

**Enhancing human resources and the use of appropriate technologies for maternal and perinatal survival in sub-Saharan Africa**

**ETATMBA**

**Grant agreement no: 266290**

**Improved Clinical Guidelines for Malawi and Tanzania (D2.2)**

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**Foreword**

**Foreword to Guidelines**

These Guidelines were developed separately for Malawi and Tanzania. Due to the differences between the two countries it was unproductive to try and produce one set of recommendations for both. Rather, the principles of good practice have been utilised in each set of guidelines, and tailored according to local needs.

**Development of Malawi guidelines**

**Chisale Mhango**

The process of developing guidelines started within the Ministry of Health Department of Reproductive Health when Dr Chisale Mhango was head of the department. The Guidelines were due for updating when the ETATMBA project commenced in February 2011.

Malawi Sexual and Reproductive Health Guidelines are generic in that they related to all levels of health workers in the area of reproductive health. These guidelines are supplemented by protocols on the management of the various Sexual and Reproductive Health conditions. The protocols provide for management of the various conditions at the health and at the hospital levels depending on the types of clinicians that are available at these levels. For the purposes of this project the Department of Reproductive Health decided that the guidelines did not need to change but the protocols needed to be updated to be in line with current thinking and new technologies on the management of reproductive health conditions.

Protocols in Malawi are produced in book form and then copied to wall charts that are posted in relevant rooms and sites where those services are provided for quick reference. Consultation with the reproductive health department led to a consensus agreement that the protocols should be directed to the main causes of maternal and neonatal morbidity and mortality in Malawi.

After three of these consultation meetings and referring to the Malawi Demographic and Health Survey the latest of which was in 2010, the major causes of maternal and neonatal mortality were identified from which the top five causes of maternal mortality and five major causes of neonatal mortality were selected to be addressed in the protocols. It was decided that the protocols would be directed to the clinicians, the majority of whom in Malawi are Non-Physician Clinicians (NPCs), also known as Clinical Officers. These consultations took place with the department of Reproductive Health. The outcome was the list of reproductive health conditions whose management protocols needed to be upgraded was followed by literature review.

The literature review was conducted by ETATMBA project personnel notably by Dr Chisale Mhango, and the two visiting registrars employed by the project, Dr Saliya Chipwete and Dr Gregory Eloundou. This review was conducted alongside reference to the WHO Guidelines on the Management of Pregnancy and Maternal and Child Health. The old protocols were then updated by the three project personnel and edited by Dr Mhango. The draft was circulated to all project personnel for comment and was finalised by Dr Mhango.

The final document was passed on to the new head of Reproductive Health, Ms Fannie Kachale, for processing. At this point, it emerged that another research project (USAID, which had sponsored development of the earlier guidelines) had also updated the protocols. The Ministry of Health did not contact the ETATMBA team to inform them that this exercise had taken place. The project team reviewed this new set of protocols and found only minor differences to the ETATMBA updates. A few small revisions were suggested by Dr Chipwete, but by this time, the Department of Reproductive Health had already sent the version produced by the USAID project to the USA for printing.

In view of the additional and unnecessary expense, the guidelines and protocols were not reprinted. However, it should be noted that the revisions suggested by the ETATMBA team corresponded in all but a few small details to the revisions produced by the USAID team.

These guidelines are now the national recommendation for health workers across Malawi.

**Development of Tanzania guidelines**

**Staffan Bergström**

The Ministry of Health and Social Welfare (MoHSW) in Tanzania considers the development of clinical guidelines a dynamic process at several levels and at several points in time. The dynamic nature is related to three important background factors. Firstly, existing perceptions of “best practices” in any clinical field should always be challenged, pre-conceptions avoided and reliable evidence sought. Secondly, “best practices” prescribed by the scientific literature should also be challenged due to the fact that there are serious material resource constraints in low-income countries like Tanzania. These constraints often rule out “best practices” as non-affordable and beyond reach from a district health budget perspective. Thirdly, very scarce human resources counteract implementation of “best practices” due to unavailable senior staff for clinical audit. This multifactorial reality makes adaptation of internationally agreed upon evidence-based guidelines mandatory from a mere poverty perspective.

Five years ago the MoHSW established an updated list of norms at different health facility levels to deal with pregnancy and delivery complications (*“Emergency Obstetric Care Job Aid,”* December 2008). At that time, it was already understood that the antenatal “risk” approach is an obsolete concept that does not address prevention of maternal mortality in a comprehensive way. It was stated that “*although some of these complications cannot be prevented or reliably predicted, they can be treated if appropriate emergency care is timely provided. To effectively reduce maternal deaths Emergency Obstetric Care (EmOC) should be available, accessible, affordable and of good quality”.*

This document was intended to serve as a quick reference tool to health care providers. As such the tool would enhance maternity care providers’ ability to diagnose, manage and - if needed - refer obstetric complications. With new development in medical sciences, it created the insight of the need for regularly revising this document in the effort to improve the quality of emergency obstetric care.

This tool was intended for doctors, assistant medical officers, clinical officers, nurse-midwives and other health professionals responsible for providing emergency obstetric care at the dispensary, health centre and hospital levels.

The *Emergency Obstetric Care Job Aid* was organized by obstetric complication or condition. These complications were listed according to their prevalence in Tanzania, from those occurring most commonly to those occurring least frequently.

For each obstetric complication or condition, the following information was presented:

1. **A** **definition** of the complication, based on clinical diagnosis;

2. **Symptoms** with which the client may present;

3. **Clinical signs** that enable providers to identify and diagnose the complication; and

4. Detailed **guidance for managing** the complication according to the level of health care i.e. dispensary/health centre and hospital

5. **Clinical flow charts** for the major obstetric complications are presented at the end of each complication, where appropriate. The flowcharts illustrate the sequence of steps involved in diagnosing and managing complications and are designed to assist providers in taking quick actions to manage the complication or to stabilize and refer the case as appropriate.

In the ETATMBA project we have been through all details of this document. We also traced relevant published and unpublished studies on all complications. We then made proposals to update each norm according to available evidence with adaptation to known resource constraints.

In parallel with the ETATMBA project efforts to develop and update the *Emergency Obstetric Care Job Aid* MoHSW has noted that several other stakeholders working in maternal health have similar ambitions. All inputs to improve the “Job Aid” have gradually been provided to the “Safe Motherhood Working Group” (SMWG), led by the National Coordinator of Safe Motherhood in the MoHSW, Dr K Winani. The SMWG is currently compiling all these stakeholders’ inputs in order to authorise an official, new version of the *Emergency Obstetric Care Job Aid* to be available in 2014.

**GUIDELINES FOR TANZANIA**

**PROPOSED REVISION OF “EMERGENCY OBSTETRIC CARE JOB AID” ESTABLISHED IN DECEMBER 2008 BY THE MINISTRY OF HEALTH AND SOCIAL WELFARE (Dec 2011, ETATMBA project)**

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**Abbreviations**

|  |  |
| --- | --- |
| **ADB** | African Development Bank |
| **APH** | Ante Partum Haemorrhage |
| **BP** | Blood Pressure |
| **BEmOC** | Basic Emergency Obstetric Care |
| **CEmOC** | Comprehensive Emergency Obstetric Care |
| **C/S** | Caesarean Section |
| **DIC** | Disseminated Intravascular Coagulopathy |
| **dL** | Decilitre |
| **FPD** | Feto-Pelvic Disproportion |
| **g** | Gram |
| **Hb** | Haemoglobin |
| **HCG** | Human Chorionic Gonadotrophin |
| **IM** | Intramuscular |
| **IU** | International Units |
| **IV** | Intravenous |
| **kg** | Kilogram |
| **L** | Litre |
| **mg** | Milligram |
| **mL** | Millilitre |
| **mmHg** | Millimetre of Mercury |
| **MVA** | Manual Vacuum Aspiration |
| **NS** | Normal Saline |
| **PPH** | Post Partum Haemorrhage |
| **RL** | Ringers Lactate |
| **SP** | Sulfadoxine Pyrimethamine |

**INTRODUCTION**

Maternal mortality and morbidity rates remain alarmingly high in Tanzania. These maternal deaths and disabilities are particularly tragic, because they are largely preventable if all women receive prompt and appropriate care for obstetric complications. This Obstetric Care Job Aid has been developed to help health care providers to correctly identify obstetric complications and make timely and appropriate decisions for managing and/or referring patients. The Job Aid is intended for health care providers at all levels of care, i.e. from the hospital to the dispensary level.

**How to use the Emergency Obstetric Care Job Aid**

The Emergency Obstetric Care Job Aid is organized by obstetric complication or condition. These complications are listed according to their prevalence in Tanzania, from those occurring most commonly to those occurring least frequently.

For each obstetric complication or condition, the following information is presented:

 A **definition** of the complication, based on clinical diagnosis;

 **Symptoms** with which the client may present;

 **Clinical signs** that enable providers to identify and diagnose the complication; and

Detailed **guidance for managing** the complication according to the level of health care i.e. dispensary/health centre and hospital

**Clinical flow charts** for the major obstetric complications are presented at the end of each complication, where appropriate. The flowcharts illustrate the sequence of steps involved in diagnosing and managing complications and are designed to assist providers in taking quick actions to manage the complication or to stabilize and refer the case as appropriate.

**USE OF PARTOGRAM IN MANAGEMENT OF LABOUR**

1. **Practical value of using the partogram**

 Proper use of partogram during labour:

1. Offers an objective basis for overtime monitoring the progress of labour, maternal and fetal wellbeing.
2. Enables early detection of abnormalities of labour and hence prevention of obstructed labour and ruptured uterus.

Based on the evidence-based reports on its effectiveness in monitoring of labour, use of partogram is recommended in all labour wards at all levels of obstetric care in Tanzania

**2. Principles of using the partogram**

2.1 Health facilities with or without BEmOC: Dispensaries and Health Centres

* Partogram is used to monitor labour which is expected to be normal. Those with risk factors should already have been referred.
* Referral is decided when the progress line of the cervical dilatation deviates to the right of an alert line.

2.2. Health facilities with CEmOC.

* In these facilities the partogram is used to monitor both high and low risk labour

2.3 Starting the partogram

2.3.1 Don’t start the partogram in case of:

* Cervical dilatation 9 -10 cm on admission
* Elective or Emergency Caesarean Section on admission

2.3.2 When to start the partogram

* Active phase: when cervical dilatation has reached 4 cm

2.4 Management of labour between alert and action lines

2.4.1 Health facilities with BEmOC

In these facilities this zone is known as **Alert or Referral zone**

* Transfer the woman to hospital unless the cervix is almost fully dilated
* Rupture of membranes may be performed if they are still intact and first stage of labour is advanced and delivery is expected soon.

2.4.2 Health Facility with CEmOC

* Rupture membranes at vaginal examination
* Continue routine monitoring
* Repeat vaginal examination 4 hourly or earlier if delivery is expected sooner
* Do not intervene or augment – unless complications develop

2.5. Management of labour at or beyond the action line

* + Perform full medical and obstetric assessment
	+ Consider IV infusions/ catheterization/ analgesics (pethidine if available)
	+ Options
	+ Perform Caesarean section (CS) - if fetal distress or obstructed labour or operative vaginal delivery if in second stage without severe fetal distress and/or obstructed.
	+ Augment with oxytocin – if no contraindications (see doses and titrations in 3.1 below)
	+ Supportive therapy only – if satisfactory progress is established and dilatation could be anticipated at 1 cm/hr or faster.

2.6 Management of labour in special cases

Plot the labour on the partograph. Such cases are managed individually with the following additions:

**1. Breech**

* Exclude reasons for immediate C-section: previous CS, contracted pelvis and primigravida.
* In the active phase, dilatation slower than 1cm/hr is a worrying sign
* Consider augmentation by oxytocin if dilatation moves to the right of the alert line
* Reaching the action line with sufficient uterine contraction is normally the indication for C-section.

**2. Multiple pregnancy**

Guidelines for breech apply i.e. reaching the action line is indication for C-section

**3. Pre-eclampsia**

Induction, augmentation and rupture of membranes may be indicated early, before the action line.

**4. Intrauterine fetal death**

* Usually the this guideline (protocol) can be followed
* Usually artificial rupture of membranes are avoided
* In case of obstructed labour, perform craniotomy or other destructive perforation. NEVER PERFORM CAESAREAN SECTION UNLESS THERE IS CLEAR **MATERNAL** INDICATION TO DO SO!

**3. FURTHER NOTES**

3.1 Augmentation of labour with oxytocin

* *Doses*
	+ Nulliparas: 5 IU in 500 mL of 5% dextrose or Ringer’s lactate (RL)
	+ Multiparas: 1.25 – 2.5 IU in 500 mL of 5% dextrose or RL.
* *Titration:* Oxytocin should be titrated against uterine contractions (start with 10 drops / minute) and increased every *20 – 30 minutes* until contractions are 4 – 5 in 10 minutes, each lasting 40-50 seconds. It may be maintained at that rate throughout the second and third stage of labour.
* *When to stop:* Stop oxytocin infusion if there is evidence of uterine hyperactivity and/or fetal distress.
* Oxytocin must be used with caution in women para 5 or more.

3.2 Fetal distress (less than 100 and more than 180 beats per minute)

* In a dispensary or *health centre*: transfer to hospital with facilities for operative delivery.
* In *hospital, immediate management:*
* Stop oxytocin
* Turn woman on left side
* Vaginal examination to exclude cord prolapse and observe amniotic fluid
* Adequate hydration
* Rule out: antepartum haemorrhage
* If infection: start antibiotics
* Oxygen if available
* If fetal distress continues, consider urgent C-section

**SEVERE ANAEMIA IN PREGNANCY**

Anaemia in pregnancy is Haemoglobin (Hb) less than 11.0 g/dL

Severe anaemia: Hb less than 7.0 g/dL.

**MANAGEMENT OF SEVERE ANAEMIA IN PREGNANCY**

**DISPENSARY & HEALTH CENTRE**

**If in early labour or not in labour:**

Place the patient on bed in a semi-sitting position

Auscultate lung bases for signs of pulmonary oedema (heart failure):

Give IV frusemide 80 mg stat

Insertion of urethral catheter

Provide oxygen

Provide blood for Hb, grouping and cross-matching if possible

REFER to hospital immediately in a propped-up position with an escorting nurse

Arrange for potential blood donors to accompany the patient to the hospital.

**NB: Do not give IV fluids**

**If in established labour:**

Place the patient on bed in a sitting position

Auscultate lung bases for signs of pulmonary edema (heart failure)

Give IV frusemide 80 mg stat

Insert urethral catheter

Provide oxygen

Obtain blood for Hb, grouping and cross-matching

Deliver at the facility, keeping patient in semi-sitting position

Assist second stage by vacuum extraction.

**Do active management of third stage of labour**:

1. Give uterotonic medicine within one minute of birth that enhances uterine contraction. oxytocin10 IU IM or misoprostol 600 microgram **(DO NOT ADMINISTER ERGOMETRINE)**
2. Apply controlled cord traction while applying counter-traction on the uterus.
3. Perform uterine massage; immediate massage following delivery of placenta and palpation of uterus every 15 minutes for 2 hours

Monitor vital signs (blood pressure, pulse rate, temperature and respiratory rate) every half an hour

 Arrange for potential blood donors to accompany the patient to hospital

 REFER patient with an escorting nurse to hospital 24 hours after delivery.

**NB**: **Do not give IV fluids**

**HOSPITAL**

**If not in labour:**

Nurse patient in a propped-up position

Auscultate lung bases for signs of pulmonary oedema (heart failure)

Give IV frusemide 80 mg stat

Obtain blood for Hb, grouping and cross-matching

Insert urethral catheter

Transfuse packed cells slowly one unit over 4 hours

Administer frusemide 80 mg intravenous stat 30 minutes before the transfusion

Give oxygen

Investigate and treat the underlying cause of anaemia

Give ferrous sulphate 200 mg every 8 hours, **PLUS** folic acid 5 mg once a day for three months)

**If in established labour:**

Nurse patient in a propped-up position

Obtain blood for Hb, grouping and cross-matching

Insert urethral catheter

Administer IV frusemide 80 mg stat

Give oxygen

Deliver the patient

 Do not allow patient to bear down with contractions

 Assist second stage of labour by performing vacuum extraction

**Do active management of third stage of labour**:

1. Give uterotonic medicine within one minute of birth. Oxytocin 10 IU IM or Misoprostol 600 microgram **(DO NOT ADMINISTER ERGOMETRINE)**
2. Apply controlled cord traction while applying counter traction on the uterus.
3. Perform uterine massage; immediate massage following delivery of placenta and palpation of uterus every 15 minutes for 2 hours

Monitor vital signs every half an hour post-delivery until patient is stable

Monitor input of given volume of IV fluids and urinary output per hour

Monitor closely for signs of heart failure post-partum until condition is stable

Investigate and treat the underlying cause of anaemia

Give ferrous sulphate 200 mg every 8 hours, **PLUS** folic acid 5 mg once a day for three months

**Do not give blood transfusion while in labour**

**Transfuse packed cells 24 hours post delivery**

**Transfuse slowly, one unit to run for 4 hours**

**MALARIA IN PREGNANCY**

**MANAGEMENT OF MALARIA IN PREGNANCY**

**DISPENSARY & HEALTH CENTRE**

**Uncomplicated malaria**

**Investigations**

Take a blood smear to test for malaria parasites

Take a blood for Hb level

**Treatment**

Give quinine tablets 10 mg/kg body weight by mouth every 8 hours for 7 days

Give paracetamol 1 g by mouth every 8 hours for 3 days

If parasitaemia and/or clinical signs persist after 3 days of treatment with quinine and if the pregnancy is not in the first trimester:

Give a 3-day course of ALu (artemether/lumefantrine) by mouth, 4 tablets at the time of diagnosis, 4 tablets after 8 hours from the initial dose, then 4 tablets twice daily (morning and evening) for the following two days. The total course consists of 24 tablets.

**Do not give ALu in the first trimester unless when considered life saving to the mother and quinine is contraindicated**

**Severe malaria**

**Investigations**

Take a blood smear to test for malaria parasites

Take a blood for Hb level and for blood glucose estimation

**Treatment**

Administer an initial dose of 10 mg quinine dihydrochloride salt/kg body weight IV in 5% dextrose 500 mL to run for 4 hours..

