



TRAINEES' HANDBOOK for TRAINING

of Medical Officers in Pregnancy Care and
Management of Common Obstetric Complications



Maternal Health Division
Ministry of Health & Family Welfare
Government of India
August 2009



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Medical Officers in Pregnancy Care and
Management of Common Obstetric Complications**



सत्यमेव जयते

**Maternal Health Division
Department of Family Welfare
Ministry of Health & Family Welfare
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August, 2009**

PREFACE

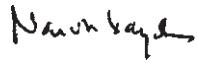
The Reproductive and Child Health Programme Phase-II, a flagship programme within National Rural Health Mission, aims to reduce maternal mortality ratio to less than 100 by 2010. **There is a commitment from the Government of India and also from the States and UTs for providing Essential Obstetric Care at all facilities to achieve the goal of universal Skilled Birth Attendance. With this in view, Government of India has planned to operationalize all PHCs and FRUs in handling basic and comprehensive obstetric care, respectively.**

Under the RCH Phase-II, the Government of India envisages that fifty percent of the PHCs and all the CHCs in all the districts would be made operational as 24-hour delivery centres, in a phased manner, by the year 2010. These centres would be responsible for providing Basic and Emergency Obstetric Care and Essential Newborn Care, including Newborn Resuscitation services round the clock. Almost all the States have laid emphasis in providing basic emergency obstetric care and skilled attendance at birth in the Project Implementation Plans (PIP) for RCH Phase-II.

As such, the Medical Officers, who are in-charge of these health facilities, would, therefore, have to be equipped enough to handle the common obstetric emergencies and provide the requisite care such as administration of parenteral oxytocics, antibiotics and anti-convulsant drugs, manual removal of the placenta, the conduction of assisted vaginal deliveries, etc.

Training tool for the training of Medical Officers at PHC on Pregnancy Care and Management of Common Obstetric Complications have been developed in accordance with the **Guidelines for Pregnancy care and Management of Common Obstetric Complications by Medical Officers** include and Trainers Guide, Handbook and Workbook for the Trainees to manage Essential Obstetric Care. These tools have been prepared by Maternal Health Division in collaboration with Jawaharlal Lal Nehru Medical College, Belgaum with inputs from UNFPA and WHO. I hope the Handbook along with the Guidelines & Workbook will facilitate Medical Officers from Primary Health Centres to build their skills in pregnancy care and management of common obstetric complications and help in ensuring the quality and uniformity in the trainings.

Date : 23.04.08


Shri Naresh Dayal,
Secretary H & FW.
New Delhi, India.

ACKNOWLEDGEMENT

To achieve the goals for reduction of maternal mortality and morbidity, GoI has a commitment under Reproductive and Child Health Programme to provide quality Antenatal, Postnatal and Intranatal care during pregnancy and child birth by a Skilled Birth Attendant. Timely identification and management of obstetric complications is the key to the survival of mothers.

To achieve this, Government of India envisages that fifty percent of the Primary Health Centres and all the Community Health Centres should be operationalised as 24-hour delivery centres with proficiency for providing basic and emergency obstetric services. These centres will also be responsible for providing pre-referral emergency care for women who develop complications during delivery. The training tools, i.e., Trainers' Guide, Trainees' Handbook and Workbook will help in imparting knowledge and skills to the MOs, which will help them in providing services to women in labour and obstetric emergencies thereby reducing maternal mortality.

The training package has been designed by the faculty of Jawaharlal Lal Nehru Medical College, Belgaum particularly Dr. B.S. Kodkany, Dr. Kamal Patil, Dr. M.K. Swamy and Mr. Killedar. Inputs have also been taken from professional bodies such as Federation of Obstetric and Gynaecological Societies of India (FOGSI), especially Dr. C.N. Purandere and Dr. Hema Diwakar, UN organizations, particularly Dr. Harish Kumar and Dr. Sonia Trikha of WHO-India and Dr. Dinesh Agarwal of UNFPA-India. I thank them all for their valuable contributions.

