

# Clinical Obstetrics Protocols for Merrygold Health Network

Vol.: I  
2008



Uttar Pradesh Social Franchising Project

**A project supported by USAID & SIFPSA. Implemented by HLPPT**



# Preface

HLFPPT is an organization committed to work with various partners pioneering innovations for bettering health outcomes for the poor. Merrygold Health Network is one of such innovations in the field of Social Franchising.

Merrygold Health Network, aims towards achieving an objective of improving Maternal and Child Health through increased access to low cost – high quality healthcare services, for rural and urban working poor in Uttar Pradesh. In U.P. Social Franchising Project (supported by USAID and SIFPSA), HLPPT as an implementing agency, will be establishing 70 fully franchised Merrygold Hospitals at district level, 700 partially franchised Merrysilver Clinics at block level and will be working with more than 10,000 Tarang partners (ASHAs, Chemists, Fare price shop owners, Tarang health committee members, Opinion leaders, Anganwadi workers, Depot holders) and AYUSH practitioners at the village level by 2010. Two model hospitals are already established in Kanpur and Agra focusing on maternal and child health care.

In our endeavour to make this a successful model, it was felt that training as well as development of some protocols for doctors, nurses and other team members will be a key component to improve the quality of service delivery and equip the staff with appropriate knowledge and skills.

***“Clinical Obstetric Protocols for Merrygold Health Network – 2008”***, a set of Obstetrics Protocols; were designed under the guidance and expertise of Prof. Alokendu Chatterjee (Vice President, National Board of Examination, Past President FOGSI), Dr. Joydev Mukherjee (Prof., Department of Gynecology and Obstetrics, R.G. Kar Medical College, Kolkata) and Dr. Partho Mukherjee (Associate Professor, IPGME & R & SSKM Hospital, Kolkata) to meet the above objectives. It has been pre-tested with Merrygold L0 hospital staff at Kanpur and Agra. The inputs and feedbacks from the hospital staff and comments of review committee members from SIFPSA and ITAP have been incorporated in the protocols.

I am sure that these protocols, when used by hospitals and clinics in the Social Franchising Project will act as an enabling tool towards excellent service delivery.

**HLFPPT**

# Acknowledgement

Clinical Obstetric Protocols are certain principles or standards to be followed during antenatal, intra-natal, post-partum period or when obstetric emergencies occur during pregnancy. Availability of Obstetric Management Protocols, also provide medico-legal protection. I present “*Clinical Obstetric Protocols for Merrygold Health Network – 2008*”, for better and more harmonized obstetrical and medical care. This manual is the result of sincere intent, aspirations and hard work of all those who are an integral part of the network.

I am grateful to Mr. G. Manoj, (CEO, HLPPT) who has shown faith in my entire team to undertake the task of preparing this manual.

My sincere thanks to Mr. Rajeev Kapoor I.A.S. (Executive Director - SIFPSA & Mission Director - NRHM), Mr. S. Krishnaswamy (General Manager Private Sector - SIFPSA), Dr. M. K. Sinha (General Manager Public Sector – SIFPSA), Ms. Savita Chauhan (Dy. General Manager Private Sector - SIFPSA), Dr. Lovleen Johari (Senior Reproductive Health Advisor, USAID) and Ms. Shuvi Sharma (Manager - Social Marketing & Franchising, ITAP) for their support and encouragement for developing these protocols.

I thank Dr. P. C. Das, Dr. Brinda Frey, Dr. Vandana Naidu, Dr. Amrita Kansal and Dr. Vibha Bansal from HLPPT for developing and designing these protocols.

My sincere thanks to Prof. Alokendu Chatterjee, Dr. Joydev Mukherjee and Dr. Patho Mukherjee, for their guidance in the development of these protocols. I also thank Ms. Divya Babbar for providing secretarial assistance.

I express deep appreciation and thanks to Dr. Manju Shukla, Dr. Veena Bajpai, Dr. Humaira Aquil, Dr. Jyoti Vajpayee for reviewing these protocols and providing their valuable comments.

The protocols have been pre tested by UPSF training team at both L0 hospitals at Kanpur and Agra. Efforts made by Mr. Alok Tabelabux, Mr. B. K. Mishra from HLPPT, in organizing trainings and active interest and involvement of entire Merrygold hospital staff in trainings was commendable.

Special mention needs to be made of Mr. Sharad Agarwal, Dr. Sanjeev Yadav, Dr. Brinda Frey, Mr. Rajeev Shukla, Mr. Gajendra Verma., Ms. Preeti Dwivedi and entire U.P. Social Franchising team for their efforts, valuable time and support for arranging and organizing training program based on these protocols.

**Dr. Vasanthi Krishnan**  
**Head, Technical Services Division**  
**HLPPT**

**Design and Development Team –**

<b>S.N.</b>	<b>Names</b>	<b>Designation &amp; Organization</b>
1.	Dr. Vasanthi Krishnan	Head, TSD, HLPPT
2.	Dr. P. C. Das	Sr. Consultant, HLPPT
3.	Dr. Brinda Frey	Head, Clinical Services - Merrygold Health Network, HLPPT
4.	Dr. Vandana Naidu	Program Manager, HLPPT
5.	Dr. Amrita Kansal	Consultant, HLPPT
4.	Dr. Vibha Bansal	Program Manager – Training and Quality Assurance, HLPPT

**Review Team –**

<b>S.N.</b>	<b>Names</b>	<b>Designation &amp; Organization</b>
1.	Prof. Alokendu Chatterjee	Vice President, National Board of Examination, Past President FOGSI
2.	Dr. Joydev Mukherjee	Prof., Department of Gynecology and Obstetrics, R.G. Kar Medical College, Kolkata
3.	Dr. Patho Mukherjee	Associate Professor, IPGME & R & SSKM Hospital, Kolkata
4.	Dr. Manju Shukla	Professor of Gynaecology, Queen Mary's Hospital, KGMU, Lucknow
5.	Dr. Veena Bajpai	PC-PS, SIFPSA, Lucknow
6.	Dr. Humaira Aquil	APC-PS, SIFPSA, Lucknow
7.	Dr. Jyoti Vajpayee	Country Director, EngenderHealth

# Abbreviations

AIDS	Acquired Immuno Deficiency Syndrome
ANC	Ante Natal Care
ANM	Auxiliary Nurse Midwife
APH	Ante Partum Hemorrhage
ASHA	Accredited Social Health Worker
AWW	Angan Wadi Worker
BP	Blood Pressure
CPD	Cephalo - pelvic Disproportion
CS	Cesarean Section
CVS	Cerebro-Vascular Accidents
EDD	Expected Date of Delivery
FHR	Foetal Heart Rate
FHS	Foetal Heart Sound
HIV	Human Immunodeficiency Virus
HLFPPT	Hindustan Latex Family Planning Promotion Trust
IFA	Iron and Folic Acid
IUD	Intra Uterine Death
LAM	Lactational Amenorrhoea Method
LMP	Last Menstrual period
MTP	Medical Termination of Pregnancy
PHC	Primary Health Center
PIH	Pregnancy Induced Hypertension
PPH	Post Partum Hemorrhage
PPNDT	Preconception Pre-Natal Diagnostic Techniques
P/V	Per vaginum
RR	Respiratory rate
PROM	Premature Rupture of Membranes
TT	Tetanus Toxoid
VBAC	Vaginal Birth after Caesarean

# Index

<b>S. No</b>	<b>Contents</b>	<b>Page</b>
1.	Antenatal Care	
2.	Birth Preparedness and Complication Readiness	
3.	Rapid Initial Assessment and Management of Shock	
4.	Prevention and Management of Anaemia in Pregnancy	
5.	Prevention and Management of Ante partum Hemorrhage (APH)	
6.	Management of Pre-Eclampsia and Eclampsia	
7.	Management of Breech Presentation	
8.	Management of Normal Labor	
9.	Prevention and Management of Prolonged labor/ Obstructed labor	
10.	Cesarean section	
11.	Prevention and Management of Post Partum Hemorrhage (PPH)	
12.	Vaginal Birth after Caesarean Section	
13.	Foetal Distress	
14.	Preterm Pre-labour Rupture of Membrane	
15.	Preterm Labour	
16.	Neonatal Resuscitation & Neonatal Care	
	<b>Annexure</b>	
	<b>References</b>	

## List of Figures

<b>No.</b>	<b>Figure</b>	<b>Page</b>
1	Flow diagram of Management of Meconium Stained Liquor	
2	Flow Diagram of Neonatal Resuscitation	

## List of Tables

<b>No.</b>	<b>Tables</b>	<b>Page</b>
1	Steps for initial Assessment of Shock	
2	Regimen of MgSO <sub>4</sub> for the management of sever Pre-eclampsia & Eclampsia	
3	Data on Maternal Morbidity / Mortality on Caesarean Section	
4	Management of Meconium-stained liquor	
5	Definition of normal, suspicious and pathological FHR traces	
6	Classification of FHR trace features	
7	Immediate Newborn Care – Carry out actions	
8	Keeping a newborn warm after delivery	

# 1. Antenatal Care

## 1.1 Registration at Reception

Name, age, address, order of pregnancy (GPAL - Gravida, Para, Abortion, and Live birth), LMP (Last Menstrual Period) and classification criteria (annex - 1) form should be filled up.

Patient goes to the nursing station. The Nurse records height, weight, BP, urine sugar/protein. Advise client for Hb<sub>gm</sub> %, Blood Group and Rh factor, VDRL.

## 1.2 Patient goes to Medical Officer's Room

The Medical officer assesses the Patient's status and makes a decision between: Minimum three visits (excluding the registration visit), if the classification criteria card does not include any 'Yes' answer. Even with 1 'YES' answer, WHO focussed Antenatal care of four visits will not apply.

Information about routine USG to exclude congenial abnormalities should be given to all women. It should be done between 18 weeks to 20 weeks gestational age. Any woman refusing to have an USG is responsible for the consequences.

If low lying placenta is seen at 18-20 weeks, repeat USG at 34-36 weeks. Transvaginal sonography is not recommended in case of low lying placenta. It is recommended in early pregnancy if required

## 1.3 Management

### 1.3.1 During First Trimester of Pregnancy

Diagnosing pregnancy by urine pregnancy test (Nischay pregnancy test kit)

If test is positive, note the uterine size (P/V examination)

Folic Acid (5 mg) supplementation only

If she wants MTP then refer to MTP Clinic

### **1.3.2 Management as per 'Basic Component of the new WHO Antenatal Care model (Annex - 2)**

#### **General Antenatal Advice**

1. Nutrition support (Extra 300 kcal per day compared to her usual diet, especially rich in proteins, iron, vitamin A and other essential micronutrient is recommended).
1. Iron supplementation
2. Folic Acid supplementation
3. Routine blood and urine examination
4. Advice to complete 2 doses of TT course
5. Advice about sexual intercourse, work and exercise
6. Birth preparedness and complication readiness
7. Inform date of next visit
8. Counselling against abuse of alcohol and tobacco
9. Use of / continue use of condoms to prevent STI
10. Restricting the use of other medicines without Doctor's advice
11. Danger signs that are to be noted by the woman and appropriately reported to the care centre immediately:
  - a. Any bleeding per vaginum any time
  - b. Any discharge of water per vaginum
  - c. Severe continuous headache
  - d. Disturbance of vision
  - e. Convulsions
  - f. High fever and prolonged malaise
  - g. Unusual abdominal pain
  - h. Difficulty in breathing

In case of any deviation from normalcy, refer to other protocols as appropriate

## 2. Birth Preparedness & Complication Readiness

2.1 All pregnant women and accompanying relative (husband, parent or in-laws) should be well informed about:

- The Expected Date of Delivery (EDD)
- The various danger signs during antenatal, natal and post natal period. In case of any of the danger signs, they should report to the hospital at once.
- The JSY scheme and the Voucher scheme of the Government.
- The total cost of a normal delivery and a caesarean section. Tell the family to keep aside small savings that will come in handy in any emergency

2.2 Counsel all pregnant women and their families on the following:

- Reaching a decision regarding conducting the delivery by a Skilled Birth Attendant in an institution and not by any unskilled one at home.
- Identifying a person who will be able to arrange transport when the woman goes into labour.
- Make prior arrangements for support at home, in case they have older children who need to be looked after for the period that the woman is in hospital.
- To keep ready two sets of soft clothing (washed, sun-dried, and neatly packed) for themselves and the baby. Clean sanitary pads would be required during her post natal period
- Care of the breast and exclusive breast feeding
- Family planning methods.

