



THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

**Management Protocols for Emergency
Obstetric and Newborn Care**

Reviewed in April, 2019



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ABBREVIATIONS

ABC	Airway, Breathing, Circulation
AMTSL	Active Management of third stage of labour
APH	Antepartum Haemorrhage
BP	Blood Pressure
C/S	Caesarean Section
D&C	Dilatation and Curettage
DIC	Disseminated Intravascular Coagulopathy
FBP	Full Blood Picture
FFP	Fresh Frozen Plasma
FPD	Foeto-Pelvic Disproportion
Hb	Haemoglobin
Hcg	Human Chorionic Gonadotrophic hormone
IU	International Units
IUFD	Intrauterine Foetal Death
IM	Intramuscular
IV	Intravenous
MgSo ₄	Magnesium Sulphate
MoH	Ministry of Health
MVA	Manual Vacuum Aspiration
NS	Normal Saline
PRC	Packed Red Cell
PPH	Postpartum Haemorrhage
PV	Per Vagina
RL	Ringer's Lactate
RPOC	Retained Product of Conception
RFT	Renal Function Test
AMTSL	Active management of third stage of labour
PV	Per vaginal

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SECTION ONE

INTRODUCTION

1.1 BACKGROUND INFORMATION

Maternal and neonatal mortality still high in Zanzibar. Currently, the maternal mortality ratio is estimated at 191 per 100,000 live births (MoH-Health Bulletin, 2017) and neonatal mortality of 28 per 1000 live birth (TDHS-MIS, 2015-16). The six most common causes of these maternal deaths are pregnancy-induced hypertension (31.1%), post-partum haemorrhage (24.4%), antepartum haemorrhage (17.7%), anaemia (15.5%), ruptured uterus (8.8%) and sepsis (2.2%) (MoH-Health Bulletin, 2017).

The causes of neonatal mortality include birth asphyxia (31%), complications of prematurity (25%), and sepsis (20%) (VASA Report, 2018). The majority of maternal and perinatal death can be prevented if pregnant women can be assured of quality antenatal, natal and postnatal care and access to prompt and appropriate emergency obstetric care when such complications occur.

This Management Protocol for Emergency Obstetric and Neonatal Care helps maternal and child health care providers to correctly identify obstetric and neonatal complications, to make timely and appropriate decisions for managing and/or referring the mother and baby from lower level to the tertiary level where advanced care is accessible. The protocol is intended for health care providers at all levels of care delivery system, from primary to tertiary health care level.

SECTION TWO

CARE OF THE MOTHER WITH OBSTETRIC COMPLICATIONS

2.1 HYPERTENSIVE DISORDERS IN PREGNANCY

Hypertension in pregnancy is a blood pressure (BP) 140/90 mmHg or more, on two occasions at least four hours apart OR when the baseline is known, a rise of systolic BP by 30mmHg and/or diastolic BP by 15mmHg.

The conditions include: Chronic Hypertension, Gestational Hypertension, pre-eclampsia and eclampsia. But this protocol will focus on pre-eclampsia and eclampsia.

1. Classification:

1. Mild to moderate pre-eclampsia
2. Severe pre-eclampsia
3. Eclampsia

1.1.1 MILD TO MODERATE PRE ECLAMPSIA

- The systolic BP is 140 – 159 mmHg
 - The diastolic BP is 90 - 109 mmHg
 - Proteinuria of up to ++ ($\geq 0.30\text{g}/24\text{hr}$)
- } After 20 weeks of gestation

1. Signs

- Two readings of diastolic BP 90–109 mmHg taken 4 hours apart
- Proteinuria of up to ++ ($\geq 0.30\text{ g}/24\text{h}$)
- Pre-tibial oedema may or may not be present
- Normal tendon reflexes
- No sustained clonus

2. Management of Mild to Moderate Pre-Eclampsia

- Advice the woman to have adequate rest at home and avoid strenuous activities
- Give Methyldopa (Aldomet) tablets 250-500 mg orally every 8 hours for 14 days
- Advise the mother to eat a healthy diet and enough hydration
- Schedule antenatal visits every 2 weeks up to 32 weeks, and every week thereafter
- Strongly recommend for the mother to deliver in the hospital, and should be delivered at 37 - 38 weeks of gestation
- Advise the mother and relatives on danger signs and to attend health facility immediately when any of those signs are noted (refer to the box below)
- In case there is no improvement **INFORM** and **REFER** to the hospital for further management.

Danger Signs:

- Severe headache
- Blurred vision
- Nausea
- Epigastric pain

2.1.2 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.

1. Signs

- Systolic BP ≥ 160 mmHg or sudden elevation of systolic blood pressure of 30mmHg from baseline
- Diastolic BP ≥ 110 mmHg or sudden elevation of diastolic blood pressure 15mmHg from baseline
- Proteinuria of +++ or more
- Oliguria (scanty urine, urine output less than 500mls for 24 hours **OR** less than 30mls per hour)
- Hyper-reflexia (increased deep tendon reflexes)
- Presence of sustained clonus
- Pulmonary Oedema may be present (chest pain and dyspnoea)
- Generalized oedema

2. Symptoms

- Severe headache (helmet headache of increasing frequency, resistant to common analgesics)
- Nausea and/or vomiting
- Epigastric pain or right hypochondriac pain
- Visual disturbances (Blurred vision or seeing stars/ halos)

NB: Presence of any danger sign, hyper-reflexia or sustained clonus, despite systolic BP of lower than 160mmHg and the diastolic of less than 110mmHg the condition is considered as SEVERE PRE ECLAMPSIA

3. Management of Severe Pre-Eclampsia

Once the diagnosis of severe pre-eclampsia or imminent eclampsia has been made, manage the mother as **eclampsia case**.

2.1.3 ECLAMPSIA

Eclampsia is a condition peculiar to a pregnant or post-delivery woman, characterized by tonic to clonic convulsions. Eclamptic fits **most commonly** occur after the twentieth week of pregnancy and within two days of delivery.

1. Signs

- Convulsions (fits)

Other signs associate with eclampsia:

- Coma (unconsciousness)
- Systolic BP ≥ 160 mmHg
- Diastolic BP ≥ 110 mmHg
- Proteinuria of $\geq +++$ (≥ 0.3 g/24h)
- Oliguria (Urine output less than 500mls for 24 hours **OR** less than 30mls per hour)
- Hyper-reflexia (increased reflexes)

2. Management of Eclampsia

Principle of Management of Eclampsia

1. Control BP
2. Control convulsion
3. Deliver the baby
4. Follow up post-partum clinic

Pre-referral Management at lower level health facility

- Protect the patient from injury, but do not actively restrain her
- Position on her left side with two pillows supporting her back
- Keep the airway clear by inserting an airway device and ventilate if need arise
- Conduct a rapid evaluation of the general condition including vital signs (pulse, blood pressure, respiration, temperature)
- Insert Cannula and Foley catheter.

HOW to give Loading dose: Total 14gm of MgSO₄

- 4g slowly I.V (20ml of 20% solution) slowly over 10-20 minutes PLUS
- 10g of MgSO₄ I.M (5g in each buttock)

How to prepare 4g (20mls of 20% solution) for I.V?

- Wash your hands and dry
- Using one 20mls syringe, draw 4g (8mls of 50% MgSO₄) then add 12mls of saline or water of injection to make it 20% (4g per 20 mls)
- give it slowly I.V over 10-20 minutes

How to give 10g I.M ?

- Using two 20mls syringes draw 5 gm (10mls) in each syringe
- Add 1 ml of Lignocaine 2% in each syringe.
- Inject first syringe by deep IM into one buttock and inject the second syringe into another buttock
- Prepare the mother for REFERRAL
- Monitor vital signs (blood pressure, pulse rate, respiratory rate and temperature), reflexes and foetal heart rate every half an hour
- **INFORM** and **REFER** to hospital urgently under an escorting nurse with detailed clinical notes about and the treatment given to the mother

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 of onset of fits

NB: Admit the mother in a quiet room

Management at the hospital level:

Keep the airway clear:

- Keep the mother on her left side with two pillows supporting her neck
- Protect the mother from injuring herself, but do not actively restrain her
- Clear the mouth, nose and throat of secretions regularly

Control seizures:

- If convulsions recur after 15 minutes, give MgSO₄ 2g (10mls of 20% solution) IV over 10 minutes
- If convulsions persist give IV diazepam 10-20mg slowly

- If convulsions still persist after the above management then
 - Asses level of consciousness by using AVPU system
 - Open airway and give Oxygen via face mask
 - Consult anaesthetist team for possible intubation and assisted ventilation.
 - Transfer patient to ICU
 - At ICU give MgSO₄ infusion 1gm/hour for 24 hours by using infusion pump; i.e add 50mls (25gm) of MgSO₄ in 500mls of 0.5% Normal Saline or Ringer's lactate. Than infuse 20mls (1gm)/hour

Maintenance dose of MgSO₄:

NB: Start the maintenance dose of MgSO₄ for 24 hours after last seizure/delivery.

- MgSO₄ 5g (10mls of 50% solution) with 1ml of Lignocaine 2% in the same syringe every 4 hours into alternate buttocks
- Before repeating MgSO₄ administration, ensure that:
 - Respiration rate is at least 16 breaths per minute
 - Patellar reflexes are present
 - Urinary output is at least 30 ml per hour over the preceding 4 hours

NB: Withhold or delay $MgSO_4$ if there are any sign of Magnesium toxicity:

- Respiration rate falls below 16 breaths per minute
- Patellar reflexes are absent
- Urinary output falls below 30 ml per hour over preceding 4 hours

if there is contraindication in using $MgSO_4$ e.g. renal failure:

- IV diazepam 10mg can be administered.

Keep antidote ready (for Magnesium toxicity)

In case of respiratory arrest:

- Assist ventilation (mask and bag, anaesthesia apparatus, intubation)
- Give Calcium gluconate 1g (10mls of 10% solution) IV slowly to antagonize the effects of $MgSO_4$ until respiration begins

Recurrent fits:

If there is recurrent fits provider must rule out the following:

- Is the blood pressure controlled?
- Has the proper dose and route combination of $MgSO_4$ (IV and IM) given?
- Have the differential diagnoses correctly been ruled out e.g. severe malaria, meningitis, cerebral haemorrhage, hyponatremia, hypoglycaemia, epilepsy etc.?

Control the blood pressure

- Record BP every 30 minutes
- Start IV Hydralazine if the diastolic BP is >110 mmHg.

- Give Hydralazine 5mg IV slowly every half an hour (30 min) until diastolic BP is below 110 mmHg. (maximum dosage should not exceed 20mg in 24 hours)

How to prepare 5mg of hydralazine?

- 1ml ampule =20mg of hydralazine
- Mix 1ml of hydralazine with 3mls of saline to make 4mls solution. i.e each 1ml is equal to 5mg of hydralazine
- Using 10mls syringe, draw 1ml (5mg) from the obtained solution and then add 9mls of saline to make 10mls of 5mg Hydralazine and give it IV slowly.

Together with Hydralazine give Nifedipine 20mg twice a day until the BP is under controlled.

NB: Target BP should be not less than 130/90mmHg.

Control fluid balance

- Give I.V. Ringer's lactate OR Normal Saline slowly, 1litre in 6-8 hours (40 -50 drops/minute)
- Ensure an indwelling self-retained urinary catheter for continuous bladder drainage is in situ
- Monitor input and output closely and record findings on an input/output chart

NB: Avoid diuretics except in patients with Urine output <30mls/hr , or pulmonary oedema

4. Investigations

- Do a bed-side bleeding and clotting time.
- Take blood for:
 - Malaria parasites
 - Random blood sugar
 - Renal function test
 - Full blood picture (FBP)
 - Liver function test
 - Serum electrolytes
- CT-scan/ MRI in case of suspected cerebral haemorrhage.
- Do lumbar puncture for cerebral spinal fluid examination if meningitis is suspected

5. Deliver the mother

Patients with eclampsia should be delivered within 6-8 hours from the onset of seizures/ regardless of the gestational age. Vaginal delivery is the safest mode of delivery if there is no contraindication.