Give paracetamol 1 g by mouth every 8 hours for 3 days

Insert urethral catheter for continuous drainage and record input/output

Monitor vital signs (blood pressure, pulse rate, respiratory rate) every 15 minutes

**REFER** to hospital with an escort of a nurse and with potential blood donors if the mother has severe pallor.

**HOSPITAL**

**Uncomplicated malaria**

**Investigations**

Take a blood smear to test for malaria parasites

Take a blood for Hb level

**Treatment**

Give quinine tablets 10 mg/kg body weight by mouth every 8 hours for 7 days

Give paracetamol 1 g by mouth every 8 hours for 3 days

If parasitaemia and/or clinical signs persist after 3 days of treatment with quinine and if the pregnancy is not in the first trimester:

Give a 3-day course of ALu (artemether/lumefantrine) by mouth, 4 tablets at the time of diagnosis, 4 tablets after 8 hours from the initial dose, then 4 tablets twice daily (morning and evening) for the following two days. The total course consists of 24 tablets.

**Do not give ALu in the first trimester unless when considered**

**Life saving to the mother and quinine is contraindicated**

**Severe malaria**

**Investigations**

Conduct the following investigations:

 Blood slide (BS) for malaria parasites once a day until negative

 Blood sugar

 Haemoglobin (Hb) level

 White blood cell count, total and differential

 Blood culture if septicaemia is suspected

 Cerebral spinal fluid examination if meningitis is suspected

 Urinalysis

**Treatment**

**1. Malaria**

* Administer 10 mg quinine dihydrochloride salt/kg body weight IV in 5% dextrose 500 mL to run for 4 hours. Continue with 10 mg quinine dihydrochloride salt/kg body weight every 8 hours. Discontinue quinine infusion as soon as the patient is able to take by mouth and continue with quinine tablets, 10 mg/kg body weight by mouth every 8 hours to complete 7 days of treatment.
* If parasitaemia and/or clinical signs persist after 3 days of treatment with quinine and if the pregnancy is not in the first trimester.
* Administer artemether 3.2 mg/kg body weight IM as a loading dose on the first day, followed by 1.6 mg/kg weight once a day for a minimum of 3 days or until the patient can take by mouth to complete a 7-day course.
* **If injectable artemether is NOT available, give a 3-day course of ALu**
1. **Anaemia**
* Give blood transfusion if Hb is 7.0 g/dL or less, with features of lung oedema (basal crepitations
* Give frusemide 20 - 40 mg IV or by mouth 30 minutes before each unit of blood (important to avoid cardiac overload).
* Give ferrous sulfate 200 mg by mouth twice daily PLUS folic acid 0.5mg by mouth once daily upon discharge.
* Plan follow up after two weeks at OPD. Request for control Hb estimation and review treatment accordingly.
1. **Hypoglycaemia**
* If the **woman is receiving quinine IV**, monitor blood glucose levels every hour.
* If in coma insert a nasogastric tube (NGT) for feeding,
* If **hypoglycaemia is detected** (blood glucose is less than 2.5mmol/ L), give 50% dextrose 50 mL IV followed by dextrose (5 or 10%) 500 mL infused over eight hours.
1. **Fluid balance**

If in coma or renal failure is suspected, insert urethral catheter for continuous bladder drainage Monitor input/output closely and record findings on an input/output chart

**Note**: Women with severe malaria are prone to fluid overload.

• If **pulmonary oedema develops**:

- Prop up the woman;

- Give oxygen at 4 L per minute by mask or nasal cannulae;

- Give frusemide 40 mg IV as a single dose.

* If **urine output is poor** (less than 30 mL per hour):

- Measure serum creatinine;

- Rehydrate with IV fluids (normal saline, Ringer’s lactate).

* If **urine output does not improve**, give frusemide 40 mg IV as a single dose and continue to monitor urine output.
* If **urine output is still poor** (less than 30 mL per hour over four hours) and the **serum creatinine is more than 2.9 mg/dL**, refer the woman to a tertiary care centre, if possible, for management of renal failure.

**5. Convulsions**

Give diazepam 10 mg IV slowly over two minutes.

If **eclampsia is excluded**, prevent subsequent convulsions with phenytoin (below).

**Phenytoin**

*Loading Dose*

• Infuse phenytoin 1 g (approximately 18 mg/kg body weight) in 50–100 mL normal saline over 30 minutes (final concentration not to exceed 10 mg per mL):

**Note**: **Only normal saline can be used to infuse phenytoin. All other IV fluids will cause crystallization of phenytoin.**

- Flush IV line with normal saline before and after infusing phenytoin;

- Do not infuse phenytoin at a rate exceeding 50 mg per minute due to the risk of irregular heart beat, hypotension and respiratory depression;

- Complete administration within one hour of preparation.

*Maintenance Dose*

• Give phenytoin 100 mg IV slowly over two minutes or by mouth every eight hours beginning at least 12 hours after the loading dose.

**Patient Monitoring**

* Monitor vital signs (BP, pulse rate, respiratory rate and temperature) every 15 minutes until stable, then every 3 hours for 24 hours, and then every 12 hours until discharge

**HYPERTENSIVE DISORDERS OF PREGNANCY**

Hypertension is blood pressure (BP) 140/90 mmHg or higher, on two occasions at least four hours apart or elevated systolic BP >30 mmHg, or diastolic BP >15 mmHg from the habitual blood pressure measured in early pregnancy.

**MILD TO MODERATE PRE-ECLAMPSIA**

The systolic blood pressure (BP) is 140 – 160 mmHg

The diastolic BP is 90 – 100 mmHg

Proteinuria of up to ++

**MANAGEMENT OF MILD TO MODERATE PRE-ECLAMPSIA**

**DISPENSARY & HEALTH CENTRE**

Advice the woman to have adequate rest at home and avoid strenuous activities

Do NOT give any treatment but make sure the patient returns for new control of BP in two weeks.

Advise patient to eat a normal balanced diet and plenty of oral fluids

**REFER** to hospital if BP increases above 160/100 or reaches > 30 in systolic or >15 in diastolic BP above the BP measured in early pregnancy.

**HOSPITAL**

Encourage the patient to have adequate rest at home and to avoid strenuous work

Advise the patient to eat a normal balanced diet and to drink plenty of fluids

Schedule antenatal visits every 2 weeks up to 32 weeks and every week thereafter

Strongly recommend for the patient to deliver in the hospital, and should be delivered at 38 weeks of gestation

Advice the patient to come immediately to hospital in case of severe headache, blurred vision, nausea or upper abdominal pain

If not responding to treatment (i.e. if the systolic BP is more than 160 mmHg or the diastolic BP is more than 100 mmHg or if there is proteinuria of +++ or more) manage as severe pre eclampsia.

**SEVERE PRE-ECLAMPSIA**

**(IMMINENT ECLAMPSIA)**

Presence of high blood pressure (BP) as well as symptoms and signs indicating that the pregnant woman may get eclamptic fits at any moment.

**Symptoms**

 Severe headache

 Nausea and/or vomiting

 Upper abdominal pain/epigastric pain

 Blurred vision

 Decreased urine output

**Signs**

Systolic BP more than 160 mmHg

 Diastolic BP more than 100 mmHg

 Proteinuria of +++ or more

 Oliguria (urine output less than 500 mL/24 hours)

 Hyper-reflexia (increased reflexes)

**MANAGEMENT OF SEVERE PRE-ECLAMPSIA**

**DISPENSARY & HEALTH CENTRE**

Once the diagnosis of severe pre-eclampsia has been made refer the patient. Whenever possible magnesium sulphate bolus dose should be administered at health centre level (se dosages IV and IM below).

**HOSPITAL**

Once the diagnosis of severe pre-eclampsia has been made, admit the woman and manage as **eclampsia.**

**ECLAMPSIA**

Eclampsia is a condition peculiar to a pregnant woman or post-delivery woman, characterized by tonic-clonic convulsions. Eclamptic fits occur most commonly after the 24th week of pregnancy and during the first 24 hours after delivery

**Symptoms of impending eclampsia**

* Severe headache
* Nausea and/or vomiting
* Upper abdominal pain/epigastric pain
* Blurred vision

**Signs**

* Systolic BP most often more than 160 mmHg
* Diastolic BP most often more than 100 mmHg
* Proteinuria of +++ or more
* Oliguria (urine output less than 60 mL/2 hours)
* Hyper-reflexia (increased reflexes)
* Convulsions
* Unconsciousness

**MANAGEMENT OF SEVERE PRE ECLAMPSIA AND ECLAMPSIA**

**DISPENSARY & HEALTH CENTRE**

* Protect the patient from injury, but do not actively restrain her
* Position her on her left side with two pillows supporting her back
* Keep the airway clear by suction of secretion and by inserting an airway
* Conduct a rapid evaluation of the general condition including vital signs (pulse, blood pressure, respiration and temperature)
* Give oxygen if the patient has difficulty in breathing
* Give a loading dose of magnesium sulphate 5 g in each buttock as deep IM injection with 1 mL of 2% lignocaine in the same syringe (5 g is 10 mL of a 50% solution or 25 mL of a 20% solution).
* Monitor vital signs, reflexes and fetal heart rate every half an hour
* REFER to hospital urgently under an escorting nurse with detailed clinical notes on the patient and treatment given.

If the mother is in late labour or referral is not immediately possible:

* Deliver the mother by the quickest and easiest method, within 6-8 hours after the last fits
* Give a loading dose of magnesium sulphate 4 g IV over 5 minutes (4 g is 8 mL of a 50% solution or 20 mL of a 20% solution). Give then immediately 5 g in each buttock as deep IM injection with 1 mL of 2% lignocaine in the same syringe (5 g is 10 mL of a 50% solution or 25 mL of a 20% solution).
* Monitor vital signs, reflexes and fetal heart rate every half an hour
* Assist second stage of labour by doing low cavity vacuum extraction
* REFER to hospital with an escorting nurse for further management

**HOSPITAL**

Admit in a quiet room of the hospital

1. Keep the airway clear
	* Keep the patient on her left side with two pillows supporting her neck
	* Protect the patient from injuring herself, but do not actively restrain her
	* Clear the mouth, nose and throat regularly of secretions.
2. Control the convulsions

Loading dose

* + Give magnesium sulphate 4 g (i.e. 20 mL of 20% solution) with 200 mL normal saline or sterile water intravenously over 5 minutes OR
	+ Give magnesium sulphate 10 g (i.e. 20 mL of 20% solution), 5 g in each buttock as deep. IM injection with 1 mL of 2% lignocaine in the same syringe. Ensure that aseptic technique is practiced when giving magnesium sulphate deep IM injection. Warn the woman that a feeling of warmth will be felt when magnesium sulphate is given.
	+ If convulsions recur after 15 minutes, give magnesium sulphate 2 g (i.e. 10 mL of 20% solution) IV over 5 minutes.

Maintenance dose

* + Give magnesium sulphate 4 g (i.e. 20 mL of 20% solution) in 500 mL NS drip (IV) to run every 4 hours for 24 hours OR
	+ Give magnesium sulphate 5 g (i.e. 10 mL of 50% solution) with 1 mL lignocaine 2% in the same syringe every 4 hours into alternate buttocks
	+ Continue treatment with magnesium sulphate for 24 hours after delivery or last convulsion, whichever occurs last
	+ Before repeating magnesium sulphate administration, ensure that:
		- Respiration rate is at least 16 per minute
		- Patellar reflexes are present
		- Urinary output is at least 60 mL per 2 hours

Withhold or delay magnesium sulphate if:

* + Respiratory rate falls below 16 per minute
	+ Patellar reflexes are absent
	+ Urinary output falls below 60 mL per 2 hours over preceding 4 hours

Keep antidote ready:

* + In case of respiratory arrest:
		- Assist ventilation (mask and bag, anaesthesia apparatus, intubation)
		- Administer calcium gluconate 1 g (10 ML of 10% solution) IV slowly to antagonize the effects of magnesium sulphate until respiration begins.

Recurrent fits:

Occur in 10-15% of patients. In such cases, the therapeutic level of magnesium may not have been reached.

Give a new loading dose IV of magnesium sulphate, 4 grams.

It is also important to consider other causes of recurrent convulsions:

* + Is the blood pressure controlled?
	+ Has the proper bolus combination (IV & IM) been given?
	+ Have the differential diagnoses correctly been ruled out: cerebral malaria, epilepsy, meningitis, intoxication?
1. Control the blood pressure
	* Record BP every hour
	* Start hydralazine if the diastolic BP is 110 mmHg or more
	* Administer hydralazine 10 mg IM or 5 mg IV slowly every half an hour until diastolic BP falls to 100 mmHg OR
	* Give Nifedipine 10 mg sublingually every 4 hours until diastolic BP falls to 100 mmHg.
2. Control the fluid balance
	* Give IV fluids (NS or RL) slowly:1 L in 6-8 hours (40-50 drops/minute)
	* Insert an indwelling urethral catheter for continuous bladder drainage
	* Monitor input/output closely and record findings on an input/output chart

Avoid diuretics except in cases of lung base crepitations or overt pulmonary oedema (oedema of the lungs).

1. Antibiotics (for prophylaxis against aspiration pneumonia)
	* Administer IV ampicillin 500 mg every 6 hours until patient is able to swallow, followed by amoxicillin 500 mg by mouth every 6 hours for a total of 7 days.
2. Investigations
	* Do a bed-side clotting test
	* Take blood for:
		+ Malaria parasites
		+ Random blood sugar
		+ Serum creatinine levels
		+ Full blood picture (FBP)
	* Do lumbar puncture for cerebral spinal fluid examination if meningitis is suspected
3. Obstetric management

Patients with eclampsia should be delivered within 6-8 hours after the last fits, even if the fetus is premature. **Vaginal delivery is the safest mode of delivery.**

Consider augmentation of labour with oxytocin in case a woman is in labour but does not have adequate uterine contractions

* Nulliparas: 5 IU in 500 mL of 5% dextrose or Ringer`s Lactate
* Multiparas: 1.25 IU in 500 mL of 5% dextrose or Ringer`s Lactate

 **Eclampsia before labour**

* Resuscitate the patient with Ringer’s lactate (RL) ,1-1.5 L
* Induce labour if cervix is ripe and there are no contraindications to vaginal delivery Otherwise, perform a Caesarean Section (C/S) if there is fetal distress or a maternal indication

**Note: Resuscitate the patient before C/S**.

**Eclampsia during the first stage of labour**

* Allow vaginal delivery if labour is progressing quickly and there are no contraindications to vaginal delivery
* Administer small but frequent doses of pethidine 25 mg IV, every 2-4 hours to relieve pain

**Eclampsia during the second stage of labour**

* Assist delivery by a low cavity vacuum extraction
* Do NOT rush to perform C/S unless there is clear (other) maternal indication

**Active management of third stage of labour**

1. Give Oxytocin10 IU IM or Misoprostol 600 microgram rectally **(DO NOT ADMINISTER ERGOMETRINE)**

2. Apply controlled cord traction while applying counter traction on the uterus.

3. Massage the uterus following delivery of placenta and palpation of uterus every 15 minutes for 2 h

**Post delivery care**

Fits can occur again after delivery. Therefore continue the protective magnesiumsulphate maintenancetreatment and careful observation for 24 hours post-delivery.

* If a previously non-eclamptic patient has fits after delivery, give the full magnesium sulphate treatment (bolus dose and maintenance treatment as above) for 24 hours after the last fit
* Monitor input of fluid and urinary output closely and record findings on an input/output chart
* Avoid diuretics unless there are signs of pulmonary oedema (oedema of the lungs)
* Keep the patient in the hospital until BP is stabilized
* Continue with aldomet 250-500 mg by mouth every 8 hours until BP is back to normal.

 **ECLAMPSIA MANAGEMENT FLOW CHART**

* Mobilize all available personnel
* Position the mother on her left side
* Prevent her from hurting herself
* Give a loading dose of magnesium sulphate 4 g IV (i.e. 20 mL of a 20% solution) with 5 g IM in each buttock
* Insert catheter
* Give anti-hypertensive IM
* Monitor BP

NO

IS PATIENT IN LABOUR?

YES

Assess progress: Near second stage?

NO

YES

* Monitor urine output
* Provide constant supervision
* Monitor BP
* Consider vacuum extraction
* Give oxytocin for active management of third stage of labour
* REFER to hospital if needed

REFER immediately with an escorting nurse

At Hospital:

* Resuscitate patient IV RL or NS)
* Start or continue with anticonvulsants (magnesium sulphate as per protocol)
* Insert catheter and monitor urine output (minimum 60 mL/2 hours)
* Give antihypertensive e.g. hydrallazine 10 mg IM or 5 mg IV slowly every half hour until diastolic BP falls to 100 mmHg
* Monitor vital signs
* Assess cervical ripening and start induction with oxytocin if contractions weak. Plan for **vaginal** delivery.

Severe Pre-Eclampsia or Eclampsia

Intramuscular Regimen

Magnesium sulphate 4 g IV (20 mL of a 20% solution) plus 5 g in each buttock every 4 hours as deep IM injection (10 mL of a 50% solution), with 1 mL of 2% lignocaine in the same syringe

Magnesium sulphate 5 g in each buttock every 4 hours as deep IM injection (10 mL of a 50% solution), with 1 mL of 2% lignocaine in the same syringe

 same syringe

Loading dose

Maintenance dose

**PROLONGED LABOUR**

This is labour that lasts more than 12 hours in the active phase

**MANAGEMENT**

**DISPENSARY & HEALTH CENTRE**

* Assess mother’s general condition
* Determine the stage of labour
* Review the partogram
* Determine the cause:
	+ Assess uterine contractions and level of descent
	+ Assess the fetal heart rate
	+ Do a vaginal examination to assess cervical dilatation, signs of obstruction (moulding and caput) and colour of liquor
	+ Assess the urinary output and coloration (if blood-stained think of prolonged obstructed labour).

**Subsequent management will depend on the identified stage of prolonged labour and the presumable cause**

1. If cervix is not dilated > 3 cm with no or infrequent contractions, the patient is most likely in false labour.

Management:

Examine for urinary tract or other infection or ruptured membranes and treat accordingly. If none of these are present, discharge the woman to nearby accommodation (preferably maternal waiting area) and encourage her to return if more intense signs of labour recur.

2. If cervix is dilated 4 cm or more the patient is in active labour. If insufficient contractions:

* 1. Augment labour with oxytocin as follows
	+ Rupture the membranes if still intact
	+ Nulliparas: 5 IU in 500 mL of 5% dextrose or Ringer’s lactate (RL)
	+ Multiparas: 1.25 IU in 500 mL of 5% dextrose or RL.
	1. If the **woman has not reached full cervical dilatation after six hours of oxytocin** infusion, REFER the woman to a hospital for caesarean section delivery. Give broad spectrum antibiotics for 5 days if rupture of membranes more than 12 hours: If

patient cannot take by mouth, start ampicillin 1g IV stat, followed by 500 mg every 6 hours PLUS metronidazole 600 mg IV every 8 hours until patient can take by mouth.

If patient can take by mouth, give amoxicillin capsules 500 mg PLUS metronidazole table 400 mg every 8 hours for 5 days.