### 3. Rapid Initial Assessment & Management of Shock

When a woman of childbearing age presents with a problem, rapidly assess her condition to determine her degree of illness.

#### 3.1 Rapid Initial Assessment

**Table 1: Steps for initial Assessment of Shock**

Assess	Danger Signs	Consider
Airway and breathing	<p><b>LOOK FOR:</b></p> <ul style="list-style-type: none"> <li>• Cyanosis (blueness)</li> <li>• Respiratory distress</li> </ul> <p><b>EXAMINE:</b></p> <ul style="list-style-type: none"> <li>• Skin: pallor</li> <li>• Lungs: wheezing or rales</li> </ul>	<ul style="list-style-type: none"> <li>• Severe anaemia</li> <li>• Heart failure</li> <li>• Pneumonia</li> <li>• Asthma</li> </ul>
Circulation (signs of shock)	<p><b>EXAMINE:</b></p> <ul style="list-style-type: none"> <li>• skin: cool and clammy</li> <li>• pulse: fast (110 or more) and weak</li> <li>• blood pressure: low (systolic less than 90 mm Hg)</li> </ul>	<ul style="list-style-type: none"> <li>• Shock</li> </ul>
Vaginal bleeding (early or late pregnancy or after childbirth)	<p><b>ASK IF:</b></p> <ul style="list-style-type: none"> <li>• pregnant, length of gestation</li> <li>• recently given birth</li> <li>• placenta delivered</li> </ul> <p><b>EXAMINE:</b></p> <ul style="list-style-type: none"> <li>• vulva: amount of bleeding, placenta retained, obvious tears</li> <li>• uterus: atony</li> <li>• bladder: full</li> </ul>	<ul style="list-style-type: none"> <li>• abortion</li> <li>• ectopic pregnancy</li> <li>• molar pregnancy</li> <li>• Abruptio placentae</li> <li>• Ruptures uterus</li> <li>• Placenta praevia</li> <li>• Atonic uterus</li> <li>• Tears of cervix and vagina</li> <li>• Retained placenta</li> <li>• Inverted uterus</li> </ul>

	DO NOT DO A VAGINAL EXAM AT THIS STAGE	
Unconscious or convulsing	<p>ASK IF:</p> <ul style="list-style-type: none"> <li>• Pregnant, length of gestation</li> </ul> <p>EXAMINE:</p> <ul style="list-style-type: none"> <li>• Blood pressure: high (diastolic 90 mm Hg or more)</li> <li>• Temperature: 38°C or more</li> </ul>	<ul style="list-style-type: none"> <li>• Eclampsia</li> <li>• Malaria</li> <li>• Epilepsy</li> <li>• Tetanus</li> </ul>
Dangerous fever	<p>ASK IF:</p> <ul style="list-style-type: none"> <li>• weak, lethargic</li> <li>• frequent, painful urination</li> </ul> <p>EXAMINE:</p> <ul style="list-style-type: none"> <li>• temperature: 38°C</li> <li>• unconscious</li> <li>• neck: stiffness</li> <li>• lungs: shallow breathing, consolidation</li> <li>• abdomen: severe tenderness</li> <li>• vulva: purulent discharge</li> <li>• breasts: tender</li> </ul>	<ul style="list-style-type: none"> <li>• urinary tract infection</li> <li>• malaria</li> <li>• metritis</li> <li>• pelvic abscess</li> <li>• peritonitis</li> <li>• breast infection</li> <li>• complications of abortion</li> <li>• pneumonia</li> </ul>
Abdominal Pain	<p>ASK IF:</p> <ul style="list-style-type: none"> <li>• pregnant, length of gestation</li> <li>• blood pressure: low (systolic less than 90 mm Hg)</li> <li>• pulse: fast (110 or more)</li> <li>• temperature: 38°C or more</li> <li>• uterus: state of pregnancy</li> </ul>	<ul style="list-style-type: none"> <li>• ovarian cyst</li> <li>• appendicitis</li> <li>• ectopic pregnancy</li> <li>• possible term or preterm labour</li> <li>• amnionitis</li> <li>• abruption placentae</li> <li>• ruptured uterus</li> </ul>

This list does not include all the possible problems that a woman may face in a pregnancy or the puerperal period. It is meant to identify those problems that put the woman at greater risk of maternal morbidity and mortality.

The woman also needs **prompt attention** if she has any of the following signs:

- blood-stained mucus discharge (show) with palpable contractions
- ruptured membranes
- pallor
- weakness
- fainting
- severe headaches
- blurred vision
- vomiting
- fever
- respiratory distress

The woman should be sent to the front of the queue and promptly treated.

### 3.2 Implementing a Rapid Initial Assessment Scheme

Rapid initiation of treatment requires immediate recognition of the specific problem and quick action. This can be done by:

- Training all staff—including clerks, guards, door-keepers or switchboard operators—to react in an agreed upon fashion (“sound the alarm”, call for help) when a woman arrives at the facility with an obstetric emergency or pregnancy complication or when the facility is notified that a woman is being referred;
- Clinical or emergency drills with staff to ensure their readiness at all levels;
- Ensuring that access is not blocked (keys are available) and equipment is in working order (daily checks) and staff are properly trained to use it;
- Having norms and protocols (and knowing how to use them) to recognize a genuine emergency and know how to react immediately;
- Clearly identifying which women in the waiting room—even those waiting for routine consultations—warrant prompt or immediate attention from the health worker and should therefore pass to the front of the queue

\*\* agreeing on schemes by which women with emergencies can be exempted from payment, at least temporarily (local insurance schemes, health committee emergency funds).

### 3.3 Shock

Shock is characterized by failure of the circulatory system to maintain adequate perfusion of the vital organs. Shock is a **life-threatening condition** that requires **immediate and intensive treatment**.

**Suspect or anticipate shock** if at least one of the following is present:

- bleeding in early pregnancy (e.g. abortion, ectopic or molar pregnancy);
- bleeding in late pregnancy or labour (e.g. placenta praevia, abruptio placentae, rupture uterus);
- bleeding after childbirth (e.g. rupture uterus, uterine atony, tears of genital tract, retained placenta or placental fragments);
- infection (e.g. unsafe or septic abortion, amnionitis, metritis, pyelonephritis);
- Trauma (e.g. injury to uterus or bowel during abortion, rupture uterus, tears of genital tract).

## **Symptoms & Signs**

Diagnose shock if the following symptoms and signs are present:

- fast, weak pulse (110 per minute or more);
- Low blood pressure (systolic less than 90 mm Hg).

Other symptoms and signs of shock include:

- pallor (especially of inner eyelid, palms or around mouth);
- sweatiness or cold clammy skin;
- rapid breathing (rate of 30 breaths per minute or more);
- anxiousness, confusion or unconsciousness;
- Scanty urine output (less than 30 mL per hour).

## **3.4 Management of Shock**

### **3.4.1 Immediate Management**

- **SHOUT FOR HELP.** Urgently mobilize all available personnel.
- Monitor vital signs (pulse, blood pressure, respiration, temperature).
- Turn the woman onto her side to minimize the risk of aspiration if she vomits and to ensure that an airway is open.
- Keep the woman warm but do not overheat her as this will increase peripheral circulation and reduce blood supply to the vital centres.
- Elevate the legs to increase return of blood to the heart (if possible, raise the foot end of the bed).

### **3.4.2 Specific Management**

- Start an IV infusion (two if possible) using a large-bore (16-gauge or largest available) cannula or needle. Collect blood for estimation of haemoglobin,

immediate cross-match and bedside clotting (see below), just before infusion of fluids:

- Rapidly infuse IV fluids (normal saline or Ringer's lactate) initially at the rate of 1 L in 15–20 minutes;

**Note:** Avoid using plasma substitutes (e.g. dextran). There is no evidence that plasma substitutes are superior to normal saline in the resuscitation of a shocked woman and dextran can be harmful in large doses.

- Give at least 2 L of these fluids in the first hour. This is over and above fluid replacement for ongoing losses.

**Note:** A more rapid rate of infusion is required in the management of shock resulting from bleeding. Aim to replace 2–3 times the estimated fluid loss.

- If a **peripheral vein cannot be cannulated**, perform a venous cutdown
- Continue to monitor vital signs (every 15 minutes) and blood loss.
- Catheterize the bladder and monitor fluid intake and urine output.
- Give oxygen at 6–8 L per minute by mask or nasal cannulae.

### 3.4.3 Determining and Managing the Cause of Shock

**Determine the cause of shock after the woman is stabilized.**

A. If **heavy bleeding** is suspected as the cause of shock:

- Take steps simultaneously to stop bleeding (e.g. oxytocics, uterine massage, bimanual compression, aortic compression, preparations for surgical intervention);
- Transfuse as soon as possible to replace blood loss ;
- **Determine the cause of bleeding and manage:**
  - If **bleeding occurs during first 22 weeks of pregnancy**, suspect abortion, ectopic or molar pregnancy ;
  - If **bleeding occurs after 22 weeks or during labour but before delivery**, suspect placenta praevia, abruption placentae or rupture uterus ;
  - If **bleeding occurs after childbirth**, suspect rupture uterus, uterine atony, tears of genital tract, retained placenta or placental fragments.
- Reassess the woman's condition for signs of improvement

B. If **infection is suspected as the cause of shock:**

- Collect appropriate samples (blood, urine, pus) for microbial culture before starting antibiotics, if facilities are available;
- Give the woman a combination of antibiotics to cover aerobic and anaerobic infections and continue until she is fever-free for 48 hours :

- penicillin G 2 million units OR ampicillin 2 g IV every 6 hours;
- PLUS gentamicin 5 mg/kg body weight IV every 24 hours;
- PLUS metronidazole 500 mg IV every 8 hours.

**Do not give antibiotics by mouth to a woman in shock.**

C. If **trauma is suspected** as the cause of shock, prepare for surgical intervention.

### **3.4.4 Reassessment**

- Reassess the woman's response to fluids within 30 minutes to determine if her condition is improving. **Signs of improvement** include:
  - stabilizing pulse (rate of 90 per minute or less);
  - increasing blood pressure (systolic 100 mm Hg or more);
  - improving mental status (less confusion or anxiety);
  - Increasing urine output (30 mL per hour or more).
- If the woman's **condition improves**:
  - Adjust the rate of infusion of IV fluids to 1 L in 6 hours;
  - Continue management for the underlying cause of shock.
- If the woman's condition **fails to improve or stabilize**, she requires further management.

### **3.4.5 Further Management**

- Continue to infuse IV fluids, adjusting the rate of infusion to 1 L in 6 hours and maintain oxygen at 6–8 L per minute.
- Closely monitor the woman's condition.
- Perform laboratory tests including haematocrit, blood grouping and Rh typing and cross-match. If facilities are available, check serum electrolytes, serum creatinine and blood pH.