I also take this opportunity to acknowledge the contribution of all the experts, especially Dr. Deoki Nandan (Director, NIHFV), Dr. Kamala Ganesh (Ex H.O.D-Ob/Gyn, MAMC, Delhi), Dr. (Mrs) N.S. Mahanshetti and faculty of all the Medical Colleges of Karnataka. I also acknowledge the support of WHO in organizing meetings, workshops and providing necessary inputs for accomplishing the preparation of the guidelines.

The sincere and hard work of Dr Narika Namshum, Dr. Himanshu Bhushan, Dr. Manisha Malhotra, Dr. Avani Pathak and Dr. Rajeev Aggarwal from Maternal Health Division, MoHFW needs special mention.

I hope the Handbook along with the Workbook & Guidelines will facilitate imparting quality training to medical officers from primary health centres to build their skills in pregnancy care and management of common obstetric complications and help in ensuring high quality of trainings.

Date : 23.04.08



Aradhana Johri

Joint Secretary, MoHFW
New Delhi, India

FOREWORD

NRHM has a commitment for reduction of maternal & infant mortality/morbidity so as to meet the National and International goals. The reduction of MMR is related to quality of services rendered and also handling of Basic and Comprehensive Obstetric Care services at the health facilities particularly at Primary and Secondary level of the facilities.

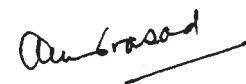
National Rural Health Mission has the goal of reducing the maternal mortality ratio to less than 100 per 100,000 live births by 2012 & infant mortality rate to less than 30 per 1000 live births. To achieve these objectives, steps have been taken under NRHM to appropriately strengthen all PHCs and FRUs in handling Basic and Comprehensive Obstetric Care including Care at Birth. However, for the improvement of service delivery, it is important that medical officers are re-oriented on care during pregnancy & childbirth so that facilities can become efficient in handling complications related to pregnancy & care of new born.

GoI has already launched the training of paramedical workers i.e., Nurses, ANMs & LHVs for making them skilled in provision of care during pregnancy & child birth but the medical officers in rural primary care facilities have not been reoriented in these skills. These medical officers are also supposed to be the supervisors & trainers for the SBA training of Nurses, ANMs & LHVs. Therefore the PHC MOs need to up-grade their skills & knowledge in order to manage & support their team in skill birth attendance.

To achieve this, GoI has developed training tools & guidelines for Medical Officers at primary health facilities. It includes Trainers Guide Handbook and Workbook for the Trainees to manage Essential Obstetric Care. These have been prepared by Maternal Health Division of this Ministry with inputs from experts, professionals, development partners & leaders in the field.

I hope these training tools will facilitate the trainers in orienting the medical officers from primary health facilities in proficient use of essential procedures described in training manual. Similarly, trainees will also be benefitted by the handbook and workbook which has been prepared in line with the Guidelines for Pregnancy care and Management of Common Obstetric Complications by Medical Officers. I hope this will help in reducing the risk & trauma of pregnancy & child birth in community.

Date: 28.08.09



(Amit Mohan Prasad)
Joint Secretary H& FW
Government of India

PROGRAM OFFICER'S MESSAGE

With the launch of National Rural Health Mission, many positive changes have taken place in public health, infrastructure and service delivery but still there is a scope for improvement in the quality of services being rendered. Reduction of maternal and infant mortality is linked with the quality of care during pregnancy and child birth. Skilled attendance in every pregnancy and during birth is a proven strategy for ensuring quality of services and for reducing maternal mortality. Training of midwives and orientation of doctors is the key step which will help in providing skilled attendance during every pregnancy and birth taking place at public health facilities.

To improve skills of providers, training of ANMs/LHVs/SNs as Skilled Birth Attendant has already been in place but the Medical officers who are also the supervisors of this training need to be re-oriented on the skills. A guideline on Pregnancy Care and Management of Common Obstetric Complications for Medical officers working at PHC and CHC level was prepared for this purpose in the year 2005. However, states could not implement it because the training tools were not available. As such, with the help of the experts and development partners, we have now developed three books i.e. Trainers Guide, Trainees Handbook and Workbook as a training tool for the medical officers.