3. If there is suspicion of feto-pelvic disproportion (FPD) or other signs of obstruction:

* Consider pre-referral management
	+ Insert urethral catheter
	+ Start intravenous RL or normal saline
	+ Give antibiotics as in 2.2 above
* REFER with an escorting nurse and with potential blood donors

4. If maternal psychological distress:

* Sedate the mother with diazepam (valium) 10 mg IM and augment with oxytocin as above

5. If the cervix if fully dilated, no sign of obstruction, the presenting part is cephalic and the

 level is below 1/5:

* Perform vacuum extraction
* If not successful refer patient to hospital immediately under the escort of a nurse

**HOSPITAL AND HEALTH CENTRE PROVIDING CEmOC**

* Assess mother’s general condition
* Determine the stage of labour
* Determine the cause:
	+ Assess uterine contractions and level of descent
	+ Do a vaginal examination to assess cervical dilatation, signs of obstruction (moulding and caput) and colour of liquor
* Review the partogram

**Subsequent management will depend on the identified stage of prolonged labour and the**

**Cause**

1. If cervix not dilated, no palpable contractions or infrequent contractions. Most likely is False

 labour.

Management:

Examine for urinary tract or other infection or ruptured membranes and treat accordingly. If none of these are present, discharge the woman and encourage her to return if signs of labour

recur.

1. Prolonged active phase (poor uterine contractions) without signs of disproportion, obstruction or fetal distress:
	1. Augment labour with oxytocin as follows
	* Rupture the membranes if still intact
	* Nulliparas: 5 IU in 500 mL of 5% dextrose or Ringer’s lactate (RL)
	* Multiparas: 1.25 IU in 500 mL of 5% dextrose or RL.
	* Continue supportive therapy
	* If the **woman has not entered the active phase after eight hours of oxytocin** infusion, deliver by CS
	1. Give broad spectrum antibiotics. The following alternatives are suggested:
	* Ampicillin 1g IV stat, followed by 500 mg every 6 hours PLUS metronidazole 500 mg IV every 8 hours until patient can take orally. Change to amoxicillin 500 mg and metronidazole 400 mg by mouth every 8 hours for 5 days or
	* Ampicillin 1g IV stat, followed by 500 mg every 6 hours PLUS gentamicin 160 mg IM stat, followed by 80 mg IM every 12 hours PLUS metronidazole 500 mg IV every 8 hours. Change to amoxillin 500 mg and metronidazole 400 mg by mouth every 8 hours for 5 days once the patient is able to take orally or
	* Cephalosporins: cefuroxime OR ceftriaxone 1g IV once a day for 5 days.

**AVOID GENTAMYCIN BEFORE OPERATION AS IT MAY INTERACT**

**WITH THE ANAESTHETIC AGENTS**

3. If feto-pelvic disproportion (FPD) or signs of obstruction:

* Prepare for Caesarean Section (C/S)
	+ Seek consent (informed)
	+ Insert urethral catheter
	+ Take blood for Hb, blood grouping and cross matching
	+ Start intravenous RL or normal saline (1- 2 L fast)
	+ Give antibiotics as in 2.2 above
	+ Perform CS

4. If maternal psychological distress:

* Sedate the mother with diazepam (valium) 10 mg IM and augment with oxytocin as above

5. If the cervix if fully dilated, no sign of obstruction, the presenting part is cephalic and the level is below 1/5:

* Do vacuum extraction
* If vacuum extraction fails perform CS

**PROLONGED LABOUR MANAGEMENT FLOW CHART**

* Assess uterine contractions
* Estimate fetal size, presentation, level of descent and fetal wellbeing (heart rate)
* Assess dilatation of cervix, moulding, caput, state of membranes and liquor ,
* Check vital signs (BP, pulse, temperature)
* Insert an indwelling catheter
* Resuscitate (IV drip RL or NS)

Are there signs of obstruction or feto-pelvic disproportion (FPD)?

 **NO YES**

Are uterine contractions strong?

**NO YES**

Monitor labour and perform vaginal exam after every 2 hours (max, 6 hours) after crossing action line.

**Is there satisfactory progress (**measured as cervical dilatation < 1cm/hr between these examinations)?

Augment labour with oxytocin.

**Is there satisfactory progress** **after 2 hours (**measured as cervical dilatation of < 1cm/hr)?

 **YES**

**NO YES YES NO**

Is 2nd stage attained and descent ≤ 2/5?

 **NO** **YES**

Continue monitoring. **Has spontaneous delivery occurred within 6 hours after crossing the action line?**

Perform vacuum extraction if spontaneous delivery seems to delay

 **NO**

1. Perform C/S as appropriate
* Obtain informed consent, blood for Hb, grouping and cross-matching
1. Perform craniotomy if fetus is dead in utero and cervix is dilated more than 8 cm

**NOTE:** Monitoring of labour should include assessment of fetal and maternal wellbeing and progress (FHR, BP, PR, temperature and cervical dilatation and descent of the fetal head). Intervene anytime when these signs are abnormal.

**OBSTRUCTED LABOUR**

This implies mechanical obstruction and failure of progressive descent of the presenting part, despite adequate uterine contractions.

**Symptoms and signs**

* Early obstruction
	+ Abnormal partographic findings (i.e. poor cervical dilatation and/or poor descent of the presenting part)
	+ Fetal distress may or may not be present
* Prolonged obstruction
	+ Maternal distress
	+ Dehydration
	+ Bandl’s ring (distension of lower segment and formation of a retraction ring)
	+ Uterine contractions may or may not be poor
	+ Fetal heart may be regular, irregular or absent
	+ Arrested fetal descent
	+ Swelling of the vulva
	+ Cervix may be fully dilated in case of obstruction at the outlet
	+ Excessive caput formation and severe moulding in cephalic presentation
	+ Offensive liquor if labour has been prolonged.
	+ Blood stained urine (haematuria)

**MANAGEMENT**

**DISPENSARY & HEALTH CENTRE**

* Resuscitation: infuse intravenous fluids – Ringer’s lactate or normal saline 1-2 L fast, using a large-bore cannula or needle
* Insert urethral catheter for continuous bladder drainage
* Obtain blood for haemoglobin, grouping and cross-matching if possible
* Administer ampicillin 1g IV stat, PLUS gentamycin 160 mg IM stat OR metronidazole 500 mg IV stat
* REFER to hospital urgently under escort of a nurse and with potential blood donors.

**HOSPITAL AND UPGRADED HEALTH CENTRE**

* Resuscitation: Infuse intravenous fluids – Ringer’s lactate or normal saline 1-2 L fast, using a large-bore cannula or needle
* Insert urethral catheter for continuous bladder drainage
* Obtain informed consent for CS
* Obtain blood for haemoglobin, grouping and cross-matching
* Test urine for ketones and treat with IV fluids if ketotic.
* Give broad-spectrum antibiotics to cover gram-positive as well as gram-negative organisms.

The following alternatives are suggested:

* + Ampicillin 1g IV stat, followed by 500 mg every 6 hours PLUS metronidazole 500mg IV every 8 hours until patient can take orally. Change to amoxillin 500 mg PLUS metronidazole 400 mg by mouth every 8 hours for 5 days or
	+ Ampicillin 1g IV stat, followed by 500mg every 6 hours PLUS gentamicin 160mg IM stat followed by 80mg every 12 hours PLUS metronidazole 500mg IV every 8 hours or
	+ Cephalosporins: cefuroxime OR ceftriaxone 1g once a day for 5 days
* Deliver the mother by CS
* Care of the baby, as appropriate
* Resuscitate the baby: respiration support
* Assist feeding,
* Give antibiotics
* If severe asphyxia, admit the baby in neonatal unit and perform close observation and manage as per neonatal guidelines.
* In case of prolonged obstruction or injured bladder or blood stained urine, leave the urethral catheter for at least 14 days.

**Obstructed labour with dead fetus**

* Confirmed intrauterine fetal death
* Perform craniotomy. Do NOT perform Caesarean section unless there is clear maternal indication!
* If prolonged obstructed labour; give antibiotics as above to prevent the woman from infection (puerperal pyrexia/sepsis).

**ANTEPARTUM HAEMORRHAGE**

Abnormal bleeding from the genital tract of a pregnant woman between 28 weeks and before delivery of the baby.

**PLACENTA PRAEVIA**

This refers to an abnormally implanted placenta in the lower segment of the uterus (over or very near the internal os).

**Symptoms**

* Painless vaginal bleeding of variable amounts, which is bright red
* Fetal movements are present.

**Signs**

* Shock if bleeding is severe (sweating, cold extremities, rapid pulse, low blood pressure)
* Non-tender, soft uterus
* Malpresentation
* Fetal distress if blood loss is severe
* High presenting part

**MANAGEMENT OF PLACENTA PRAEVIA**

**DISPENSARY & HEALTH CENTRE**

* Call for help. Urgently mobilize staff available
* Rapidly infuse intravenous fluids-Ringer’s lactate or normal saline using a large-bore cannula or needle. Give at least 2 L of fluid in the first hour
* Never perform a digital vaginal examination
* Obtain blood for haemoglobin, grouping and cross-matching
* Mobilize blood donors
* REFER to hospital with donors on IV therapy with an escort nurse

**HOSPITAL**

* If the bleeding is slight or has stopped, patient is not in shock, fetus is alive and premature:
	+ Do a gentle speculum examination to exclude local causes of bleeding in the cervix/vagina
	+ Keep the patient in hospital for bed rest until delivery
	+ Ensure blood donors or blood are available
	+ Correct anaemia. Give ferrous sulphate 200 mg every 8 hours, PLUS 5 mg folic acid once a day up to 6 weeks post delivery
	+ Do ultrasound to confirm the diagnosis
	+ If placenta praevia is confirmed and no episode of heavy vaginal bleeding, manage conservatively and do an elective CS
	+ If ultrasound shows no placenta praevia or ultrasound is not available, and no episode of heavy vaginal bleeding, continue with conservative management until 37 weeks of gestation and consider elective CS
	+ If bleeding is heavy do emergency CS regardless of the gestation age

**It is safer to deliver all grades of placenta praevia by CS except grade 1A where** **the placenta just dips into the lower segment and is interiorly located**

**ABRUPTIO PLACENTA**

This refers to premature separation of a normally implanted placenta.

**Symptoms**

* Abdominal pain
* Dark coloured vaginal bleeding of various amounts
* Loss of fetal movements

**Signs**

* Variable degree of shock (sweating, cold extremities, rapid pulse, low blood pressure)
* Pallor
* Board hard and tender uterus
* Fundal height may be greater than gestational age
* Difficult to feel fetal parts
* Fetal heart beats – usually not heard
* Blood stained liquor.

**MANAGEMENT OF ABRUPTIO PLACENTA**

**DISPENSARY & HEALTH CENTRE**

* Call for help. Urgently mobilize staff available
* Resuscitate patient with intravenous fluids -Ringer’s lactate or normal saline 3 L or more
* Insert urethral catheter and monitor input/output
* Administer diclofenac 75 mg intramuscular stat
* Give oxygen
* Obtain blood for haemoglobin, grouping and cross-matching
* Take vital signs-blood pressure, pulse rate, respiratory rate
* Urgently REFER the patient to hospital under escort of a nurse and potential blood donors

**HOSPITAL**

* Call for help. Urgently mobilize staff available
* Assess patient for signs of shock (sweating, cold extremities, rapid pulse, low blood pressure)
* If in shock, rapidly infuse intravenous fluids-Ringer’s lactate or normal saline using a large-bore cannula or needle. Give at least 2 L of fluid in the first hour. If not in shock give IV fluids accordingly
* Give analgesics-diclofenac 75 mg OR pethidine 100 mg IM stat
* Obtain blood for Hb, grouping and cross-matching
* Take vital signs – blood pressure, pulse rate, respiratory rate
* Perform bedside clotting time (a stable clot should be formed within 7 minutes) to exclude disseminated intravascular coagulopathy (DIC)
* Ensure availability of fresh blood (at least 4 units) and fresh frozen plasma (2 units)
* Do a gentle vaginal examination: If the cervix is favourable and no contraindications for vaginal delivery:
	+ Do artificial rupture of membranes (ARM)
	+ Augment labour with oxytocin as follows:
	+ Nulliparas: 5 IU in 500 mL of 5% dextrose or Ringer`s Lactate
	+ Multiparas: 1.25 IU in 500 mL of 5% dextrose or Ringer`s Lactate
* Insert indwelling urethral catheter
* Monitor IV input and urinary output closely
* Monitor labour using a partograph
* Monitor renal function if need be
* After delivery, estimate blood loss including the retroplacental clot. Continue with Oxytocin 20 IU in 500 ml 5% dextrose for 6 hours
* Give ferrous sulphate 200 mg every 8 hours, PLUS 5 mg folic acid once a day for six (6) weeks
* Perform an emergency CS when:
	+ Delivery is not imminent and the fetus is alive
	+ There is heavy bleeding threatening the mother’s life
	+ There is an indication for CS such as:
	+ A big baby
	+ An abnormal lie
	+ A previous scar
	+ A previously repaired genital fistula

**POSTPARTUM HAEMORRHAGE**

Postpartum haemorrhage (PPH) refers to blood loss of 500 mL or more from the genital tract after delivery of the newborn.

“Primary PPH” occurs within 24 hours of delivery

“Secondary PPH” occurs between 24 hours and six weeks after delivery.

**Remember that health care providers usually underestimate blood loss!**

***PRIMARY PPH***

**DISPENSARY**

* Call for help. Urgently mobilize all staff available.
* Inform the mother that urgent measures to stop the bleeding are needed.
* Perform immediately external compression of the abdominal aorta with simultaneous check of the pulse of the femoral artery in the inguinal area.
* If placenta is not delivered massage the uterus and apply slight cord traction.
* Give misoprostol 5 tablets of 200 micrograms in the rectum.
* If bleeding does not stop prepare for transport with health worker escort to nearest health centre or hospital. *If profuse bleeding apply aorta compression during transport.*

**HEALTH CENTRE**

* Call for help. Urgently mobilize all staff available.
* Inform the mother that urgent measures to stop the bleeding are needed.
* Perform immediately external compression of the abdominal aorta with simultaneous check of the pulse of the femoral artery in the inguinal area.
* If placenta is not delivered massage the uterus and apply slight cord traction to deliver the placenta.
* Inspect the vagina with broad specula using a headlamp to identify any visible mucosal lacerations or to verify source of bleeding from the uterine cavity.
* *Maintain abdominal aorta compression.*
* If bleeding comes from the cervix, ask an assistant to enter with the gloved hand in the vagina and through the cervix to reach the uterine cavity with the fingers to remove any placental remnants.
* Find any vein for intravenous infusion and give Ringer’s lactate or normal saline at max speed of drops/minute.
* If peripheral veins are collapsed and hard to find, perform a saphenous cut-down immediately anterior to the medial ankle with instruments in the “PPH box”. By this route you can infuse *one litre per minute* in critical conditions of hypovolaemia.
* Administer oxytocin 10 IU intravenously or misoprostol 1000 micrograms rectally.
* If bleeding continues, open the “PPH box” and prepare the condom tamponade using the sterile IV giving set.
* Using two broad vaginal specula grasp the tip of the IV giving set, fitted with the empty condom, by a long clamp and insert it through the cervical canal until the whole condom is located in the uterine cavity. Fill the condom with IV fluid until bleeding stops. Be prepared to fill the vagina with gauze to counteract expulsion of condom if cervix is wide.
* Ask the assistant to record vital signs.
* Control that vaginal bleeding has stopped. Empty the condom tamponade after 4-6 h and recheck that bleeding has stopped.
* Ask the assistant to insert a urethral catheter for continuous drainage.
* Ask the assistant to record vital signs every 15 minutes.
* If vital signs deteriorate, urgently refer patient to hospital with an escorting nurse and potential blood donors.
* Reinsert a new condom tamponade if needed and clamp the tubing during transport.
* *Maintain abdominal aorta compression during transport.*

**HOSPITAL**

* Call for help. Urgently mobilize all staff available.
* Inform the mother that urgent measures to stop the bleeding are needed.
* Perform immediately external compression of the abdominal aorta with simultaneous check of the pulse of the femoral artery in the inguinal area.
* If placenta is not delivered massage the uterus and apply slight cord traction to deliver the placenta.
* Inspect the vagina with broad specula using a headlamp to identify any visible mucosal lacerations or to verify source of bleeding from the uterine cavity.
* *Maintain abdominal aorta compression.*
* If bleeding comes from the cervix, ask an assistant to enter with the gloved hand in the vagina and through the cervix to reach the uterine cavity with the fingers to remove any placental remnants.
* Find any vein for intravenous infusion and give Ringer’s lactate or normal saline at max speed of drops/minute.
* If peripheral veins are collapsed and hard to find, perform a saphenous cut-down immediately anterior to the medial ankle with instruments in the “PPH box”. By this route you can infuse one litre in one minute in critical conditions of hypovolaemia.
* Administer oxytocin 10 IU intravenously or misoprostol 1000 micrograms rectally.
* If bleeding continues, open the “PPH box” and prepare the condom tamponade on the sterile IV giving set.
* Using two broad vaginal specula grasp the tip of the IV giving set, fitted with the empty condom, by a long clamp and insert it through the cervical canal until the whole condom is located in the uterine cavity. Fill the condom with IV fluid until bleeding stops. Be prepared to fill the vagina with gauze to counteract expulsion of condom if cervix is wide.
* Ask the assistant to record vital signs.
* Control that vaginal bleeding has stopped. Empty the condom tamponade after 4-6 h and recheck that bleeding has stopped.
* Ask the assistant to insert a urethral catheter for continuous drainage.
* Ask the assistant to record vital signs every 15 minutes.
* If bleeding continues or there are signs of internal bleeding, proceed with bedside clotting test. If no clotting in 7 minutes, give fresh whole blood 2 units and fresh frozen plasma 1 unit.
* *Maintain abdominal aorta compression during preparations prior to laparotomy.*
* Proceed with laparotomy.

