks after infection, patches appear about the body, including the palms of the hands and the soles of the feet. This is accompanied by enlarged lymph nodes and mild constitutional symptoms of malaise, anorexia, easy fatigability, etc. The lesions may persist for months. In untreated patients they frequently heal but fresh ones may appear within weeks or months. In a few patients the hair may fall out in patches.

Stage 2 or Tertiary Syphilis:
About one-third of all untreated patients will progress to this stage which affects:

- Skin, bone and internal organs
- Cardiovascular system
- Nervous system
- Congenital Syphilis:
A pregnant woman who has untreated primary or secondary syphilis may infect her fetus. Infection usually occurs before the eighteenth week of pregnancy and treatment of the mother during the first four (4) months of pregnancy virtually eliminates the risk of Congenital Syphilis. Untreated maternal infection may result in prematurity, stillbirth, neonatal death and early or late Congenital Syphilis.

Early Congenital Syphilis:
Symptoms appear before the child is two (2) years old. Vesicular and bulbo-whitish skin lesions appear about the body including the palms and soles, blood stained nasal discharge causing cradles, generalized lymphadenopathy, failure to thrive, enlarged liver and spleen and osteochondritis with characteristic changes in the bones.

Late Congenital Syphilis:
This comprises of symptoms that occur after two (2) years of life and is likened to Tertiary Syphilis in adults. Periostitis and osteochondritis result in anterior bowing of the tibia. Widely spaced, tapered incisors with a central notch are called Hutchinson’s teeth. This finding along with nerve deafness and interstitial keratitis comprise the Hutchinson triad. Diagnosis is often made on the result of the VDRL test, but it should be noted that this test may give false positive results and that there are more specific tests. A reactive VDRL in a newborn may be due to the passive transfer of maternal antibodies across the placenta and a rising titer will indicate the presence of the disease.
Section 1.2.7 Management of Disorders of Pregnancy

Counseling:
The client with a sexually transmitted infection should be counselled and informed about the particular infection.

Contact Tracing:
A careful history should be taken and efforts should be made to identify the sexual partners. They should also undergo testing and treated if necessary.

Treatment:
The drug of choice for syphilis is Benzathine Penicillin G. Patients sensitive to Penicillin may be treated with Erythromycin or Tetracycline but the latter is contraindicated in pregnant women.
The client should be treated adequately and advised to take the full course of medications to prevent drug resistance. The partner(s) should also be treated.

Contraceptives:
The clients should be advised on the role of condoms in reducing the incidence of STIs. He/she should also be advised to always use a condom to reduce the risk of being infected again.

iv) HIV/AIDS:
HIV/AIDS is being diagnosed with increasing frequency in women and children and this is due to increase in heterosexual transmission. Because of the threat which the disease poses to the health of women and children, health care workers must be vigilant, so as to identify women and children who may possibly be infected and implement prevention and/or supportive measures.
Although all sexually active women are at risk of exposure to HIV, some groups of women are at greater risk than others e.g.
• Women whose sexual partners are HIV infected
• Women with multiple sexual contacts
• Women whose sexual partners belong to a high-risk group (bi-sexual, substance abuser)
• Commercial sex workers

ARV drugs during pregnancy:
A high viral load is one of the most important risk factors for mother-to-child transmission (MTCT) of HIV.
Highly active antiretroviral therapy (HAART) is the best ARV regimen for prevention of MTCT (PMTCT) because it adequately suppresses viral load while protecting the health of the mother. For this reason diagnosing HIV in pregnant women should be done as soon as possible when the woman presents for the first antenatal visit. Antiretroviral therapy should be started as soon as possible after the end of the first trimester.

Recommendations:
All pregnant women who are HIV-infected should receive CD4 lymphocyte testing to determine eligibility for HAART. These women should be managed in conjunction with an HIV Specialist Physician.
Section 1.3 Intratatal Care

This refers to care given during labour and delivery to the pregnant woman.

Objective:
- Thorough asepsis: Delivery with minimum injury to the infant and mother.
- Readiness to deal with complications such as prolonged labour, antepartum haemorrhage, convulsions, malpresentation, cord prolapse, etc.
- Care of the baby at delivery - resuscitation, care of cord, care of eyes, etc.