6. Eclampsia before labour

- Keep vein open
- Give Dexamethasone 12mg twice a day for 24 hours or Betamethasone 12mg Once a day for 48 hours (24mg in divided dose) when the gestational age is between 28 – 34 weeks)
- Induce labour if cervix is favourable, otherwise, perform a Caesarean Section (C/S) for obstetric indications, or if difficulty vaginal delivery is anticipated

NB: Stabilize the mother before Caesareans Section

Eclampsia during the first stage of labour

- Allow vaginal delivery if labour is progressing well and there are no contraindications
- Assist the second stage of labour by low cavity vacuum extraction
- Give pethidine 50mg IM to reduce pain in the late first stage of labour (from 8 cm dilatation)
- Do active management of third stage of labour:
 - Give Oxytocin 10IU IM within one minute after delivery of the baby (If Oxytocin is not available give Misoprostol 600mcg orally stat)

NB: Ergometrine is contraindicated to the patient with eclampsia

- Apply controlled cord traction
- Squeezing out clots after delivery of the placenta
- Avoid difficult delivery. If there is delay, perform a C/S after resuscitating the patient

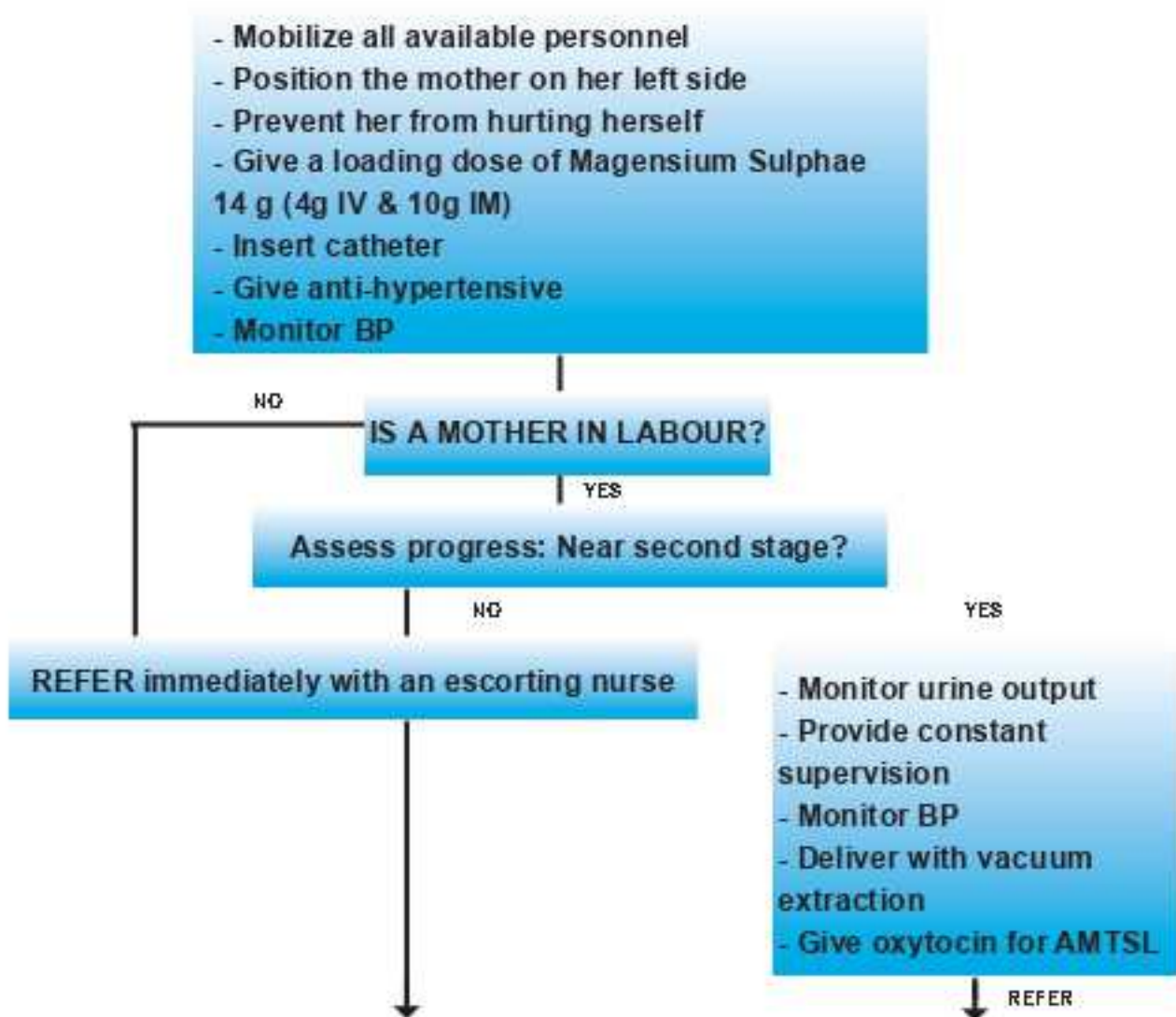
Eclampsia during the second stage of labour

- Assist delivery by a low cavity vacuum extraction if no contraindications (aim is to shorten 2nd stage of labour)
-

Post-delivery care

Seizures may occur after delivery, therefore, continue with careful treatment and observation as necessary for at least 48 hours post-delivery

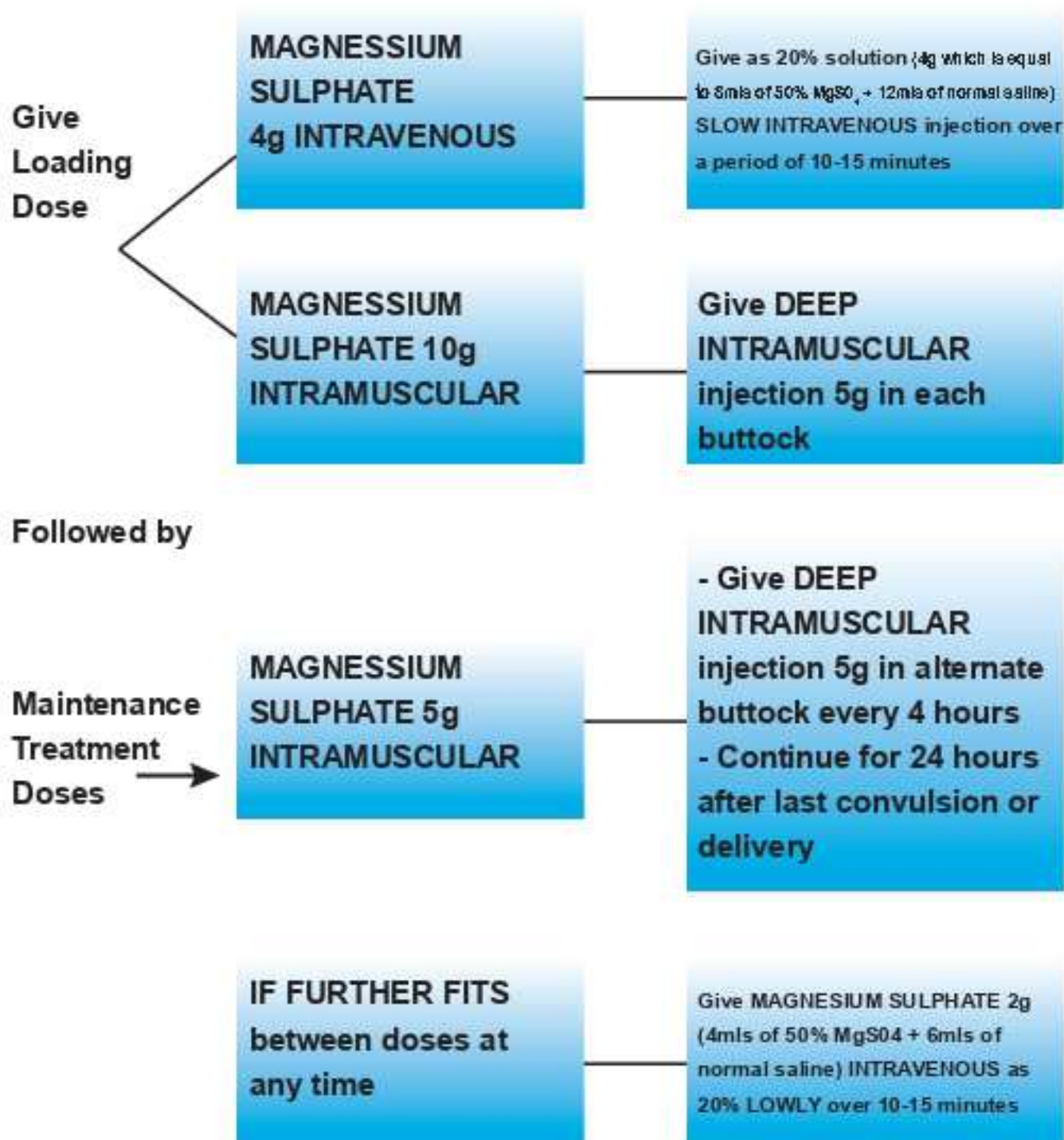
ECLAMPSIA MANAGEMENT FLOW CHART



AT THE HOSPITAL:

- Resuscitate mother with Ringer's lactate OR normal saline
- Give loading dose of Magnesium Sulphate: Slow IV injection of 4g (20ml of 20% solution in saline) over 10 - 20 minutes and give Magnesium sulphate 10g (20ml of 50% solution), 5g in each buttock as deep IM with 1ml of Lignocaine 2% in the same syringe. Ensure aseptic technique is observed. Warn the woman that she may feel burning sensation during injection.
- If convulsions recur after 15 minutes, give Magnesium sulphate 2g (10 ml of 20% solution) IV over 10 minutes
- Magnesium sulphate 5g (10ml of 50% solution) with 1ml of Lignocaine 2% in the same syringe every 4 hours into alternate buttocks
- Continue treatment with Magnesium sulphate for 24 hours after delivery or last seizures, whichever occur last
- Insert catheter and monitor urine output
- Give Hydralazine 5mg IV slowly 10-15min, if diastolic BP > 110mmHg
- Monitor vital signs every 30 mins
- If not yet delivered, deliver the woman within 6-8 hours. Perform C/S if indicated

MAGNESIUM SULPHATE REGIMEN FLOW CHART



- Monitor input and output
- Avoid diuretics unless oliguria (reduction in urine output) or pulmonary oedema is extreme
- Keep the mother in the hospital until BP is stabilized
- Continue with oral methyldopa 500 mg every 8 hours and Nifedipine 20mg twice a day until BP is back to normal.
- After discharge, post-natal clinic is mandatory since they are at risk of having chronic Hypertension.