There was some delay in bringing these books to the final shape because certain technical strategies like Use of Oxytocin at all the health facilities and updated package of Essential New Born Care and Resuscitation etc. were being firmed up. A 10 days' package for Medical officers is now in place but the guidelines are a facilitating tool. Objectives of the guidelines will only be achieved if there is a proper coordination, planning and decision making among all the key stakeholders within the state for conducting this training and utilizing the trained doctors at proper place.

I hope these training tools will facilitate both the trainers and trainees in reorientation of knowledge and skills for care during pregnancy and child birth and will help in reducing the risk & trauma of pregnancy & child birth in community. I take this opportunity to thank everyone who has contributed in framing the training package.



(Dr. Himanshu Bhushan)
Assistant Commissioner
Maternal Health Division
MOHFW
New-Delhi, INDIA

Date: 02.09.09

ABBREVIATIONS AND UNITS

@	At the rate of
%	Per cent
AMTSL	Active Management of Third Stage of Labour.
ANC	Ante-natal Care
ANM	Auxiliary Nurse-midwife
APH	Antepartum Haemorrhage
ASHA	Accredited Social Health Activist
BP	Blood Pressure
BPM	Beats Per Minute
c/o	Complaint of
CCT	Controlled Cord Traction
CHC	Community Health Centre
CPD	Cephalopelvic Disproportion
D&C	Dilation and Curettage
e.g.	For example
EDD	Expected Date of Delivery
ENBC	Essential New Born Care
Etc.	Etcetra
FHR	Foetal Heart Rate
FHS	Foetal Heart Sound
FTD	Full Term Delivery
FOGSI	Federation of Obstetrics and Gynecological Societies of India
FRU	First Referral Unit
G(no.) P(no.) A(no.) L(no.)	Gravida(no.) Para(no.) Abortion(no.) Live Birth(no.)
GoI	Government of India
GPE	General Physical Examination
h/o	History of
Hb	Haemoglobin
Hg	Mercury
HIV	Human Immunodeficiency Virus
HLD	High Level Disinfection
i.e.	That is
IFA	Iron Folic Acid
I/o	Input/output

IM	Intramuscular
ICTC	Integrated Counselling and Testing Center
Inj.	Injection
IUD	Intrauterine Death
IUGR	Intrauterine Growth Retardation
IV	Intravenous
LLIN	Long Lasting Insecticide Treated Bednets
LBW	Low Birth Weight
LMP	Last Menstrual Period
LR	Labour Room
MMR	Maternal Mortality Ratio
MOS	Medical Officers
MoHFW	Ministry of Health and Family Welfare
MRP	Manual Removal of Placenta
MTP	Medical Termination of Pregnancy
MVA	Manual Vacuum Aspiration
N/A	Not Applicable
NBC	New Born Care
NIHFW	National Institute of Health and Family Welfare
NRHM	National Rural Health Mission
NVBDCP	National Vector Borne Disease Control Programme
NSAID	Non-steroidal Anti-inflammatory Drug
O/E	On Examination
OPD	Out Patient Department
OT	Operation Theater
P/A	Per Abdomen
P/S	Per Speculum
P/V	Per Vaginum
P(no.) L(no.) A(no.)	Pregnancy (no.) Live-birth (no.) Abortion (no.)
PHC	Primary Health Centre
PIH	Pregnancy Induced Hypertension
PIP	Project Implementation Plan
PNC	Postnatal Care