## 4. Prevention & Management of Anaemia in Pregnancy

### Diagnosis

Hb% less than 11 gm% during pregnancy

Prophylaxis and Treatment:

#### Prophylaxis -

**From 16 weeks onwards: (If Hb gm% > 11 gm %):**

60mg elemental iron + 1 mg Folic acid, OD till six weeks post partum  
Albendazole 400 mg HS one dose

**If Hb gm % between 7 gms% to 10.9 gms% (mild anemia)**

Change to therapeutic dosage, as under:

- 100 mg elemental iron with up to 2 mg Folic acid once daily till 12 weeks post partum
- Albendazole 400 mg HS (at bed time)one dose.
- Check PCV, peripheral smear. Exclude other causes of anaemia if any. Perform stool test (ova, worms), urine test (routine & microscopy). Perform Dental check up

#### **Note:**

*If recurrent vomiting after iron supplementation: Change sulfate to fumarate and then to gluconate*

*If repeated non-compliance and intolerance ascertained, then parenteral Fe supplementation may be considered*

**If Hb gm % between 5 to 6.9 gm%**

In Early pregnancy:

- Admit patient and investigate extensively to exclude serious causes like malaria, bone marrow abnormalities, thalassemia, chronic bleeding disorders, marrow abnormalities, leukemias, etc.
- If Iron (Fe) deficiency confirmed and gestation age is :
  - i. Below 32 weeks - give oral iron 100 mg elemental iron with up to 2 mg folic acid till 12 weeks post partum.
  - ii. Between 32 to 36 weeks - parenteral iron should be given **TRANSFER TO L0/L1**
  - iii. Over 36 weeks - whole blood transfusion **TRANSFER TO L0/L1**

**If Hb gm % less than 5 gm%**

- Packed cell transfusion with frusemide IV administered 30 mins after initiating transfusion. **TRANSFER TO L0/L1**
- If Congestive Cardiac Failure (CCF) - Packed cell transfusion. Urgent involvement of a physician, which means the physician should be brought in and provide necessary treatment **TRANSFER TO L0/L1**

**Indications of Blood Transfusion for Anemia in Pregnancy**

**TRANSFER TO L0/L1**

**If Pregnancy less than 36 weeks:**

- a Haemoglobin 5.0 g/dl or below, even without clinical signs of cardiac failure or hypoxia
- b Haemoglobin between 5 and 7.0 g/dl and in the presence of the following conditions:
  - Established or incipient cardiac failure or clinical evidence of hypoxia
  - Pneumonia or any other serious bacterial infection
  - Malaria
  - Pre-existing heart disease, not causally related to the anaemia.

**If Pregnancy 36 weeks or more:**

- a Hemoglobin 6.0 g/dl or below with or without any other signs and symptoms
- b Hemoglobin between 6.0 g/dl and 8.0 g/dl and in the presence of the following conditions:
  - Established or incipient cardiac failure or clinical evidence of hypoxia
  - Pneumonia or any other serious bacterial infection
  - Malaria
  - Pre-existing heart disease, not causally related to the anaemia

**TRANSFER TO L0/L1**

**For Elective CS with anaemia in cases with H/O APH, PPH and Previous CS, if:**

- a Hb gm % 8.0 to 10.0 gms%: then keep serum ready for 'cross' matching (Blood Group must be known)
- b Hb gm % < 8.0 gm %: then 2 units of Blood 'cross' matched and made available.

**Note-IV Iron Sucrose compound, available for moderate anaemia can be given if blood is not available.**

## 5. Prevention & Management of Ante Partum Haemorrhage (APH)

Presenting complaint:

Patient usually presents with bleeding per vaginum after 28 weeks of gestation but before birth of the baby.

**Diagnosis of Placenta Praevia:** Painless bleeding P / V

### Management of Placenta Praevia

#### Assess the bleeding

- a. **Up to Moderate Bleeding: TRANSFER TO L0/L1**
  - Investigate for Hb gm %, Blood group and 'cross' matching
  - Blood transfusion if required
  - Check the coagulation factors
  - USG to identify location of placenta as soon as possible
  - If placenta in lower segment: Expectant management in hospital if:
    - i. Pregnancy < 37 weeks
    - ii. Baby alive
    - iii. Woman's life not at risk
  
- b. **More than moderate bleeding evidence by tachycardia and hypotension**  
**TRANSFER TO L0/L1**
  - Transfuse blood liberally
  - Usual treatment of shock, if any
  - USG done to identify location of placenta
  - Terminate pregnancy
  
- c. **Definitive treatment:**
  - CS for major degrees of placenta praevia
  - Vaginal delivery in selected cases of minor degrees of placenta praevia
  - Blood should be kept ready at time of delivery

## 5.1 Management of Abruption Placenta

### Diagnosis of Abruption Placenta-

#### Presenting complaints-

Patient usually presents with bleeding after 22 weeks with intermittent or constant abdominal pain.

#### Signs and symptoms-

Shock,  
Tender/tense uterus,  
Decreased/absent foetal movements,  
Foetal distress or absent foetal heart sounds

#### 5.1.1 Mild case: **TRANSFER TO L0/L1**

Manage expectantly (watch and wait, follow up after one week) but may go home after USG.

#### 5.1.2 Severe case: **TRANSFER TO L0/L1**

- Restore blood volume through liberal IV fluids and Blood Transfusion.
- Monitor coagulation profile and urine volume
- Plan for early delivery.

#### **Methods of delivery are as follows:**

First choice: Aim for vaginal delivery by Artificial Rupture of membranes and augmentation with oxytocin.

#### **If:**

Response to induction & augmentation is poor OR Foetus in distress (FHS present),  
THEN GO FOR CAESAREAN SECTION.

Note: Exclude coagulation defects before CS

## 6. Management of Pre-eclampsia & Eclampsia

### 6.1 At-risk groups

- BP** : 130/84 at least on 2 occasions one week apart
- Family h/o** : High BP, Pre-eclampsia
- Past h/o** : Eclampsia, pre-eclampsia, chronic hypertension, renal disease, diabetes, thrombopaenia
- Specific h/o** : Nulliparity, obesity, extremes of maternal age, twin gestation, gestational diabetes

### 6.2 Definition:

BP: 140/90 mm Hg or more on 2 occasions recorded 6 hrs apart with proteinuria

**Mild:** Diastolic BP: 90 to 110 mm Hg without any complication (no Signs and symptoms, proteinuria up to 2+)

### **COUNSEL ABOUT WARNING SIGNS AND FOLLOW-UP ON A WEEKLY BASIS**

#### **Severe:**

- a BP > 160/110 mm Hg (either systolic or diastolic or both) with proteinuria > 3+ without any other complication  
**TRANSFER TOL0/L1**
- b BP < 160/ 110 mm Hg with any of the following: **TRANSFER TO L0/L1**
- Headache,
  - Visual symptom, blurred vision,
  - Oliguria,
  - Low platelets (less than 100,000)
  - High serum creatinine,
  - High serum uric acid,
  - Epigastric pain, or vomiting
  - IUGR without any other complication,
  - Elevated liver enzymes- ALT or AST >70 iu/litre
  - Pulmonary edema
  - Papilloedema

### 6.3 Management

### **6.3.1 Antenatal Management of Mild Type (pre-eclampsia):**

If BP stays at >140/90 but < 160/110, with mild proteinuria, then advice for:

- Full Investigation: renal, hepatic, haematology.
- Frequent visits
- Start anti-HT drugs if DBP > 100; preferably alpha methyl dopa or nifedipine
- Hospitalise if severity increases **TRANSFER TO L0/L1**
- Continue pregnancy up to term with fetal monitoring

### **6.3.2 Antenatal Management of Severe Type:**

#### **TRANSFER TO L0/L1**

#### **Antihypertensive drugs**

- If patient conscious then oral Nifedipine upto 90 mg/ day, in divided doses.
- Alternatively, or if patient is unconscious, IV Labetolol 20 mg IV every 20 mins. Increase incrementally by 20 mg till a maximum dose of 80mg /dose, total maximum dose not to exceed 220 mg per episode of hypertension. If patient comes with hypertension, first dose 20 mg, no response within 20 minutes, second dose 40 mg, wait for 20 minutes, third dose 80 mg wait for 20 minutes. Fourth dose should again be 80 mg. Thus the total dose should not be more than 220 mg per episodes of hypertension treated. If it is still not responding, then it has to be a second drug and not repetition of Labetolol.
- Full investigations – Urinary, Haematological, Blood Chemistry
- Termination of pregnancy:
  - i. If < than 24 weeks: terminate pregnancy
  - ii. If 24 to 36 weeks: continue pregnancy as far as practicable till fetal maturity is achieved. Termination if there is any maternal risk.
  - iii. Deliver if > 36 weeks gestation
  - iv. Stabilize BP by antihypertensive before termination
  - v. Prophylactic peripartum magnesium sulphate
  - vi. Monitoring mother and baby
  - vii. Steroids for preventing HELLP syndrome

## 6.4 Inpatient Monitoring

### 6.4.1 Maternal:

- a Renal, Hepatic, Haematological investigations
- b Check BP half hrly.
- c Check urine for protein daily

### 6.4.2 Foetal:

- a USG: Foetal weight, foetal heart sounds, amniotic fluid volume, placental maturity
- b Cardio Tocogram
- c Doppler – only in IUGR cases

## 6.5 Indications for CS in Pre-Eclampsia

- a Compromised baby
- b Impending Eclampsia - Uncontrolled blood pressure + appearance of any severe symptoms mentioned earlier
- c Low Bishop's score

## 6.6 Management during labour

### **TO BE CONDUCTED AT L0/L1**

#### **6.6.1 Management of Pre-Eclampsia during labour:**

- a Induction of labour
- b Augmentation of labour
- c Continue Antihypertensives
- d Prophylactic MagSulf in severe cases
- e Prophylactic ventouse/forceps delivery
- f Syntocinon in III stage of labour

#### **6.6.2 Management of Eclampsia during labour:**

- a **Magsulph** is the drug of choice –  
{In the MGH Network we use the ampoules which contain 1gm MagSulph/2ml ie (50% W/V)}

**Table 2: Regimen of MgSO<sub>4</sub> for the management of sever Pre-eclampsia & Eclampsia**

<b>Regimen</b>	<b>Loading dose</b>	<b>Maintenance dose</b>
Intramuscular (Pritchard)	4 gm I/V over 3-5 min followed by 10 gm deep I.M (5 gm in each buttock)	
<b><u>ONLY AT L2</u></b>	ie.4 ampoules diluted in 12ml of distilled water to be given slow IV over 3-5 min Then 5 ampoules in each buttock	<b><u>TRANSFER TO L0/L1</u></b>
Intravenous(Zuspan) With infusion pump	4-6 gm IV I.e. 5 ampoules in 10 ml of distilled water to be given IV slowly over 15-20 minutes	1-2 gm per hour I/V infusion 10 ampoules in 500ml slowly at the rate of 50ml/hr (1gm/hr)

- b Nifedipine or Labetolol (DOSE PRESCRIBED EARLIER)
- c General Care
- d CS - earlier than later if vaginal delivery is not possible in the next 5 to 6 hrs
- e If patient is comatosed for more than 12 hrs after Magsulph therapy then exclude Cerebro Vascular Accident by CT scan
- f Fluid therapy: 50-80 ml per hour with Ringer lactate solution. DO NOT OVERLOAD

## 7. Management of Breech Presentation

The incidence of breech presentation is about 1 in 5 at 28<sup>th</sup> week and drops to 1 in 20 at 34<sup>th</sup> week and to 1 in 35 at term. Thus in 3 out of 4, spontaneous correction into vertex presentation occurs by 34<sup>th</sup> week.

### **TRANSFER TO L0/L1**

- Prolonged labour with breech presentation is an indication for urgent caesarean section.
- Failure of labour to progress must be considered a sign of possible disproportion.

**The frequency of breech presentation is high in preterm labour.**

### 7.1 Early Labour

Ideally, every breech delivery should take place in a hospital with surgical capability.