Indicators to be used:
- % of deliveries in a hospital/health facility
- % of deliveries by trained/skilled personnel
- % of HIV positive women who are treated with ARVs during pregnancy
- % of women delivered by Caesarean Section
- % of babies born to HIV-positive mothers who are HIV-positive after 18 months

Standard Procedures for Intratatal care:
1. It should be ensured that every pregnant woman has access to a safe delivery and that intratatal service including emergency services, can adequately meet the needs of the mother, the unborn child and family.
2. All deliveries should be attended by trained personnel, and be subject to appropriate clinical monitoring.
3. All high-risk patients should be delivered in hospitals, which are equipped with resources consistent with the required levels of care.
4. For women in labour who are HIV positive, the following conditions should be observed:
   - Universal precautions for all procedures
   - There is no need for isolation
   - Induction of labour contraindicated
   - Do not rupture amniotic membranes
   - Routine episiotomy to be avoided
   - Consider vaginal delivery after rupture of membranes
   - Women with HIV should be managed according to clinical guidelines set for HIV management.
5. A referral mechanism should be established for any obstetric emergency that may arise.
6. Transportation must be available when required in an emergency.
SECTION 1 Maternal Health

Section 1.3.1. Management of Normal Labour

A. Diagnosis of the Onset of Labour

Evidence of any of the following may indicate onset of labour and the patient should seek professional advice:
- Regular painful contractions – 1:5 or more frequently (2 contractions every 10 minutes)
- Abnormal loss of fluid per vaginum
- Vaginal bleeding

B. First Stage of Labour

i. Assess general condition and ensure that client is in labour
ii. Review notes to identify any significant points
iii. Conduct a routine examination
   - Do a general examination and assess the emotional status of the client
   - Test the urine
   - Take temperature, pulse, respiration and blood pressure
   - Palpate the abdomen to assess fundal height, fetal lie and presentation
   - Auscultate and document fetal heart rate and regularity
   - Monitor contractions
   - Do a vaginal examination and make an assessment of the pelvis, record findings on a partogram
iv. Shave only the lower vulval area in anticipation of an episiotomy
v. Administer enema except where contraindicated e.g. P.V. bleeding, meconium stained liquor
vi. Keep accurate and timely records

Progress Charting
- Palpate uterine contractions noting their strength, frequency and duration.
- Auscultate the fetal heart and record the rate every 15 minutes in low risk women. Document fetal heart rate before, during and after contractions. If any concerns, begin cardiotocographic monitoring.
- Check and record temperature, pulse, respiration and blood pressure hourly.
- Test urine for acetone, sugar and albumin
- Do vaginal examination every 4 hours, or more often, if the clinical situation warrants, to assess the progress of labour.
- Observe any discharge from the vagina, colour of liquor and type of discharge e.g. mucopurulent.
- Observe for signs of fetal and/or maternal distress e.g. meconium stained liquor, maternal fever, tachycardia, dehydration.

Additional Care during First Stage of Labour
- Relieve pain and discomfort.
- Provide emotional support.
- Assist client to control pain through non-drug approaches.
- Encourage ambulation until the later stages of labour.
- Maintain adequate nutrition, especially hydration and energy level.
Section 1.3.1 Management of Normal Labour

Signs of Fetal Distress
- Fetal heart rate - Bradycardia (less than 110 beats/minute) or tachycardia (more than 160 beats/minute), decelerations.
- Meconium stained liquor in a cephalic presentation.

Signs of Maternal Distress
- Tachycardia (pulse rate >100 beats/minute)
- Pyrexia (two readings >37.5°C or one reading >38°C)
- Hypotension
- Vomiting
- Decreased urine output
- Ketonuria
- Marked restlessness or anxiety
- Sign of dehydration

Indications for Referral to Medical Officer during First Stage of Labour
- Maternal distress
- Fetal distress
- Very strong uterine contractions
- Malpresentation
- Prolapse of umbilical cord
- Prolonged first stage
  - 10 hours or more in multipara
  - 12 hours or more in primigravida
- Prolonged rupture of membranes
- Prolonged rupture of membranes
- Vaginal bleeding