PPH	Postpartum Haemorrhage
PROM	Premature or Prelabour Rupture Of Membranes
RL	Ringer Lactate
RCH	Reproductive and Child Health
RR	Respiratory Rate
RPR	Rapid Plasma Reagin
RTI	Reproductive Tract Infection
SBA	Skilled Birth Attendant
STI	Sexually Transmitted Infection
Tab	Tablet
TBA	Traditional Birth Attendant
TT	Tetanus Toxoid
UIP	Universal Immunization Programme
UTI	Urinary Tract Infection
UNFPA	United Nation Population Fund Agency
VDRL	Venereal Disease Research Laboratory
vs	Versus
WHO	World Health Organization
°C	Degree Centigrade
mg/mcg	Milligram/Microgram
cc	Cubic Centimetre
cm	Centimetre
dl	Decilitre
gm	Gram
IU	International Units
kcal	Kilocalories
kg	Kilogram
L	Litre
Lb	Pound
mg	Milligram
ml	Millilitre
mm	Millimetre
U	Units

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INTRODUCTION

The Reproductive and Child Health Programme Phase-II, a flagship programme within the National Rural Health Mission aims to reduce Maternal Mortality Ratio to less than 100 by 2010. Implementation framework of NRHM, also seeks to revamp health care delivery system for provision of quality health services for women and children, especially in rural areas.

Technical strategies for reduction of maternal mortality include universal access to Skilled Attendants at Birth and access to quality services for timely management of life threatening obstetric complications. The National Programme Implementation Plan for RCH-II spells out operational strategies for enabling health workers to provide skilled attendance at every birth. Various steps are being taken for making primary health centres functional round the clock days with facilities to provide range of RCH services, including services for management of common obstetric complications which do not need surgical intervention. Most of the obstetric complications can and should be managed at primary health centres.

Evidence from states indicates surge in the utilization of institutional delivery services at PHCs which are closer to the poor women in rural areas. Provision of services for management of obstetric complications at these facilities will prevent delays in treatment. So, it is necessary that the capacity of Medical Officers posted at these facilities in diagnosing and managing obstetric complications is strengthened. These training tools will help them in the re-orientation of their skills in diagnosing and managing obstetric complication.

The Trainees' handbook along with the workbook is to be used by the trainee who would be utilizing it during the training to build their skills in practising procedures such as use of partograph, active management of third stage of labour, management of eclampsia, post-partum haemorrhage, assisted vaginal deliveries etc.

AIMS AND OBJECTIVES OF THE TRAINING

The purpose of this training is to enhance the capacity of MBBS doctors posted at 24 x 7 PHCs and CHCs, so that they become proficient in identifying and managing basic obstetric complications and have necessary skills and competencies to provide essential obstetric and newborn care at the point of first contact by the client.

Knowledge based objectives

After completion of the training, the MOs are expected to:

1. Provide quality antenatal care, intra-partum care, including monitoring of labour with partograph, active management of third stage of labour and postpartum care.
2. Manage common obstetric problems such as anemia, hypertensive disorders of pregnancy, including eclampsia, haemorrhage during pregnancy and childbirth, abortion care, puerperal sepsis, prolonged labour, preterm labour, foetal distress, prolapsed cord, twins, etc. and stabilize women before and during referral to the appropriate health facility.
3. Do step wise practice of "essential newborn care" and take steps to ensure good health of the baby during and delivery.
4. Appropriately use steps to prevent infections during pregnancy, child birth and postpartum period.

5. Make referral of complicated cases after initial management and stabilization of the patient.

Skill based objectives

At the end of the training the participants will perform the following skills as per standards :

1. Provide quality care and counseling to the woman during antenatal, intranatal and postpartum period.
2. Identify danger signs during pregnancy, delivery and postpartum period along with the danger signs in the newborn and provide supportive care prior to referral.
3. Monitor labour using partograph.
4. Practice active management of third stage of labour.
5. Follow routine infection prevention practices during pregnancy and child birth.
6. Provide essential newborn care to all the new borns and new born resuscitation, if required.

DURATION OF TRAINING

- Residential training of 10 days duration.
- Out of 10 days, minimum of 4-5 days should be spent in the labour room as 24 hours emergency duty.