- Attempt external version if:
  - Breech presentation is present at or after 37 weeks,(before 37 weeks a successful version is more likely to spontaneously revert back to breech presentation)
  - Vaginal delivery is possible;
  - Membranes are intact and amniotic fluid is adequate;
  - There are no complications (e.g. fetal growth restriction, uterine bleeding, previous caesarean delivery, fetal abnormalities, twin pregnancy, hypertension, fetal death).
- If **external version is successful**, proceed with normal childbirth
- If **external version fails**, proceed with vaginal breech delivery or caesarean section

### 7.2 Vaginal Breech Delivery

- A vaginal breech delivery by a skilled health care provider is safe and feasible under the following conditions:
  - Complete or frank breech
  - Adequate clinical pelvimetry
  - Foetus is not too large;
  - No previous caesarean section for cephalopelvic disproportion;
  - flexed head.
- Examine the woman regularly and record progress on a partograph.
- If the **membranes rupture**, examine the woman immediately to exclude cord prolapse.

- **Note: Do not rupture the membranes.**
- If the **cord prolapses** and **delivery is not imminent**, deliver by caesarean section.
- If there are **fetal heart rate abnormalities** (less than 100 or more than 180 beats per minute) or **prolonged labour**, deliver by caesarean section.

**Note: Meconium is common with breech labour and is not a sign of fetal distress if the foetal heart rate is normal.**

**The woman should not push until the cervix is fully dilated. Full dilatation should be confirmed by vaginal examination.**

### 7.3 Caesarean Section for Breech Presentation

- A caesarean section is safer than vaginal breech delivery and recommended in cases of:
  - Double footling breech;
  - Small or malformed pelvis;
  - Very large fetus
  - Previous caesarean section for cephalopelvic disproportion;
  - Hyperextended or deflexed head.

**Note: Elective caesarean section does not improve the outcome in preterm breech delivery.**

### 7.4 COMPLICATIONS

Fetal complications of breech presentation include:

- cord prolapse
- Birth trauma as a result of extended arm or head, incomplete dilatation of the cervix or cephalopelvic disproportion
- Asphyxia from cord prolapse, cord compression or placental detachment
- Arrested head;
- Damage to abdominal organs;
- Broken neck.

## 8. Management of Normal Labour

### 8.1 Management

#### 8.1.1 Management of Stage I:

- Diagnose and Confirm active labour
- Diet: Easily digestible semisolid foods with oral fluid as she wishes.
- Movement: As she wants, until the membrane ruptures. Strict bed-rest if she has heart disease, severe hypertensive disorders of pregnancy.
- Caretaker: Woman's relative may stay with her during labour and delivery.
- Analgesia:
  - Inj. Pethidine
  - Inj. Tramadol
- Epidural analgesia, if available
- Monitoring labour: preferably 1:1 ratio (Patient:Nurse), general and obstetric parameters, particularly cervical dilatation, station of the head and FHR & rhythm
- Augmentation of labour: Right time for performing Artificial Rupture of Membrane (ARM) is:
  - After cervical dilatation of more than 3 cms, with
  - Regular uterine contractions, at least 3 contractions per 10 min, and
  - Head engaged
- Colour of liquor is to be noted after performing ARM
- Partography – routine for all women in labour

#### 8.1.2 Management of Stage II of labour:

- Medical officer stands by the woman
- Continued monitoring till delivery
- Expedite labour if necessary by syntocinon IV drip, dose depending on cervical status and response to treatment

Selective Episiotomy only and not as a routine practice

#### 8.1.3 Active Management of Stage III of labour:

- a It is advisable for all the admitted obstetric cases in active labour to have an IV line started latest by the II stage of labour. If possible secure IV line with an intravenous canula only.
- b Active management of III stage of labour in all cases.
  - i. Prophylactic Oxytocics (Syntocinon) 10 units / 20 units in 500ml IV drip after the delivery of the baby and after excluding the presence of a second fetus in the uterus. Tab. Misoprostol can also be given per rectally.
  - ii. Cord clamping after cessation of pulsation (about 2 minutes after baby is born)
  - iii. Controlled Cord Traction

## 9. Management of Prolonged labour /Obstructed labour

### 9.1 Definition

Patients admitted with h/o active labour for more than 12 hrs. (it is assumed that our own hospital's inpatients will never go to the stage of prolonged or obstructed labour) **The latent phase is longer than 8 hours and cervical dilatation is to the right of the alert line on the partograph.**

### 9.2 Preventive care

Inpatient of the hospital who goes into labour must be managed prospectively and expected intervention must be made based on the alert and action lines of partogram.

### 9.3 Management of Prolonged & Obstructed Labour

#### **TRANSFER TO L0/L1**

##### **9.3.1 Basic Treatment**

- a Assess the foetal-maternal conditions –
  - P/R/T/BP
  - Dehydration level
  - Uterine contractions /presence of bandl's ring-to diagnose obstructed labour
  - Station of Presenting part (PP)/ Position of fetus
  - Foetal Heart Rate and rhythm
- b Correct dehydration and acidosis if any by IV route
- c Start antibiotics - Ampicillin + Gentamycin (may be omitted if membranes are intact or recently ruptured). Third generation Cephalosporins may be started in more desperate cases.
- d Start Metronidazole if anaerobic infection is suspected
- e P/V for:
  - Status of cervical dilatation, oedema
  - Station of PP ,
  - Colour of liquor,
  - Caput on the head,
  - Assessment of pelvis below the PP,
  - Membranes present / absent,
  - Foul smelling vaginal discharge

### **9.3.2 Decision about the mode of delivery**

#### **Indications of CS**

- a All cases of labour with:
  - CPD
  - Malpresentation
  - Foetal distress
  - Poor past obstetric history
  - Pre-Eclampsia
  - Obstructed labour with baby alive
  
- b If the baby is dead:
  - Senior most consultant to be called immediately
  - Craniotomy when the head is low and obstructed
  - Laparotomy in all the other cases for procedures covering:
    - Only CS or
    - CS + repair of rupture uterus, if feasible
    - Hysterectomy - when the uterus cannot be conserved as per the opinion of the senior consultant and if she has completed her family and given consent for this procedure

## 10. Caesarean Section

### To be done at L0/L1

**Caesarean section (CS)** is the end point of a number of care pathways in obstetrics. The royal college of obstetricians and gynaecologists has formulated evidence based guidelines pertaining to the use of CS and published a guideline in April, 2004.

#### **Common indications for a primary CS:**

- Failure to progress
- Presumed foetal compromise
- Breech presentations/malpresentation

#### **Common indications for a repeat CS:**

- Previous CS
- Failure to progress in labour
- Presumed foetal compromise
- Breech presentations/malpresentation

### **10.1 EMERGENCY CS**

Emergency CS is very common in all maternity units, everywhere. The decision-delivery interval of less than 30 minutes, is accepted as an audit standard for emergency services. Depending on the degree of urgency, 4 major indications are –

1. **Immediate threat to life of mother/ baby:** major degree of placenta previa bleeding markedly, cord prolapse, eclampsia just controlled, uncontrolled hypertension in severe pre-eclampsia with imminent eclampsia.
2. **Maternal / foetal health compromise but not immediate life threatening:** known major degree placenta previa, irregular foetal heart with acidosis, uncontrolled hypertension, pre-eclampsia, diabetes
3. **No compromise but needs early delivery to avoid complications:** failed external cephalic version, bad obstetric history, infertility

### **10.2 PLANNED CS**

It refers to a CS that is scheduled before the onset of labour for one or more specific clinical indications preferably after the completion of 39 weeks.

#### **Indications for a planned CS:**

1. **Breech presentations-** uncomplicated singleton breech with failed ECV, cases contraindicated for ECV

2. **Multiple pregnancy**-if 1<sup>st</sup> twin cephalic not to be done routinely , 1<sup>st</sup> twin non cephalic common practice is CS but effects uncertain , gestational age should not be less than 38 weeks if uncomplicated
3. **Preterm birth** –CS does not improve outcome , so CS not to be offered routinely
4. **Small for dates**- CS does not improve outcome , so CS not to be offered routinely
5. **Placenta previa** –CS always in type 3 and type 4
6. **CPD**-pelvimetry not useful in predicting failure of labour, so CS not done routinely.
7. **Mother To Child transmission of maternal infection is prevented by CS :**
  - HIV positive Women
  - Hep B –insufficient evidence for planned CS
  - Hep C-no CS as it does not reduce MTC
  - Hep C + HIV – CS
  - HSV in 3<sup>rd</sup> trimester –CS reduces risk of NN infection
  - HSV recurring at birth-no routine CS , uncertain effects

### 10.3 Risks and benefits associated with each CS –

These are the effects of CS when compared to vaginal delivery

1. short term effects around delivery following CS :
  - **complications increased after CS vis-a –vis vag. birth-** abdominal pain , bladder injury , respiratory morbidity , readmission to hospital , need for further surgery , Dilation and Curettage , laparotomy , hysterectomy , admission to ICU , thrombo -embolic disease , length of hospital stay , even maternal death
  - **complications not increased after CS vis-a –vis vaginal birth** Haemorrhage, infection, genital tract injury, initiation of micturition, neonatal morbidity/ mortality after planned CS.
  - **Complications decreased after CS vis-a –vis vag. birth-** perinea pain and trauma

#### Problems for neonates delivered by CS :

1. Neonatal respiratory morbidity
2. Iatrogenic prematurity
3. Laceration from surgeon’s scalpel 2% for vertex & 6% from non vertex.

**Table 3: Data on Maternal Morbidity / Mortality on Caesarean Section**

	Elective CS	Emergency CS	Vag. delivery
Morbidity	<2%	Around 3%	<2%

Mortality – from elective CS is less than vaginal delivery

(Most reports on Maternal Morbidity discounts risk of death during subsequent pregnancy)

**Long term effects :**

**Increased after CS** – desire of having no more children , infertility , miscarriage , ectopic, ante partum still birth , placenta previa/ abruption / adhesion in future pregnancy , uterine rupture in future pregnancy , increased need for hysterectomy , incisional hernia , intestinal obstruction .

**No difference in effects (at 3/12 PN) :** faecal incontinence , back pain , postnatal depression , dyspareunia ( fear psychosis)

**Decreased after CS** – urinary incontinence (at 3/12 PN), uterovaginal prolapse

**10.4 Anaesthesia for CS:**

- inform pt. , different anaesth./post op. analgesia
- regional anaesthesia safer & results in less morbidity in mother/baby than GA
- during CS under regional anaesthesia IV ephedrine/phenylephrine & volume preload by crystalloid/colloid to reduce risk of hypotension
- to reduce risk of aspiration pneumonitis , gastric volume & acidity-antacids/H2receptors/ proton pump inhibitors are given
- all CS pts. to be offered antiemetics
- OT table to have 15° tilt to reduce hypotension

**10.5 Guidelines for surgical techniques:**

These apply to a term pregnancy, where the lower segment is well formed. It is also advised that the techniques may need to be modified during repeat CS or placenta previa

**Guidelines:**

**The appropriate skin incision –**

Appropriate skin incision is transverse Joel Cohen incision, which comprises of straight skin incision, 3 cm above Symphysis Pubis, subsequent tissue layers opened bluntly, and, if necessary extended with scissors, not a knife.

Advantages are;

1. shorter operating time
2. Reduced postop. , febrile morbidity
3. less post operative pain
4. improved cosmetic effect

**LUS incision & delivery of the baby:**

- **Blunt extension** after a transverse cut (advantages-reduces blood loss/post partum haemorrhage/bl.transfusion)  
(**Note** – all women to be informed that risk of foetal tissue lacerations is about 2% with CS)
- **Delivery of baby** : forceps 1/2 blades used in some cases , but long term neonatal morbidity uncertain
- **Placenta** removed by controlled cord traction and not Manual Removal of Placenta
- **Oxytocics** - oxytocin 5units(I ampoule) slow iv drip
- **Caution**-double gloves for CS of HIV+ cases

**Repair of uterus :**

- Intraperitoneally; exteriorization is not recommended as it causes more pain, no improvement in blood loss/ infection rate.
- Single layer suture-effectiveness and safety uncertain. Until RCT available, repair in 2 layers recommended.
- Peritoneum repair-both visceral and parietal should not be sutured , as leaving them alone results in less postoperative analgesia and less operation time
- Rare midline abd. Incision-mass closure by slowly absorbable sutures , as it causes less incisional hernia / less dehiscence , than layered repair

**Subcutaneous tissue repair:**

- Only if it is >2 cm : routine repair does not reduce wound infection rate
- Superficial wound drain - no, as it does not reduce wound infection/wound haematoma

**Prophylactic antibiotics:**

Prophylactic antibiotics are advised- drug of choice is first generation cephalosporins / ampicillin.