**C. Second Stage of Labour**
The attendant should do the following:

i. Ensure that the delivery room is ready for delivery of clients.

ii. Check the contents of the delivery pack.
   - 1 Large Bowl
   - 1 Kidney Dish
   - 2 Gauze packs
   - 1 Placenta Dish
   - 2 Swab Holders
   - 2 Spencer Wells Forceps
   - Cord Scissors
   - Episiotomy Scissors
   - 3 Dressing Towels
   - 1 Gown
   - Gloves

iii. Prepare for episiotomy if indicated
Section 1.3.1 Management of Normal Labour

iv. Prepare to receive baby
v. Neonatal resuscitation equipment should be available at all delivery centres
vi. Maintain clear airway by suction if necessary, as soon as head is delivered
vii. Have oxygen ready for use
viii. Prepare oxytocic drug - Systometrine 0.5mg or Syntocinon 5-10 units (for clients with elevated blood pressure)
ix. Upon delivery of the anterior shoulder, administer oxytocic drug IM
x. Keep alert for obstetric emergencies such as post partum haemorrhage
xi. If the neonate does not require resuscitative measures, ensure that mother sees the infant and identifies the sex of the infant, then place an identification tag on the infant's limb.
xii. Allow skin to skin contact and encourage initiation of breastfeeding within one hour of life.

Indications for Referral to Medical Officer during 2nd Stage of Labour:
- Abnormal bleeding
- Loss of fetal heart beat
- Fetal bradycardia or decelerations
- Abnormal pattern of uterine contractions
- Lack of progress or descent of presenting part
- Prolapse of the cord
- Fresh meconium-stained liquor
- Shoulder dystocia
- Any condition which may arise suddenly and which the nurse or midwife is unable to manage

D. Third Stage of Labour
i. Watch for signs of placental separation
ii. Assist mother to expel placenta. Exert gentle traction on the cord as the placenta is delivered.
iii. Inspect placenta and membranes for completeness.
iv. Measure or estimate and record blood loss.
v. Inspect vagina for lacerations.
vi. Repair episiotomy or lacerations.
 vii. Clean perineum
Section 1.3.1 Management of Normal Labour

Indication for Referral to Medical Officer/Team during 3rd Stage of Labour
- Retained or incomplete placenta or membranes
- Haemorrhage from uterus or lacerations
- Maternal shock
- Severe lacerations or extended episiotomy
- Elevated blood pressure (over 140/90 mmHg)
- Temperature ≥ 38°C
- Respiratory distress in the newborn

E. Post-Partum Observation and Care
Observe and record for one (1) hour after delivery the following:
- Client’s general condition
- Vital signs - temperature, pulse, respiration and blood pressure
- Amount and colour of vaginal blood loss
- Height of fundus, state of contraction

Indications for Referral to Medical Officer
Any abnormality detected during the puerperium should be reported to the Medical Officer. These include:
- Pyrexia 99.4°F or 38°C and over after the first 24 hours
- Offensive lochia
- Persistent heavy lochia
- Subinvolution of the uterus and tenderness
- Pain developing in pre-existing varicose veins
- Call hardness and/or swelling
- Shortness of breath and/or chest pain
- Behavioural changes in the mother
- Mastitis
- Urinary problems e.g. incontinence
Section 1.3.2 Post Partum Haemorrhage (PPH)

Post Partum Haemorrhage
is bleeding after delivery and is defined as a blood loss of 500 ml or more during or after the third stage of labour.

High Risk for PPH
Certain patients are at a greater risk for PPH and these include:
- High parity
- Uterine fibroids
- Antepartum haemorrhage
- Prolonged labour
- Prolonged use of oxytocin
- Previous PPH
- Obesity (BMI > 35)
- Anaemia (Hb < 9g/dl)
- Preeclampsia
- Fetal macrosomia
- Multiple pregnancy
- Polycythemia
- Retained placenta
- Abruptio placenta
- Operative delivery
- Blood coagulation disorders

Precautionary measures:
Patients with these conditions as listed above should have the following done before delivery:
- Hb, grouping and cross matching
- Setting up an intravenous infusion

Problems:
Primary PPH is the loss of ≥ 500 ml of blood from the genital tract within the first 24 hours of the birth of a baby.