TRAINING PACKAGE

- Duration of training – 10 days.
- Package consists of :

S.No.	Material	Trainee
1	<i>Guidelines for Pregnancy Care and Management of Common Obstetric Complications by Medical Officers</i>	<ul style="list-style-type: none"> • Reading • Reference
2	Trainees' Handbook for Training of MOs in Pregnancy care & Management of Common Obstetric Complications	<ul style="list-style-type: none"> • Introduces the training component, session plans, etc. • Key points and notes for quick reference
3	Trainees' Workbook for Training of MOs in Pregnancy Care & Management of Common Obstetric Complications	<ul style="list-style-type: none"> • Contains case sheets which have to be filled during <i>hands on practice</i>. • Maintain record of the activities performed by him/her. • Ensure that the activities performed by them are supervised by the trainer and have been duly certified.

EXPECTATIONS FROM THE TRAINEES

- The trainees should adhere to the schedule as per the session plan.
- Trainees are expected to go through the topics of the sessions given in “*Guidelines for Pregnancy Care and Management of Common Obstetric Complications by Medical Officers*”, beforehand and discuss these with the trainers during the sessions. The modules and chapters cited herein are from the same guidelines.

For each session:

- Activities as well as case scenarios for each session have been provided, which have to be performed as asked for.
- Notes are given which summarize each session.
- Key messages are provided.
- Each trainee must fill in his/her observations in the case sheets (given in the workbook) during practice sessions, which would be certified on the spot by the trainer/supervisor.
- The trainees must work at least for 5 days in the labour room for 24 hours emergency duties as per the roster.
- Trainee must learn to discharge/make referral of the patients during and after training :
 - Both these activities are very important and as such the MOs deputed for the training must practise these sincerely, so that they can replicate them at their health facility.
 - Any patient being referred from one facility to another must have a referral slip, giving details as in Annexure II.
 - All the patients admitted for pregnancy and delivery care, should be given a properly filled discharge slip, while getting discharged from health facility as in Annexure III.
- The trainees should ensure privacy of the woman and respect her rights.

RECORD KEEPING

- The trainees will keep record of all their activities in the Trainee’s Work book and complete the specified number of activities.
- The attendance records have to be certified by the trainer/supervisor and kept with the trainer.

SESSION PLAN

Day	Session	Topic	Methodology
1	1a	Registration, Welcome & Introduction to problems of Maternal Health –Maternal Mortality & objectives of Medical Officers’ Training, Orientation to the services and facilities available in hospital	<p>Trainees are to be posted at antenatal OPD/ labour room/ post natal ward/ or any other relevant place during the practice session (minimum of 6 – 8 hours/day).</p> <p>Trainees should be posted to labour room on rotation for 24 hours emergency duty for a minimum of 4 – 5 days out of 10 days of training period.</p> <p>Maximum efforts should be undertaken to give hands on training to enhance skills rather than didactic lectures. Sessions should be interactive.</p> <p>The trainer should be flexible while following the suggested lecture schedule and Lecture can be held at any point of time during the day depending upon the situation.</p>
	1b	Care during pregnancy – Antenatal care	
2	2a	Intrapartum care and Partograph	
	2b	Active Management of Third Stage of Labour (AMTSL)	
3	3a	Instrumental delivery	
	3b	Postpartum hemorrhage and shock	
4	4	Essential newborn care: a) Care of baby at the time of birth. b) Care of new born in post natal ward.	
5	5a	Hypertension in pregnancy	
	5b	Eclampsia	
6	6a	Postpartum care	
	6b	Puerperal sepsis	
7	7a	Anaemia	
	7b	Other problems during pregnancy <ul style="list-style-type: none"> • Urinary tract infection • Hyperemesis gravidarum • Retention of urine • Premature or prelabour rupture of membranes 	
8	8a	Abortion	
	8b	Ante partum haemorrhage	
9	9a	Other problems during labour and delivery: <ul style="list-style-type: none"> • Prolonged and obstructed labour • Preterm labour • Foetal distress • Prolapsed cord • Twins 	
	9b	Other problems during postpartum period: <ul style="list-style-type: none"> • Inversion of uterus • Problems with breastfeeding 	
10	10a	Prevention of infection	
	10b	Revision of 9 days’ sessions Feedback from trainees	