**SUBSEQUENT CARE**

* Monitor vital signs: blood pressure, pulse rate, temperature, respiratory rate every hour until normal.
* Continue with IV fluids for at least 24 hours.
* Monitor input/output closely and record findings on an input/output chart.
* Recheck Hb and assess the need for blood transfusion.
* Give broad spectrum antibiotics such as: ampicillin 1g IV stat, then 500 mg every 6 hours for 24 hours then amoxillin 500 mg by mouth every 8 hours for 4 days plus metronidazole 500 mg IV every 8 hours for 24 hours and then 400mg by mouth every 8 hours for 4.
* Give ferrous sulphate 200 mg every 8 hours plus 5 mg folic acid once a day for 6 weeks post delivery

***SECONDARY PPH***

**MANAGEMENT**

**DISPENSARY & HEALTH CENTRE**

* If needed resuscitation with intravenous fluids-Ringer’s lactate or normal saline. run 2-4 L fast in the first 2 hours.
* Administer oxytocin 10 IU intramuscularly or misoprostol 1000 micrograms rectally.
* Check haemoglobin.
* Give broad spectrum antibiotics e.g. ampicillin 1g plus metronidazole 500mg IV.
* If cervix is open:
	+ Explore uterus by gloved fingers to remove clots, placental fragments and membranes.
	+ Observe for 24 hours.
	+ Continue with oral antibiotics (amoxillin 500 mg plus metronidazole 400 mg) every 8 hours for 7 days
* Give ferrous sulphate 200 mg every 8 hours, plus folic acid 5mg once a day for 6 weeks
* Refer urgently with escort of a nurse and potential blood donors if:
	+ Cervix is closed
	+ Bleeding does not stop
	+ Severely anaemic (Hb 7.0 g/dl or less)

**HOSPITAL**

* Resuscitation with intravenous fluids-Ringer’s lactate OR normal saline, 3 L or more
* Administer oxytocin 10 IU IV or misoprostol 1000 micrograms rectally.
* Check haemoglobin.
* Give broad spectrum antibiotics e.g. ampicillin 1g plus metronidazole 500mg IV.
* If cervix is open: evacuate the uterus with wide curette.
* If cervix is closed continue with antibiotics.
* Monitor vital signs – blood pressure, pulse rate and temperature every hour until normal then every 8 hours for 3 days.
* Monitor input/output closely and record findings on a chart.
* Give blood transfusion if clinically indicated.

Give ferrous sulphate 200 mg every 8 hours plus folic acid 5 mg once a day for 6 weeks.

**POSTPARTUM HAEMORRHAGE MANAGEMENT FLOW CHART**

* Shout for help and urgently mobilize staff available
* External compression of the abdominal aorta with inguinal pulse control
* Administer oxytocin 10 IU IM or misoprostol 1000 micrograms rectally
* Insert urethral catheter for continuous drainage
* Establish IV line or make saphenous cut-down if needed

Maintain abdominal aorta compression

Is placenta out?

NO

YES

Try to deliver by controlled cord tractions; if it fails:

* Perform manual removal of the placenta
* Maintain abdominal aorta compression
* Give oxytocin 20 IU IV
* Give broad spectrum antibiotics
* Observe for 24 hours
* If manual removal of placenta fails refer with running IV fluids
* If bleeding continues after failed removal, consider condom tamponade despite placental retention!

Perform digital evacuation of the uterus. Are there tissue tears in the vagina or perineum?

NO

YES

* Continue external aorta compression
* Insert condom tamponade, fill the condom, stop aorta compression; observe if bleeding stops
* Check vital signs every 15 min
* Remove condom tamponade after 4-6 hours

Suture perineal or vaginal tears

BLEEDING CONTROLLED?

NO

BLEEDING CONTROLLED?

* Reinsert new condom tamponade with clamped tubing during referral
* Refer with IV drip and external aorta compression by escort if needed
* Check vital signs every 15 min

YES

NO

YES

* Monitor patient and continue oxytocin
* Refer for blood transfusion if very pale

Monitor patient

At Hospital:

* Continue resuscitation with IV R/L or N/S, insert urethral catheter
* Give blood transfusion if very pale
* Identify cause of bleeding and manage appropriately

**ABORTION**

Abortion refers to loss or termination of pregnancy before 22 completed weeks of gestation

**THREATENING ABORTION**

Vaginal bleeding before 22 completed weeks of gestation with a closed cervix

**Symptoms**

* Minimal or no lower abdominal pain or cramps
* Slight to moderate vaginal bleeding
* The bleeding is usually not accompanied with clot

**Signs**

* Stable general condition
* Fundal height corresponds to gestational age
* Uterus softer than normal and is non-tender
* Closed cervix

**MANAGEMENT OF THREATENING ABORTION**

**DISPENSARY & HEALTH CENTRE**

* Advice the woman to have adequate bed rest at home
* Advice the woman to avoid strenuous activities and sexual intercourse until delivery
* If gestational age greater than 16 weeks, give salbutamol 4mg by mouth every 8 hours for 5 days
* Schedule a follow-up after 5 days
* Advice the woman to come immediately if:
	+ Bleeding becomes heavy
	+ She experiences offensive discharge
	+ She has severe abdominal pain
* REFER to hospital if:
	+ Bleeding recurs
	+ She has fever
	+ She experiences offensive discharge
	+ She has severe abdominal pain

**HOSPITAL**

* Advice the woman to have adequate bed rest at home
* If gestational age greater than 16 weeks give salbutamol 4 mg by mouth every 8 hours for 5 days
* Advise the woman to avoid strenuous activities and sexual intercourse until delivery
* Advice mother to come immediately if bleeding becomes heavy, when she experiences offensive discharge or severe abdominal pain
* Do ultra sound to confirm fetal viability, if possible
* Admit the patient and manage appropriately if:
	+ The fetus is dead
	+ Bleeding recurs
	+ She has fever
	+ She has foul smelling vaginal discharge
	+ She has severe abdominal pain
	+ Unable to rest at home

**INEVITABLE ABORTION**

This refers to a stage in the abortion process when it is not possible for the pregnancy to continue. The cervix is dilated but all or parts the products of conception are in situ.

**Symptoms**

* Moderate or severe vaginal bleeding
* Severe abdominal pains
* Significant draining of liquor

**Signs**

* The cervix is dilated with evidence of imminent expulsion of products of conception or ruptured membranes
* Fundal height corresponds to gestational age
* Presence of contractions

**MANAGEMENT OF INEVITABLE ABORTION**

**DISPENSARY & HEALTH CENTRE**

* Resuscitation with intravenous fluids-Ringer’s lactate or normal saline 2 Lts
* If skilled personnel and equipment for manual vacuum aspiration (MVA) are available – augment the process of abortion by administering oxytocin 20 IU in 500 mL RL. at 40 drops per minute depending on the gestational age and parity of the patient
* If after induction some products of conception remain in the uterus, manage as incomplete abortion, if all product of conception expelled manage as complete abortion
* If MVA is not possible REFER to hospital
* If the bleeding is severe REFER to hospital with potential blood donors

**HOSPITAL**

* Resuscitate with intravenous fluids- Ringer’s lactate or normal saline 2 Lts if this was not done before
* Obtain blood for haemoglobin , grouping and cross-matching
* Evacuate uterus by manual vacuum aspiration if the gestation is less than 12 weeks
* If the gestation is 12 weeks or more, augment using oxytocin 20-40 IU in 1Lt IV fluids (RL or NS) at 40 drops per minute depending on the gestational age and parity of the patient
* If after induction some products of conception remain in the uterus, manage as incomplete abortion

**INCOMPLETE ABORTION**

Some of the products of conception have been expelled from the uterine cavity and there is persistent lower abdominal pain, continued bleeding and open cervix.

**Symptoms**

* Cramping/lower abdominal pain
* Vaginal bleeding accompanied with clots
* Partial expulsion of products of conception

**Signs**

* Slight to profuse vaginal bleeding or clots from the cervical os
* Uterus smaller than dates
* The cervix is dilated and products of conception may be felt in the cervix on vaginal examination

**MANAGEMENT OF INCOMPLETE ABORTION**

**DISPENSARY & HEALTH CENTRE**

* Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline 2Lts
* Perform digital evacuation of products of conception
* If skilled personnel and equipment for manual vacuum aspiration are available – perform evacuation if pregnancy is less than 12 weeks and observe for 4-6 hours
* Administer Oxytocin 10IU IM stat or ergometrine 0.5mg IM stat or misoprostol 600 microgram sublingually stat
* Give amoxicillin 500mg PLUS metronidazole 400mg by mouth every 8 hours for 5 days
* Counsel for family planning and provide contraceptives
* REFER patient with the escort of a nurse and potential blood donors if:
	+ MVA is not possible
	+ The gestation is more than 12 weeks
	+ Severely pale

**HOSPITAL**

* Resuscitate with intravenous fluids-Ringer’s lactate or normal saline 2 L if this has not been done
* Obtain blood for haemoglobin, grouping and cross-matching
* Do vaginal examination and evacuate the uterus digitally
* If pregnancy is less than or equal to 12 weeks:

- Perform manual vacuum aspiration. Evacuation by sharp curettage should only be done if MVA is not available

* If pregnancy is more than 12 weeks:

- Evacuate in theatre using ovum forceps and sharp curette

* Administer Oxytocin 10 IU IM or ergometrine 0.5mg IM stat or Misoprostol 600 microgram sublingually stat
* Give antibiotics: Amoxicillin capsules 500 mg orally every 8 hours PLUS metronidazole tablets 400 mg every 8 hours for 5 days
* Give analgesics: paracetamol 1 g by mouth every 8 hours for 3 days
* Give blood transfusion if indicated
* Counsel for family planning and provide contraceptives

**COMPLETE ABORTION**

Products of conception are completely expelled.

**Symptoms**

* History of expulsion of products of conception
* Minimal or no bleeding

**Signs**

* Uterus smaller than dates and well contracted
* Cervix may or may not be completely closed

**MANAGEMENT OF COMPLETE ABORTION**

**DISPENSARY & HEALTH CENTRE**

* If patient is stable:
	+ Give oral antibiotics: Amoxicillin 500 mg PLUS metronidazole 400 mg by mouth every 8 hours for 5 days
	+ Give ferrous sulphate 200 mg every 8 hours, PLUS folic acid 5 mg once a day for 6 weeks
	+ Counsel for family planning and provide contraceptives
* If patient is in shock
	+ Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline 3 Lts or more
	+ Obtain blood for haemoglobin, grouping and cross-matching if possible
	+ REFER patient to hospital with potential blood donors

**HOSPITAL**

* If patient is stable:
	+ Give oral antibiotics: amoxicillin 500 mg PLUS metronidazole 400 mg by mouth every 8 hours for 5 days
	+ Counsel for family planning and provide contraceptives
* If patient is in shock:
	+ Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline, 3 L or more
	+ Check haemoglobin
	+ Give blood transfusion if necessary
	+ Give oral antibiotics: Amoxicillin 500 mg PLUS metronidazole 400 mg by mouth every 8 hours for 5 days
* Give ferrous sulphate 200 mg every 8 hours, PLUS folic acid 5 mg once a day for 6 weeks
* Counsel for family planning and provide contraceptives on discharge

**An abortion complicated by infection**

**Symptoms**

* Abdominal pain following history of abortion
* Fever may be present

**Signs**

* The woman may be in poor general condition (sick-looking, in shock, febrile or jaundiced)
* Tender uterus
* Offensive vaginal discharge or bleeding
* Cervix is usually soft and dilated

**MANAGEMENT OF SEPTIC ABORTION**

**DISPENSARY & HEALTH CENTRE**

* Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline 2Lts
* Obtain blood for haemoglobin, grouping and cross-matching if possible
* Give broad-spectrum antibiotics: Ampicillin 1g IV PLUS metronidazole 500mg IV PLUS gentamycin 80mg IM stat
* REFER patient to hospital with potential blood donors

**HOSPITAL**

* Resuscitate with intravenous fluids-Ringer’s lactate or normal saline , 2 L or more
* Insert urethral catheter
* Monitor input and output
* Obtain blood for Hb, grouping and cross-matching
* Give antibiotics: Ampicillin 1g IV stat followed by 500 mg every 6 hours PLUS gentamycin 80 mg IM every 12 hours PLUS metronidazole 500 mg IV every 8 hours until patient can take orally-change to amoxicillin 500 mg and metronidazole 400 mg by mouth every 8 hours and Gentamycin 80 mg IM 12 hourly for 5 days
* If no response with the above antibiotics within 3 days (persisting fever, high pulse, tender abdomen) change to cephalosporins such as cefuroxime OR ceftriaxone 1g once a day for 5 days
* Evacuate the uterus with sharp wide curette after initiating antibiotics and the patient is stable
* Give ferrous sulphate 200 mg every 8 hours, PLUS 5mg folic acid once a day for six weeks
* Counsel for family planning and provide contraceptives on discharge

**Presence of generalized peritonitis or pelvic abscess requires urgent laparotomy.**

**RUPTURED ECTOPIC PREGNANCY**

Ectopic pregnancy is pregnancy which is implanted outside the uterine cavity, commonly in the fallopian tubes. Bleeding occurs when the site of implantation ruptures or tubal abortion occurs.

**Symptoms**

* A short period of amenorrhoea of about 6-8 weeks, but this may be absent in some patients
* Fainting attacks
* Severe generalized abdominal pain, often radiating to the shoulder
* There may be a history of infertility
* Bleeding if present may be intermittent and chocolate brown

**Signs**

* Pallor (moderate to severe)
* Shock: low or unrecordable blood pressure, sweating, cold skin, fast pulse (more than 100 beats per minute)
* Tender distended abdomen with guarding and rebound tenderness
* Signs of intra-peritoneal fluid may be present (shifting dullness and fluid thrill)
* Tender cervix
* Bulging pouch of Douglas

**If there are clear symptoms and signs of ectopic pregnancy:**

**Do not perform digital vaginal examination**

**MANAGEMENT OF RUPTURED ECTOPIC PREGNANCY**

**DISPENSARY & HEALTH CENTRE**

* Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline 3 L or more using a large-bore cannula or needle
* Obtain blood for Hb, grouping and cross-matching if possible
* Administer diclofenac 75 mg IV stat
* Insert urethral catheter
* Urgently REFER to hospital with IV drip, nurse escort and with potential blood donors

**HOSPITAL**

* Resuscitate with intravenous fluids-Ringer’s lactate OR normal saline 3 Lts or more using a wide-bore cannula or needle
* Obtain blood for haemoglobin, grouping and cross-matching if not yet done
* Perform urgent laparotomy:
	+ Arrest bleeding
	+ Perform salpingectomy of the affected tube
	+ Conserve the ovaries as much as possible
	+ Start transfusion after arresting the haemorrhage
	+ Auto transfusion if blood found at laparotomy is suitable

 i) The gestation age is less than 12 weeks

 ii) The blood is not mixed with clots

iii) The blood not foul smelling

* + If auto transfusion is not possible, give cross-matched blood as necessary
* Give analgesics: pethidine 100 mg IM every 8 hours for 24 hours
* Monitor vital signs-blood pressure, pulse, respiration every half an hour for the first 4 hours then every 4 hours until patient is stable

Monitor input/output closely and record findings on an input/output chart.

**PUERPERAL SEPSIS**

Infection of the genital tract at any time between delivery and the 42nd day following delivery

**Symptoms**

* Fever
* Pelvic pain
* Abnormal lochia (purulent, foul smelling lochia)
* Vaginal bleeding may be present

**Signs**

* Persisting fever
* Tachycardia
* Tender lower abdomen with or without abdominal distension
* Sub-involuted uterus
* Abnormal lochia on vaginal examination

**MANAGEMENT OF PUERPERAL SEPSIS**

**DISPENSARY & HEALTH CENTRE**

* Admit patient if possible
* Rehydrate the patient by plenty of fluids, orally or intravenously as appropriate
* Give paracetamol 1g by mouth every 8 hours for 3 days
* Cold shower or tepid sponging to lower temperature if high
* Give a broad-spectrum antibiotic (e.g. ampicillin 1g IV stat and then amoxicillin 500 mg by mouth every 8 hours for 7 days PLUS metronidazole 400 mg by mouth every 8 hours PLUS Gentamycin 80 mg 12 hourly for 5 days
* Counsel for family planning and provide contraceptives
* REFER if no response after treating the patient for three days

**HOSPITAL**

* Admit the patient
* Rehydrate the patient by giving plenty of fluids, orally as appropriate
* Check haemoglobin
* Give paracetamol 1g by mouth every 8 hours for 3 days
* Cold shower or tepid sponging to lower the temperature if high
* Give blood transfusion if patient has severe anaemia (Hb 7g/dL or less) with signs of heart failure i.e. elevated jugular venous pressure, basal crepitations and enlarged, tender liver
* Administer a broad-spectrum antibiotic – ampicillin 1g IV stat, then 500 mg every 6 hours for 48 hours, followed by amoxicillin 500 mg by mouth every 8 hours for 5 days PLUS gentamicin 80 mg IM every 12 hours for 7 days, PLUS metronidazole 500 mg IV every 8 hours for 48 hours, then 400 mg by mouth every 8 hours for 5 days OR Cephalosporins: cefuroxime OR ceftriaxone 1g IV once a day for 5 days)
* Perform urgent laparotomy in case of generalized peritonitis or pelvic abscess.

**BIRTH ASPHYXIA**

Birth asphyxia is defined as a failure to establish spontaneous, regular respiration within a minute of birth. It is a neonatal emergency as it may lead to hypoxia and possible brain damage or death if not correctly managed.