Management
- SHOUT FOR HELP: Urgently mobilize all available personnel. Call the doctor.
- Make a rapid evaluation of the general condition of the woman including vital signs (airway, breathing, circulation, pulse, blood pressure, temperature)
- If shock is suspected, immediately begin treatment:
  - Level bed if head elevated
  - Administer oxygen at 10 – 15 litres/minute via facemask
  - Insert two large bore (14 Gauge) IV cannulae and take blood for CBC, coagulation screen, urea and electrolytes and cross matching (4 units)
  - Massage the uterus to expel blood and blood clots. Blood clots trapped in the uterus will inhibit effective uterine contractions and cause more bleeding
  - Give bolus oxytocin 10 units IM/IV or carbopetal 100 microgram IM/IV (long acting)
  - Give IV bolus of 500 ml Ringers Lactate solution
  - Catheterize the bladder
  - Check to see if the placenta has been expelled and examine the placenta to be certain it is complete
  - Examine the cervix, vagina and perineum for tears
Section 1.3.2 Post Partum Haemorrhage (PPH)

Uterus soft - Massage uterus and expel clots
- Place cupped palm on uterine fundus and feel for state of contraction.
- Massage fundus in a circular motion with cupped palm until uterus is well contracted. When well contracted, place fingers behind fundus and push down in one quick action to expel clots.
- Collect blood in a container placed close to the vulva. Measure or estimate blood loss, and record.

Bleeding continues - Apply bimanual uterine compression
- Wear sterile or clean gloves.
- Introduce the right hand into the vagina, clenched fist, with the back of the hand directed posteriorly and the knuckles in the anterior fornix.
- Place the other hand on the abdomen behind the uterus and squeeze the uterus firmly between the two (2) hands.
- Continue compression until bleeding stops (no bleeding if the compression is released).
- If bleeding persists, apply aortic compression; transfuse blood as soon as it becomes available.
- Transfer patient to the Operating Theatre for possible surgical management.

Apply aortic compression (To be performed by trained staff)
- If heavy postpartum bleeding persists despite uterine massage, oxytocin/ergometrine treatment and removal of placenta:
  - Feel for femoral pulse.
  - Apply pressure above the umbilicus to stop bleeding. Apply sufficient pressure until femoral pulse is not felt.
  - After finding correct site, show assistant or relative how to apply pressure, if necessary.
  - Continue pressure until bleeding stops. If bleeding persists, keep applying pressure while transporting woman to hospital.

Give ergometrine (0.5 mg): If there is heavy bleeding in the postpartum (after oxytocin) but DO NOT give if there is eclampsia, pre-eclampsia or hypertension.

Remove placenta and fragments manually (To be performed by trained staff)
- If placenta is not delivered one (1) hour after delivery of the baby, OR
- If heavy vaginal bleeding continues despite massage and oxytocin and placenta cannot be delivered by controlled cord traction or if placenta is incomplete and bleeding continues.

Preparation
- Explain to the woman the need for manual removal of the placenta and obtain her consent.
- Insert an IV line. If bleeding, give fluids rapidly. If not bleeding, give fluids slowly.
- Assist woman to get onto her back.
- Discuss and coordinate analgesia/anaesthesia with the anaesthetist.
- Clean vulva and perineal area.
- Ensure the bladder is empty. Catheterize if necessary.
Section 1.3.2 Post Partum Haemorrhage (PPH)

**Technique**
- With the left hand, hold the umbilical cord with the clamp. Then pull the cord gently until it is horizontal.
- Insert right hand into the vagina and up into the uterus.
- Leave the cord and hold the fundus with the left hand in order to support the fundus of the uterus and to provide counter-traction during removal.
- Move the fingers of the right hand sideways until edge of the placenta is located.
- Detach the placenta from the implantation site by keeping the fingers tightly together and using the upper border of the hand to gradually make a space between the placenta and the uterine wall.
- Proceed gradually all around the placental bed until the whole placenta is detached from the uterine wall.
- Withdraw the right hand from the uterus gradually, bringing the placenta with it.
- Explore the inside of the uterine cavity to ensure all placental tissue has been removed.
- With the left hand, provide counter-traction to the fundus through the abdomen by pushing it in the opposite direction of the hand that is being withdrawn. This prevents inversion of the uterus.
- Examine the uterine surface of the placenta to ensure that lobes and membranes are complete. If any placental lobe or tissue fragments are missing, explore again the uterine cavity to remove them.