**Thromboprophylaxis:**

It is suggested in all obst. cases that are at an increased risk of developing Venous Thrombo Embolism, Deep Venous Thrombosis. Use of graduated stockings, hydration, early mobilization, low molecular weight heparin is advocated.

**Baby care:**

- Good thermal care is very important as CS babies usually have a lower temperature
- Skin to skin contact with mother
- To start breast feeding as soon as possible
- To consider having 2 neonatologist for twin delivery

### Care of woman after CS:

- One to one observation by skilled/ trained staff until she regains airway control ,cardio vascular stability established and she is able to communicate any distress/ problems.[admission to ICU is 9/1000 CS cases]
- Patient to be observed every 30 minutes in 1<sup>st</sup>2 hours then hourly until basic parameters are stable
- Pt. with intrathecal opioids hrly observation for 12 hours for diamorphine and 24hrs. for morphine.
- Postop intrathecal opioids reduce analgesia need
- Pain relief –for severe pain, Co-codamol+ibuprofen, in moderate pain-co codamol only and for mild pain paracetamol only.
- Add NSAID with analgesics , if not contraindicated –improves pain relief
- No routine self retaining catheter after CS , but kept for 12 hours after last ‘top-up’ dose in regional anaesthesia
- Dressing may be removed>24 hours , wound be kept clean and dry , assess for wound infection
- Routine resp. physio does not improve respiratory signs/symptoms of cough, phlegm, body temperature, pulmonary changes, etc .CS increases risk of thromboembolic diseases, to note calf swellings, cough to detect early DVT/VTE.
- When to start food/ drink-any time she is thirsty/ hungry, if no complications.
- Possible urinary signs/symptoms are UTI , stress incontinence[ 4% after CS] and Urinary Tract injury [ 1 in 1000 CS]
- Irregular vaginal bleeding may be due to endometritis, rather than rpoc.
- Hospital stay-3/4 days [vag. delivery-1/2days], if no complaints and if medical help available at home, she may be allowed to go home after 24 hours.

## 10.6 How to reduce C-Section

### **Offer planned CS to women with**

- A term singleton breech (if external cephalic version is contraindicated or has failed)
- A twin pregnancy with breech first twin
- HIV
- Both HIV & Hepatitis C
- Primary genital herpes in the third trimester
- Grade 3 and 4 placenta praevia

### **Do not routinely offer planned CS to women with**

- Twin pregnancy ( first twin is cephalic at term)
- Preterm birth
- A small for gestational age baby
- Hepatitis B virus
- Hepatitis C virus
- Recurrent genital herpes at term

### **Maternal request for CS**

- Is not on its own an indication for CS
- Explore and discuss specific reasons
- Discuss benefits and risks of CS
- Offer counselling if fear of childbirth
- The clinician can decline a request for CS, but should offer referral for a second opinion

### **Reducing CS rates**

- Offer external cephalic version if breech at 36 weeks
- Facilitate continuous support during labour
- Offer induction of labour beyond 41 weeks
- Use a partograph with a 4-hour action line in labour
- Involve consultant obstetrician in CS decision
- Do fetal blood sampling before CS for abnormal tocograph in labour
- Support women who choose vaginal birth after CS (VBAC)

### **No influence on likelihood of CS**

- Walking in labour
- Non-supine position in second stage of labour
- Epidural analgesia during labour
- Active management of labour or early amniotomy to augment the progress of labour

# 11. Prevention & Management of Post Partum Haemorrhage (PPH)

## 11.1 Definition

PPH is defined as blood loss following delivery, leading to the deterioration of the vital parameters like pulse, BP, respiration, with or without symptoms of sweating, palpitation, etc.

## 11.2 Prevention

### 11.2.1 IV line access

It is advisable for all the admitted obstetric cases in active labour to have an IV line latest by the II stage of labour. If possible secure IV line with a intravenous canula only.

### **Active management of III stage of labour in all cases**

- a Prophylactic Oxytocics (Oxytocin): 10 units IM/ 20 units in 500ml IV drip after the delivery of the baby and after excluding the presence of a second fetus in the uterus.
- b Cord clamping after cessation of pulsation (About 2 min after birth of baby)
- c Controlled Cord Traction.

## 11.3 Management of PPH

- a Ask for extra help
- b Rapid evaluation of general condition including vital signs
  - i. If signs of shock appear then immediately resuscitate the patient
  - ii. Other steps are:
    - Massage the uterus to contraction
    - Oxytocin 10units or 20 units in 500 ml IV drip
    - Tab. Misoprostol can be given per rectally
    - IV Infusion through a 16 gauze needle, one on each hand
    - Catheterization to empty bladder and note urinary output
    - If placenta is already expelled – examine for its intactness.
    - Examine the cervix & the vagina for any trauma

## 11.4 Management of Retained Placenta

If placenta is not delivered within 30 minutes after delivery of baby, then:

- If placenta is separated and is placed in the lower segment or vagina, it is to be removed manually with IV sedation under anaesthesia
- Bladder to be catheterized, if not earlier done
- Start oxytocin as per 8.1.3.b.ii. under active management of stage III of labor
- If uterus is contracted – Try Controlled Cord Traction – Failing which proceed for manual removal of placenta (MRP) under anaesthesia
- If still bleeding continues – assess clotting status or exclude trauma.

## 11.5 Management of Atonic Uterus

Immediately ask for Senior Consultant's help

### Step I

- a Continue uterine massage
- b Oxytocin – 20 units in 1 litre. @ 60 drops / min. Not more than 3 ltr. fluid with oxytocin should be infused
- c Injection Ergometrine: IV 0.2 mg
- d Repeat after 15 minutes & then every 3 hours (maximum 5 doses)
- e Arrange blood transfusion

### Step II

Injection 15 Methyl PGF<sub>2</sub> Alpha

- a 0.25 mg 1M (can be given intra myometrial, one on each quadrant if required)
- b Repeat every 15 minutes
- c Maximum 8 doses (2 mg)

### Step III

If bleeding continues – perform bimanual compression of uterus

### Step IV

If bleeding continues – perform compression of aorta

### Step V

Uterine compression sutures of Lynch or any accepted modifications

### Step VI

Stepwise uterine artery devascularisation –

- a Uterine artery (bilateral) ligation & utero-cervical branch if necessary

- b Utero-Ovarian artery (bilateral). Save ovaries if patient is a young woman
- c Unilateral internal iliac artery ligation
- d Bilateral internal iliac artery ligation

**Step VII**

Hysterectomy – The patient should be counselled and a written informed consent **MUST** be obtained prior to the surgery. If the patient is under GA, unconscious or unable to decide, then the same procedure has to be conducted for the woman's partner or the available next of kin.

## 12. Vaginal Birth after Caesarean Section

### **TO BE REFERRED TO L0/L1**

#### 12.1 Antenatal counselling

- Women with a prior history of one uncomplicated lower-segment transverse caesarean section, in an otherwise uncomplicated pregnancy at term, with no contraindication to vaginal birth, should be informed about the option of planned VBAC and the alternative of an Elective Repeat Caesarean Section (ERCS). Actual decision will be taken closer to the time of delivery.
- The antenatal counselling of women with a prior caesarean birth should be documented in the notes.
- A final decision for mode of birth should be agreed between the woman and her obstetrician before the expected/planned delivery date (ideally by 36 weeks of gestation).
- A plan for the event of labour starting prior to the scheduled date should be documented.
- Women considering their options for birth after a single previous caesarean should be informed that, overall, the chances of successful planned VBAC are 72–76%.
- All women who have experienced a prior caesarean birth should be counselled about the maternal and perinatal risks and benefits of planned VBAC and ERCS when deciding the mode of birth.
- The risks and benefits should be discussed in the context of the woman's individual circumstances, including her personal motivation and preferences to achieve vaginal birth or ERCS, her attitudes towards the risk of rare but serious adverse outcomes, her plans for future pregnancies and her chance of a successful VBAC (principally whether she has previously had a vaginal birth. In addition, where possible, there should be review of the operative notes of the previous caesarean to identify the indication, type of uterine incision and any peri-operative complications.
- As up to 10% of women scheduled for ERCS go into labour before the 39<sup>th</sup> week, it is good practice to have a plan for the event of labour starting prior to the scheduled date.

#### 12.2 Contraindications to vaginal birth after CS

- a) Previous classical or inverted T uterine scar
- b) Previous hysterotomy or myomectomy entering the uterine cavity
- c) Previous uterine rupture
- d) Presence of a contraindication to labour, such as placenta previa or malpresentation
- e) The woman declines a trial of labour after Caesarean and requests ERCS

## 12.3 Risk factors for unsuccessful VBAC

- a) Induced labour,
- b) No previous vaginal birth,
- c) Body mass index greater than 30
- d) Previous caesarean section for dystocia.

When all these factors are present, successful VBAC is achieved in only 40% of cases. There are numerous other factors associated with a decreased likelihood of planned VBAC success:

- a) VBAC at or after 41 weeks of gestation
- b) Birth weight greater than 4000 g
- c) No epidural anaesthesia
- d) Previous preterm caesarean birth
- e) Cervical dilatation at admission less than 4 cm
- f) Less than 2 years from previous caesarean birth
- g) Advanced maternal age
- h) Short stature

Where relevant to the woman's circumstances, this information should be shared during the antenatal counselling process to enable the woman to make the best informed choice.

## 12.4 Complications of VBAC

- There is a less than 1 % chance of rupture in case of attempted VBAC.
- Women considering the options for birth after a previous caesarean should be informed that planned VBAC compared with ERCS carries around 1% additional risk of either blood transfusion or endometritis.
- Maternal death from uterine rupture in planned VBAC occurs in less than 1/100,000 cases in the developed world;

## 12.5 Perinatal Outcome

- Absolute risk of perinatal loss is low in both groups( VBAC and ERCS), may be SLIGHTLY lower in ERCS
- Women considering the options for birth after a previous caesarean should be informed that attempting VBAC probably reduces the risk that their baby will have respiratory problems after birth: rates are lower (2-3 %) with planned VBAC and higher (3–4%) with ERCS.

## 12.6 VBAC in Special Circumstances

### 12.6.1 Preterm planned VBAC

- Women who are preterm and considering the options for birth after a previous caesarean should be informed that planned preterm VBAC has similar success rates to planned term VBAC but with a lower risk of uterine rupture.
- Twin gestation, fetal macrosomia, short interdelivery interval
- A cautious approach is advised when considering planned VBAC in women with twin gestation, fetal macrosomia and short interdelivery interval, as there is uncertainty in the safety and efficacy of planned VBAC in such situations.

### 12.6.2 Where and how should VBAC be conducted?

- With continuous intrapartum care and monitoring
- Resources available for immediate caesarean section
- Availability of blood
- Advanced neonatal resuscitation.
- Epidural anaesthesia is not contraindicated in planned VBAC
- Electronic fetal monitoring when available should be utilized, following the onset of uterine contractions for the duration of planned VBAC.
- Continuous intrapartum care is necessary to enable prompt identification and management of uterine scar rupture.
- There is no single pathognomic clinical feature that is indicative of uterine rupture but the presence of any of the following peripartum should raise the concern of the possibility of this event:
  1. Abnormal CTG
  2. Severe abdominal pain, especially if persisting between contractions
  3. Chest pain or shoulder tip pain, sudden onset of shortness of breath
  4. Acute onset scar tenderness
  5. Abnormal vaginal bleeding or haematuria
  6. Cessation of previously efficient uterine activity
  7. Maternal tachycardia, hypotension or shock
  8. Loss of station of the presenting part.