Day 1: Introduction

Session 1a : Problems of Maternal Health & Objectives of Training

Time: 2 hours

- Registration, Welcome & Introduction to Maternal Health Case Study–Maternal Mortality & objectives of Medical Officers' Training in Pregnancy Care and Management of Common Obstetric Complications.
- Orientation to the Trainee Books (Guidelines, Handbook and Workbook)
- Orientation to the services and facilities available in hospital, OPD, ante natal ward, labour ward, labour room, post natal ward and CSSD.

Session 1b : Care during pregnancy – Antenatal Care

Time: 1 hour

Activity:

- Methodology of ANC: Refer to Module, Chapter-1.

Key points:

- Every pregnant woman must receive at least 4 checkups during pregnancy (Registration and 1st check-up within 12 weeks, 14-26 weeks, 28-32 weeks and 36-40 weeks).
- Ensure proper history is elicited and general physical and abdominal examinations are performed at every visit.
- Ensure that all investigations - hemoglobin, blood grouping & Rh typing and urine routine examination are done at 1st visit and repeat hemoglobin and urine examination at subsequent 3 visits.
- The first dose of TT should be given as soon as the woman registers for ANC. The second dose is to be given 4-6 weeks after the first dose, but preferably at least one month before the EDD.
- Administer tablet of IFA (100 mg of iron and 0.5 mg of folic acid) daily for at least 100 days, after 1st trimester for prophylaxis against anemia and double the dose in case anemia is diagnosed.
- During every visit emphasize on return for follow-up. Tracking should be done for missed and left out cases.
- Counsel about diet, rest, warning signs, birth preparedness, breastfeeding, safe sex, HIV-AIDS and contraception.
- In endemic areas administer anti-malarial and anti-helminthic prophylaxis as per the National programme.
- Establish linkages with ICTC for voluntary counseling and testing for HIV.

Warning signs

- Following warning signs require immediate visit to the doctor/ health facility:
 - Fever $>38.5^{\circ}\text{C}$ /for more than 24 hours.
 - Headache, blurring of vision.
 - Generalized swelling of the body and puffiness of face.
 - Palpitations, easy fatigability and breathlessness at rest.
 - Pain in abdomen.
 - Vaginal bleeding / watery discharge.
 - Reduced foetal movements.

Case study 1: (Write down the answers to the questions in the space given below.)

A) Mrs. Rekha, 24 years old primigravida comes to OPD with 6 months amenorrhea. This is her first visit to you.
<ul style="list-style-type: none">• What history will you elicit?
<ul style="list-style-type: none">• How will you calculate the EDD with regular and irregular cycles?
<ul style="list-style-type: none">• What general physical & systemic examination will you perform?
<ul style="list-style-type: none">• What investigations will you do?

<ul style="list-style-type: none">• What drugs will you prescribe to her?
<ul style="list-style-type: none">• What advice will you give her regarding immunization?
<ul style="list-style-type: none">• What other advice will you give her?
<ul style="list-style-type: none">• When would you call her for the next ante-natal check up?
<ul style="list-style-type: none">• What are the dangers signs that you will warn her against?

Day 2: Care during labour and delivery

Session 2a: Intrapartum care & Partograph

Time: 2 hours

Activity:

- Methodology of Intrapartum Care: Refer to Guidelines Module 1, Chapter 2.

Notes:

- Refer to Annexure 3 & Annexure-8 of guidelines for pelvic assessment and cervical dilation

❖ Partograph

Partograph is a simple, inexpensive managerial tool for the prevention of prolonged labour.

➤ Components of a Partograph:

- Foetal condition.
- Progress of labour.
- Maternal condition.
- Intervention.

➤ Plotting a Partograph:

- Each small box on the Partograph represents half an hour interval.
- Plot the Partograph from 4 cm of cervical dilatation.
- Initial finding of cervical dilatation has to be plotted on the alert line.
- Time of p/v examination is to be written in the row marked for time, directly below the plotting of cervical dilatation
- Monitor

Half hourly • Foetal heart rate (.)