If the placenta does not separate from the uterine surface by gentle sideways movement of the fingertips at the line of cleavage, suspect placenta accreta. DO NOT persist in efforts to remove placenta. Refer urgently to hospital.

**After manual removal of the placenta**
- Repeat oxytocin 10 IU IM/IV.
- Massage the fundus of the uterus to encourage a tonic uterine contraction.
- Give broad spectrum antibiotics if needed. Cefuroxime 1.2 g, as indicated by the physician.
- If fever is 38.5°C, foul-smelling lochia or history of rupture of membranes for 6 (6) or more hours, consider additional antibiotics for a longer duration.
- If bleeding stops:
  - Give fluids slowly for at least one (1) hour after removal of placenta.
  - If heavy bleeding continues:
    - Give ergometrine 0.5 mg IM stat.
    - Give 40 IU oxytocin in 500 ml of Hartmann’s solution at 125 ml/hr.
  - In addition, separately infuse FFP fluids to resuscitate as needed.
  - Feel continually whether uterus is well contracted (hard and round). If not, massage and consider misoprostol 800 mcg per rectum.
SECTION 1 Maternal Health

Section 1.3.2 Post Partum Haemorrhage (PPH)

Repair the tear or episiotomy
- Examine the tear and determine the degree
  - If the tear is small and involves only vaginal mucosa and connective tissues (first degree tear). If the tear is not bleeding, leave the wound open.
  - If the tear is long and deep through the perineum and involves the anal sphincter and rectal mucosa (third and fourth degree tear). Cover it with a clean pad and refer the woman urgently to hospital.
- If first or second degree tear and heavy bleeding persists after applying pressure over the wound:
  - Suture the tear or refer for suturing if no one is available with suturing skills
  - Suture the tear using universal precautions, aseptic technique and sterile equipment
  - Use absorbable suture material e.g. Vycril rapide
  - Make sure that the apex of the tear is reached before you begin suturing
  - Ensure that edges of the tear match up well

DO NOT suture if more than 12 hours have elapsed since delivery, refer woman to hospital.

Empty bladder
If bladder is distended and the woman is unable to pass urine:
- Encourage the woman to urinate
- If she is unable to urinate, catheterize the bladder:
  - Wash hands
  - Clean urethral area with antiseptic
  - Put on clean gloves
  - Spread labia, clean area again
  - Insert catheter up to four (4) cm
  - Measure urine and record amount
  - Remove catheter

Note:
If there is postpartum haemorrhage after the placenta is delivered and the woman is on an oxytocin infusion, continue infusion for at least one (1) hour.
**SECTION 1**  
**Maternal Health**

**Section 1.3.3 Perinatal Period**

**Immediate Care of the Neonate**

Once there is no fetal distress, the newborn infant should be given to the mother immediately after birth ensuring skin to skin contact to promote mother-infant bonding and the early establishment of lactation.

The unnecessary separation of mother and infant should always be avoided. The midwife should do the following on delivery of the infant:

i. Note time of birth  
ii. Clamp, ligate and cut umbilical cord  
iii. Ensure a clear airway  
iv. Determine Apgar score (see Appendix V) - scores of seven (7) or less at one (1) minute and five (5) minutes indicate need for resuscitation and medical attention  
v. Dry and keep infant warm  
vi. Swab eyes with sterile swabs  
vii. Give vitamin K 1 mg intramuscularly immediately after birth.  
viii. Weigh baby

**Newborn**

**Examination at Birth**

It is important that the newborn be carefully examined as soon as possible after birth, primarily for the detection of any life threatening abnormalities, evidence of trauma, and for evaluating the infant’s ability to adjust to extra-uterine life.