**Signs**

* Irregular, laboured breathing
* Weak or no cry
* Pallor or cyanosis
* Muscle weakness or limp (hypotonia)
* Slow or irregular heart beat below 100 beats/minute (bradycardia)
* A poor response to stimulation
* Apgar score 6 or less at 5 minutes

**MANAGEMENT OF ASPHYXIATED NEWBORNS**

**DISPENSARY & HEALTH CENTRE**

* As soon as the face is seen during second stage, wipe the mouth and nose
* Immediately after birth do the following:
	+ If meconium is present , clear the airway
	+ Dry the baby from head to toe
	+ Quickly wrap or cover the newborn to provide warmth
	+ Assess crying
* If not crying
* Position the baby with the head inclined down with the neck slightly extended to open the airway
* Clear the airway by suctioning the mouth and nose
* Stimulate the baby by rubbing the back
* Assess breathing
* If not breathing
* Cut the umbilical cord
	+ Place the newborn on a clean warm, firm surface
* Place the mask on the newborns face so that it covers the chin, mouth and nose, forming a seal between mask and the face
* Ventilate at the rate of 40 breaths/minute for 1 minute and then stop and assess breathing
* If not breathing
* Call for help
* Improve ventilation by clearing secretions, checking position of the head and repositioning mask so that it covers the chin, mouth and nose, forming a seal between mask and the face.
* If not breathing check the heart rate by feeling the umbilical artery pulsation or listening to the heart using a stethoscope
* If normal heart rate (>100/minute) continue ventilation
* If heart rate slow (<100/minute) continue ventilation and start advanced care:
* Stimulate the heart using the index and middle fingers; do the compressions by counting one and two and three and four and five then ventilate
* Repeat this procedure until the heart beat is >100 beats/minute
* If there are no signs of life in 10 minutes or no spontaneous respiration after 30 minutes of ventilation, stop resuscitating. The baby is a stillborn. Provide emotional support to the mother and the family
* REFER to hospital slow breathers as well as newborns with severe sub-costal in-drawing (laboured breathing) while assisting ventilation
* Transfer the resuscitated newborn to a special baby care unit/room for further observation and management if necessary. If a separate room is not available for newborn care, nurse with the mother in Kangaroo position

**HOSPITAL**

* As soon as the face is seen during second stage, wipe the mouth and nose
* Immediately after birth do the following:
	+ If meconium is present , clear the airway
	+ Dry the baby from head to toe
	+ Quickly wrap or cover the newborn to provide warmth
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* If not breathing
* Call for help
* Improve ventilation by clearing secretions, checking position of the head and repositioning mask so that it covers the chin, mouth and nose, forming a seal between mask and the face.
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* Repeat this procedure until the heart beat is >100 beats/minute
* If there are no signs of life in 10 minutes or no spontaneous respiration after 30 minutes of ventilation, stop resuscitating. The baby is a stillborn. Provide emotional support to the mother and the family
* Transfer the resuscitated newborn to a special baby care unit/room for further observation and management if necessary. If a separate room is not available for newborn care, nurse with the mother in Kangaroo position
* Prevent heat loss by placing the baby skin-to-skin on the mother’s chest, covering the baby’s body and head or placing the baby under a radiant heater
* Ensure feeding of the newborn as follows:
	+ If the baby is pink in colour and has sucking reflex, encourage the mother to begin breastfeeding
	+ If the baby has difficulty in breathing and/or poor sucking reflex, put a nasogastric tube for feeding
	+ If the baby has no sucking reflex and/or convulsions, insert an IV line and give 10% dextrose 40-60 mL/kg body weight
* Give antibiotics: Ampiclox 50 mg/kg body weight IV per dose every 12 hours PLUS gentamicin 5 mg/kg body weight IM as a single daily dose for 5 days
* Monitor the following during the next 24 hours:
	+ Convulsions
	+ Pattern of breathing
	+ Urine output
	+ Temperature

**NEWBORN RESUSCITATION FLOW CHART**

Prepare for birth

* Identify a helper and review the emergency plan
* Prepare the area for delivery
* Hand washing
* Prepare an area for ventilation and check the equipment

Approximate Time

Birth

60

S

E

C

O

N

D

S

No

* If meconium, clear airway
* Dry thoroughly
* Assess if crying, if not crying
* Clear airway, stimulate and assess breathing
* If not breathing cut cord and ventilate with a bag and mask

60

S

E

C

O

N

D

S

* Reassess breathing, if not breathing
* Call for help and use strategies to improve ventilation
* Reassess breathing and if not breathing check heart rate
* If heart rate slow, continue ventilation and consider advanced care

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* Provide positive pressure ventilation
* Endotracheal intubation may be considered
* Administer chest compression
* Administer ampiclox PLUS gentamicin
* If no heart rate or breathing after 10 minutes stop resuscitation.

**GUIDELINES FOR MALAWI**

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|  **REPRODUCTIVE HEALTH UNIT MW Malawi Logo OBSTETRIC MANAGEMENT PROTOCOLS****HEALTH CENTRE** |
| **PRE-ECLAMPSIA AND ECLAMPSIA** |
|  **PRE-ECLAMPSIA** | **ECLAMPSIA** | **MAGNESIUM SULPHATE** | **PREVIOUS CAESERIAN SECTION** |
| **Definition:**Preeclampsia is a complication of pregnancy characterized by elevated blood pressure plus proteinuria or oedema or both. Hypertension is diagnosed when blood pressure is (BP) 140/90 mmHg or higher, on two occasions at least four hours apart or elevated systolic BP >30 mmHg, or diastolic BP >15 mmHg from levels recorded in early pregnancy.Mild hypertension is 140-150mm Hg/90-100mm Hg.Moderate hypertension is 150-160mm Hg/100-110mm HgMANAGEMENT OF MILD - MODERATE(≥140mm Hg/90mm Hg – ≤160mm Hg/110mm Hg)* Bed rest and close observation
* Induce and deliver at 38 weeks gestation
* If < 34 weeks, refer to hospital
* Do not give anticonvulsants, sedatives, tranquilizers or diuretics
* Monitor B/P, urine for protein, foetal condition - Review once a week
* Counsel on danger signs of severe pre-eclampsia or eclampsia
* If diastolic pressure rises or proteinuria worsens, refer to hospital
 | SEVERE (≥ 160 mm Hg/110 mm Hg) | **Diagnosis**The following symptoms and signs are typically present:* Convulsions in the absence of other causes
* Diastolic BP 90 mm Hg or more after 20 weeks gestation
* Proteinuria 2+ or more

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| A small proportion of women with eclampsia have normal BP or no proteinuria. Treat all women with convulsions as if they have eclampsia until another diagnosis is confirmed. |

**Differential diagnoses:** Epilepsy, cerebral malaria, meningitis, encephalitis, hypoglycaemia. General management* Place the woman on her side to reduce risk of aspiration.
* Keep airway clear.
* Protect the woman from injury.
* Put IV line of normal saline or Ringer's lactate to run at 1L/8hrs
* Give diazepam 10mg IV slowly over 2 minutes
* Insert urinary catheter and monitor fluid balance
* Refer to hospital as soon as possible with midwife
 | **Loading dose*** 4 g (20ml of 20% solution in 200 ml of normal saline over 10 minutes plus 5 g of 50% solution in each buttock deep IM diluted with 2% (1ml) lignocaine stat dose only.
 | * Start antenatal clinic during first trimester
* Check Hb

and Correct anaemia* Refer to hospital at 36 weeks for assessment.
 |
| * Put up an IV line normal saline to run at 8 hours per litre
* Give magnesium sulphate loading dose (4g (20ml of 20% solution in 200 ml of normal saline over 10 minutes plus 5g 10ml of 50% solution in each buttock deep IM diluted with 2% (1ml) lignocaine)
* If blood pressure still >160/110Give hydralazine 5mg IV slowly over 5 min.
* Repeat every 20 minutes until diastolic pressure below110 mm Hg.
* Then give hydralazine 10mg IM every 2 hours to maintain BP to below 110 mmHg
* Catheterize and monitor input and output.
* Monitor B/P every 15 min until B/P is lowered, then hourly.
* Monitor fetal heart half hourly
* Refer to hospital labour ward and the midwife to escort the woman
 |

**Management of labour**

* Determine mode of delivery after stabilizing the patient
* Vaginal delivery is the preferred method of choice
* Pre eclamptic women tend to labour quickly
* [allow assisted delivery (vacuum extraction or forceps) if labour is progressing quickly] to shorten the second stage
* deliver by c/s if clinically indicated, preferably by regional anaesthesia
* if there is immediate threat to mother or baby, C/S under general anesthesia may be necessary
* Delivery must occur within 12 hours of the onset of convulsions.
* Give oxytocin in 3rd stage (never give ergometrine/syntometrine).

**Postpartum care**

* Maintain anticonvulsive therapy for 24 hours after delivery or the last convulsion, whichever occurs last
* Continue antihypertensive therapy as long as diastolic pressure is 110 mm Hg or more
* Continue to monitor urinary output and fluid intake
* Never leave the patient unattended.

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| **REPRODUCTIVE HEALTH UNIT MW Malawi Logo OBSTETRIC MANAGEMENT PROTOCOLS****DISTRICT/CENTRAL HOSPITAL** |
|  | **PRE-ECLAMPSIA AND ECLAMPSIA** |  |  |
| **PRE-ECLAMPSIA** | **ECLAMPSIA** | **MAGNESIUM SULPHATE** | **PREVIOUS CAESEREAN SECTION** |
| **Definition:**Preeclampsia is a complication of pregnancy characterized by elevated blood pressure plus proteinuria or oedema or both. Hypertension is diagnosed when blood pressure is (BP) 140/90 mmHg or higher, on two occasions at least four hours apart or elevated systolic BP >30 mmHg, or diastolic BP >15 mmHg from levels recorded in early pregnancy.Mild hypertension is 140-150mm Hg/90-100mm Hg.Moderate hypertension is 150-160mm Hg/100-110mm Hg*SEVERE (B/P 160/110) or over, and proteinuria** Admit to hospital labour ward
* Put up an IV line normal saline
* Give magnesium sulphate:
	+ Loading dose: 4 g of 20% solution in 200 ml of normal saline over 10 minutes plus 5 g of 50% solution in each buttock deep IM diluted with 2% (1ml) lignocaine
* Give hydralazine 5mg IV slowly over 5 min until diastolic pressure is between 90 and 100 mm Hg. Repeat hourly as needed or give hydralazine 10mg IM every 2 hours as needed.
* Give maintenance antihypertensive drug(s)
* DO fbc, lIVER FUNCTION TESTS, ELECTROLYTES
* Catheterize
* Monitor B/P every 5 min until B/P is lowered, then hourly.
* Monitor fetal heart half hourly
* Check urine for increasing protein
* Delivery should occur within 24 hrs. of the onset of symptoms (if greater than 34 weeks
* Conduct Active management of 3rd stage of labour by giving Oxytocin 10 IU IM within 1 minute of delivery of the baby and CCT

If less than 34 weeks give steroids and deliver after 24 hrs. after last dose of steroids. | **Diagnosis**The following symptoms and signs are typically present:* Convulsions
* Diastolic BP 90 mm Hg or more after 20 weeks gestation

|  |
| --- |
| Proteinuria 2+ or moreA small proportion of women with eclampsia have normal BP or no proteinuria Treat all women with convulsions as if they have eclampsia until another diagnosis is confirmed.  |

**Differential diagnoses:** Epilepsy, cerebral malaria, meningitis, encephalitis, hypoglycaemia. General management* Admit in a quiet room of the hospital
* Place the woman on her side to reduce risk of aspiration.
* Keep airway clear.
* Protect the woman from injury.
* Put IV line of normal saline or Ringer's lactate
* Insert urinary catheter.

**Control convulsions*** Give magnesium sulphate according to protocol to control convulsions.
* If convulsions recur before maintenance dose of magnesium sulphate is due control with valium.
	+ Before repeating magnesium sulphate administration, ensure that:
		- Respiration rate is at least 16 per minute
		- Patellar reflexes are present
		- Urinary output is at least 30 mL per hour
	+ In case of respiratory arrest:
		- Assist ventilation (mask and bag, anaesthesia apparatus, intubation)
		- Administer calcium gluconate 1 g (10 ML of 10% solution) IV slowly to antagonize the effects of magnesium sulphate until respiration begins.

**If magnesium sulphate is not available give:*** Loading dose of diazepam 10mg IV slowly over 2 minutes
* Maintenance dose of 40mg diazepam in 500mls of normal saline or Ringer's lactate
* Do not give more than 100mg in 24 hours
* Check Hob, platelet count and Liver function test,

Control hypertension* Give antihypertensive
	+ Hydralazine 5mg IV slowly over 5 minutes or nefidipine 10 mg sublingually every 4 hours until diastolic is 110 mm Hg
* Monitor B/P ¼ hourly until stable then every hour

*Maintain fluid balance** Monitor & record intake and output restrict fluid intake to 1 little per 12 hours
	+ Give IV fluids (NS or RL) slowly:1 L in 6-8 hours (40-50 drops/minute)
	+ Insert an indwelling urethral catheter for continuous bladder drainage
	+ Monitor input/output closely and record findings on an input/output chart

Avoid diuretics except in cases of overt pulmonary oedema (oedema of the lungs).Prophylactic antibiotics:* Administer IV ampicillin 500 mg every 6 hours until patient is able to swallow, followed by amoxicillin 500 mg by mouth every 6 hours for a total of 7 days.

Management of labour* Determine mode of delivery after stabilizing the patient [allow assisted delivery (vacuum extraction or forceps) if labour is progressing quickly] or deliver by c/s under general anaesthesia. **Vaginal delivery is the safest mode of delivery.** **Delivery must occur within 12 hours of the onset of convulsions.**
* Give oxytocin in 3rd stage (never give ergometrine/syntometrine).
* Consider augmentation of labour with oxytocin in case a woman is in labour but does not have adequate uterine contractions

**Eclampsia before labour*** Resuscitate the patient with Ringer’s lactate 1-1.5 L
* Induce labour if cervix is ripe and there are no contraindications to vaginal delivery Otherwise, perform a Caesarean Section (C/S) if there is foetal distress or a maternal indication. **Resuscitate the patient before C/S**

**Pain relief in labour*** Administer small but frequent doses of pethidine 25 mg IV, every 2-4 hours to relieve pain

**Eclampsia during the second stage of labour*** Assist delivery by a low cavity vacuum extraction

**Active management of third stage of labour**1. Give Oxytocin10 IU IM**)**2. Apply controlled cord traction while applying counter traction on the uterus.3. Massage the uterus following delivery of placenta and palpation of uterus every 15 minutes for 2 hPostpartum care* Fits can occur after delivery therefore maintain anticonvulsive therapy for 24 hours after delivery or the last convulsion, whichever occurs last.
* If a previously non-eclamptic patient has fits after delivery, give the full magnesium sulphate treatment (bolus dose and maintenance treatment as above) for 24 hours after the last fit.
* Continue antihypertensive therapy as long as diastolic pressure is 110 mm Hg or more
* Continue to monitor urinary output
* Keep the patient in the hospital until BP is stabilized
* Continue with aldomet 250-500 mg by mouth every 8 hours until BP is back to normal.

***Never leave the patient unattended.*** | **Loading dose*** 4 g of 20% solution in 200 ml of normal saline over 10 minutes plus 5 g of 50% solution in each buttock deep IM

**Maintenance dose*** 5 g of 50% solution every 4 hours till delivery or after the last convulsion which ever was the last.
* Monitor the patient closely.

**Before repeat administration, ensure that:*** Respiratory rate is at least 16 per minute
* Patellar reflex present
* Urinary output is at least 30mls per hour.

WITHHOLD OR DELAY DRUG IF:* Respiratory rate falls below 16 per minute
* Patellar reflex are absent
* Urinary output falls below 30mls per hour over preceding 4 hours.

**Keep antidote ready**In case of respiratory arrest:Assist ventilation (mask and bag, anaesthesia apparatus, intubation). Give calcium gluconate 1g (10ml if 10% solution) IV slowly until respiration begins to antagonize the effects of magnesium sulphate.  | Admit at hospital at 37 weeks (if coming from far)Make an assessment:* find out why the caesarean section was done
* check the presentation and size of the baby
* take blood samples for haemoglobin, blood group and x-matching

Deliver by caesarean section if:* more than one previous caesarean section or a classical scar by elective C/S at 38 weeks
* malpresentation (if persisting to term)
* history of previous obstructed labour
* NO *other contraindications* to vaginal delivery

Trial of labour is only allowed with:* a cephalic presentation
* a normal size baby (estimated weight less than 3500 g)
* a normal lower segment scar
* a normal pelvis
* **No contraindications** to vaginal delivery

Management of the first stage of labour:* evaluate the progress of labour carefully with the labour graph
* if curve of cervical dilatation runs to the right of the alert line, consider artificial rupture of membranes (ARM) and repeat vaginal examination after 4 hours
* intervene if there is any sign of maternal or fetal distress

Caesarean section during first stage of labour is indicated if:curve of cervical dilatation runs to the right of the alert line after 3 hours of ARM or cervical dilatation less than 1cm per 2 hours * signs of impending rupture of uterus (fetal distress, vaginal bleeding, persistent abdominal pain, supra-pubic tenderness, hypertonic uterus, shock)

Management of the third stage of labour:* Oxytocin or ergometrine after delivery of the baby

Observe for at least two hours in labour ward for signs of bleeding or shock, recording BP, pulse and respirations every 15 minutes. |

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| **REPRODUCTIVE HEALTH UNIT**MW Malawi Logo**OBSTETRIC MANAGEMENT PROTOCOLS**HEALTH CENTRE |
| **MALARIA** |  |
| **MALARIA IN PREGNANCY** | ANAEMIA IN PREGNANCY |
| **Clinical Features of malaria in pregnancy**As in non-pregnant adults, malaria in pregnancy may manifest as uncomplicated (severe) disease. The clinical manifestations of malaria in pregnancy are similar to those in adults (fever, feeling cold, shivering, headache, loss of appetite, body malaise, abdominal pains, joint pain, nausea, vomiting, diarrhoeaHowever, pregnant women are at particular risk of hypoglycaemia (especially as a consequence of treatment with quinine), anaemia, and immediately after delivery (3rd stage of labour), pulmonary oedema.**Intermittent Presumptive Treatment of malaria in pregnancy*** Intermittent Presumptive Treatment (IPT) of malaria in pregnancy is one of the major malaria preventive strategies in Malawi. At least two doses of SP, 3 tablets for each dose, are given after the first trimester, at least four weeks apart, under direct observation by health personnel.
* Although IPT reduces the risk of malaria in pregnancy, breakthrough clinical malaria episodes can occur in patients on IPT, as well as in those receiving partial or no IPT.

**Management of malaria in pregnancy****Treatment of uncomplicated malaria in pregnancy****Uncomplicated malaria****This a malaria which presents with symptoms of mild or moderate illness** **Investigations*** Take a blood film to test for malaria parasites
* Check for Hb and treat anaemia accordingly.
* Management of malaria in pregnancy includes: treatment of malaria, management of complications of the malaria and management of labour.
* Treatment should be initiated as early as possible. Oral quinine is safe and is the first line treatment in the first trimester of pregnancy. The dose is 10mg salt/kg body weight, administered 8-hourly for 7 days. Remember that pregnant women are susceptible to hypoglycaemia when taking quinine. In 2nd and 3rd trimester LA should be used in the treatment of uncomplicated malaria.
* Give paracetamol 1 g by mouth every 8 hours for 3 days

**Management of Severe Malaria in Pregnancy**Definition:Malaria complicated by: anaemia, hypoglycaemia, unconsciousness, confusion, seizures, pulmonary oedema, renal failure and haematuria.**Investigations** Blood film for MPs, serum glucose, full blood count, and urinalysis If unconscious, LP may be necessaryManagement of complications: These are the same as for any adult. Of special importance in pregnancy is:* Pulmonary oedema: careful fluid management, diuretics if necessary, oxygen if possible, nurse in semi-upright position.
* Hypoglycaemia: consider this complication if there is altered consciousness or seizure.
* Anaemia: be prepared for blood transfusion, especially if the patient is close to parturition. Otherwise, indications for blood transfusion are the same as in others
* Renal failure: a particular danger if there has been eclampsia or shock. Identification and management as above.
* Shock: consider concealed haemorrhage, continuing blood loss, and septicaemia. Pay special attention to fluid needs. Culture blood if possible. Administer antibiotic tics in addition to quinine.

**Severe malaria during pregnancy:*** In the management of severe malaria in pregnancy a special concern must be paid to: anaemia, hypoglycaemia and pulmonary oedema
* Quinine is the treatment of choice for severe malaria all through pregnancy

The dose is 20mg salt/kg body weight loading dose, followed by 10mg salt/kg 12 hourly for 7 days. Start with IV Quinine in 10% glucose infusion or 5% glucose in normal saline; if for some reason Quinine cannot be given by infusion:* Give 10mg/kg dosage by IM injection and refer immediately.