## 12.7 Role of induction and augmentation

- There is the two- to three-fold increased risk of uterine rupture and around 1.5-fold increased risk of caesarean section in induced and/or augmented labours compared with spontaneous labours.
- There is a higher risk of uterine rupture with induction of labour with prostaglandins.

- **DO NOT USE PROSTAGLANDINS FOR INDUCTION OF LABOUR IN VBAC EXCEPT SELECTED CASES OF CONFIRMED Intrauterine foetal demise**
- There should be careful serial cervical assessments, preferably by the same person, for both augmented and non-augmented labours, to ensure that there is adequate cervicometric progress, thereby allowing the planned VBAC to continue.
- The decision to induce, the method chosen, the decision to augment with oxytocin, the time intervals for serial vaginal examination and the selected parameters of progress that would necessitate and advise on discontinuing VBAC should be decided by the consultant obstetrician.
- The additional risks in augmented VBAC mean that:
  - a Although augmentation is not contraindicated it should be preceded by careful obstetric assessment, maternal counselling and by a consultant-led decision
  - b Oxytocin augmentation should be titrated such that it should not exceed the maximum rate of contractions of four in 10 minutes; the ideal contraction frequency would be three to four in 10 minutes
  - c Careful serial cervical assessments, preferably by the same person, are necessary to show adequate cervicometric progress, thereby allowing augmentation to continue.
  - d The intervals for serial vaginal examination and the selected parameters of progress that would necessitate discontinuing VBAC labour should be consultant-led decisions.

## 13 Foetal Distress

### 13.1 Introduction

- Abnormal foetal heart rate (less than 100 or more than 180 beats per minute).
- **For L2 Doctors transfer to L1/L0 if FHS is less than 120 or more than 160.**
- Thick meconium-stained amniotic fluid.

#### **TRANSFER TO L0/L1**

### 13.2 General management

- Prop up the woman or place her on her left side.
- Stop oxytocin if it is being administered.

#### Abnormal fetal heart rate

- Diagnosed by intermittent auscultation

- |   |
|---|
| <ul style="list-style-type: none"><li>- A <b>normal foetal heart rate</b> may slow during a contraction but usually recovers to normal as soon as the uterus relaxes.</li><li>- A <b>very slow fetal heart rate</b> in the absence of contractions or persisting after contractions is suggestive of fetal distress.</li><li>- A <b>rapid foetal heart rate</b> may be a response to maternal fever, drugs causing rapid maternal heart rate (e.g. tocolytic drugs), hypertension or amnionitis. In the absence of a rapid maternal heart rate, a rapid fetal heart rate should be considered a sign of fetal distress.</li></ul> |
|---|

- If a **maternal cause is identified** (e.g. maternal fever, drugs), initiate appropriate management.
- If a **maternal cause is not identified** and the **fetal heart rate remains abnormal** throughout at least three contractions, perform a vaginal examination to check for explanatory signs of distress:
  - a If there is **bleeding with intermittent or constant pain**, suspect abruption placentae
  - b If there are **signs of infection** (fever, foul-smelling vaginal discharge) give antibiotics as for amnionitis;
    - If the **cord is below the presenting part** or **in the vagina**, manage as prolapsed cord.
    - If **fetal heart rate abnormalities persist** or there are **additional signs of distress** (thick meconium-stained fluid), plan delivery:

- If the **cervix is fully dilated** and the **fetal head is not more than 1/5 above** the symphysis pubis or the leading bony edge of the **head is at 0 station**, deliver by vacuum extraction or forceps
- If the **cervix is not fully dilated** or the **fetal head is more than 1/5 above** the symphysis pubis or the leading bony edge of the **head is above 0 stations**, deliver by caesarean section. Confirm fetal distress by Cardio Toco Graph, if available.

## 13.4 Meconium

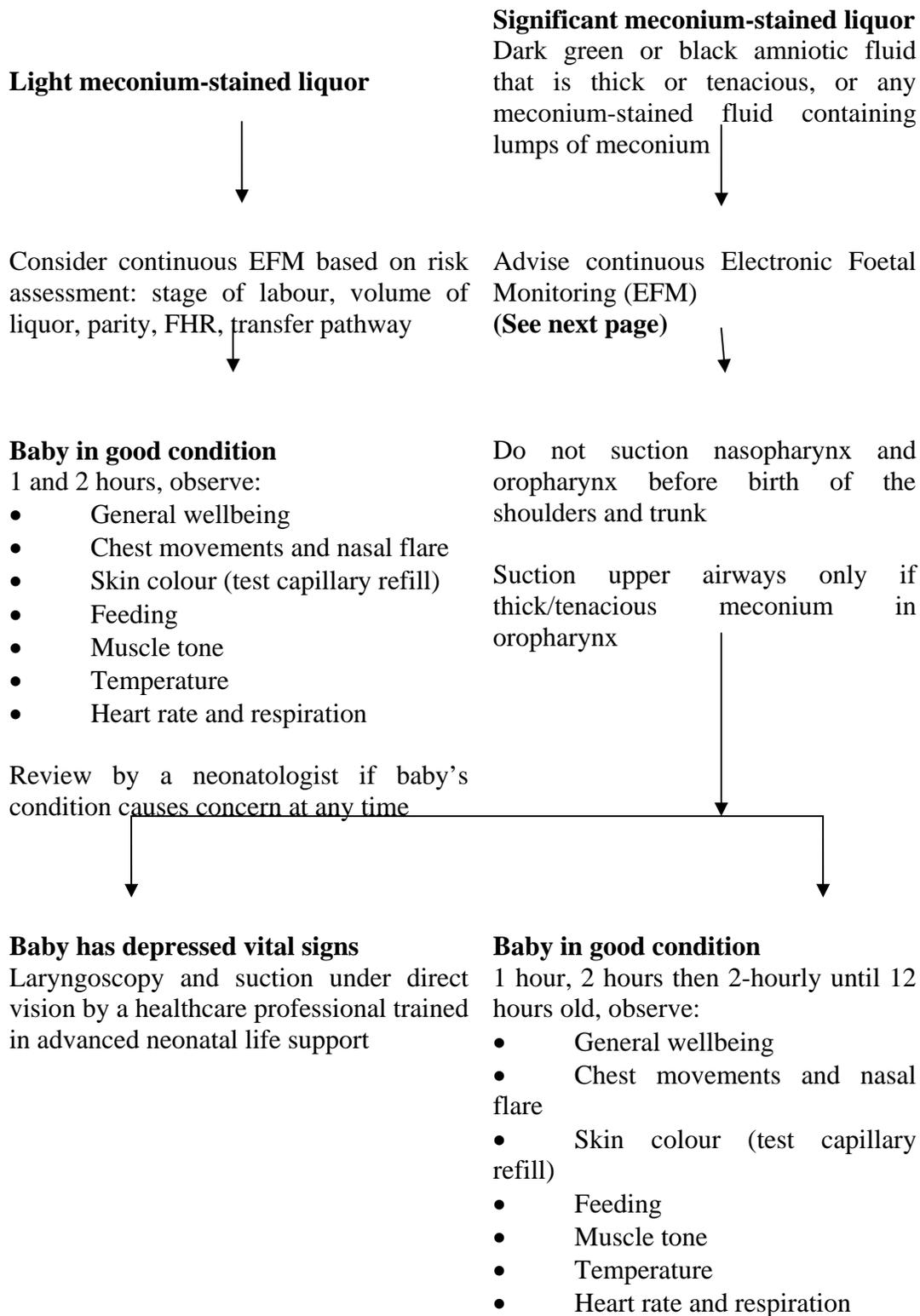
Meconium staining of amniotic fluid is seen frequently as the fetus matures and by itself is not an indicator of fetal distress. A slight degree of meconium without fetal heart rate abnormalities is a warning of the need for vigilance.

**Thick meconium** suggests passage of meconium in reduced amniotic fluid and may indicate the need for expedited delivery and meconium management of the neonatal upper airway at birth to prevent meconium aspiration.

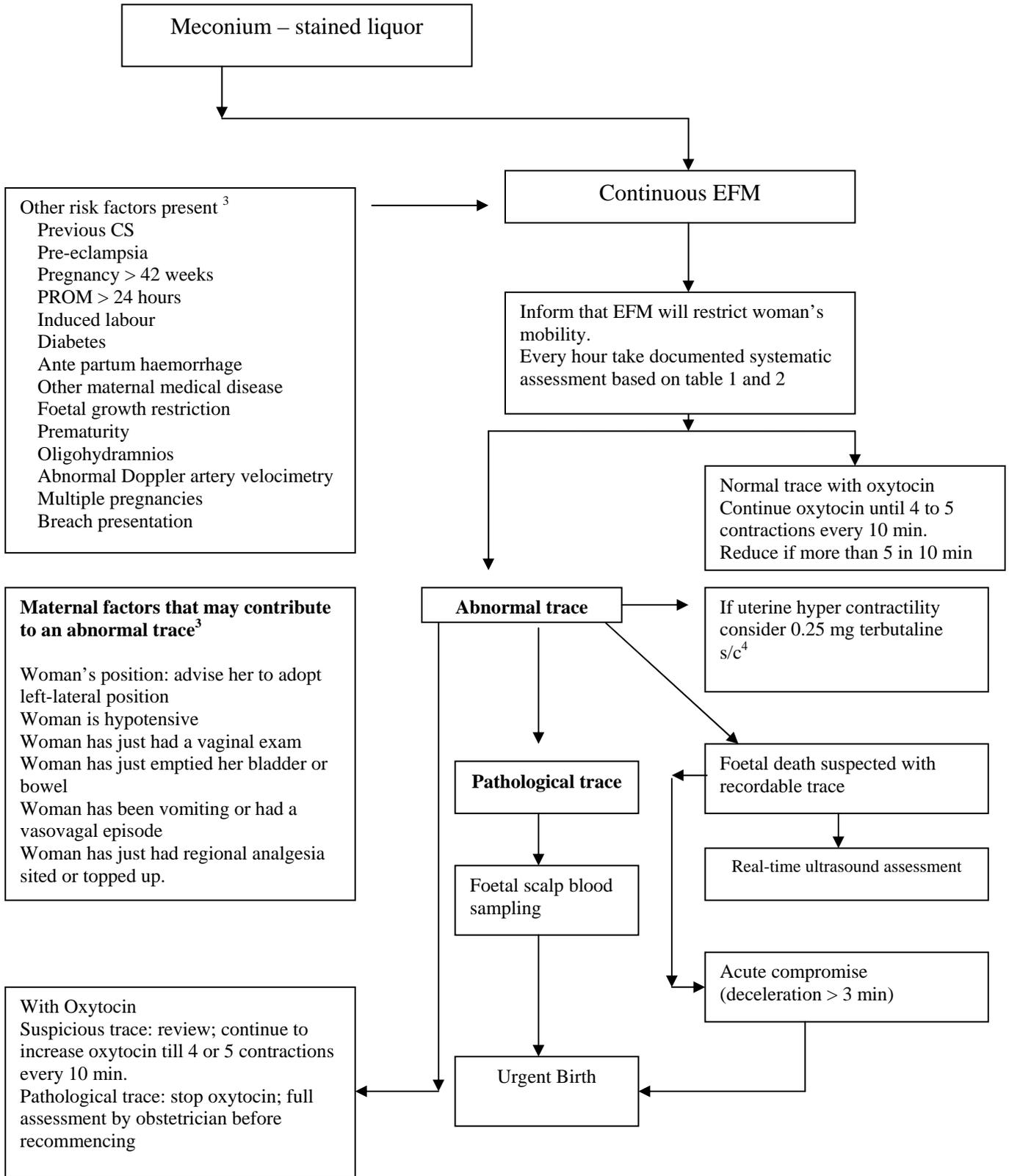
In **breech presentation**, meconium is passed in labour because of compression of the fetal abdomen during delivered.