NB:

- If a mother develops seizures after delivery, manage as above
- If no complication keeps the mother in postnatal ward at least 48hrs after delivery for observation

2.2 PROLONGED LABOUR

It is an establishment of an active phase of labour over 6 hours (active phase of labour start 4 cm). When a partograph is used, prolonged labour can be recognised by active phase longer than 6 hours.

i. Signs:

General Appearance

- Maternal Exhaustion
- Dehydration
- Increased temperature and pulse rate above 110bpm
- Concentrated urine due to fluid imbalance

ii. Laboratory examination:

- Ketone in the urine

iii. Management of Prolonged Labour

- Assess mother's general condition
- If dehydrated, give IV fluids (Ringer's lactate OR Normal saline)
- Continue Partograph to monitor maternal and foetal condition
- Insert urethral catheter.
-

INFORM and **REFER** to hospital urgently under an escorting nurse with detailed clinical notes about and the treatment given to the mother

Determine the cause:

- Assess power, passenger, pelvis and psyche (4 Ps)
- Give broad spectrum antibiotics if membranes ruptured more than 12 hours

NB: Subsequent management will depend on the identified cause

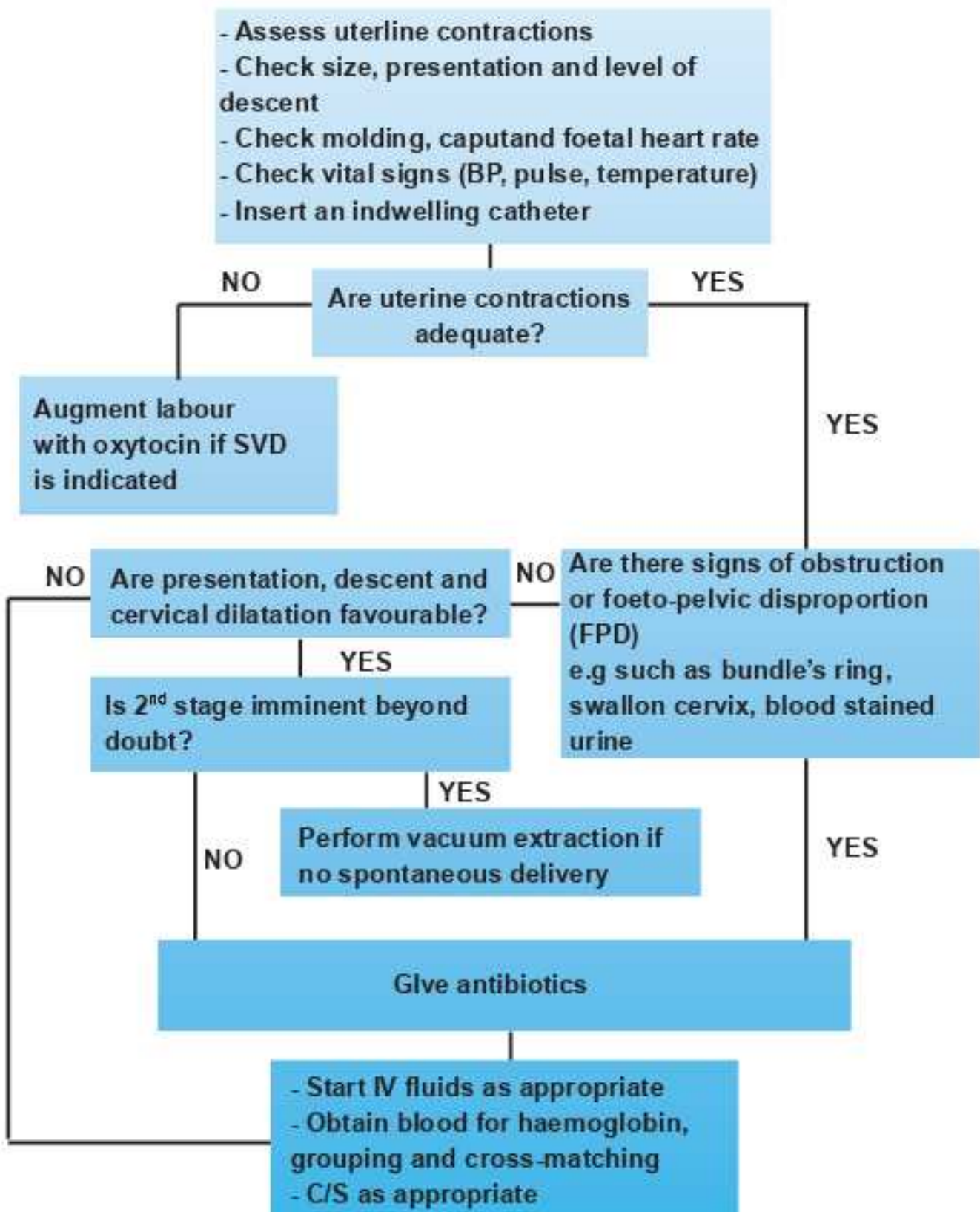
At the hospital level:

If there is uterine inertia (poor uterine contractions) and no contraindication:

- Augment labour with Oxytocin in titration manner under the medical expertise:
 - Primigravidae: 5IU in 500mls of Dextrose Saline **OR** Ringer's lactate
 - Multiparas: 2.5IU in 500ml of Dextrose Saline **OR** Ringer's lactate. Augment (allowed only in facilities that can perform surgical intervention)
- Starting with 10 drops per minute and increasing by 10 drops every 30 minutes (maximum rate of 60 drops per minute). Aim to achieve 3 contractions in 10 minutes each lasting more than 40 seconds
- If the cervix is fully dilated, no sign of obstruction, the presenting part is cephalic and the level is below 1/5, with a credited and skilled health provider, do a low cavity vacuum extraction if it can be done at that facility

NB: Oxytocin is potential dangerous it can rupture the uterus if not managed properly

PROLONGED LABOUR MANAGEMENT FLOW CHART



If Foeto-Pelvic Disproportion (FPD) or signs of obstruction:

- **INFORM** and **REFER** to hospital urgently under an escorting nurse with detailed clinical notes about and the treatment given to the mother
- If low cavity vacuum extraction cannot be done or if it fails after three pulls, perform C/S
- If hypertonic uterine contractions:
 - Give IV fluids or tocolytic drugs (e.g I.V MgSO₄ 2gr) to reduce contractions
 - Perform C/Section
- If maternal psychological distress, provide psychological support

2.3 OBSTRUCTED LABOUR

This implies mechanical obstruction and failure of progressive descent of the presenting part, despite adequate uterine contractions. If not recognised and addressed early, the outcome for the mother and baby can be severe and life-threatening. Maternal complications include uterine rupture, sepsis, foot drop, obstetric fistula and death; and for the baby, severe birth asphyxia, head injuries, sepsis and death.

i. Signs:

Early signs of obstruction

- Abnormal partograph findings (inadequate cervical dilatation and/or descent of the presenting part despite of strong contraction)
- Foetal distress may or may not be present

Late signs (prolonged) of obstruction

- Maternal distress
- Bandl's ring (distension of lower segment and formation of a retraction ring)
- Arrested foetal descent
- Non reassurance of foetal heart rate (bradycardia / Tachycardia)
- Cervix may/or many not be fully dilated
- Dry and Oedematous cervix and vulva
- Thick offensive meconium stained liquor may or may not be present.
- Strong or weak uterine contractions
- Excessive caput formation and severe moulding in cephalic presentation
- Present /or absence of blood stained urine

Management of Obstructed Labour

NOTE: urgent referral of patient is needed once patient present with early sign/symptoms of obstruction

Maternal resuscitation should be done:

- Establish two IV lines with large bore cannula (G18 OR G16) and obtain blood for haemoglobin, grouping and cross-matching
- Give Ringer's lactate **OR** Normal saline 1-2 L fast
- Oxygen therapy if necessary
- Monitor maternal oxygen saturation.
- Insert urethral Foley catheter for continuous bladder drainage
- Give Ceftriaxone 2g IV stat **PLUS** Gentamycin 80 mg IM stat **PLUS** Metronidazole 500 mg IV stat if there is signs/symptoms of sepsis.
- **INFORM** and **REFER** to hospital urgently under escort of a nurse and with potential blood donors, if there is no doctor to perform expertise management
- Urgent delivery by C/S at a referral hospital.

NB: In case of Prolonged obstruction or Injured bladder or blood stained urine, Leave indwelling self-retained Urinary catheter for at least 10 - 14 days to prevent FISTULA formation

2.4 ANTEPARTUM HAEMORRHAGE (APH)

It is a vaginal bleeding from 28 weeks of gestation age and prior to the birth of the baby.

i. Causes:

- Placenta praevia
- Abruptio placenta
- Uterine rupture
- Vasa previa (rare)
- Indeterminate (unknown cause) PV bleeding

2.4.1 PLACENTA PRAEVIA

Is a total or partial implantation of the placenta on lower segment of the uterus

i. Symptoms

- Painless vaginal bleeding of variable amounts which is bright red
- Foetal movements are usual present

ii. Signs

- Shock if bleeding is severe (sweating, cold extremities, rapid pulse, low blood pressure)
- Uterus is soft and non-tender
- Mal-presentation and/or High presenting part
- Foetal distress if blood loss is severe

NB: never perform a digital vaginal examination however gentle speculum examination can be done at tertiary level (to rule out other cervical condition)

Management of Placenta Praevia

- Call for help (Urgently mobilize staff available)
- Assess for signs of shock i.e. sweating, cold extremities, rapid pulse, low blood pressure
- Establish two IV lines with large bore cannula (G16 Or G18) and obtain blood for haemoglobin, grouping and cross-matching
- In case of Shock give at least 3 litres of Normal saline OR Ringer's lactate within ONE hour.
- Catheterisation to monitor input and output.
- Keep the mother in recovery position (left lateral)
- If in primary level: Urgently **INFORM** and **REFER** the mother to the referral health facility under escort of a nurse and with potential blood donors
- For hemodynamic instability patients give blood transfusion.
- Perform Obstetric Ultrasound
- In case of persisting and severely bleeding do an emergency C/S regardless of gestational age
- **If the bleeding is light or has stopped, mother is not in shock, foetus is alive and premature:**
- Do a gentle speculum examination to exclude local causes of bleeding on the cervix/vagina

- Keep the mother in hospital for bed rest until delivery (give Dexamethasone 12mg BD in 24hours or Betamethasone 12mg OD for 48 hours (24mg in divided dose) when the gestational age is between 28 – 34 weeks). Repeat the dose every after two weeks until 34weeks.
- Ensure blood donors or blood is available
- Correct anaemia – orally or parenterally under the accepted criteria.
- If ultrasound services are not urgently available, and no episode of heavy vaginal bleeding refer for diagnostic ultrasound then continue with conservative management until 37 weeks of gestation and do an elective C/S.

NB: It is safer to deliver all grades of placenta praevia by C/S when the placenta is posterior located. Moreover, for Placenta praevia anterior lying, patient should be referred to tertiary facility for C/S due to anticipated massive intraoperative blood loss that might necessitate hysterectomy.

2.4.2 ABRUPTIO PLACENTA

This refers to premature separation of a normally implanted placenta. It is a cause of intrauterine foetal death (IUFD), fresh still birth and can lead to massive obstetric haemorrhage leading to shock, coagulation disorders, kidney failure and maternal death.

i. Symptoms

- Abdominal pain
- Vaginal bleeding dark coloured of various amounts
- Often loss of foetal movements
- May have history of trauma
- Often have features of PIH
-

ii. Signs

- Variable degree of shock i.e. sweating, cold extremities, rapid pulse, low blood pressure
- Pallor
- Board hard (tense) and tender uterus
- Fundal height may be greater than gestational age
- Difficult to feel foetal parts
- Foetal heart beats may be abnormal or absent
- Blood stained liquor
- Bleeding tendency may develop (coagulopathy)

iii. Management of Abruptio Placenta

- Call for help. (Urgently mobilize staff available)
- Establish two IV lines with large bore cannula and obtain blood for haemoglobin, grouping and cross-matching
- Give - Ringer's lactate (RL) OR Normal Saline
- Give blood when indicated
- Insert urethral catheter and monitor input and output
- Control the pain if the diagnosis has been established
- Give Oxygen if indicated
- Monitor and document vital signs (blood pressure, pulse rate, respiratory rate, temperature) and state of consciousness every 15 minutes

If in primary level: Urgently INFORM and REFER the mother to the referral health facility under escort of a nurse and with potential blood donors

- Bedside clotting time to exclude disseminated intravascular coagulopathy (DIC) (a stable clot should be formed within 7 minutes)
- Ensure availability of blood and fresh frozen plasma
- Urgently deliver the mother (vagina delivery OR C/S- refer criteria bellow)

- **For Vaginal Delivery:** Perform vaginal examination gently, if the cervix is favourable and no contraindications for vaginal delivery:
 - Do artificial rupture of membranes
 - Augment labour with Oxytocin in titration manner as follows:
 - Primigravidae: 5IU in 500ml of Dextrose Saline or Ringer's lactate
 - Multiparas 2.5IU in 500ml of Dextrose Saline or Ringer's lactate
- Starting with 10 drops per minute and increasing by 10 drops every 30 minutes (maximum rate of 60 drops per minute). Aim to achieve at least 3 contractions in 10 minutes each lasting more than 40 seconds
- Monitor labour using a partograph
- Monitor input/output closely
- Do renal function test (RFT)
- After delivery, estimate blood loss including the retro-placental clot. Continue with Oxytocin 20 – 40 IU in 500 – 1000 mls respectively dextrose saline to run slowly (10drops/minute) for 4 - 6 hours

Perform an emergency Caesarean Section (C/S) when:

- Delivery is not imminent and the foetus is alive
- There is maternal hemodynamic instability.
- There is an obstetric indication for C/S

2.4.3 RUPTURED UTERUS

Uterine rupture is defined as a full-thickness separation of the uterine wall and the overlying serosa.