Make sure you give 10% glucose concentration or one bottle of 5% glucose before administration of Quinine; be careful not to induce pulmonary oedema. Random blood sugar should be done before and after Quinine administration* Shift to oral quinine (during 1st trimester) and LA (in 2nd and 3rd trimester) as soon as the patient can take orally
* Give paracetamol 1 g by mouth every 8 hours for 3 days
* Insert urethral catheter for continuous drainage and record input/output
* Monitor vital signs (blood pressure, pulse rate, respiratory rate) every 15 minutes

**REFER** to hospital with an escort of a nurse and with potential blood donors if the mother has severe pallor. | Definition of mild to moderate ANAEMIA Hb between 7 and 11g/dl or PCV between 20 and 30%Management* Treat malaria and give intermittent presumptive treatment according to protocol
* Give albendazole 400 mg by mouth once after 16 weeks gestation
* Treat proven schistosomiasis with praziquantel after 16 weeks gestation
* Give iron and folic acid daily by mouth
* Provide dietary advice: encourage dark green vegetable leaves, citrus fruits, liver

Follow-up* Review after 30 days
* If no improvement counsel and refer to hospital with donors

Definition of SEVERE ANAEMIA Hb < 7g/dl or PCV < 20%Management* Counsel and refer to hospital with donors

During pregnancy and labour:* Treat malaria
* Give albendazole 400 mg by mouth once after 16 weeks gestation
* Give iron (200mg po tds)and folic acid (5mg) daily by mouth
* Check Hb, or FBC if available and HIV
* Transfuse 4 units of packed cells slowly (over 4-6 hours) until Hb > 10 g/dl if gestation >36 weeks or Hb > 8g/dl if gestation < 36 weeks
* Give frusemide 20 mg IV or by mouth with each unit of blood
* If Hb not rising despite transfusing at least 2 units of packed cells, refer to central hospital

During labour also:* Prop woman up
* Give oxygen at 4 L per minute as required
* Maintain strict fluid balance chart to prevent fluid overload
* 2nd stage: assist delivery with vacuum extraction
* Active 3rd stage: give oxytocin 5 U IM

Postpartum:* Continue iron and folic acid by mouth for 3 months postpartum
* Provide dietary advice: encourage dark green vegetable leaves, citrus fruits, liver

FP advice and supplies until in better physical health (avoid IUD) |

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| **REPRODUCTIVE HEALTH UNITMW Malawi LogoOBSTETRIC MANAGEMENT PROTOCOLS****HOSPITAL/ CENTRAL HOSPITAL** |
| **MALARIA** |
| **MALARIA IN PREGNANCY** | ANAEMIA IN PREGNANCY | PREVENTION & MANAGEMENT OF INFECTION ASSOCIATED WITH CAESAREAN SECTION |
| **Clinical Features of malaria in pregnancy**As in non-pregnant adults, malaria in pregnancy may manifest as uncomplicated (severe) disease. The clinical manifestations of malaria in pregnancy are similar to those in adults (fever, feeling cold, shivering, headache, loss of appetite, body malaise, abdominal pains, joint pain, nausea, vomiting, diarrhoeaHowever, pregnant women are at particular risk of hypoglycaemia (especially as a consequence of treatment with quinine), anaemia, and immediately after delivery (3rd stage of labour), pulmonary oedema.**Intermittent Presumptive Treatment of malaria in pregnancy*** Intermittent Presumptive Treatment (IPT) of malaria in pregnancy is one of the major malaria preventive strategies in Malawi. At least two doses of SP, 3tablets for each dose, are given after the first trimester, at least four weeks apart, under direct observation by health personnel.
* Although IPT reduces the risk of malaria in pregnancy, breakthrough clinical malaria episodes can occur in patients on IPT, as well as in those receiving partial or no IPT.

**Management of malaria in pregnancy****Treatment of uncomplicated malaria in pregnancy****Uncomplicated malaria****This a malaria which presents with symptoms of mild or moderate illness** **Investigations*** Take a blood film to test for malaria parasites

 Check for Hb and treat anaemia accordingly.* Management of malaria in pregnancy includes: treatment of malaria, management of complications and management of labour.
* Treatment should be initiated as early as possible. Oral quinine is safe and is the first line treatment in the first trimester of pregnancy. The dose is 10mg salt/kg body weight, administered 8-hourly for 7 days. Remember that pregnant women are susceptible to hypoglycaemia when taking quinine. In 2nd and 3rd trimester LA should be used in the treatment of uncomplicated malaria.

**Management of Severe Malaria in Pregnancy**Management of complications: These are the same as for any adult. Of special importance in pregnancy is:* Pulmonary oedema: careful fluid management, diuretics if necessary, oxygen if possible, nurse in semi-upright position.
* Hypoglycaemia: consider this complication if there is altered consciousness or seizure.
* Anaemia: be prepared for blood transfusion, especially if the patient is close to parturition. Otherwise, indications for blood transfusion are the same as in others
* Renal failure: a particular danger if there has been eclampsia or shock. Identification and management as above.
* Shock: consider concealed haemorrhage, continuing blood loss, and septicaemia. Pay special attention to fluid needs. Culture blood if possible. Administer antibiotics in addition to quinine.

**Definition:**Malaria complicated by: Anaemia, hypoglycaemia, unconsciousness, confusion, seizures, pulmonary oedema, renal failure and haematuria.**Investigations*** Blood film for MPs, serum glucose, full blood count, and urinalysis
* If unconscious, LP may be necessary
* In the management of severe malaria in pregnancy a special concern must be paid to: anaemia, hypoglycaemia and pulmonary oedema. Quinine is the treatment of choice for severe malaria all through pregnancy

The dose is 20mg salt/kg body weight loading dose, followed by 10mg salt/kg 12 hourly for 7 days. Start with IV Quinine in 10% glucose infusion or 5% glucose in normal saline; if for some reason Quinine cannot be given by infusion:* Give 10mg/kg dosage by IM injection and refer immediately.

 Make sure you give 10% glucose concentration or one bottle of 5% glucose before administration of Quinine; be careful not to induce pulmonary oedema. Random blood sugar should be done before and after Quinine administration* Shift to oral quinine (during 1st trimester) and LA (in 2nd and 3rd trimester) as soon as the patient can take orally.
* Intensive care management may be necessary in severe cases
* Careful fluid management, diuretics if necessary, oxygen if possible, nurse in semi-upright position.
* Hypoglycaemia: consider this complication if there is altered consciousness or seizure. Check blood glucose level
* Anaemia: be prepared for blood transfusion, especially if the patient is close to delivery.
* Otherwise, indications for blood transfusion are the same as in non-pregnant adults.
* Renal failure: a particular danger if there has been eclampsia or shock.
* Identification and management as above.

MANAGEMENT OF COMPLICATIONS**Anaemia*** If Hb is 7.0 g/dL or less, with features of lung oedema (basal crepitations) transfuse
* Give frusemide 20 - 40 mg 30 minutes before each unit of blood to avoid cardiac overload.

If **pulmonary oedema develops**:* Prop up the woman;
* Give oxygen at 4 L per minute by mask or nasal cannulae;
* Give frusemide 40 mg IV as a single dose.
* Give ferrous sulfate 200 mg twice daily PLUS folic acid 0.5mg daily po upon discharge.

**Hypoglycaemia*** If **hypoglycaemia is detected** (blood glucose is less than 2.5mmol/ L), give 50% dextrose 50 mL IV followed by dextrose (5 or 10%) 500 mL infused over eight hours.
* If in coma insert a nasogastric tube (NGT) for feeding.

**Fluid balance*** If in coma or renal failure is suspected, insert urethral catheter for continuous bladder drainage Monitor input/output closely.
* If **urine output is poor** (less than 30 mL per hour):
* Measure serum creatinine;
* Rehydrate with IV fluids (normal saline, Ringer’s lactate).
* If **urine output does not improve**, give frusemide 40 mg IV as a single dose and continue to monitor urine output.
* If **urine output is still poor** (less than 30 mL per hour over four hours) and the **serum creatinine is more than 2.9 mg/dL**, refer the woman to a tertiary care centre, if possible, for management of renal failure.

 **Convulsions** Give diazepam 10 mg IV slowly over two minutes.If **eclampsia is excluded**, prevent subsequent convulsions with phenytoin (below).**Administration of Phenytoin***Loading Dose** Infuse phenytoin 1 g (approximately 18 mg/kg body weight) in 50–100 mL normal saline over 30 minutes (final concentration not to exceed 10 mg per mL): **Note**: **Only normal saline can be used to infuse phenytoin. All other IV fluids will cause crystallization of phenytoin.**
* Flush IV line with normal saline before and after infusing phenytoin;
* Do not infuse phenytoin at a rate exceeding 50 mg per minute due to the risk of irregular heart beat, hypotension and respiratory depression;
* Complete administration within one hour of preparation.

*Maintenance Dose** Give phenytoin 100 mg IV slowly over two minutes or by mouth every eight hours beginning at least 12 hours after the loading dose.
 | **Definition** of mild – moderate ANAEMIA: Hb between 7 and 11g/dl or PCV between 20 and 30%Management* Treat malaria and give intermittent presumptive treatment according to protocol
* Give albendazole 400 mg by mouth once after 16 weeks gestation
* Treat proven schistosomiasis with praziquantel after 16 weeks gestation
* Give iron (200mg po tds) and folic acid (5mg) daily by mouth
* Provide dietary advice: encourage dark green vegetable leaves, citrus fruits, liver

Follow-up* Review after 30 days
* If no improvement counsel and refer to hospital with donors

Definition of SEVERE ANAEMIA Hb < 7g/dl or PCV < 20%Management* Counsel and refer to hospital with donors

During pregnancy and labour:* Treat malaria
* Give albendazole 400 mg by mouth once after 16 weeks gestation
* Give iron and folic acid daily by mouth
* Check Hb, or FBC if available and HIV
* Transfuse 4 units of packed cells slowly (over 4-6 hours) until Hb > 10 g/dl if gestation >36 weeks or Hb > 8g/dl if gestation < 36 weeks
* Give frusemide 20 mg IV or by mouth with each unit of blood
* If Hb not rising despite transfusing at least 2 units of packed cells, refer to central hospital

During labour also:* Prop woman up
* Give oxygen at 4 L per minute as required
* Maintain strict fluid balance chart to prevent fluid overload
* 2nd stage: assist delivery with vacuum extraction
* Active 3rd stage: give oxytocin 5 U IM

Postpartum:* Continue iron and folic acid by mouth for 3 months postpartum
* Provide dietary advice: encourage dark green vegetable leaves, citrus fruits, liver

FP advice and supplies until in better physical health (avoid IUD??? | Encourage the woman to have a warm bathAvoid shaving in labour wardPractice universal infection prevention techniquesDo proper vaginal examination – 6 swab techniqueProvide a clean mackintosh PROPHYLACTIC ANTIBIOTICSGive a single dose of chloramphenicol 1 g IV OR Ampicillin 2 g IV OR Cefuroxime 1 g IV to the mother **after** the cord is clamped and cut.THERAPEUTIC ANTIBIOTICSif there are signs of infection or the woman has fever at the time of operation, give iv metronidazole iv 400mg 8 hourly, benzylpenicillin 2 mu iv every 6 hours and gentamycin 240 mg im single dose daily until 48 hrs after the fever subsides, but not less than 5 days. (if above antibiotics not available give chloramphenicol 1 g 6 hrly) until the woman is fever-free for 48 hours, *but do not discontinue the course until it has been given for at least 5 days.*POST CAESAREAN SECTION MANAGEMENT GUIDELINES*Vital signs** BP must be stable before leaving theatre
* Check BP, pulse rate (feel if pulse is strong), bleeding (from wound and vagina) every 30 minutes for 1st hour, then hourly for 6 more hours, then 6 hourly for one day, then twice a day for another 2 days
* Check temperature twice a day

*Record these findings on an observation chart and immediately contact the most senior person available if there are deviations from normal.*Oral intake* Allow patient to drink after 6-8 hours
* If patient is able to retain oral fluids, allow her to eat phala 12 hours after uncomplicated surgery
* Allow patient to eat soft nsima after 24 to hours

IV fluids* Infuse 1 litre of Ringer’s lactate 8 hourly for 24 hours (i.e. 3 litres in 24 hours), then discontinue if patient is drinking sufficiently

Catheter* Remove catheter after 24 hours, unless there is a reason to monitor intake and output or there was obstructed labour or an impending rupture

Mobilisation* Mobilise patient as soon as possible (not later than 24 hours after surgery)

Pain relief* Give Pethidine 100 mg 6 hrly for 24 to 48 hours
* Give chlorpromazine 25mg IM 6 hrly for 24 to 48 hours
* Give declofenac suppository 12 hrly for 5 days
* Give Paracetamol 1 gram orally 6 hrly after 48 hours

Wound care* Expose the wound after 2 days and leave uncovered if clean
* Remove all stitches on day 7

LabCheck Hb on day 2 and again before discharge if excessive blood loss or pallorReview* Clinical officer or doctor should review the patient the same day on the ward, daily thereafter (vital signs, wound, abdominal distension, lochia, anaemia)

AntibioticsIf **there are signs of infection** or the woman **has fever** (temperature > 38 ºC)at the time of operation, give IV metronidazole IV 400mg 8 hourly, Benzylpenicillin 2 MU IV every 6 hours and Gentamycin 240 mg IM single dose daily until 48 hrs after the fever subsides, but not less than 5 days. (If above antibiotics not available give chloramphenicol 1 g 6 hrly) until the woman is fever-free for 48 hours, *but do not discontinue the course until it has been given for at least 5 days.* If the **clinical response is poor after 48 hours**: * ensure *adequate dosages* of antibiotics are being given
* evaluate the woman for other sources of infection (e.g. malaria, urinary tract infection, mastitis)
* check for signs of peritonitis or abscess; consider reopening the abdomen and draining the pus or hysterectomy
* consider altering treatment according to reported microbial sensitivity

If **culture facilities are not available**, consider altering treatment to chloramphenicol.Women with blood-stream infections will require antibiotics for at least 7 days. |

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| **REPRODUCTIVE HEALTH UNITMW Malawi LogoOBSTETRIC MANAGEMENT PROTOCOLS****HEALTH CENTRE** |
| **MALPRESENTATION** |
| OBSTRUCTED LABOUR | RUPTURED UTERUS | MALPRESENTATION | **VACUUM EXTRACTION AT HEALTH CENTRE** |
| DefinitionObstructed labour refers to a situation where the descent of the presenting part is arrested during labour despite strong uterine contractions and signs of overstretching of the lower uterine segment or of impending rupture are present.Diagnosis* Secondary arrest of: (i) cervical dilatation and (ii) descent of presenting part
* Large caput
* Third degree moulding
* Cervix poorly applied to presenting part
* Oedematous cervix and vulva
* Ballooning of lower uterine segment
* Formation of retraction band (Bandl’s ring)
* Maternal and fetal distress

Management* Insert IV line and take blood for Hb, grouping and x-match
* Put up IV line (sodium lactate or saline) with large (No. 18) needle or cannula
* Insert bladder catheter.
* Give chloramphenicol 1 g IV stat
* Monitor vital signs
* Measure and record fluid intake and urinary output accurately.
* Check fetal heart sounds
* Counsel and REFER to hospital urgently under escort of a nurse and with potential blood donors
 | DefinitionSymptomatic or complete uterine rupture is defined as separation of the entire thickness of the uterine wall, with extrusion of fetal parts and intra-amniotic contents into the peritoneal cavity. It is a serious complication of labour that can lead to fetal death and contributes to maternal morbidity and mortality.Rupture of an unscarred uterus is usually caused by obstructed labour.Diagnosis**Recognition**Signs and symptoms of uterine rupture vary greatly and depend on the stage of labour and degree of rupture or dehiscence. The woman can sometimes be asymptomatic.**Maternal** * The woman may describe a sudden feeling of something giving way with complete cessation of uterine activity
* Uterine scar pain
* Abdominal tenderness
* Vaginal bleeding
* Blood stained amniotic fluid
* Tachycardia
* Shock (circulatory collapse out of proportion to the amount of blood loss externally)
* Haematuria

**Fetal*** Before delivery the main sign of uterine rupture is prolonged fetal bradycardia.
* Abnormal fetal lie
* Retraction of the presenting part (moves up out of pelvis)
* Fetal parts may become more easily palpable.