**For management, please refer the flow diagram on the next page**

**Table 4: Management of Meconium-stained liquor**



**Fig 1: Flow diagram of Management of Meconium Stained Liquor**



## EFM: DEFINITION AND CLASSIFICATIONS

**Table 5: Definition of normal, suspicious and pathological FHR traces**

Category	Definition
Normal	All four features are classified as reassuring
Suspicious	One feature classified as non-reassuring and the remaining features classified as reassuring
Pathological	Two or more features classified as non-reassuring or one or more classified as abnormal

**Table 6: Classification of FHR trace features**

Feature	Baseline (bpm)	Variability (bpm)	Decelerations	Accelerations
Reassuring	110 – 160	$\geq 5$	None	Present
Non-reassuring	100 – 109 161 – 180	$< 5$ for 40-90 min	Typical variable decelerations with over 50% of contractions, for over 90 min	The absence of accelerations with otherwise normal trace is of uncertain significance
Abnormal	$< 100$ $> 180$ Sinusoidal pattern $\geq 10$ min	$< 5$ for 90 min	Single prolonged deceleration for up to 3 min.  Either atypical variable decelerations with over 50% of contractions or late decelerations, both for over 30 min  Single prolonged deceleration for more than 3 min	

### Record keeping:

- Check date / time on EFM machine
- Label FHR traces with mother's name, date and hospital number.

- Sign trace and record date, time and mode of birth.
- Note events, e.g. vaginal exam, FBS, epidural sating on trace.
- Store traces securely.

**Risk Management:**

- Consider the time taken for instrumental vaginal birth and CS when making decisions about foetal wellbeing
- Keep FHR traces for 25 years; where possible store electronically
- If the baby may suffer developmental delay, photocopy and store FHR traces indefinitely
- Use tracer systems if FHR traces stored separately from women's records
- Take paired cord blood gases only when concerned about the baby either in labour or immediately following birth
- Ensure an additional clamp for double-clamping is available at all birth settings.

Source-Intrapartum Care, Quick Reference Guidelines, September 2007, NICE Clinical Guidelines 55, Developed by the National Collaborative Centre for Women's and Children Health

## 14. Preterm Pre-labour Rupture of Membranes

### 14.1 The diagnosis of PPRM is by:

- History PATIENT Complaining of leaking
- Sterile speculum examination- exclude urine
- Ultrasound examination to confirm diagnosis in some cases TO CONFIRM/  
Exclude Oligo hydroamnios
- P/V examination should be avoided where PPRM is suspected.

### **TRANSFER TO L0/L1**

### 14.2 Antenatal test

- Observe for signs of clinical chorioamnionitis at least 12-hourly.
- A weekly high vaginal swab
- A weekly maternal full blood count should be considered.

### **The criteria for the diagnosis of clinical chorioamnionitis include:**

- a Maternal pyrexia,
- b Tachycardia
- c Leucocytosis,
- d Uterine tenderness,
- e Offensive vaginal discharge
- f Fetal tachycardia.

**Maternal pyrexia (above 37.8°C), offensive vaginal discharge and fetal tachycardia (rate >160 beats/minute) indicate clinical chorioamnionitis.**

### 14.3 Prophylactic antibiotics

- Erythromycin base 250 mg by mouth 4 times per day for 10 days following diagnosis of PPRM.
- **For L2-Consider transfer to the most appropriate service for care of the newborn, if possible.**
- Give corticosteroids to the mother to improve fetal lung maturity if fetus between 24-34 weeks of gestation:
  - betamethasone 12 mg IM, and repeat after 24 hours  
OR if not available
  - dexamethasone 6 mg IM, four doses 6 hours apart

Note: Corticosteroids should not be used in the presence of frank infection.

- Co-amoxiclav is not recommended for women with PPRM because of concerns about necrotising enterocolitis.

## 14.4 Tocolysis

- Prophylactic tocolysis in women with PPROM without uterine activity is not recommended.
- Women with PPROM and uterine activity, who require transfer (considering the neonatal back up for Low Birth Weight and premature babies) or antenatal corticosteroids, should be considered for tocolysis.

**The patient with PPROM should not be treated as outpatient**

## 14.5 Delivery of the fetus

- In case of chorioamnionitis, pregnancy is to be terminated
- Delivery should be considered at 34 weeks of gestation (in hospitals with good neonatal backup).
- Where expectant management is considered beyond 34 weeks of gestation, women should be informed about the positive and negative aspects.

## 15. Preterm Labour

### 15.1 Definition

Preterm labour is diagnosed when there are REGULAR UTERINE CONTRACTIONS BEFORE 37 WEEKS of pregnancy together with the following:

- Cervical effacement and /or dilatation
- Rupture of the membranes

### 15.2 Clinical Findings

#### Symptoms

- Intermittent Lower abdominal pain or low back pain
- Vaginal discharge / show
- Bleeding , spotting or dribbling

#### Signs

- Regular painful contractions palpable per abdomen at least 1 in 10 minutes
- Cervical dilatation more than 1 cm
- Cervical effacement more than 80%
- Contractions in absence of cervical changes is equal to threatened preterm labour

### **TRANSFER TO L0/L1**

### 15.3 Diagnosing preterm labour if the gestational age is unknown

Preterm labour is diagnosed if the estimated fetal weight is below 2500 g. The symphysis – fundus height will be less than 35 cm. It is better to confirm through sonography

### 15.4 Factors that can lead to preterm labour and preterm rupture of the membranes

The following maternal, fetal and placental factors may be associated with preterm labour and /or preterm rupture of the membranes:

#### 15.4.1 Maternal Factors

- Pyrexia , as the result of an acute infection other than chorioamnionitis, e.g. acute pyelonephritis or malaria
- Uterine abnormalities, such as congenital uterine malformations( e.g. septate or bicornuate uterus)
- Incompetence of the internal cervical os (‘cervical incompetence’)

#### **15.4.2 Foetal factors**

- Multiple pregnancy (due to over distension of uterus)
- Polyhydramnios (due to over distension of the uterus)
- Congenital malformations of the fetus
- Syphilis

#### **15.4.3 Placental Factors**

- Placenta praevia
- Abruption placentae

**Note:** Polyhydramnios, multiple pregnancy and cervical incompetence cause preterm dilatation of the cervix with exposure of the membranes to the vaginal bacteria. This may predispose to chorioamnionitis. Polyhydramnios has several causes but it is important to remember that oesophageal atresia is one of the causes, which need to be excluded after delivery.

#### **15.4.4 Both preterm labour and preterm rupture of membranes are more common in patients who:**

- Have a past history of preterm labour
- Have no antenatal care
- Live in poor socio – economic circumstances
- Smoke, use alcohol or abuse habit- forming drugs
- Are underweight due to under nutrition
- Have coitus in the second half of pregnancy, where there is an increased risk of preterm labour
- Have any of the maternal fetal or placental factors listed above.

#### **15.5 Action to be taken if patient threatens to deliver a preterm baby**

- Baby born between 34-36 weeks can usually be cared for in a Merrygold Hospital
- However, women who threaten to deliver between 28 and 33 weeks should be referred to a higher level centre with a neonatal intensive care unit
- If the birth of a preterm baby cannot be prevented it must be remembered that the best incubator for transporting a baby is the mother's uterus. Even if the delivery is inevitable, an attempt to suppress labour should be made, so that the patient can be transferred before the infant is born
- The better the condition of the infant on arrival at the neonatal intensive care unit, the better is the prognosis.

## 15.5 Managing a patient in preterm labour

### **TRANSFER TO L0/L1**

#### **STEP I**

- If fetal distress is present and fetus is assessed to be salvagible then deliver baby as soon as possible
- If pregnancy is 34 weeks or more, labour should be allowed to continue, in certain cases, intrauterine transfer with tocolysis should be followed
- If the baby is assessed to be between 24- 34 weeks, contraindications for suppression of preterm labour should be excluded. Subsequently the contractions should be suppressed with a calcium channel blocker e.g. nifedipine for 48 hours. The patient should be transferred to a higher-level hospital.

#### **STEP II**

- Look for treatable causes of preterm labour for e.g. UTI, Malaria

## 15.7 Contraindications for suppressions of preterm labour

- Fetal distress
- A pregnancy where the duration is 34 weeks or more, or 24 weeks or less
- Choriamnionitis
- Intra-uterine death
- Congenital abnormalities incompatible with life
- Pre-eclampsia and eclampsia
- Antepartum haemorrhage of unknown cause
- Cervical dilatation of more than 5 cms. (However, contractions should be temporarily suppressed while the patient is being transferred to a hospital where preterm infants can be managed)
- Severe intra uterine growth retardation.

**NOTE — Antepartum haemorrhage of unknown cause may be due to a small abruption placentae. It is, therefore, advisable not to suppress labour should it occur.**

## 15.8 Nifedipine therapy for Suppression of Preterm Labour

### **TO BE STARTED AT L2 AND TRANSFERRED TO L0/L1**

#### **Nifedipine:**

- Start with 20 mg, and monitor contractions for an hour, then add another 10 mg, if there are contractions.
- Then 20 mg 8 hrly, once suppression of contractions is achieved.
- **Corticosteroids**  
Betamethasone – 12 mg I/M Stat and repeat after 24 hours

#### **Antibiotics for Group B streptococcus**

**Group B streptococcus Prophylaxis** -Give Inj. Ampicillin 2 gm I/V initially, then 1 gm every 6 hrs till delivery. This therapy also applies for preterm PROM when they go into labour.

## 16. Neonatal Resuscitation & Neonatal Care

### 16.1 Immediate Newborn Care

The order in which we carry out immediate care of baby is important. The carry out actions are given below:

**Table 7: Immediate Newborn Care – Carry out actions**

Call out /note the time of birth	
Deliver the baby onto a warm, clean and dry towel or cloth on a warm dry surface.	<i>A baby should be delivered onto its mother's abdomen, If this is not possible or not acceptable, then on to a clean, warm, safe place close to the mother.</i>
Immediately dry the baby with a warm clean towel or cloth.  Wipe eyes.	<i>Thoroughly dry the baby to prevent it getting cold. Wipe away any blood or meconium. Do not wipe off the white greasy substance covering the baby's body (vernix). This helps to protect the baby's skin and gets reabsorbed very quickly.</i>
Assess the baby's breathing while drying.	
Clamp and cut the umbilical cord	
Examine the baby quickly for malformations/birth injury	<i>If there is a major malformation/severe birth injury refer the baby to a newborn unit. Also ensure warmth during examination</i>
Leave the baby between the mother's breasts to start skin-to-skin care	<i>If not possible , place the baby under a radiant warmer</i>
Place an identity label on the baby	<i>At wrist / ankle</i>
Cover the baby's head with a cloth. Cover the mother and baby with a warm cloth.	<i>Cover the mother and baby with a blanket if the room is less than 25<sup>0</sup>C and use room heater</i>
Encourage the initiation of breastfeeding	<i>The baby's need to breathe normally</i>

#### **The following babies need help with their breathing**

- Babies who are not breathing / gasping
- Babies who do not have good muscle tone

If a baby is not breathing well after birth CALL FOR HELP!

## 16.2 Neonatal resuscitation

- Approximately 10% of newborn require some assistance to begin breathing at birth; about 1% need extensive resuscitative measures to survive.
- An increased risk of breathing problems may occur in babies who are:
  - Preterm,
  - Born after long traumatic labours,
  - Born to mothers who received sedation during the late stages of labour.
- It is essential for health professionals who attend the mother at birth to be skilled at resuscitation and know how to recognize babies at risk.

You must:

- Anticipate
- Be prepared
- Know what to do
- In what order
- Be able to work quickly
- Basic resuscitation must begin within one minute of life if a baby has breathing difficulties.