- Number of good uterine contractions (lasting more than 20 seconds) in 10 minutes (////)

- Pulse rate (.)

2 hourly - Temperature (°C)

4 hourly - Blood pressure (↑ ↓)

Cervical dilatation (x)

- Moving to the Right of the Alert line needs transfer to FRU.
- Reaching “Action line” means possible danger, and immediate intervention is necessary.
- There is a difference of four hours between the alert and the action line. By the time the action line is reached the woman should ideally have reached the higher health facility for the appropriate intervention to take place.

➤ **When to refer:**

- Critical Factors:
 - < 2 Uterine contractions in 10 min., each lasting less than 40 seconds.
 - Foetal heart rate > 160/ min or < 120/min.
 - Cervical dilatation crosses the alert line.
 - Moulding of the foetal head (++).
 - Caput succedaneum.
 - Liquor – meconium stained.
- Pulse rate > 100/ min.
- Blood pressure > 140/90 mm Hg.
- Temperature > 100.4° F (> 38°C).

➤ **Steps for referral:**

- Inform the higher health facility and fill in the referral slip (Annexure I) stating the interventions/drugs, etc. given to the patient.
- Arrange for transport.
- Start an IV line (Preferred IV fluid: RL).
- Left lateral position.
- Health care worker & a relative to accompany.
- Send plotted partograph with the patient.
- Keep a delivery set and essential drugs handy during transport.

➤ **Do not plot Partograph in presence of following condition*:**

- | | |
|----------------------------------|------------------------------|
| • C.P.D. | • Multiple pregnancy |
| • Severe pre-eclampsia/eclampsia | • Previous caesarean section |
| • Ante partum haemorrhage | • Preterm labour |
| • Severe anaemia (< 7 gms%) | • Foetal distress |
| • Malpresentations | • Intra uterine death |

**If above signs are detected refer to FRU (with referral slip as per Annexure I) after initial management.*

Key points:

- True labour:
 - Onset of regular uterine contractions (1 – 2 contractions in 10 minutes).
 - Progressive cervical dilatation and “show”.
- Stages of Labour:
 - First stage: onset of true labour pains till full dilatation of cervix (Active labour: cervix \geq 4 cm).
 - Second stage: full dilatation of cervix till delivery of the baby.
 - Third stage: delivery of baby till the delivery of placenta.
 - Fourth stage: for one hour after delivery.
- Identify complications and refer (with referral slip as in Annexure I).
- Supportive care during labour :
 - Reassure and inform the woman about the progress of labour.
 - Encourage her to void urine frequently.
 - Encourage the presence of a birth companion.
 - Woman should be allowed to be ambulatory.
 - Ensure adequate privacy and cleanliness of the birthing area and the patient.
 - Woman should have light, easily digestible food.
- Monitoring - Latent labour (not in Active labour) :
 - Avoid unnecessary intervention.
 - Pulse, BP, temperature and cervical dilatation 4 hourly.
 - Uterine contractions, Foetal Heart Rate hourly.
- Monitoring - Active labour:
 - Plot Partograph from 4 cm. of cervical dilatation on the **ALERT LINE**.
 - Monitor:
 - Maternal pulse, uterine contractions and foetal heart rate half hourly.
 - Temperature two hourly.
 - BP, cervical dilatation 4 hourly.
- Management of second stage of labour:
 - Discourage early bearing down:
 - Ask the woman to take deep breaths to prevent early bearing down.
 - When the cervix is fully dilated encourage the woman to push with contractions:
 - Give episiotomy if required.
 - Avoid ironing the perineum.
 - Ensure controlled delivery of the head with a good perineal support.
 - Check for cord around the neck.
 - Deliver the shoulder one at a time after spontaneous rotation.
 - Clamp and cut the cord.
 - Deliver the baby and place over mother’s abdomen.