- The fetus is usually felt in the abdominal cavity
- Rupture of the uterus is a major cause of maternal and perinatal deaths
- It may be:
 - Antepartum (Silent) uterine rupture
 - Intrapartum uterine rupture
 - Complete or partial

i. **Risk Factors for Ruptured Uterus**

- Previous ruptured uterus
- Previous Caesarean Section
- Previous myomectomy or hysterotomy
- Obstructed labour
- Use of local herbs or uncontrolled uterotonic medications
- Instrumental delivery
- Manipulations, e.g. internal & external podalic versions
- Fundal pressure
-

ii. **History:**

- Poor progress of labour
- Sudden constant, severe abdominal pain
- Cessation of contractions and foetal movements
- Genital bleeding

iii.

Signs and symptoms

- Shock
- No uterine contractions
- Irregular uterine outline
- Foetal distress or foetal death
- Easily palpable foetal parts, shifting dullness, tender abdomen
- Pain at the tip of the shoulder

iv.

Management of ruptured Uterus

- Apply principles of resuscitation (secure Air way, Breathing, Circulation and Dehydration (ABCD) Give IV RL/NS at least 3Litres less than ONE hour, using a large-bore cannula (G 16-18)
- Insert an indwelling urethral catheter to monitor input & output
- Obtain blood for haemoglobin (Hb) and blood grouping and cross matching
- Administer broad spectrum antibiotic e.g. Ceftriaxone 1g stat IV and Metronidazole 500 mg stat
- Perform emergency laparotomy with/without hysterectomy
- Post-operative: give broad spectrum antibiotic for 7 days
- Counsel the mother for future fertility.

2.4.4 VASA PRAEVIA (RARE)

This is the rare condition which occurs when the foetal vessels run through the free placental membranes and trapped between foetus and internal os of the cervix. Being unprotected by placental tissue or umbilical cord, a vasa praevia is likely to rupture in active labour or when amniotomy is performed.

i. Signs and symptoms

- PV bleeding (dark red blood)
- Pulsating fetal vessels inside the internal os during vagina examination
- Sign of fetal distress following artificial rupture of membranes.

ii. Management of vasa praevia

- Resuscitation
- Urgent caesarean section if fetal heart beats present

1.1.5 INDETERMINATE (UNKNOWN CAUSE) PV BLEEDING

Antepartum haemorrhage of unknown origin is very common and accounting for more than half of the cases of APH. It is a diagnosis of exclusion

i. When to suspect APH of unknown origin

- Less severe PV bleeding, without signs of Shock and when the foetal condition is good
- Exclusion of placenta praevia, abruptio and other causes of APH
- Exclusion of local cause of PV bleeding by speculum examination

NB: A minor abruptio placenta that does not cause any other symptoms is the most likely cause of APH of unknown origin. If the placenta separation is going to extend, it usually happens within the first 24 hours following the bleeding. Therefore, patient must be hospitalized and closely observed for the signs of fetal distress.

ii. **Management of indeterminate PV bleeding**

- The patient must be hospitalised
- Regular monitoring of foetal heart rate during the first 24 hours
- If no further bleeding in the next 48 hours patient can be discharged through ANC
- Weekly follow up at ANC
- Abstain from coitus until delivery

2.5 POST-PARTUM HAEMORRHAGE (PPH)

Post-partum haemorrhage (PPH) refers to blood loss of 500 ml or more after vagina birth and more than 1000 mls by caesarean section OR any amount which may lead to hemodynamic instability, e.g. in severely anaemic patients, and patient with cardiac disease blood loss less than 500 mls can be fatal.

NB: PPH is an obstetric emergency that can lead to sudden death within two hours if there is no proper intervention; although health care providers usually fail to estimate actual blood loss.

i. Principles of Managing Post-Partum Haemorrhage

- Call for help (Urgently mobilize all staff available)
- Establish two IV lines with large bore canula and obtain blood for haemoglobin, urgent blood grouping and cross-matching
- Give Ringer's lactate **OR** Normal Saline
- Make sure the airway is clear
- Insert urethral catheter and monitor input and output
- Monitor vital signs (blood pressure, pulse rate, respiratory rate)
- Asses the mother to identify the cause of the bleeding

NB: Irrespective to the cause of bleeding do abdominal aorta compression

ii. Types:

1. **Primary PPH:** Occurs within 24 hours of delivery.
2. **Secondary PPH:** Occurs between 24 hours and six weeks after delivery.

2.5.1 PRIMARY POST-PARTUM HAEMORRHAGE

i. Signs

- Variable degree of shock (sweating, cold extremities, rapid pulse, low blood pressure).
- Pallor

I. CAUSES OF PPH - 4TS

1. Tonus- Uterine atony
2. Tissue- Retained placenta and/or membranes
3. Trauma- perineal or cervical tear
4. Thrombin - Coagulopathy

The subsequent management will depend on the identified cause of bleeding

1. Uterine Atony

Palpate the fundus of the uterus, if fundus is SOFT:

- Continue to massage the fundus of the uterus
- Give Oxytocin 20 IU IV stat then continue with maintenance dose 20 IV in 500mls of Ringer's lactate OR Normal saline run slowly (10drops/min). Together with oxytocin, give Misoprostol 1000 mcg rectally, where mother has not previously received Misoprostol for AMTSL OR Ergometrine if available (contraindicated in hypertensive disorder)
- Give Tranexamic Acid 1g IV bolus if bleeding continues apply Bimanual uterine compression
- If bleeding still continue apply balloon/condom tamponade

- **If bleeding continues, INFORM and REFER** immediately. A nurse should accompany the mother while applying uterine fundal massage or even abdominal aorta compression to slow the bleeding
- Have potential blood donors accompanying the mother to hospital
- Consider surgical intervention if bleeding persists.

2. Retained Placenta and/or Membranes

i. Retained and bleeding

- Repeat controlled cord traction. If this fails and bleeding continues, do a vaginal examination and prepare for manual removal of placenta.
 - If the cervix is wide open:
 - Control pain by using analgesia or anaesthesia
 - Inject 20IU of Oxytocin in 20mls of Normal saline to the Umbilical vein to stimulate placenta separation from the uterus
 - Perform manual removal of the placenta
 - Give broad spectrum antibiotics: e.g. Amoxicillin capsules 500 mg **PLUS** Metronidazole tablets 400 mg orally every 8 hours for 5 days
- Observe for vaginal bleeding at the facility for 24 hours
 - If the cervix is closed:
 - **INFORM and REFER** to hospital with a running drip of Oxytocin 20-40IU in 500-1000mls of Ringers lactate **OR** Normal saline respectively to run at 20 drops per minute.
 - Ensure escort by a nurse with proper documentation and with potential blood donors

NB: Prolong retention of placenta increase risk of massive PV bleeding

ii. Retained and not bleeding

- This may be placenta accreta, increta or/and percreta

Urgently **REFER** mother to hospital with an escorting nurse and with potential blood donors

- Consider surgical intervention

3. Trauma

- Inspect vagina and perineum for tears. Repair first and second degree perineal tears with local anaesthesia
- If third or fourth degree perineal tear repair should be done in theatre.
- If cervical tear, clamp it with padded sponge holding forceps and **INFORM** and **REFER** to the hospital, ensure escort of a nurse and potential blood donors accompanying the mother to the hospital.
- At tertiary level, Examination and repairing should be under anaesthesia.

5. Thrombin – Coagulopathy

- The coagulability of the blood becomes defective in certain obstetric complications like; abruption placenta, IUFD, massive blood loss, severe pre eclampsia or eclampsia
- Insert two lines large bore cannula and take blood for haemoglobin, grouping and cross matching
- Insert urethral catheter
- **INFORM** and **REFER** to the hospital, ensure escort of a nurse and potential blood donors accompanying the

mother to the hospital.

- At tertiary hospital, do Coagulation profile (Prolongation of coagulation time) Do full blood picture (thrombocytopenia), Liver Function Test (LFT), Renal Function Test (RFT) and electrolytes.
- Give fresh whole Blood 2 units or Packed red cell (PRC) 6 units
- Give FFP 4 units
- In massive transfusion protocols recommended, transfusion of FFP, Platelet and RBCs in Ratio of 1:1:1
- Tranexamic Acid 1g IV

II. POST MANAGEMENT CARE OF PPH

- Monitor vital signs (blood pressure, pulse rate, temperature, respiratory rate) every hour until normal
 - Monitor input and output closely and record findings on a chart
 - Continue with IV fluids for at least 24 hours
 - Re-check haemoglobin after 24 hours and assess the need for blood transfusion
 - Give broad spectrum antibiotics such as:
 - Ampicillin with Metronidazole 500mg 1V every 8 hours for 24 hours and then 400 mg orally every 8 hours for 4 days
 - Before discharge check for: Fever, lochia, uterine involution
- Correct anaemia - give Ferrous

sulphate tablets 200 mg orally every 8 hours **PLUS** Folic acid tablets 5mg orally once everyday up to 3 months post delivery

2.5.2 SECONDARY POSTPARTUM HAEMORRHAGE

This is the excessive vaginal bleeding in the period from 24 hours after delivery to six weeks (42 days) post-partum. It commonly occurs when mother has returned home and is among the major causes of maternal morbidity and mortality.

i. Signs

- Vaginal bleeding from the cervical os sometimes accompanied by abnormal vaginal discharge
- Variable degree of shock
- Pallor
- Sub-involuted tender uterus

ii. Symptoms

- Genital bleeding or increase in red lochia
- Offensive vaginal discharge
- Fever
- Lower abdominal pain