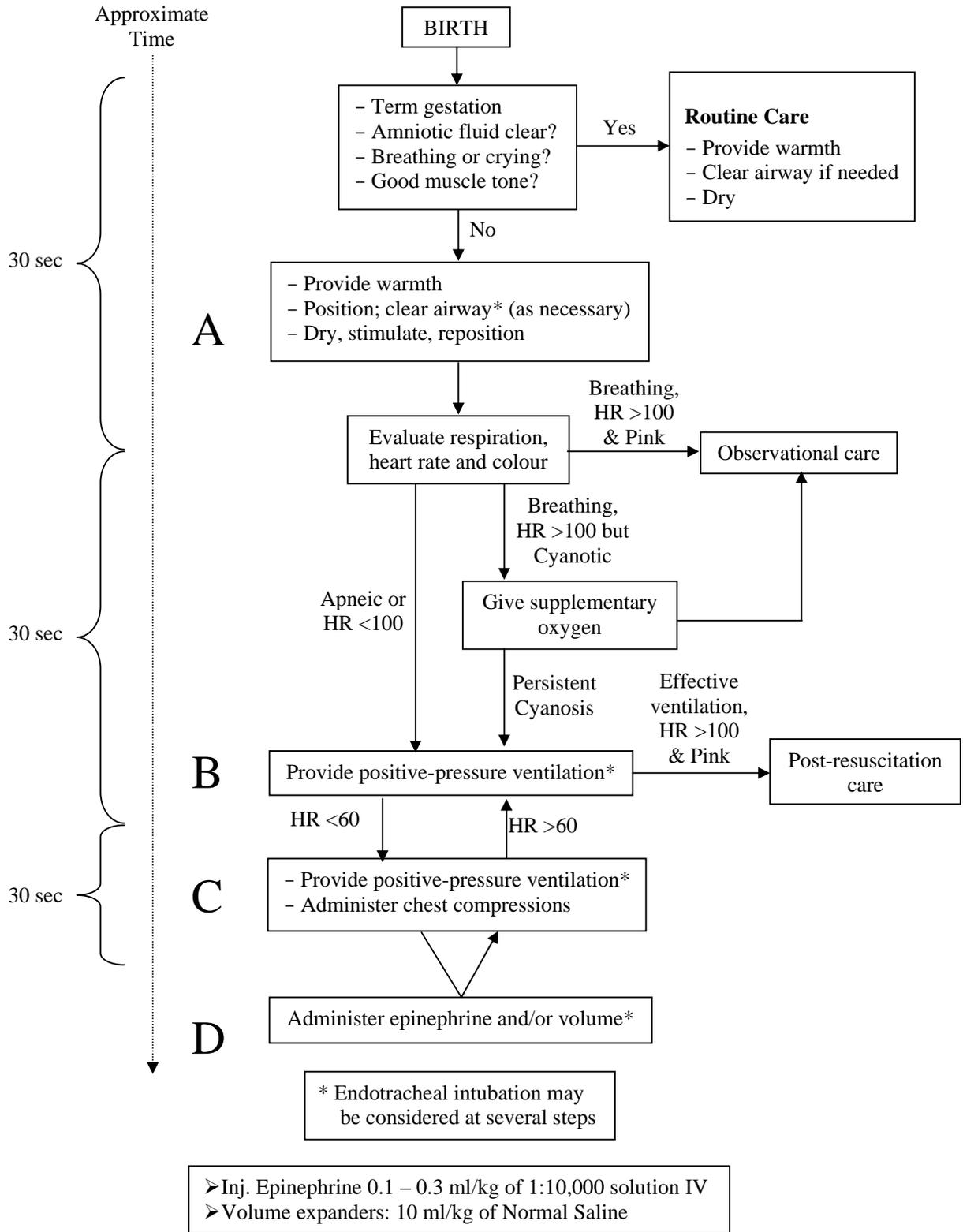
## 16.3 Who needs resuscitation?

- Babies who are not breathing / gasping
- Babies who do not have good muscle tone

## 16.4 How to Resuscitate?

Fig. 1 provides a flow of actions for performing the steps of resuscitation. The diagram begins with the birth of the baby. Each resuscitation step is shown in a block

**Fig. 2: Flow Diagram of Neonatal Resuscitation**



**Table 8: Keeping a newborn warm after delivery**

- Provide a warm, draught free room for delivery at 25-28°C
- Immediately after birth dry baby with a clean, warm, dry cloth
- Put the baby on the mother's abdomen or under a radiant warmer between the mother's breasts/radiant warmer. Cover the baby with a clean cloth.
- Cover the baby's head with a cloth.
- Put the naked baby between the mother's breasts to start skin-to-skin contact. Cover the mother and baby with a warm and dry cover
- Encourage breast feeding as soon as possible after birth

*If mother and baby's separation is necessary, do the following.*

- Wrap the baby in a clean dry warm cloth and place under a radiant warmer. If warmer is not available ensure warmth by wrapping the baby in a clean dry warm cloth and cover with a blanket.
- Delay the first bath to beyond 24 hr period.

### 16.5 Immediate Cord Care

- Clamp and cut cord with a sterile instrument.
- Tie the cord between 2 to 3 cms from the base and cut the remaining cord.
- Observe for oozing blood. If blood oozes, place a second tie between the skin and first tie.
- DO NOT apply any substance to stump.
- DO NOT bind or bandage stump.
- Leave stump uncovered.

### 16.6 Care of the eyes

- The eyes should be cleaned with sterile normal saline soaked swabs, using one swab for each eye.
- DO NOT APPLY any medication to eyes

### 16.7 Examine the baby quickly for malformations/birth injury

Quick but thorough clinical screening is essential **to identify any life threatening congenital anomalies**. The infant should be examined for location and patency of all the orifices because anomalies are frequently encountered around the orifices.

## 16.8 Help the mother to initiate breastfeeding within 1 hour

- After birth, let the baby rest comfortably on the mother's chest in skin-to-skin contact.
- Do NOT give artificial teats or pre-lacteal feeds to the newborn; no water, sugar water or local foods.
- Tell the mother to help the baby to her breast when the baby seems to be ready, usually within the first hour. Signs of readiness to breastfeed are:
- Baby looking around/moving
- Mouth open
- Searching
- Check position and attachment are correct at the first feed. Offer to help the mother at any time
- The baby's first feed of colostrum is very important because it helps to protect against diseases
- The baby can feed from its mother whether she is lying down or sitting; baby and mother must be comfortable
- There is NO NEED to ROUTINELY separate babies born by Caesarean Section or Instrumental delivery from mother

# Annexure and References

## Annex 1

### Classification Criteria Form

Name of patient		Clinical number	record						
Age									
Address		Telephone							

Instructions: Answer all of the following questions by placing a cross mark in the corresponding box

<b>OBSTETRIC HISTORY</b>	<b>No</b>	<b>Yes</b>
1. Number of current pregnancy	_____	
2. Previous stillbirth or neonatal loss?	<input type="checkbox"/>	<input type="checkbox"/>
3. History of 3 or more consecutive spontaneous abortions?	<input type="checkbox"/>	<input type="checkbox"/>
4. Birth weight of last baby < 2500g	<input type="checkbox"/>	<input type="checkbox"/>
5. Birth weight of last baby > 4500g?	<input type="checkbox"/>	<input type="checkbox"/>
6. Last pregnancy: hospital admission for hypertension or pre-eclampsia/ eclampsia?	<input type="checkbox"/>	<input type="checkbox"/>
7. Previous surgery on reproductive tract? (Myomectomy, removal of septum, cone biopsy, classical CS, cervical curettage)	<input type="checkbox"/>	<input type="checkbox"/>

<b>CURRENT PREGNANCY</b>		
8. Diagnosed or suspected multiple pregnancy?	<input type="checkbox"/>	<input type="checkbox"/>
9. Age less than 16 years?	<input type="checkbox"/>	<input type="checkbox"/>
10. Age more than 40 years?	<input type="checkbox"/>	<input type="checkbox"/>
11. Is immunisation Rh (-) in current or in previous pregnancy?	<input type="checkbox"/>	<input type="checkbox"/>
11. Vaginal bleeding?	<input type="checkbox"/>	<input type="checkbox"/>
12. Pelvic mass?	<input type="checkbox"/>	<input type="checkbox"/>
13. Diastolic blood pressure 90mm Hg or more at booking?	<input type="checkbox"/>	<input type="checkbox"/>

<b>GENERAL MEDICAL</b>		
	_____	_____

14. Insulin-dependant diabetes mellitus?

15. Renal disease?

16. Cardiac disease?

17. Known 'substance' abuse (including heavy alcohol drinking)?

18. Any other severe medical disease or condition?

Please specify "Yes" to any ONE of the above questions means that the woman is not eligible for the basic component of the new antenatal care model.

---

Is the woman eligible?

NO

YES

If NO, she is referred to

Date

Name

Signature

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(Staff responsible for ANC)

## Annex 2

### New WHO antenatal care model basic component checklist

Note: Mark the activities out as appropriate (un-shaded boxes). (Use the closed gestational age at the time of visit)

Name of patient \_\_\_\_\_

Address and Telephone No. \_\_\_\_\_

Clinic Record No.: \_\_\_\_\_

<b>FIRST VISIT</b> for all women at first contact with clinics, regardless of gestational age. If first visit later than recommended, carry out all activities up to that time  Date: / /	Visits			
	1 <sup>st</sup> < 12 weeks	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Classifying form which indicates eligibility for the basic component of the programme				
Clinical examination				
Clinically severe anaemia? Hb test				
Ob. exam: gestational age estimation, uterine height				
Gyn. exam (can be postponed until second visit)				
Blood pressure taken				
Maternal weight/ height				
Rapid syphilis test performed, detection of symptomatic STIs				
Urine test (multiple dipstick) performed				
Blood type and Rh requested				

Tetanus toxoid given				
Fe/ Folic acid supplementation provided				
Recommendation for emergencies/ hotline for emergencies				
Complete antenatal card				

<p><b>SECOND VISIT and SUBSEQUENT VISITS Gestational age – approx. # of weeks</b></p> <p><b>DATE: / / 26weeks 32weeks 38weeks</b></p>				
Clinical examination for anaemia				
Ob. exam: gestation age estimation, uterine height, fetal heart rate				
Blood pressure taken				
Maternal weight (only women with low weight at first visit)				
Urine test for protein (only nulliparous women/ women with previous pre-eclampsia)				
Fe/ Folic acid supplementation given				
Recommendation for emergencies				
Complete antenatal card				
<p><b>THIRD VISIT: add to second visit</b></p> <p><b>DATE: / /</b></p>				
Haemoglobin test requested				
Tetanus toxoid (Second dose)				

Instructions for delivery / plan for birth				
Recommendations for lactation/ contraception				
<b>FOURTH VISIT: add to second and third visits</b> <b>DATE: / /</b>				
Detection of breech presentation and referral for external cephalic version				
Complete ANC card, recommend that it be brought to hospital				

Staff responsible for antenatal care: Name \_\_\_\_\_

Signature \_\_\_\_\_

## References

1. Royal College of Obstetricians and Gynaecologists, Setting Standards to Improve Women's Health, Green Top Guidelines No. 45, February 2007.
2. Intrapartum Care, Quick Reference Guidelines, September 2007, NICE Clinical Guidelines 55, Developed by the National Collaborative Centre for Women's and Children Health.
3. K. Park, Park's Textbook of Preventive and Social Medicine, 19<sup>th</sup> edition, 2007, Bhanot Publication.
4. Integrated Management of Pregnancy and Childbirth, Pregnancy, Childbirth, Postpartum and Newborn Care: A guide for essential practice, WHO, 2006.
5. Guidelines for Pregnancy Care and Management of Common Obstetric Complications by Medical officers, Ministry of Health and Family welfare, Government of India, 2005.
6. D.C.Dutta, Textbooks of Obstetrics, VI edition, 2004, New Central Book Agency (P) Ltd.