**Specific Examination**

- Note the general appearance
- Record weight, crown-heel length, head circumference
- Examine the newborn along the cephalocaudal route looking especially for the following abnormalities:
  - HEAD - Circumference greater or less than the normal range (34 - 35 cm), Cephalhematoma (Collection of Blood)
  - FACE - Abnormal facial appearance e.g. Features of Down Syndrome
  - SKIN COLOUR - Cyanosis, jaundice, birth marks, petechiae
  - POSTURE - Abnormal movement, flaccid or increased muscle tone
  - FONTANELLES - Abnormal size, tension or width of sutures
  - EYES - Haemorrhages, cataracts (congenital), discharge, red reflex
  - MOUTH - Cleft palate, asymmetry of mandible
  - NECK - Sterno-mastoid swelling, goitre, brachial fistulae
  - CHEST - Abnormal respiratory movement and rate, costal recession, asymmetry, grunting, abnormal breath sounds, irregular heart sounds, irregular apex beat, position of maximal heart sounds
  - ABDOMEN - Distention, umbilical abnormalities
  - EXTERNAL - Undescended testes, hydrocele, hypospadias
  - GENITALIA AND ANUS - ambiguous genitalia, imperforate and/or displaced anus
  - HIPS AND LEGS - Developmental dysplasia of the hips, subluxation of the joints, club feet, asymmetry of limbs
  - SPINE - Spina bifida, asymmetry, scoliosis, sacrococcygeal tumour, midline sinuses
Section 1.3.3 Perinatal Period

Subsequent Care of the Newborn

Environment
Keep the baby in a clean, safe environment. Keep the infant warm.

Prevention of Infection
Wash hands before and after handling baby.

Observe Daily the following:
• skin for infection
• eyes and jaundice and infection
• stools - NOTE that in breast-fed infants stools may be frequent (after every feed) and loose. Foul smelling, watery, bloody stools are abnormal
• frequency, volume and colour of urine passed
• vomiting - remember regurgitation of feeds (posseting) is not abnormal. Make sure child is properly winded
• umbilical infection
• how the child is feeding

Feeding
Advise and support mother about breast-feeding techniques. Please adhere to 'baby-friendly' practices. If cup feeding, record quantity, frequency and tolerance of feeds.

Demonstrate the following:
• How to bathe the baby
• How to clean the cord
• How to wash hands
• How to care the nipples
• How to fix baby on the breast

Frequency of Visits by Nursing Personnel
Visit the mother and baby once every other day for at least three visits. Visit more often as required. Visit at the time convenient to both mother and mid-wife.

Record keeping
Keep records of observations made.

Nutritional Needs of the Neonate
Breast milk is recommended.
Put baby to breast as soon as possible after delivery – within one (1) hour.
There is no need to give water or glucose feeds before the baby is breast fed.
Give expressed breast milk to babies who are unable to suck the breast.
Do not give artificial milk if breast milk is available and not contraindicated.
Cup feeding should be encouraged if the mother is unable to breastfeed.
SECTION 1 Maternal Health

Section 1.3.3 Perinatal Period

Indication for Referrals of Neonates to Medical Officer/Hospital

- Birth weight <2.5kg or >4.2kg.
- Birth Asphyxia. Apgar score seven (7) or less in five (5) minutes.
- Respiratory distress, cyanosis.
- Jaundice or pull of mucus membranes.
- Born to mother with history of previous children with jaundice requiring exchange transfusion or phototherapy.
- Congenital malformation e.g. meningomyelocele.
- Poor feeding or lethargy.
- Vomiting, excessive mucus.
- Abdominal distension.
- Dysmorphic features.
- Born to a diabetic mother.
- Born to a Rh negative mother.
- Born to a mother with a sexually transmitted infection.
- Born to a mother with sickle cell disease.
- Born to a mother with fever during labour, foul smelling liquor.
- Born to mother with rupture of membranes longer than 24 hours.

Each child should have a referral form with assessment, history, care given, history of feeding, passage of stools, etc. Blood sample of the mother should also accompany child.