Management* Call for help
* Insert IV access with X2 large bore cannula (take bloods for FBC , Group and Cross match at the same time)
* Restore blood volume by infusing IV fluids (normal saline or Ringer’s lactate) with large (No. 18) needle or cannula.
* Give chloramphenicol 1 g IV.
* Catheterise the bladder.
* Check vital signs and monitor urine output
* Counsel and refer URGENTLY to hospital with donors
 | DefinitionPresentation of the foetus that is not cephalic e.g. Breech, transverse lie, oblique lie, and compound.Management* Evaluate gestational age and size of baby
* If malpresentation persists after 36 weeks, counsel and refer to hospital

**Breech*** Refer to hospital for delivery unless in advanced stage of labour
* Primigravida with breech presentation should be delivered by Caesarean Section
* DO NOT panic when conducting breech delivery
* When there is Spontaneous Rupture of Membranes do speculum examination to exclude cord prolapse
* Explain to mother to avoid premature pushing
 | **Indications*** Delayed second stage of labour – after 1 hour in multipara and 2 hours in primigravida
* Foetal Distress in second stage of labour
* Maternal exhaustion
* Maternal condition requiring speedy delivery (anaemia, asthma, preeclampsia)
* Cord prolapse in second stage with cord pulsating

**Contraindications*** Cephalo-Pelvic Disproportion (CPD)
* Malpresentation
* Prematurity (<36 weeks)
* Descent more than 1/5
* Incomplete cervical dilatation
* Suspected ruptured uterus
* Unengaged presenting part

**Criteria for vacuum extraction*** Position of the occiput should be exactly known (Do not place on the posterior fontanel).
* Contractions must be present.
* The bladder must be empty.
* The vertex must be presenting.
* The cervix must be fully dilated
* Descent of the head should be known.
* Descent 0/5- no moulding, no caput.
* The pelvis is deemed adequate
* Clear explanation has been given to the mother and consent obtained
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| **REPRODUCTIVE HEALTH UNIT MW Malawi Logo OBSTETRIC MANAGEMENT PROTOCOLS****HOSPITAL/CENTRAL HOSPITAL** |
| **MALPRESENTATION** |
| OBSTRUCTED LABOUR | RUPTURED UTERUS | MALPRESENTATION | **VACUUM EXTRACTION**  |
| DefinitionObstructed labour refers to a situation where the descent of the presenting part is arrested during labour despite strong uterine contractions and signs of overstretching of the lower uterine segment or of impending rupture are present.Diagnosis* Secondary arrest of: (i) cervical dilatation and (ii) descent of presenting part
* Large caput
* Third degree moulding
* Cervix poorly applied to presenting part
* Oedematous cervix and vulva
* Ballooning of lower uterine segment
* Formation of retraction band (Bandl’s ring)
* Maternal and foetal distress

Management* Take blood for Hb, grouping and x-match
* Put up IV line (sodium lactate or saline) with large (No. 18) needle or cannula
* Insert bladder catheter
* Give chloramphenicol 1 g IV stat
* Monitor vital signs
* Measure and record fluid intake and urinary output accurately.
* Check foetal heart sounds
* If the foetus is alive, prepare to resuscitate the baby at birth
* If the foetus is alive, *deliver by caesarean section,* whatever the dilatation of the cervix*.*
* If the foetus is dead, the head is below the ischial spines and the cervix fully dilated: *deliver by craniotomy* ***if experienced****, otherwise deliver by C/S.*
* Observe carefully post-operatively for signs of bleeding.
* Continue with IV metronidazole IV 400mg 8 hourly, Benzyl penicillin 2 MU IV every 6 hours and Gentamycin 240 mg IM single dose daily until 48 hrs. after the fever subsides, but not less than 5 days. (If above antibiotics not available give chloramphenicol 1 g 6 hrly every 6 hours until fever-free for 48 hours, *but do not discontinue the course until it has been given for at least 5 days.*
* Continuous bladder drainage for at least 10 days
* Monitor and record intake and output
 | **Definition**Symptomatic or complete uterine rupture is defined as separation of the entire thickness of the uterine wall, with extrusion of fetal parts and intra-amniotic contents into the peritoneal cavity. It is a serious complication of labour that can lead to fetal death and contributes to maternal morbidity and mortality.Rupture of an unscarred uterus. It is usually caused by obstructed labour.Diagnosis**Recognition**Signs and symptoms of uterine rupture vary greatly and depend on the stage of labour and degree of rupture or dehiscence. The woman can sometimes be asymptomatic.**Maternal** * The woman may describe a sudden feeling of something giving way with complete cessation of uterine activity
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* Abdominal tenderness
* Vaginal bleeding
* Blood stained amniotic fluid
* Tachycardia
* Shock (circulatory collapse out of proportion to the amount of blood loss externally)
* Haematuria

**Fetal*** Before delivery the main sign of uterine rupture is prolonged fetal bradycardia.
* Abnormal fetal lie
* Retraction of the presenting part (moves up out of pelvis)
* Fetal parts may become more easily palpable.

Management* Call for help
* Insert IV access with X2 large bore cannula (take bloods for FBC , Group and Cross match at the same time)
* Restore blood volume by infusing IV fluids (normal saline or Ringer’s lactate) with large (No. 18) needle or cannula.
* Give chloramphenicol 1 g IV.
* Catheterise the bladder.
* Check vital signs and monitor urine output
* X-match 2 units of blood.
* When vital signs become stable, immediately perform a laparotomy and deliver the baby and placenta
* If the uterus can be repaired with less operative risk than hysterectomy would entail, and providing that the edges of the tear are not necrotic, repair the uterus and consider BTL otherwise perform hysterectomy
 | DefinitionPresentation of the foetus that is not cephalic e.g. Breech, transverse lie, oblique lie, and compoundManagement* Evaluate gestational age and size of baby
* If malpresentation persists after 36 weeks, counsel and prepare for delivery by caesarean section.
* In breech presentation, attempt external cephalic version at every ANC visit up to 34 weeks gestation after excluding placenta praevia.

**Breech*** Primigravida with breech presentation should be delivered by CS
* DO NOT panic when conducting breech delivery
* No trial of labour
* When there is SRM do vaginal examination to exclude cord prolapse.
* Explain to mother to avoid premature pushing.
* Properly assess the size of breech to determine the appropriate mode of delivery e.g. CS or vaginal delivery.

**Brow Presentation**:* + Deliver by Caesarean Section if fetus alive
	+ If fetus dead, can do craniotomy if proficient otherwise then for Caesarean Section

**Face Presentation:*** If chin anterior allow normal delivery
* If chin posterior then do caesarean section
* If fetus dead, can do craniotomy if proficient otherwise then for Caesarean Section

**Compound Presentation:*** Sometimes replacement of the prolapsed arm is possible and labour can be allowed to proceed if successful
* If procedure fails or cord prolapses then perform Caesarean Section
 | **Indications*** Delayed second stage of labour – 1 hour in multipara and 2 hours in primigravida
* Foetal Distress in second stage of labour
* Maternal exhaustion
* Maternal condition requiring speedy delivery (anaemia, asthma, preeclampsia)
* Cord prolapse in second stage with cord pulsating

**Contraindications*** Cephalo-Pelvic Disproportion (CPD)
* Malpresentation
* Prematurity (<37 weeks)
* Descent more than 1/5
* Incomplete cervical dilatation
* Gestational age less than 37 weeks
* Suspected ruptured uterus
* Unengaged presenting part
* Intrauterine deaths

**Criteria for vacuum extraction*** Operator must have the knowledge, experience and skill necessary.
* Position of the occiput should be exactly known

 (Do not place on the posterior fontanel).* Contractions must be present.
* The bladder must be empty.
* The vertex must be presenting.
* Descent of the head should be kwon.
* Descent 0/5- no moulding no cap
* The pelvis is deemed adequate
* Clear explanation has been given to the mother and consent obtained
* .Back-up plan should be in place in case of failure to deliver., theatre staff should be immediately available to allow a caesarean section to be performed without delay (less than 30 minutes).
* Anticipation of complications that may arise (e.g. shoulder dystocia, postpartum haemorrhage)
* Personnel present that are trained in neonatal resuscitation
 |
| Post-operative care* Give IV Metronidazole IV 400mg 8 hourly, Benzyl penicillin 2 MU IV every 6 hours and Gentamicin 240 mg IM single dose daily until 48 hrs. after the fever subsides, but not less than 5 days. (If above antibiotics not available give Chloramphenicol 1 g 6 hrly) until fever-free for 48 hours, *but do not discontinue the course until it has been given for at least 5 days.*
* Keep the bladder catheter in place for at least 10 days if the bladder was damaged.
* If BTL was not done, offer Family Planning and advice on elective Caesarean Section next time.
* Monitor for possible complications e.g. bladder/ureteric injury, further requirements for blood transfusion and endometritis
* Opportunity should be offered to the woman and partner for discussion about procedures undertaken and future implications for pregnancies prior to discharge.
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| **MW Malawi Logo****MALAWI REPRODUCTIVE HEALTH UNIT OBSTETRIC MANAGEMENT PROTOCOLS****HEALTH CENTRE** |
| **HAEMORRHAGE** |
| ANTEPARTUM HAEMORRHAGE (APH) | PRIMARY POST PARTUM HAEMORRHAGE: | SECONDARY PPH | POSTABORTIONHAEMORRHAGE |
| DefinitionVaginal bleeding from 28 weeks of pregnancy to before deliveryDIFFERENTIAL DIAGNOSIS of major obstetric causes of APH

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| **DIAGNOSIS** | **TYPICAL SIGNS & SYMPTOMS** |
| **Abruptio placenta (Accidental haemorrhage)** | * Abdominal pain
* Tense/tender uterus
* Fetal distress or absent FHS
* Ultrasound rules out placenta praevia
* No vaginal examination
 |
| **Placenta praevia** | * Bright red vaginal bleed
* Relaxed nontender uterus
* Lower uterine pole empty
* Abnormal lie e.g. transverse or breech presentation
* Foetal heart present
* Foetal distress if bleeding is heavy
* Ultrasound confirms diagnosis
 |
| **Ruptured uterus** | * History of labour, often prolonged
* Uterine scar
* Fetal distress or no foetal heart heard
* Fetus outside the uterus
* No vaginal examination
 |
| **Labour** | * Contractions present
* Head or breech well down
* Fetal heart present
* Vaginal examination: cervical dilatation evident
 |
| **MANAGEMENT** | **Abruptio placenta*** Call for help.
* Resuscitate patient with intravenous fluids -Ringer’s lactate or normal

saline 3 L or more* Insert urethral catheter and monitor input/output
* Administer diclofenac 75 mg IM stat
* Give oxygen if patient is dyspnoeic or very pail
* Obtain blood for haemoglobin, grouping and cross-matching
* Take vital signs-blood pressure, pulse rate, respiratory rate
* REFER the patient to hospital under escort of a nurse and blood donors
 |
|  | **Placenta praevia*** Call for help.
* Commence IV fluids-Ringer’s lactate

 or normal saline using a large-bore  cannula or needle. Give at least 2 L  of fluid in the first hour * No digital vaginal examination
* Obtain blood for haemoglobin,

 grouping and cross-matching* Mobilize blood donors
* REFER to hospital with donors on IV drip with an escort nurse
 |

 | DefinitionIncreased vaginal bleeding (500 ml or greater and or causing worsening of pulse rate and blood pressure) within the first 24 hours after childbirthManagementPlacenta in:Call for help* Inform the mother that urgent measures to stop the bleeding are needed.
* Lay flat, keep warm
* Continuous fundal massage until uterus hard
* Give or repeat oxytocin 10 U IM
* Ask the assistant to insert a urethral catheter for continuous drainage.
* Put up IV line with large bore and take blood for Hb, Grouping and cross matching, put up normal saline or Ringer's lactate and run it fast
* If peripheral veins are collapsed and hard to find, perform a saphenous cut-down immediately anterior to the medial ankle.
* Ask the assistant to record vital signs every 15 minutes.
* If vital signs deteriorate, urgently refer patient to hospital with an escorting nurse and potential blood donors.
* If placenta retained, repeat Controlled Cord Traction (CCT)

If CCT failed, remove placenta manually. If not possible refer to hospitalPlacenta out:* Rub up a contraction
* Give or repeat oxytocin 10 IU IM
* Expel the clots
* Empty bladder and maintain indwelling catheter
* Inspect the vagina with broad specula using a headlamp to identify any visible mucosal lacerations or to verify source of bleeding from the uterine cavity.
* Repair tears of vulva, vagina, perineum, cervix or uterus where present.
* Check pulse and blood pressure

If uterine atony persists in spite of the above:* Put 40 units of oxytocin in 1L of normal saline or Ringer's lactate & run at 60 drops per minute initially, then 40 drops per minute with a maximum of 3L.
* If bleeding due to uterine atony persists, do bimanual compression.
* If there is no improvement, refer to hospital with donors and inform the most senior person available.
 | DefinitionIncreased vaginal bleeding occurring between the first 24 hours after childbirth and six weeks postpartum.**Symptoms**1. Genital bleeding or increase in red lochia
2. Fever

**Signs**1. Offensive vaginal bleeding or discharge from the cervical os
2. Variable degrees of shock
3. Pallor
4. Sub-involuted tender uterus.

Management* Give oxytocin 10 IUnits IM
* Rub up a contraction
* Empty bladder
* Set up IV line , Check Hb and X-match 2 units of blood and put up with saline or Ringer's lactate run 2-4 L fast in the first 2 hours if patient is in shock.
* Put 40 units of oxytocin in 1L of IV fluid, if necessary
* Give Metronidazole 500mg IV, Benzylpenicillin 2 MU IV and Gentamycin 240 mg IM
* Refer to hospital with donors
* Check haemoglobin.
* If cervix is open: explore uterus by gloved fingers to remove clots, placental fragments and membranes.
* Observe for 24 hours.
* Give ferrous sulphate 200 mg every 8 hours, plus folic acid 5mg once a day for 6 weeks

Refer urgently with escort of a nurse and potential blood donors if: cervix is closed or if bleeding does not stop | DefinitionVaginal bleeding before 28 weeks of pregnancy due to an abortionManagement* Rub up uterine contraction (in case of late abortion)
* Give oxytocic drug
* Empty the bladder
* Put up an IV drip with saline and run it fast
* Do VE and remove products of conception from vaginal canal
* Check vital signs
* If SEPTIC, give chloramphenicol 1g IV stat
* Counsel and refer to hospital with donors
 |
| Non-obstetric causes:* Cervical causes such as cancer or a benign polyp
* Over 50% of cases of APH remain unexplained!

EmergenciesPatients with:* Heavy bleeding and/or
* Abdominal pain or contractions and/or
* Signs of severe anaemia or shock
* Absence of foetal heart

Management of emergencies:* History taking
* Check vital signs
* Abdominal examination
* Collect blood for Hb and x-matching
* IV line with normal saline or Ringer's lactate
* Administer a plasma expander i.e. Haemacel
* Counsel and refer to hospital with donors and midwife

**Shock** (sweating, cold extremities, rapid pulse, low blood pressure)**:*** Consider concealed haemorrhage, continuing blood loss, and septicaemia.
* Pay special attention to fluid needs.
* Culture blood if possible.

Administer antibiotic in addition to quinine: chloramphenicol 1g iv. |

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| **REPRODUCTIVE HEALTH UNITMW Malawi LogoOBSTETRIC MANAGEMENT PROTOCOLS****DISTRICT/CENTRAL HOSPITAL** |
| **HAEMORRHAGE** |
| ANTEPARTUM HAEMORRHAGE (APH) | PRIMARY POST PARTUM HAEMORRHAGE:  | SECONDARY PPH | POSTABORTION HAEMORRHAGE |
| DefinitionVaginal bleeding between 28 weeks of pregnancy and just before deliveryDIFFERENTIAL DIAGNOSIS of major obstetric causes of APH | DefinitionIncreased vaginal bleeding (500 ml or greater and or causing worsening of pulse rate and blood pressure) within the first 24 hours after childbirth.Management**Immediate action!** (General)* Call for help!
* Lay flat, keep warm
* Continuous fundal massage until uterus hard
* Inspect vagina for bleeding tears and stop if any (clamps or pack)
* IV access x 2 large bore cannulae
* FBC, Group and cross-match at least 2 units
* Syntocinon 10 units IM
* Ergometrine 0.5mg IV IF NOT hypertensive
* IV Syntocinon infusion (40u in 1000mls)
* If oxytocin is not available give misoprostol (cytotec) 800 micrograms PR or 600 micrograms orally or sublingually.
* IV fluids – Normal Saline or Ringer’s Lactate/Hartmans solution
* Take vital signs
* Catheterise bladder, monitor urine output
* Transfuse as soon as possible depending on severity of bleeding
* Consider use of emergency or type specific blood
* Assess patient and identify cause of bleeding

Retained Placenta :* Oxtocin infusion
* Repeat Controlled Cord Traction (CCT)
* If this fails, do a vaginal examination:
* If the cervix is wide open:

 Perform manual removal of  the placenta * If cervix is closed:

 Perform manual removal of  the placenta in theatre under general anaesthesia* If manual removal in theatre fails, it may be placenta accreta. May need to proceed with hysterectomy

Placenta out:* Rub up a contraction
* Give or repeat oxytocin 10 IU IM
* If oxytocin is not available give misoprostol (cytotec) 800 micrograms PR or 600 micrograms orally or sublingually.
* Expel the clots
* Empty bladder and maintain indwelling catheter

If uterine atony persists in spite of the above:* Put 40 units of oxytocin in 1L of normal saline or Ringer's lactate & run at 60 drops per minute initially, then 40 drops per minute with a maximum of 3L.
* If bleeding persists, do bimanual compression.
* Give Misoprostol
* If bleeding continues, take to theatre
* Do Examination under anaesthesia condom catheter balloon tamponade can be done.
* proceed with laparotomy if bleeding persists,
* Brace sutures like the B-Lynch sutures can be used according to the experience of the operator
* A hysterectomy should be performed without delay if bleeding persists,

**Genital tract trauma** * Inspect vagina and perineum for bleeding tears. Repair first and second degree perineal tears in the labour ward
* Clamp any bleeders and pack vagina if repair will be delayed
* If third degree tear/cervical/extensive tears repair in theatre
* If no obvious tear is seen, do examination under anaesthesia in theatre

**Coagulopathy*** If there is coagulopathy (bed side clotting time more than 7 minutes), give fresh whole blood 2 units and fresh frozen plasma 1 unit.

**Post management care*** Monitor vital signs: blood pressure, pulse rate, temperature, respiratory rate every hour until normal
* Monitor input/output closely and record findings on an input/output chart
* Recheck Hb and assess the need for blood transfusion
* Give broad spectrum antibiotics for a total of 5 days
* Ferrous sulphate 200 mg every 8 hours, PLUS 5 mg folic acid once a day for 6 weeks post delivery
* Debrief the patient and the family as the condition and its management would have been very traumatic. Advise delivery in a hospital next time.
 | DefinitionIncreased vaginal occurring between the first 24 hours after childbirth and six weeks postpartum.**Symptoms**Genital bleeding or increase in red lochiaFever**Signs**Offensive vaginal bleeding or discharge from the cervical osVariable degrees of shockPallorSub-involuted tender uterus.Management* Administer oxytocin 10 IUnits IM
* Rub up a contraction
* Empty bladder
* Set up IV line, Check Hb and X-match 2 units of blood and put up saline or Ringer's lactate
* Put 40 units of oxytocin in 1L of IV fluid, if necessary
* Administer Metronidazole 500mg IV, Benzylpenicillin 2 MU IV and Gentamycin 240 mg IM
* If oxytocin is not available give misoprostol (cytotec) 800 micrograms PR or 600 micrograms orally or sublingually.
* Inform the most senior person available
* If cervix is open: evacuate the uterus with wide curette in theatre
* If cervix is closed continue with antibiotics
* Monitor vital signs – blood pressure, pulse rate and temperature every hour until normal then every 8 hours
* Monitor input/output closely and record findings on a chart
* Give analgesics: Paracetamol 1g by mouth every 8 hours for 3 days
* Give blood transfusion if clinically indicated
* Give ferrous sulphate 200mg every 8 hours, PLUS folic acid 5mg once a day for 6 weeks.
 | DefinitionVaginal bleeding before 28 weeks of pregnancy due to an abortionManagement* If gestation was less than 14 weeks, perform manual vacuum aspiration (MVA)
* If gestation was greater than 14 weeks, perform dilatation and curettage.
* After procedure, observe: TPR, B/P, uterine tone, blood loss, general condition
* Give antibiotics if septic (see puerperal / postabortion sepsis protocol)
* Correct anaemia (see anaemia protocol)
* Provide emotional support, counselling and family planning supplies including condoms (dual protection) before discharge

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| *If unsafe abortion is suspected, examine for signs of infection, uterine, genital or bowel injury.* |

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| **DIAGNOSIS** | **TYPICAL SIGNS & SYMPTOMS** |
| **Abruptio placenta (accidental bleeding)** | * Abdominal pain
* Tense/tender uterus
* Fetal distress or absent FHS
* Ultrasound rules out placenta praevia
 |
| **Placenta praevia** | * Relaxed uterus
* Painless vaginal bleeding
* Lower uterine pole empty
* Abnormal lie e.g. transverse or breech presentation
* Normal fetal condition
* Ultrasound confirms diagnosis
 |
| **Ruptured uterus** | * History of labour, often prolonged
* Uterine scar
* Fetal distress or no foetal heart heard
* Fetus outside the uterus
 |
| **labour** | * Contractions present
* Head or breech well down
* Fetal heart present
* On vaginal examination (if not contraindicated): cervical dilatation evident
 |
| Non-obstetric causes:* Cervical causes such as cancer or a benign polyp
* Over 50% of cases of APH remain unexplained!