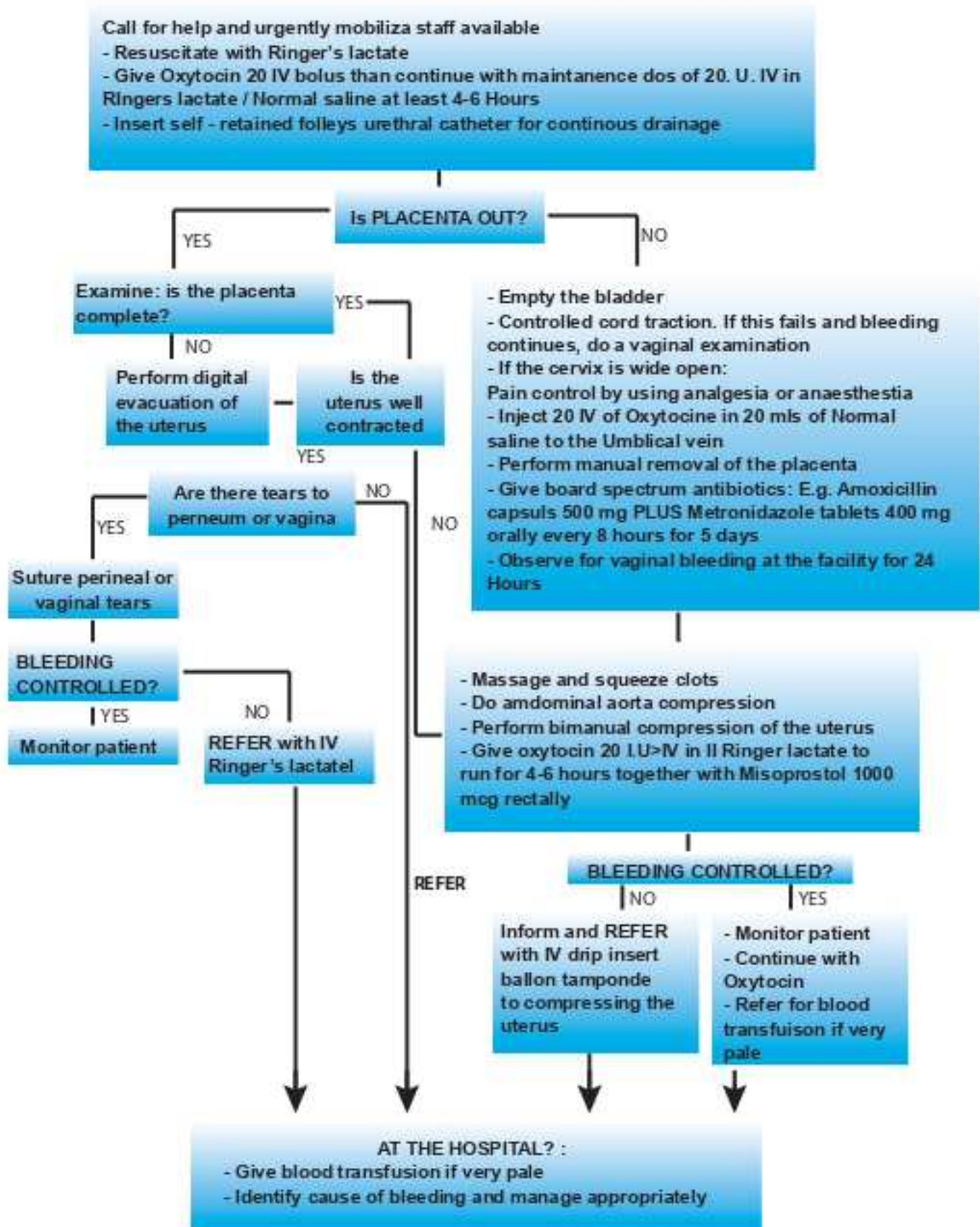
iii. Causes

- Endometritis
- Retained placenta tissues.
- Coagulation disorders

Management of Secondary Post-Partum Haemorrhage
(Refer to the management of Primary PPH)

- At primary health facility, patient should be provided with basic management then refer urgently.
- Perform Ultrasonography to rule out presence of Retained Product of Conception (RPOC)
 - With evidence of RPOC: perform Dilatation and Curettage (D&C)
- Check blood profile to rule out DIC
 - If present: give Fresh Frozen Plasma (FFP) & whole fresh Blood
- Monitor vital signs (blood pressure, pulse rate, respiratory rate and temperature) every 15 minutes until normal then every 4 hours for 3 days
- Monitor input and output closely and record on a chart
- Give analgesics: Paracetamol tablets 1g orally every 8 hours for three days
- Give blood transfusion if clinically indicated
- Give antibiotics (triple therapy if endometritis is evident)

POST PARTUM HAEMORRAGE MANAGEMENT FLOW CHART



2.6 DISSEMINATED INTRAVASCULAR COAGULOPATHY

This is a pathological disruption of finely balanced process of haemostasis which lead to consumption or reduction of clotting factors resulting in massive haemorrhage and multiple organ failure.

i. Signs

- Multiple bleeding sites
- Multiple organ dysfunction

ii. Causes

Severe pre-eclampsia, eclampsia, HELLP syndrome, abruptio placenta, thrombo-embolism phenomenon (Amniotic fluid embolism), PPH, septicaemia, molar pregnancy, IUFD, prolonged labour, Acute liver failure.

iii. Management of DIC

- Insert two lines large bore cannula and take blood for haemoglobin, grouping and cross matching
- Insert urethral catheter
- ABCD principles of resuscitation
- Give Ringer's lactate/Normal saline 3L
- Do Coagulation profile (Prolongation of coagulation time)
- Do full blood picture (thrombocytopenia), Liver Function Test (LFT), Renal Function Test (RFT), Blood culture and Urine culture if suspect sepsis
- Give fresh whole Blood 2 units or Packed red cell (PRC) 6 units

- Give FFP 4 units
- In massive transfusion protocols recommended, transfusion of FFP, Platelet and RBCs in Ratio of 1:1:1
- Tranexamic Acid 1g IV
- Cover the mother to prevent hypothermia
- Manage electrolyte imbalance

NB: Massive Transfusion can result in to Hyperkalemia

2.7 SHOCK

It is a failure of the circulatory system to maintain adequate perfusion of the vital organs.

1. **Types of Shock**

i. **Hypovolemic**

Shock resulting from excessive loss of blood or other body fluids.

ii. **Septic (endotoxic)**

Shock resulting from toxins produced by gram-negative organisms infecting the body such as in septic abortion.

iii. **Anaphylactic shock**

Shock resulting from allergic reaction e.g. drugs like penicillin.

iv. **Vasovagal**

Shock resulting from excessive vagal discharge due to severe pain.

v. **Cardiogenic**

Shock resulting from heart disease, leading to pump failure e.g. in acute myocardial infarction.

vi. **Psychogenic**

Shock resulting from intense psychological reaction.

2. **Signs and Symptoms of Shock:**

- Fast, thread pulse (110/min or more)
- Low blood pressure (systolic <90 mm Hg)
- Pallor of the mucous membranes
- Sweatiness or cold clammy skin
- Rapid breathing (30 breaths/min or more)
- Anxiousness, alteration of level of consciousness

- Oliguria (<30 ml/hr.)

NB: Shock is a life-threatening condition that requires immediate and intensive treatment.

3. Management of Shock- Apply ABC Principles

i. **Airway**

- Look for signs of airway obstruction i.e. If noisy breathing, when present open airway by tilting the head and lifting the chin, if no response:
 - Perform jaw thrust
 - Suck the secretions if necessary

ii. **Breathing**

- Look, listen and feel for breathing
- If no breathing assist ventilation with ambu-bag and mask, calculate breathing rate (16 – 20 cycles/min)
- **Asses for oxygen saturation, if < 90** give oxygen by Ambu-bag 16 – 20 cycles/min or oxygen delivering system if indicated (give oxygen 4-6L/minute for adults and 2L/minute for children)
- If breathing improved, keep the mother on recovery position.

iii. **Circulation**

- Tilt the mother to the left lateral position using pillows, to reduce inferior vena cava compression if pregnant and will reduce risk of aspiration.
- Elevate legs to increase venous return Assess circulation by palpating radial or carotid arteries (colour of the hand, capillary refill <2 sec, limb temperature, pulse rate, BP and auscultate the heart)

- Rapidly infuse IV fluids, i.e Ringer's lactate or normal saline using wide bore cannula (G 16 or 18) fast in the ratio of 1:3 (ie 1lt of blood loss replace by 3 lts) aim is to achieve adequate PERFUSION
- Do blood transfusion as soon as possible
- Apply Non-Pneumatic Ant-Shock Garment (NASG)
- Auscultate for heart beats; if absent perform cardiac massage by continuously depressing sternum fast with 30 deep compression strokes and give 2 shots of ventilation using ambu-bag and mask

NB: Do not give fluids orally to a woman in shock.

Reassess response of the patient within 30 minutes to determine if condition is improving.

Signs of improvement include:

- Stabilizing pulse (90beats to normal)
- Increasing blood pressure (systolic 100mmHg or more)
- Improving level of consciousness
- Increasing urine output:
 - Maintenance fluids according to calculated dose.
 - Continue management for underlying cause of shock

In case of SEPTIC Shock

Resuscitation:

- Give fluids RL or NS (3litres in 24 hours)
- Blood transfusion
- Vasoactive drugs: e.g. dopamine
- Culture and sensitivity (blood, pus, urine)
- FBP
- IV Ceftriaxone 2g stat then 1g od for 7days and IV Gentamicin 80mg 12hrly for 7days
- IV Metronidazole 500mg 8hrly for 24-48 hours, then tabs 400mg 8hrly for 7days

2.8 MANAGEMENT OF UNCONSCIOUS PATIENT

It is the condition when the mother is unaware of both internal and external surrounding and unable to respond meaningful external stimuli

i. Signs and symptoms

Based on level of consciousness AVPU Score chart is used to assess the level of consciousness.

Table 2: Assessment of Level of Consciousness

AVPU	Glasgow Comma Scale (GCS)
Alert (eyes open simultaneously, aware and responsive to the environment)	13-15
Verbal response (eyes open only to verbal stimuli)	9-12
Pain (does not respond to questions but moves or cries out in response to painful stimuli)	4-8
Unresponsive (does not respond to any stimuli)	3

ii. Causes

Hypovolemia, eclampsia, diabetic ketoacidosis, septic shock, meningitis and severe malaria.

Management

The ABC principle is used. (Refer page 49-50).

NB: The treatment is direct to the cause.

2.9 ANEMIA IN PREGNANCY

Anemia in pregnancy is hemoglobin less than 11.0 g/dl.

1. Classification of anemia

- i. Mild anemia: haemoglobin (Hb) 9g to 10.9g / dl
- ii. Moderate anemia: Hb 7g / dl to <9g / dl
- iii. Severe anemia: Hb 4.5g/ to dl<7g/dl
- iv. Very severe anemia: Hb <4.5g/dl.

2. Management of Iron deficiency anemia

Prophylactic dose given as a supplement: combined Iron (200 mg) with folic acid (500 micrograms) once per day for those who have Hb >11g/dl. To be deleted or qualified as routine for non-anaemic pregnant women

- For mild to moderate anaemic patients higher dose of Iron (200 mg three time per day) and folic acid 500 micrograms once per day should be given.
- The dose should be taken after meal in order to minimize the side effects.
- The follow up visit should be scheduled after 4 weeks and the Hb is expected to rise by 2g/dl.

3. **Indications for the use of parenteral Iron**

- Patients who cannot tolerate per oral Iron intake
- Those who are not responding to the oral Iron
- Pregnancy in late third trimester (>35 weeks of gestation) with Hb of <9g/dl.

N.B:

- Mild to Moderate Anaemia is most of times asymptomatic
- Parenteral Iron should be given at inpatient setup

When parenteral iron is administered, precautions for Anaphylactic reactions should be taken. The medicine should be administered very slowly and some anaphylactic medications like hydrocortisone and adrenaline must be present.

4. **Indications for Blood Transfusion**

- In anaemic heart failure
- Very severe anemia (Hb of 4.5 g/dl or less)
- When there is severe anemia (Hb <7g/dl) with co-morbidities like eclampsia, sepsis, haemorrhage, renal failure and when there is a need for a surgical intervention.
- Hb of <9g / dl in late third trimester if parenteral Iron is not available.