Neonates Born to Mothers with the following should be referred to a Social Worker

- Mother with a psychiatric history.
- Mother who is an alcoholic and/or drug addict.
- Mother less than 17 years old.
- Mother with sexually transmitted infection.
- Mother with socio-economic difficulties.
Section 1.4 Postnatal Period

Definition
The Postnatal period is the time from childbirth and continuing up to six (6) weeks after delivery. This period, particularly the first 10 days, is the most vulnerable for the infant. It marks the beginning of parent-child relationships and it provides an opportunity for adjustment of the family to the infant.

General Objectives of Post-natal Care:
- to promote and maintain the health and welfare of the mother and child during the postnatal period.
- to promote aspects of family life education.

Indicators to use:
- % of postnatal women seen at least twice during the first six (6) weeks after delivery.
- % of women accepting a family planning method.

Norms:
- Every mother should stay at least 24 - 48 hours in hospital after delivery.
- Mothers who live in areas that are considered inaccessible, because of transportation challenges, should remain in hospital for a longer period after delivery.
- All mothers should be given a six-week appointment for a postnatal examination at the Health Centre in her district or at hospital depending on risk assessment.
- All mothers leaving place of delivery should be given the particulars of the infant’s birth, for reference, registration purposes and for use at postnatal clinics in the community.
- All infants whether born in hospital or at home will receive at least one visit during the first two weeks of life (or an appointment to attend clinic during that time).
- Every mother will be offered MMR vaccine, and have it administered if required.
- Every infant will be given an appointment to clinic within two (2) weeks after birth.
- Every mother will be offered an appointment to Family Planning Clinic six (6) weeks after delivery.

Preliminary Post-natal Check (At Home)

Mother
- ask mother about discharge and fever
- check for engorged breasts
- encourage breast feeding

Infants
- check state of cord
- look for jaundice
- test reflexes
- look for abnormalities
- discuss diet, hygiene, care of the breast, cord etc.
- stress that if the mother or child develops any problem prior to the regular six-week appointment that they must report to the clinic or their doctor.
Section 1.4 Postnatal Period

Schedule of Post-natal Visits
a) Hospital Delivery
   The minimum of one (1) visit within first five (5) days after delivery to begin.
   1) Patients within catchment area
   2) Outside catchment area
      First five (5) days after delivery; to begin area for domiciliary services
      24 hours after discharge from hospital
      District Staff

b) Home Delivery
   Visit by District Staff on the first day after delivery then every other day for three (3) visits.

c) Maternity or Delivery Units
   Visits as for home delivery by District Health Visitor or District Nurse.

Post-natal Examination
All mothers should attend a Post-natal clinic six (6) weeks after delivery.

‘High Risk’ patients should be seen at hospital two (2) weeks after delivery.

Six Week Post-natal Check - Mother

Standard procedure for Clinic Visits:
Minimum equipment which must be available:
• Examination couch with stirrup
• Scale
• Sphygmomanometer and stethoscope
Examination of the Mother

1) General Physical Examination
   - Record
   - Weight
   - Vital Signs
   - Assess nutrition status

Examine Breasts
   - Look for evidence of lactation
   - Note condition of nipples

Examine Abdomen
   - Note the following:
     - Striae, masses
     - Muscle tone-rectus muscle diastasis

2) Vaginal Examination
   - Explain the procedure to be followed to client and ensure that her bladder empty. If client becomes tense during examination, stop, allow her to relax and reassure her before proceeding.
   - Assess state of involution of the uterus.

3) Speculum Examination
   - Vagina - Check to see that tears have healed and that there are no complications of episiotomy repair.
   - Cervix: Inspect the cervix under a good light and note any abnormalities.
   - Ensure that any tears have healed satisfactorily.
   - Take a Pap smear (if indicated)

4) Rectal Examination
   - Anus - Assess anal sphincter tone and note any rectal abnormalities.

5) Laboratory Tests
   - Blood: Hemoglobin (if indicated)
   - Urine: Albumin, Sugar and Acetone
Section 1.4 Postnatal Period

vi. Immunization – Rubella (if indicated)

vii. Counsel clients on the following:
- Breastfeeding alone (without supplementation) for the first six (6) months
- Care for baby
- Infant feeding
- Immunization of child
- Maternal nutrition
- Family planning
  - the benefits of adequate child spacing
  - family planning methods available
  - regulation of the number of pregnancies

viii. Give appointment to Family Planning Clinic