Management of emergencies:* History taking
* Check vital signs
* Abdominal examination
* Collect blood for Hb and x-matching
* IV line with normal saline or Ringer's lactate
* Administer a plasma expander i.e. Haemacel
* Counsel and refer to hospital with donors and midwife.
* Ultrasound to locate the placenta and check the fetal heart beat
* Arrive at a probable diagnosis and treat accordingly and urgently.
* When placenta praevia has been ruled out, perform speculum examination
* Treat according to cause

***Emergencies***Patients with:* Heavy bleeding and/or
* Abdominal pain or contractions and/or
* Signs of severe anaemia or shock
* Absence of foetal heart
 |
| Management of ABRUPTIO PLACENTAE | Management of PLACENTA PRAEVIA |
| * Take blood samples for FBC, blood group and x-matching
* Do bedside clotting test (failure to clot after 7 minutes or a soft clot that breaks down easily suggests coagulopathy)
* Transfuse as necessary, preferably with fresh blood
* Do vaginal examination only in theatre unless placenta praevia has definitely been ruled out
* If **bleeding is heavy**, resuscitate and deliver as soon as possible:
* If the **cervix is fully dilated**, deliver by vacuum extraction
* If **vaginal delivery is not imminent**, deliver by C/S as soon as the woman’s condition has been stabilised, treating shock and replacing fluids until blood available
* In case of **coagulopathy correct it with fresh frozen plasma and platelets**, induce or augment labour with oxytocin. C/S is required if there is an obvious obstetrical indication such as transverse lie, or if uterine contractions cannot be stimulated, or when clinical shock due to haemorrhage has been uncontrollable. C/S is then a desperate step and may sometimes save the mother's life.
* If **bleeding is light to moderate** and **fetal heart rate is absent**, do ARM:
* If **contractions are poor**, augment labour with oxytocin
* If **cervix is unfavourable** (firm, thick, closed), perform C/S
* If **bleeding is light to moderate** and **fetal heart rate is abnormal**:
* Perform rapid vaginal delivery
* If **vaginal delivery not possible or condition of the woman is compromised** , deliver by immediate caesarean section
 | * **NEVER perform a vaginal examination in labour ward**
* Take blood samples for Hb, blood group and x-matching
* Localise placenta if reliable ultrasound examination can be performed
* If **bleeding is light or if it has stopped** and the **fetus is alive but premature give steroids to the mother**, or heavy bleeding occurs (keep in hospital, ensure blood is ready for emergency transfusion)
* If term pregnancy with APH **bleeding is heavy and continuous deliver by C/S**
* If term pregnancy with light **bleeding**  deliver vaginally
* At term -If **bleeding is light** and there is **Type I or II anterior placenta praevia**, and in active phase of labour vaginal delivery may be possible. Type II posterior, III and IV should deliver by C/S
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| Following APH* Always be prepared for **PPH**
* Always be prepared to resuscitate an asphyxiated baby
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| **REPRODUCTIVE HEALTH UNITMW Malawi LogoOBSTETRIC MANAGEMENT PROTOCOLS****HEALTH CENTRE** |
| **SEPSIS** |
| PRELABOUR RUPTURE OF MEMBRANES | PUERPERAL / POSTABORTION SEPSIS | CHORIOAMNIONITIS  | **HIV AND AIDS** |
| DefinitionRupture of the membranes before labour has begunDiagnosisPresence of a pool of fluid in the vagina on sterile speculum examination. Ask the woman to cough; this may cause a gush of liquid. Alternatively if history very suggestive but not confirmed on speculum, provide pad and examine it in an hour.ManagementConfirm accurate gestation age:-Gestation less than 34 weeks* *No* digital vaginal examination should be done.
* Refer to the hospital for further management.

Gestation 34 weeks or greater- Do sterile speculum exam to confirm rupture of membranes and to exclude cord prolapse and refer to the hospital immediately.- Digital vaginal examination is best avoided unless there is a strong suspicion that the woman may be in labour | DefinitionInfection of the genital tract following delivery / abortion***Diagnosis***Fever (38 ºC or more), foul-smelling discharge, cramping and/or lower abdominal pain and tender uterus, Management* Check vital signs (temperature, heart rate and respiratory rate)
* Put up IV line and give IV fluids if very unwell
* Give IV Metronidazole IV 500mg 8 hourly, Benzylpenicillin 2 MU IV every 6 hours and Gentamycin 240 mg IM single dose daily until 48 hrs after the fever subsides, but not less than 5 days. (If above antibiotics not available give chloramphenicol 1 g 6 hrly)
* Give paracetamol 1 gram orally stat
* Counsel and refer to hospital with donors
 | DefinitionIntra-uterine infectionDiagnosisFoul-smelling vaginal discharge after 28 weeks of pregnancy, fever/chills, abdominal pain and tendernessManagement* If signs of intra-uterine infection are evident, give IV metronidazole IV 400mg 8 hourly, Benzylpenicillin 2MU IV every 6 hours and Gentamycin 240 mg IM single start. (If above antibiotics is not available give chloramphenicol 1 g 6 stat
* Counsel the woman and refer to hospital
 | * + Stage HIV disease and refer appropriately for ART care
	+ For pregnant women commence ART at 14 weeks gestation and continue for life.
	+ Advice regarding health facility delivery
	+ Chest infection/TB refer to hospital
	+ Give NVP syrup to baby within 72 hours delivery and continue daily for 6 weeks.
	+ Give CPT regardless of gestation.

Follow up on the following:* Early Infant Diagnosis (DBS for PCR) at 6 weeks
* Cotrimoxazole for mother
* Cotrimoxazole for baby at 6 weeks
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| **REPRODUCTIVE HEALTH UNITMW Malawi LogoOBSTETRIC MANAGEMENT PROTOCOLS****HOSPITAL/CENTRAL HOSPITAL** |
| **SEPSIS** |
| PRELABOUR RUPTURE OF MEMBRANES | PUERPERAL/ POSTABORTION SEPSIS | CHORIO-AMNIONITIS | **HIV AND AIDS** |
| DefinitionRupture of the membranes before labour has begunDiagnosisPresence of a pool of fluid in the vagina on sterile speculum examination. Ask the woman to cough, this may cause a gush of liquid. Alternatively if history very suggestive but not confirmed on speculum, provide pad and examine it in an hour.ManagementConfirm accurate gestation age:-Gestation less than 34 weeks* *No* digital vaginal examination should be done
* *P*erform sterile speculum examination
* Check temperature and maternal heart rate 4 hrly, inspect liquor daily, assess fetal heart rate
* Give prophylactic antibiotics: erythromycin 250 mg by mouth 3 x per day for 10 days PLUS metronidazole 400 mg by mouth tds for 5 days
* Give corticosteroids: betamethasone 12 mg IM, 2 doses 12 hours apart; OR dexamethasone 6 mg IM, 4 doses 6 hours apart
* Deliver at 34 weeks
* If signs of intra-uterine infection develop (temperature 37.5 ºC or more, purulent or offensive liquor, fetal tachycardia), inform the most senior person available, who should plan urgent delivery

Gestation 34 weeks or greater* Do sterile speculum exam to exclude cord prolapse and confirm clear liquor.
* If membranes have been ruptured for more than 18 hours, give prophylactic antibiotics: ampicillin 2 g IV every 6 hours OR X-pen 2 million units IV every 6 hours until delivery
* If labour does not begin spontaneously within 24 hours, induce labour
 | DefinitionInfection of the genital tract following delivery /abortion***Diagnosis***Fever (38 ºC or more), foul-smelling discharge, cramping and/or lower abdominal pain and tender uterusManagement* Check temperature, heart rate and respiratory rate
* Put up IV line, take blood for FBC, Group and Save and blood cultures and give IV fluids if very unwell
* Give paracetamol 1 gram orally stat
* Admit the patient
* Take history and perform a complete physical examination including speculum and vaginal examination
* Take a cervical swab or high vaginal swab to establish the causative organism
* Give IV metronidazole IV 500mg 8 hourly, Benzylpenicillin 2 MU IV every 6 hours and Gentamycin 240 mg IM single dose daily until 48 hrs after the fever subsides, but not less than 5 days. Or Azythromycin 500mg (If above antibiotics not available give chloramphenicol 1 g 6 hrly )
* Continue with paracetamol 1 gram orally 6 hrly
* Give antimalarials to cover for possible infection
* In cases of peritonitis or suspected intraabdominal injury perform laparotomy
* Evacuate if remaining products of conception are suspected
* Encourage bed rest and make the woman as comfortable as possible
* Use a fan and give tepid sponging to help reduce fever
* Ensure privacy, confidentiality and consent for treatment
* Provide information and assist the woman in her personal care
* Offer family planning advice/method on discharge
 | DefinitionIntra-uterine infectionDiagnosisFoul-smelling vaginal discharge after 28 weeks of pregnancy, fever/chills, abdominal pain and tenderness.**Management*** Insert IV access, take blood for FBC, Group and save and blood cultures if fever
* If signs of intra-uterine infection are evident, give IV metronidazole IV 400mg 8 hourly, Benzylpenicillin 2 MU IV every 6 hours and Gentamycin 240 mg IM single dose daily until 48 hrs after the fever subsides, but not less than 5 days. (If above antibiotics not available give chloramphenicol 1 g 6 hrly) until 48 hours after fever subsides, but not less than 5 days
* Deliver urgently. Induce or accelerate labour with oxytocin; do caesarean section if necessary.
* If mother has amnionitis or if membranes were ruptured for more than 18 hours before delivery, start newborn on antibiotics (X-pen 50,000 IU/kg/dose IM bd and Gentamycin 5 mg/kg IM od for 5 days.
 | Antenatally:* Review HIV testing page in Health passport
* Offer testing if never tested or tested negative >3months ago
* For mothers on ART-continue same regimen
* Refer to ARV clinic all new cases
* Commence ART for pregnant women who are HIV positive from 14 weeks gestation and continue for life.

Intrapartum:* Use partograph to allow early detection of prolonged labour
* Only perform Artificial Rupture of Membranes if prolonged labour due to poor contractions
* Avoid frequent vaginal examinations
* Do not milk the cord before cutting

Postnatally:* Wipe the baby dry to remove maternal body fluids
* Regular postnatal care
* Give vaccinations as for all other infants
	+ Give NVP syrup to baby within 72 hours of delivery and continue until age 6 weeks
	+ Enrol baby in HIV Care Clinic

Follow up for: * Early Infant Diagnosis (DBS for PCR) at 6 weeks
* Cotrimoxazole for mother irrespective of gestation.
* Commence cotrimoxazole for baby at 6 weeks if HIV +ve
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| **REPRODUCTIVE HEALTH UNIT** MW Malawi Logo **OBSTETRIC MANAGEMENT PROTOCOLS****HOSPITAL & HEALTH CENTRE LEVEL** |
| **POST NATAL CARE** |
| IMMEDIATE CAREMOTHER:* Check B/P, pulse rate, respirations, temperature, uterine contraction, bleeding and bladder immediately and 1/2 hourly for two hours after delivery.

*Do not leave the woman until the uterus is determined to be well contracted and the bleeding controlled.*BABY:* Dry the baby, if crying, place skin to skin and cover both mother and baby with a warm cloth
* Resuscitate immediately if baby not crying

Assess condition and APGAR score at 1 minute and at 5 minutes* Check baby for any abnormalities
* Initiate breastfeeding within 30 minutes of birth
* Conduct thorough assessment of the baby after 1 hour (including birth weight)
 | SUBSEQUENT CARE:MOTHER:* Review antenatal and delivery records noting:
	+ Date, time and type of delivery
	+ Total estimated blood loss
	+ Most recent Haemoglobin
	+ Any recent or current medical or obstetric problems.
	+ Give Vitamin A
* Assess condition of the **mother** twice a day until discharge and monitor the following:-

\*Vital signs \*Conjunctiva \*Breasts\*Uterine contraction \*Lochia \*Perineum \*Bladder and Bowel\*Any oedema of legs \*Any tenderness of legs on palpation or on walking, suggestive of DVT \* Psychological state \*Whether the woman is eating, drinking and sleeping well* Make sure all ROUTINE investigations that were not done during pregnancy are done postnatally i.e. HTC, Hb, Syphilis

BABY:* Assess general condition of the **baby** (breathing, activity, colour – any cyanosis or jaundice, pallor, cord stump) twice a day until discharge
* Check temperature;
* Assess if the baby is breastfeeding satisfactorily
* Check whether baby is passing urine and meconium.
* Give immunization to baby
 | Provide discharge advice on:- Danger signs during the puerperium  (especially bleeding and infection)- Nutrition and hygiene- Family planning and condom use  (dual protection)- Danger signs for the baby (especially fever, redness or pus on the cord, jaundice, inability to feed)- Couples could resume sex at 6 weeks- Postnatal visit within one week and at six weeks - Exclusive breast feeding * Give Vit. A 200,000
* units to the mother and immunizations to the baby
* Advise mother on baby care (especially

 warmth, eye and cord care)  |
| SUMMARY OF PROBLEMS THAT NEED IMMEDIATE ATTENTION AND ACTION |
| **PROBLEM** | **ACTION** | **RISK** |
| **MOTHER** |
| Raised temperature | Investigate for cause of infection | Puerperal sepsis |
| Tachycardia  | Check associated signs & symptoms | Puerperal sepsisDVT |
| Offensive lochia | Take swab for culture & sensitivityGive chloramphenicol 500 mg IV every 6 hrs. until patient is fever-free for 48 hrs. (continue for not less than 5 days)Maintain vulval hygiene | Puerperal sepsis |
| Sub-involution of the uterus | Ensure bladder & bowels are emptiedEstablish if there are retained products or infection & treat appropriately | Puerperal sepsisSecondary PPH |
| Dysuria  | Encourage plenty of fluidsIf infection is suspected, send a urine specimen for C & S, commence broad spectrum antibiotic therapy immediately | Urinary tract infection |
| Urinary incontinence | Establish cause e.g. VVF, stress incontinence, retention with overflow. Check whether there is trauma to the bladder or urethra. Treat or refer according to cause. | Dependent on cause:Persistent urinary tract infections,permanent VVF |
| Soreness of perineum | Establish cause. Give paracetamol | Haematoma, Sepsis |
| Inability to sleep or rest | CounsellingExclude physical causes e.g. pain | Puerperal psychosis |
| **BABY** |
| Abnormal temperature | Establish cause. If elevated temperature: check if too much clothing or covers, dehydration or sepsisIf subnormal: it could be brain damage or sepsis (check cord) | Sepsis, brain damage, hypothermia |
| Jaundice | Determine cause of jaundiceAssess bilirubin contentConsider infection | Pathological jaundice |
| Inability to feed | Assess palateCheck attachment on breast feedingRule out brain damageDrugs to motherPrematurity | Cleft palateFailure to thrive |
| Problems with passing stools or urine | Check presence of orifices and amount of feeds | Congenital anomalies e.g.:Imperforate anus,Intestinal obstruction,Absence or abnormality of kidneys |
| * If at a health centre give first dose and refer
* For neonatal sepsis give start dose of gentamycin 7.5 mg per Kg and crystalline penicillin 50,000IU and refer.
* It is important for the person looking after the baby to know what has happened to the mother - e.g. fever, offensive liquor, and prolonged rupture of membranes, drugs she is on or has been given.
 |
| **RESUSCITATION OF THE NEWBORN (For Both Health Centre and Hospital)** |
| **Prepare for birth*** Identify a helper and review the emergency plan
* Prepare the area for delivery
* Hand washing
* Prepare an area for ventilation and check the equipment

**Immediately:*** If meconium staining is present, suction the mouth first and then the nostrils *before* delivery of chest
* Immediately after birth do the following:
	+ If meconium is present , clear the airway
	+ Dry the baby from head to toe
	+ Quickly wrap or cover the newborn to provide warmth
	+ Assess crying
* If not crying
* Position the baby with the head inclined down with the neck slightly extended to open the airway
* Clear the airway by suctioning the mouth and nose
* Introduce the suction tube into the newborn’s mouth 5-cm from lips and suck while withdrawing
* Introduce the suction tube 3-cm into each nostril and suck while withdrawing until no mucus.
* Repeat each suction if necessary but no more than twice and no more than 20 seconds in total.
* Stimulate the baby by rubbing the back
* Assess breathing
* If not breathing
* Cut the umbilical cord
	+ Place the newborn on a clean warm, firm surface
* Place the mask on the newborns face so that it covers the chin, mouth and nose, forming a seal between mask and the face
* Ventilate at the rate of 40 breaths/minute for 1 minute and then stop and assess breathing

If baby is crying and breathing well continue with routine care. | * **If not breathing**
* Call for help
* Improve ventilation by clearing secretions, checking position of the head and repositioning mask so that it covers the chin, mouth and nose, forming a seal between mask and the face. Squeeze bag attached to the mask with 2 fingers or whole hand, according to bag size, 2 or 3 times
* Observe rise of chest. If chest is not rising:
* Reposition head
* Check mask seal
* Squeeze bag harder with whole hand
* Once good seal and chest rising ventilate at 40 squeezes per minute until newborn starts crying or breathing spontaneously
* If not breathing
* check the heart rate by feeling the umbilical artery pulsation or listening to the heart using a stethoscope
* If normal heart rate (>100/minute) continue ventilation
* If heart rate slow (<100/minute) continue ventilation and start advanced care:
* Stimulate the heart using the index and middle fingers; alternate the procedures: 3 chest compressions then inflate with bag – repeat the sequence Repeat this procedure until the heart beat is >100 beats/minute
* If the heart rate is less than 60 bpm or the baby is NOT breathing well or remains blue, inform anaesthetic clinical officer.
* Reassesses the Apgar score at 5 and10 minutes

The desired outcome is a HEALTHY PINK BABY!* If there is no gasping or breathing at all after 20 minutes of ventilation you may stop ventilating; the baby is stillborn. Inform and comfort the mother.
 |