5. **Severe anemia in pregnancy**

i. Signs

- Severe pallor of mucous membranes, conjunctiva, palms, and nail beds
- Signs of heart failure may be present:
 - Tachycardia (pulse rate more than 100 beats/min)
 - Dyspnoea (difficulty in breathing)
 - Tachypnoea (respiratory rate more than 24 breaths/minute).

ii. Symptoms

- Tiredness/general body weakness
- Exertion dyspnoea (shortness of breath when active)
- Headache
- Dizziness
- Palpitations
- Paroxysmal nocturnal dyspnoea (waking up at night, feeling breathless)
- Oedema (swelling of the face, hands, legs, etc.)

iii. Management of Severe Anaemia in Pregnancy

If not in labour or in early labour

- Prop up mother on bed in a sitting position
- Give Furosemide 80 mg intravenous (IV) stat if the woman has signs of heart failure
- Insert urethral catheter
- Give Oxygen if available

- Obtain blood for haemoglobin, grouping and cross-matching
- Transfusion of blood (Packed Red Cells)
- Monitor vital signs (blood pressure, pulse rate, temperature and respiratory rate) every half an hour while wait for transport
- Arrange for potential blood donors to accompany the mother to the hospital **INFORM** and **REFER URGENTLY**

NB: Do not give intravenous fluids

If the mother is in established labour

- Prop up mother on bed in a semi-sitting position
- Deliver at the facility, keeping mother in semi-sitting position
 - Do not allow mother to bear down with contractions
 - Assist second stage by low cavity vacuum extraction to shorten the second stage of labour
 - Before removal of placenta give diuretics (injection Lasix 80mg IM stat)
- Do active management of third stage of labour:
 - Give Oxytocin 10 IU intramuscular (IM) within one minute after delivery of the baby (if Oxytocin is not available give Misoprostol 600mcg orally stat).

NB: Do not administer Ergometrine

- Apply controlled cord traction
- Squeeze out clots after delivery of the placenta

- Monitor vital signs (blood pressure, pulse rate, respiratory rate and temperature) every half an hour
- Investigate and treat the underlying cause of anaemia

NB:

- Transfuse packed cells 24 hours post delivery
- Transfuse slowly, one unit to run for 4 hours
- Do not give blood in labour except in life threatening condition Hb <4.5 g/dl

2.10 MALARIA IN PREGNANCY

Severe/Complicated Malaria

SEVERE / COMPLICATED MALARIA – SIGNS AND SYMPTOMS:

- **SEVERE FATIGUE**
- **SEVERE ANAEMIA** – Hb <7 g/dL or clinically pale+++
- **JAUNDICE**
- **HYPOGLYCAEMIA** – RBG <3.0mmol/L
- **ACUTE PULMONARY OEDEMA** – bilateral basal crepitations, difficulties in breathing, dyspnea, tachypnea with RR>20, deterioration in horizontal position
- **CEREBRAL MALARIA** (suspected) – confusion, disorientation, altered consciousness (GCS <15), coma (GCS <8), agitation, convulsions, *confirm with brain imaging and lumbar puncture*
- **DARK URINE** – possibly sign of blackwater fever
- **ELECTROLYTES IMBALANCE** – due to renal dysfunction
- **VASOVAGAL COLLAPSE OR SHOCK** – hypotension and tachycardia not responding to IV fluids

FOETAL COMPLICATIONS: abortion, preterm delivery, IUGR and IUFD

MALARIA CONTROL PROGRAM ZANZIBAR – GUIDELINES 2018:

- A. NO NEED FOR ROUTINE CHECK-UP AT EVERY ANC VISIT
- B. NO NEED FOR PROPHYLACTIC MEDICATION
- C. **MRDT ONLY IN SUSPECTED MOTHERS** – e.g. fever, headache, hypoglycaemia, severe anaemia (Hb <8.0 g/dL)
- D. IN CASE MDRT IS NEGATIVE, RULE OUT OTHER INFECTIONS, E.G. UTI, TONSILITIS, CHKUNGUNYA, SEPTICAEMIA

TREATMENT

UNCOMPLICATED

FIRST TRIMESTER

- 1st line: Quinine (10mg/kg/8h) + Clindamycin (10mg/kg/12h) – both for 7 days
NB: in absence of Clindamycin then Quinine only
- 2nd line:
 - 1) Artesunate/Amodiaquine (ASAQ) 100mg/270mg (2 tablets) for 3 days; or
 - 2) Artemether/Lumefantrine (ALU) 20mg/120mg (2 tablets) 12hrly for 3 days

SECOND AND THIRD TRIMESTER

- 1st line: ASAQ
- 2nd line: ALU

**** Primaquine = contra-indicated **
DO NOT GIVE!**

SEVERE / COMPLICATED

IV treatment until patient can tolerate oral Artemisinin-based Combined Therapy = ACT

- 1st line : Artesunate inj 2.4mg/kg TDS (0-12-24h) for max 7 days
- 2nd line:
 - 1) Artemether inj 3.2mg stat, then 1.6mg OD for 5 days; or
 - 2) Quinine inj 10.0mg OD 7-10d (only initiate after RBG checked, and, in case of hypoglycaemia, administer D5 after first quinine injection)

Antibiotics *only* in case of

1. Evidence of concomitant bacterial infection, i.e. timely done FBP showing neutrophilia or positive blood culture
2. No/minimal improvement of clinical condition (fever) after the first dose of iv anti-malarials (<12h)

2.11 ABORTION

Abortion refers to loss or termination of pregnancy before 28 weeks of gestation.

If abortion or its complications, such as continued bleeding or infection, are not recognised early and managed effectively, they can compromise the life and obstetrical future of the woman.

1. Types of Abortion

- i. Threatened abortion
- ii. Inevitable abortion
- iii. Incomplete abortion
- iv. Septic abortion
- v. Complete abortion
- vi. Missed abortion

2.11.1 Threatened Abortion

Vaginal bleeding before 28 weeks of gestation with live foetus and a closed cervix.

1. Symptoms

- Minimal or no lower abdominal pain or cramps
- Slight to moderate vaginal bleeding

2. Signs

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

3. Management of Threatened Abortion

- Do speculum examination to find any local lesion
- Insert a large bore cannula and take blood for haemoglobin, grouping and cross matching if possible
- Check urine for pregnancy test
- Ultrasonography
- Advice the woman to have complete bed rest at home
- Advice the woman to avoid strenuous activities and sexual intercourse until the condition is stable
- Schedule a follow up after 5 days and then every two weeks
- Advice the mother to come immediately if:
 - Bleeding becomes heavy
 - She experiences offensive discharge
 - She has severe abdominal pain
- **INFORM** and **REFER** to hospital if:
 - Bleeding recurs
 - She has fever
 - She has offensive vaginal discharge
 - She has severe abdominal pain
 - Scan to confirm foetal viability, if possible
 - Admit the mother and manage appropriately if:
 - The foetus is dead
 - Bleeding recurs
 - She has fever
 - She has foul smelling vaginal discharge
 - She has severe abdominal pain
 - Unable to rest at home.

2.11.2 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 the products of conception are in situ.

1. Symptoms

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

2. 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

3. Management of Inevitable Abortion

- Insert a large bore cannula and take blood for haemoglobin, grouping and cross matching
- Give Ringer's lactate OR Normal saline
- If skilled personnel and equipment for manual vacuum aspiration (MVA) or evacuation are available and the gestation is less than 12 weeks evacuate uterus by MVA
- **REFER** to hospital with potential blood donors if:
 - MVA or evacuation is not possible
 - Bleeding is severe and evacuation of the uterus cannot be done immediately.

2.11.3 INCOMPLETE ABORTION

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

1. 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.

2. Symptoms

- Cramping/lower abdominal pain
- Vaginal bleeding
- Partial expulsion of products of conception.

3. Management of Incomplete Abortion

- Insert a large bore cannula and take blood for haemoglobin, grouping and cross matching if possible
- Give Ringer's lactate **OR** Normal saline to resuscitate the patient
- Do ultrasonography if possible
- Perform digital evacuation of products of conception
- If skilled personnel and equipment for MVA or evacuation are available and the pregnancy is less than 12 weeks perform the procedure and observe for 4- 6 hours
- Give Amoxicillin capsules 500 mg orally **PLUS** Metronidazole tablets 400 mg orally every 8 hours for 5 days
- Counsel for family planning and provide contraceptives

If mother is in shock:

- Insert a large bore cannula and take blood for haemoglobin, grouping and cross matching if possible
- Give Ringer's lactate **OR** Normal saline, 3 L or more to resuscitate the patient
- Give blood transfusion if necessary and is available
- **REFER** mother to hospital with the escort of a nurse and potential blood donors if:
 - MVA or evacuation is not possible
 - the gestation is more than 12 weeks
 - Severely pale
- Pregnancy less than or equal to 12 weeks:
 - Perform MVA.
 - Evacuation by sharp curettage should only be done if MVA is not available
 - Give Misoprostol 600 mcg PO once
- If pregnancy is more than 12 weeks:
 - Evacuate in theatre using ovum forceps and sharp curette
- Give antibiotics: Amoxicillin capsules 500 mg orally every 8 hours **PLUS** Metronidazole tablets 400 mg orally every 8 hours for 5 days
- Give Paracetamol tablets 1g orally every 8 hours for 3 days
- Give blood transfusion if indicated
- Counsel for family planning and provide contraceptives

2.11.4 COMPLETE ABORTION

Products of conception are completely expelled.

1. Signs

- Uterus smaller than gestation age and well contracted
- Cervix may or may not be completely closed

2. Symptoms

- History of completely expulsion of products of conception
- Minimal or no PV bleeding

3. Management of Complete Abortion

- If the mother is stable:
 - Give Amoxicillin capsules 500 mg orally **PLUS** Metronidazole tablets 400 mg orally every 8 hours for 5 days
 - Give Ferrous sulphate tablets 200 mg orally every 8 hours for 6 weeks in case of severe anemia
 - Do ultrasonography
 - Counsel for family planning and provide contraceptives
- If mother is in shock (haemorrhagic):
 - Insert two large bore cannula and take blood for haemoglobin, grouping and cross matching if possible
 - Give Ringer's lactate **OR** Normal saline, 3L or more to resuscitate the patient
 - **REFER** mother to hospital with potential blood donors
 - Give massive blood transfusion

2.11.5 Septic Abortion

An abortion complicated by infection. Sometimes history of interference with the pregnancy may be obtained.

1. Signs

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

2. Symptoms

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

3. Management of Septic Abortion

- Insert a large bore cannula and obtain blood for haemoglobin, grouping and cross-matching if possible
- Give Ringer's lactate **OR** Normal saline to resuscitate the patient
- Insert urethral catheter if possible
- **REFER** urgently to hospital with potential blood donors
- High Vaginal Swab for culture and sensitivity
- Give Ceftriaxone IV 2 g stat then 1g OD for five days **PLUS** Metronidazole 500mg 1V 8 hourly until mother is able to take medication orally **PLUS** Gentamicin IV 160mg stat then 80mg OD for five days

- Monitor input and output
- Check for Full Blood Picture and Blood Culture carryout uterine evacuation; immediately after the start of the antibiotic therapy if cervix is open.
- In case of severe infection (septic shock or sepsis), wait up to 24 hours before evacuation with the exception of severe bleeding.
- Monitor vital signs regularly (Blood Pressure, Temperature, pulse and respiration)
- Give Ferrous sulphate tablets 200 mg orally every 8 hours **PLUS** Folic acid 5 mg once every day for six weeks
- Counsel for family planning and provide contraceptives on discharge

2.11.6 MISSED ABORTION

Is an abortion in which the foetus dies but is retained within the uterus for 8 weeks or longer.

The symptoms of pregnancy may have ceased; genital bleeding may have stopped or passing minimal dark coloured blood.

1. Signs and symptoms of the mother is usual stable.

- Breasts may be secreting milk (galactorrhoea) and engorged.
- The uterus is not tender and size is less than gestational age.
- There may be dark coloured blood or sometimes no bleeding per vagina.
- The cervix is closed and firm.

NB: Presence of generalized peritonitis or pelvic abscess requires urgent laparotomy. Misoprostol is contraindicated in septic abortion or in severe bleeding.

- Repeat ultrasonography after two weeks, if missed abortion is confirmed:
 - Give misoprostol 600 mcg oral or 100 – 200 mcg vaginally
 - Perform Evacuation
 - Give Amoxicillin capsules 500 mg orally PLUS Metronidazole tablets 400 mg orally every 8 hours for 5 days
 - Give Ferrous Sulphate tablets 200 mg orally every 8 hours PLUS Folic acid tablets 5 mg orally once a day for 6 weeks
 - Counsel for family planning and provide contraceptives on discharge.
 - Give analgesics
 - Give follow up care

2.11.7. MISOPROSTOL DOSAGE TABLE

 MISOPROSTOL-ONLY RECOMMENDED REGIMENS 2017				
<13 weeks' gestation	13–26 weeks' gestation	>26 weeks' gestation ^a	Postpartum use	
Pregnancy termination^{1,3,4} 800µg sl every 3 hours or pv*/bucc every 3–12 hours (2–3 doses)	Pregnancy termination^{1,5,6} 13–24 weeks: 400µg pv*/sl/bucc every 3 hours ⁶ 25–26 weeks: 200µg pv*/sl/bucc every 4 hours ⁷	Pregnancy termination^{1,5,8} 27–28 weeks: 200µg pv*/sl/bucc every 4 hours ⁹ >28 weeks: 100µg pv*/sl/bucc every 6 hours	Postpartum hemorrhage (PPH) prophylaxis^{1,2,10} 600µg po (x1) or PPH secondary prevention¹¹ (approx. ≥350ml blood loss) 800µg sl (x1)	
Missed abortion^{1,2} 800µg pv* every 3 hours (x2) or 600µg sl every 3 hours (x2)	Fetal death^{10,11,12} 200µg pv*/sl/bucc every 4–6 hours	Fetal death^{2,8} 27–28 weeks: 100µg pv*/sl/bucc every 4 hours ¹ >28 weeks: 25µg pv* every 6 hours or 25µg po every 2 hours ⁸	PPH treatment^{1,2,10} 800µg sl (x1)	
Incomplete abortion^{2,3,4} 600µg po (x1) or 400µg sl (x1) or 400–800µg pv* (x1)	Inevitable abortion^{2,3,13,14} 200µg pv*/sl/bucc every 6 hours	Induction of labor^{15,16} 25µg pv* every 6 hours or 25µg po every 2 hours		
Cervical preparation for surgical abortion⁶ 400µg sl 1 hour before procedure or pv* 3 hours before procedure	Cervical preparation for surgical abortion⁶ 13–19 weeks: 400µg pv 3–4 hours before procedure >19 weeks: needs to be combined with other modalities			

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1. WHO Clinical practice handbook for safe abortion, 2014
2. von Hertzen et al. Lancet. 2007; Inwales et al. 2015 P1474; postinet
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4. Zahr et al. Human Reproduction. 2015; Kops et al. Evidence Database of Systematic Reviews, 2010
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6. Pezzini et al. Gynecology, 2013
7. Maik et al. LMO, 2013
8. WHO recommendations for induction of labour, 2011
9. FIGO Guidelines: Prevention of PPH with misoprostol, 2012
10. Pajuhar et al. BJOG. 2015
11. FIGO Guidelines: Treatment of PPH with misoprostol, 2012

Notes

1. If misoprostol is available in oral form, 800µg misoprostol is preferred to 800µg misoprostol¹
2. Included in the WHO Model List of Essential Medicines
3. For complete/inevitable abortion women should be treated based on their desire: women who have had menstrual period (1 day) before 1. Lower to later effect time 1–2 weeks (at least 1 week before expected date of delivery)
4. An additional dose can be added if the placenta has not been expelled 50 minutes after fetal expulsion
5. Several studies included during the 5 weeks' post-abortion have compared equivalent before use of 5.0µg, but other studies continued beyond 3 and achieved a higher fetal success rate with no safety issue
6. Follow local practice (if present) concerning uterine tone
7. If only 200µg tablets are available, single doses can be made by dissolving in water (see www.misoprostol.org)
8. Where available, oral 800µg tablets or single-coordinates are inadequate
9. Option for community-based programs

Route of Administration

- pv* – vaginal administration
- sl – sublingual (under the tongue)
- po – oral
- bucc – buccal (in the cheek)

* Avoid per vaginal route if bleeding and/or signs of infection

Rectal route is not included as a recommended route because the pharmacokinetic profile is not associated with the best efficacy.

2.11.8. MOLAR ABORTION/HYDATIDIFORM MOLES

A molar pregnancy is an abnormal pregnancy characterized by abnormal proliferation of the chorionic villi leading to multiple grape-like vesicles usually in the absence of an intact foetus.

1. **Signs**

- Expulsion of vesicles /grape-like tissues
- Absence of foetal parts
- Uterus boggy and the fundal height greater than gestational age
- Dilated cervix

2. **Symptoms**

- Abdominal pain with exaggerated pregnancy symptoms
- Heavy vaginal bleeding

3. **Management of Molar Abortion**

- Insert large bore cannula and obtain blood for haemoglobin, grouping and cross-matching
- Give Ringer's lactate **OR** Normal saline, 3 L or more to resuscitate the patient
- Check UPT
- **REFER** to hospital with potential blood donors
- Do Beta- HCG before evacuation
- Do chest X ray before evacuation to exclude lung metastasis
- Do abdominal pelvic ultrasonography
- Do suction and curettage: suction using MVA kit if the fundal height is less than 12 weeks **OR** electrical suction machine if fundal height more than 12 weeks

- During suction evacuation Give Oxytocin 20 IU in 1L Ringer's lactate **OR** Normal saline at 60 drops per minute to make the uterus firm
- Give blood transfusion if indicated

NB: Sign of empty uterus - Gurgling sound, frothy, closure of the cervix and contracted uterus

4. **Post Evacuation Care**

- Continue the Oxytocin drip for at least 6 hours
- Control ultrasound
- Check serum beta human Chorionic Gonadotrophic (hCG) hormone weekly until the test becomes negative. If persistently positive for 8 weeks **REFER** to oncology for chemotherapy.
- If unable to do beta hCG, then do weekly urine for pregnancy tests from the third week after evacuation.
- If pregnancy test becomes negative in any of the occasion, follow up the patient monthly with urine for pregnancy test for one year
- Give combined oral contraceptives for one year

NB: Molar pregnancy may lead to choriocarcinoma

- During follow up, do the following:
 - Ask for history of cough, difficulty in breathing, abnormal vaginal bleeding, persistent headache or fits

- Do auscultation of chest (lungs) detect abnormal sound like crepitation
- Pelvic examination for vaginal purple lesions and abdominal/adnexal masses
- Investigations: Chest X- ray, beta hCG/urine for pregnancy test

NB: Possible complications during the evacuation procedure including embolism, perforation, severe hemorrhage and infection.

2.11.9 ECTOPIC PREGNANCY

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

- A short period of amenorrhoea of about 6–8 weeks, but this may be absent in some patients

1. Types of Ectopic

1. Non-ruptured
2. Slow Leakage
3. Ruptured

1. Non-ruptured

i. Signs

- Tender cervix
- UPT positive
- Ultrasound shows features of empty uterus

ii. Symptoms

- Abdominal pain
- There may be history of infertility
- Per vaginal bleeding or spotting

2. Slow Leakage

i. Signs

- Pallor
- Tenderness
- Bulging Pouch of Douglas
- Culdocentesis (procedure in which peritoneal fluid is obtained from the peritoneal space of the pouch of Douglas) may be negative or positive

ii. Symptoms

- Persistent and localized abdominal pain, there may be a history of infertility
- Per vaginal bleeding or spotting

3. Ruptured

i. Signs

- Pallor (moderate to severe)
- Shock (Low or un-recordable blood pressure, sweating, cold extremities, pulse rate 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
- Positive urine for pregnancy test.

ii. Symptoms

- 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.

iii. Management of Ruptured Ectopic Pregnancy

- Insert a two large bore cannula and obtain blood for haemoglobin, grouping and cross-matching if possible
- Give Ringer's lactate OR normal saline 3L or more to resuscitate the patient
- Give Diclofenac 75 mg IM stat
- Insert urethral catheter
- Monitor vital signs
- Monitor input and output while waiting for transport
- Urgently **INFORM** and **REFER** to hospital with IV drip and escort of a nurse and potential blood donors.
-

NB: Refer to hospital even with minimal suspicion of ectopic pregnancy.

- Establish IV line with a large bore cannula and obtain blood for haemoglobin, grouping and cross-matching if not done
- Give Ringer's lactate **OR** Normal saline 3 L or more to resuscitate the patient
- Perform urgent laparotomy
 - Conserve the ovaries as much as possible
 - Explore the pelvic organ and cavity
 - Start transfusion after arresting bleeding

Post operation;

- ✓ Give Pethidine 100 mg IM every 8 hours for 24 hours
- ✓ Monitor vital signs (blood pressure, pulse rate, respiration rate) every half an hour for the first 4 hours then every 4 hours until mother is stable
- ✓ Monitor input and output and record on the chart
- ✓ Give fefol tablets 200 mg orally every 8 hours every day for six weeks on discharge
- ✓ Counsel for family planning and provide contraceptives on discharge

2.11.10 Puerperal Sepsis

Is an infection of the genital tract at any time between delivery and the 42 days following delivery.

NB: It is often associated with unsterile technique during labour and delivery. It may progress to serious or fatal complications. It may result in long term morbidity such as infertility.

i. Signs

- Persisting fever
- Tachycardia (increased pulse rate, 100 beats per minute or more)
- Tender lower abdomen with or without abdominal distension
- Sub-involuted uterus
- Abnormal lochia on vaginal examination

ii. Symptoms

- Fever
- Pelvic pain
- Abnormal lochia in smell, colour, amount and duration
- Vaginal bleeding may be present

iii. Management of Puerperal Sepsis

- Admit
- Check full blood count
- Take a high vaginal swab for culture and sensitivity
- Take blood for culture and sensitivity

- Do ultrasound of the abdomen to exclude retained products or pelvic abscess
- Rehydrate the patient accordingly
- Give paracetamol tablets 1g orally every 8 hours for 3 days
- Cold shower or tepid sponging to lower temperature if high
- Give Ceftriaxone IV 2 g stat then 1g OD for five days **PLUS** Metronidazole 500mg 1V 8 hourly until mother is able to take medication orally **PLUS** Gentamicin IV 160mg stat then 80mg OD for five days.
- Counsel for family planning and provide contraceptives
- **INFORM** and **REFER** if no response after treating the mother for 48 hours
- Give blood transfusion if mother is anaemic (haemoglobin 8.5g/dl or less with signs of heart failure (elevated jugular venous pressure, basal crepitation and enlarged, tender liver)
- Take vital signs and record
- Do urgent ultrasound if there is suspicion of tubo-ovarian mass or pelvic abscess
 - Conduct urgent laparotomy in case of generalized peritonitis or pelvic abscess
- Counsel for family planning and provide contraceptives

SECTION THREE

CARE OF THE NEWBORN WITH COMPLICATIONS

3.1 BIRTH ASPHYXIA

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

i. Signs

- Irregular, laboured breathing
- Weak or no cry
- Pallor or cyanosis
- Hypotonia (muscle weakness or limp)
- Bradycardia (slow or irregular heart beat below 100 beats/minute)
- A poor response to stimulation
- Apgar score below 7 at 5 minutes
- Seizures mostly in the first 24 hours of life due to hypoxic ischemic brain insult

APGAR SCORING SYSTEM

	0 Points	1 Points	2 Points	Points totaled
Activity (muscle tone)	Absent	Arms and legs flexed	Active movement	
Pulse	Absent	Below 100 bpm	Over 100 bpm	
Grimace (reflex irritability)	Flaccid	Some flexion of Extremities	Active motion (sneeze, cough, pull away)	
Appearance (skin color)	Blue, pale	Body, pink Extremities blue	Completely pink	
Respiration	Absent	Slow, irregular	Vigorous cry	

Severely depressed	0 - 3
Moderately depressed	4 - 6
Excellent condition	7 - 10

ii. Management of Asphyxiated New-Born

NB: It is very crucial to establish breathing in one minute. Delay to do so may lead to poor outcome.

Immediate Care of the Newborn Baby

As soon as the face is seen during second stage of labour, wipe the mouth and nose.

- Immediately after birth do the following:
 - Dry the baby from head to toe thoroughly and quickly
 - Remove wet clothes and quickly wrap or cover the newborn to provide warmth
 - Place the newborn on a clean warm, firm surface

Steps of doing a resuscitation

Follow the ABCs of resuscitation:

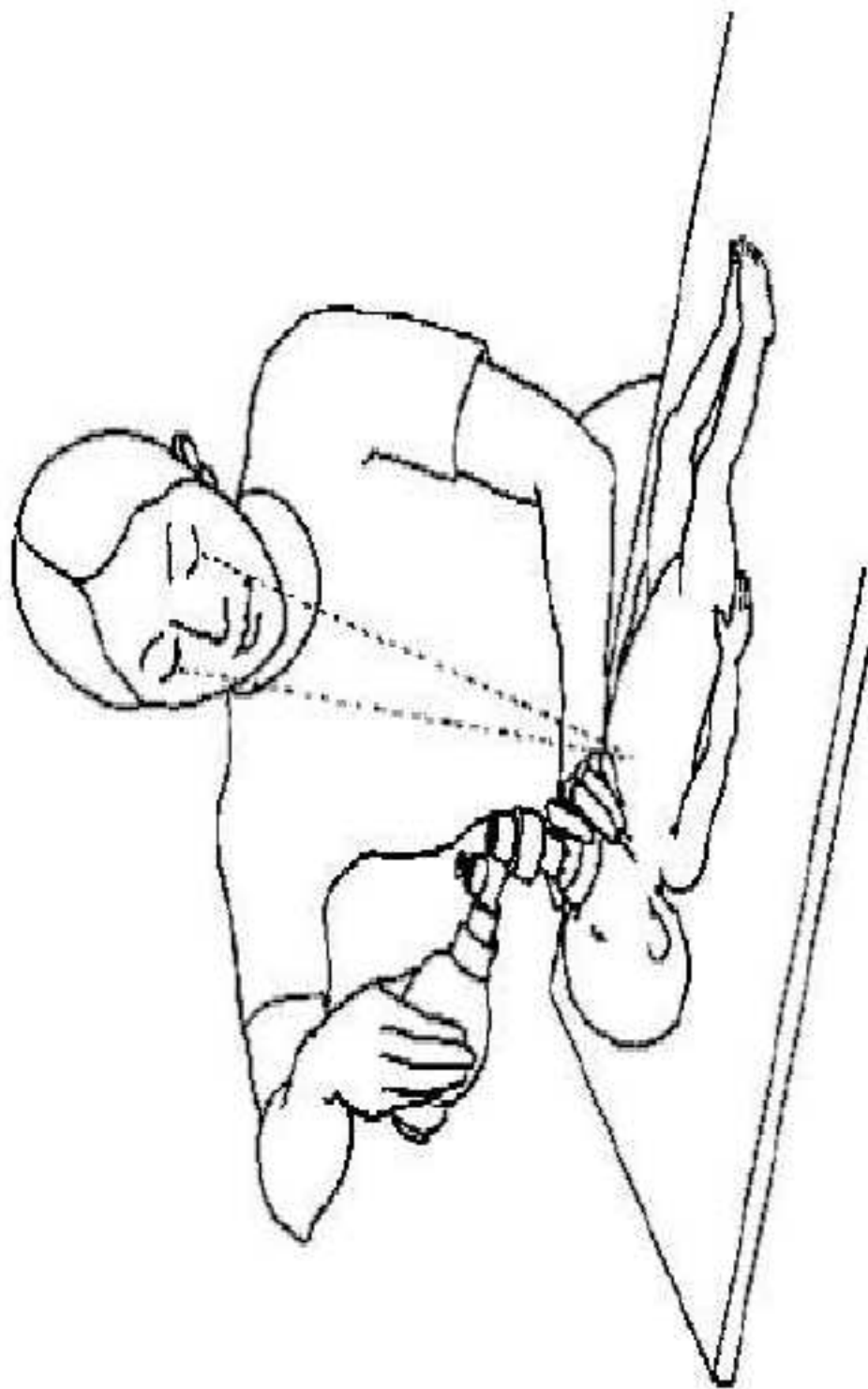
- Position the baby's head with the neck slightly extended to open the airway.
- Clear the airway by suctioning the mouth and then the nose if the secretions block the airway
- Rub the back 2 to 3 times gently but firmly
- Evaluate if the baby breath, if not start ventilation
- Place the mask on his/her 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 quickly assess if the newborn is breathing spontaneously

- Assess the heart rate while continuing to ventilate, if baby's heart rate is 60 bpm or more continue ventilation until normal breathing. If the heart rate is less than 60 bpm or no heart beat or there is severe bradycardia, give circles of 1 effective breath for every 3 chest compression, reassess heart rate every 1 – 2 min (Do the compressions by counting **one-two-three** then ventilate).
- Repeat this procedure until the heart beat is 80 / minute or more
- Give Vitamin K 1mg for term baby and 0.5mg for premature baby subcutaneous/IM.

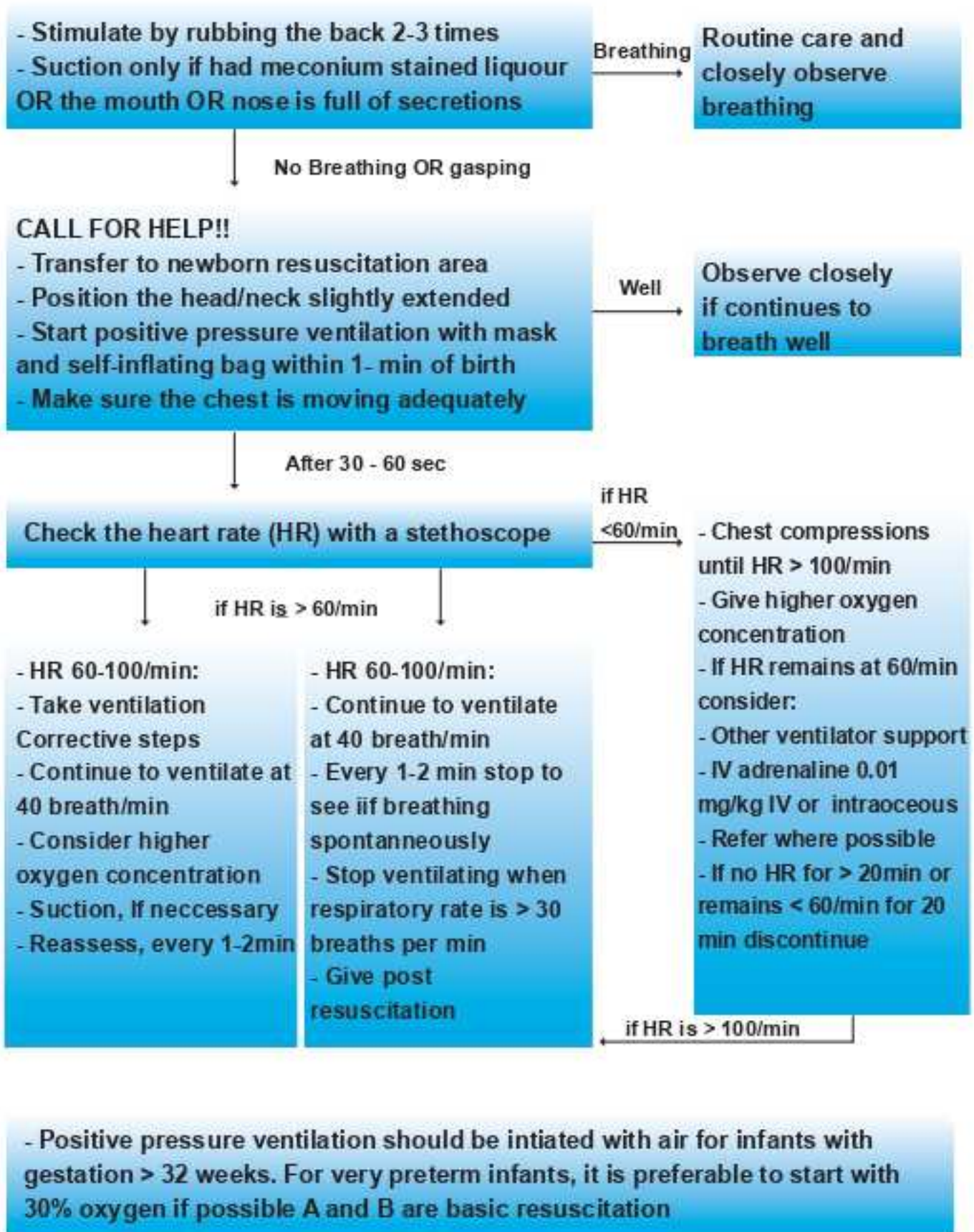
NB: Vitamin K should be given to all Newborn

- Transfer the resuscitated newborn to neonatal care unit for further observation and management.
- While referring, prevent heat loss by placing the baby skin-to-skin on the mother's chest, covering the baby's body and head
- If there are no signs of life in 20 minutes stop resuscitating, then:
 - The baby is pronounced dead
 - Provide emotional support to the mother and the family

Fig 2: Illustration on how to do resuscitation



NEW BORN RESUSCITATION FLOW CHART



3.2 DANGER SIGNS IN NEONATES

All newborn babies need close observation and monitoring at least the first 24 hours after birth. Presence of any of the following signs considered as danger signs.

1. Identifying a neonate to refer

The danger signs:

- Inability to breastfeed
- Lethargy
- Vomiting everything
- Hypothermia (<35.5 °C)
- Fever (>37.5 °C)
- Difficulty in breathing or fast breathing
- Severe chest in drawing
- Cyanosis
- Convulsions
- Jaundice
- Bleeding
- Congenital abnormalities
- Movements only when stimulated or no movement at all
- Respiratory rate less than 20b/min or apnoea (cessation of breathing for >15 seconds)
- Bulging fontanel
- Severe disease which needs surgery.

Neonates with risk of infection (e.g. PROM >18 hours, infected liquor, maternal infection)

3.3 PRETERM/LOW BIRTH WEIGHT (LBW)

The Preterm baby is when the baby born below 37 complete weeks of gestational age. The Low Birth Weight baby weighs 2500g or less at birth regardless of estimated period of gestation.

3.3.1 Stabilization before transfer

- Correct hypoglycaemia
- Stabilize temperature
- Stabilize breathing
- Give necessary treatment before transfer

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APPENDICES

Appeddix 1: List of Participants

S/N	Name	Destination	Working place
1	Hamed M Mohamed (Facilitator)	Consultant –Obstetrician/ Gynaecologist	MMH
2	George R Alcard (Facilitator)	Obstetrician/Gynaecologist	Ifakara - Morogoro
3	Ummulkulthum O. Hamad (Facilitator)	Obstetrician/Gynaecologist	MMH
4	Salma Abdi Mahmoud	Obstetrician/Gynaecologist	MMH/SUZA
5	Farhat salim Saleh	Paediatrician	MMH
6	Sharifa Salmin Awadh	FP/LSCS	IRCHP
7	Wanu B Khamis	Reproductive and child health coordinator	IRCH
8	Mtunwa Ibrahim	Assistant P/M	IRCH
9	Omar I. Mgongo	Obstetrician/Gynaecologist	Wete-Pemba
10	Dua S Mussa	Midwife specialist	MMH
11	Aboud Khamis Maabad	Medical doctor	AMH-Pemba
12	Zuvena A Salim	Midwife Specialist	MOH
13	Fatma Omar	CEO	MOH
14	Fatma A Mzee	Nurse midwife	MMH
15	Rahma M Ali	Senior Tutor	SUZA
16	Juna A Ali	Nurse	Makunduchi Hospital
17	Asya M Ali	Medical Officer	MMH
18	Hassanat M Salim	Medical Officer	MMH
19	Rafat O Masoud	Medical Officer	Krvunge Hospital