Example

Anita, wife of Sameer, a 23 year old primigravida was admitted to labour room at 7 am on January 16, 2009 with complaints of labour pains.

On admission, her PR was 80/min., BP 120/80 mm. Hg, Temp -37.2°C. She was getting 3 uterine contractions in 10 minutes each lasting for 25-30 seconds and FHR 140/min. Cervix was 5 cm. dilated. Membranes present.

	PR	BP	Temp	P/A	FHR
7.30 am	80	-	-	3 contractions in 10 min. Each lasting for 30 seconds	140/min.
8:00 am	80	-	-	3 contractions in 10 min. Each lasting for 30-35 seconds	140/min.
8:30 am	90	-	-	3 contractions in 10 min. Each lasting for 35-40 seconds	140/min.
9:00 am	90	-	37°C	3 contractions in 10 min. Each lasting for 35-40 seconds	130/min.
9:30 am	80	-	-	4 contractions in 10 min. Each lasting for 40 seconds Membranes ruptured, liquor clear	130/min.
10:00 am	90	-	-	4 contractions in 10 min. Each lasting for 40 seconds	140/min.
10:30 am	90	-	-	4 contractions in 10 min. Each lasting for 45 seconds	140/min.

At 11.a.m., Anita's PR was 90/min., BP-120/70 mm Hg, Temp 37°C, she was getting 4 uterine contractions in 10 minutes each lasting for 40-45 seconds, FHR was 140 /min. Cervix was fully dilated and liquor clear.

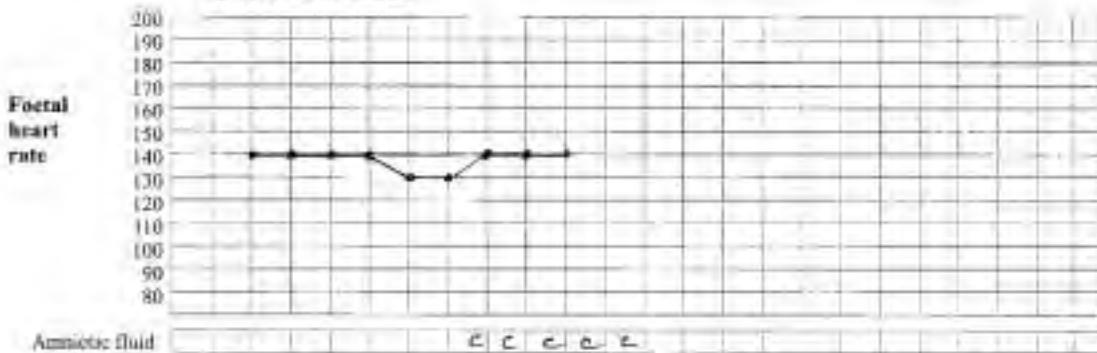
THE SIMPLIFIED PARTOGRAPH

IDENTIFICATION DATA

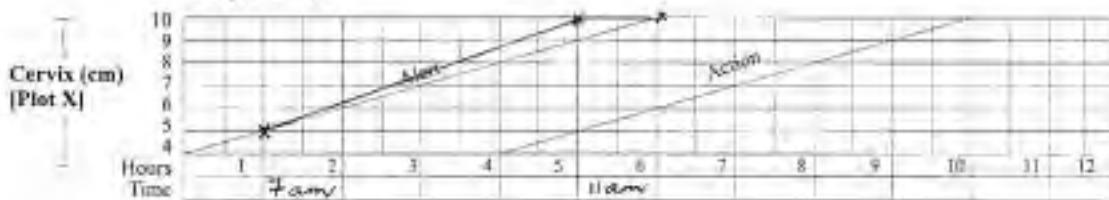
Name: *Anita* W/o: *Sameer* Age: *23* _{Yrs} Parity: *0* Reg. No.:

Date & Time of Admission: *16.1.2009, 7am* Date & Time of ROM: *16.1.2009, 9.30am*

A) Foetal Condition



B) Labour

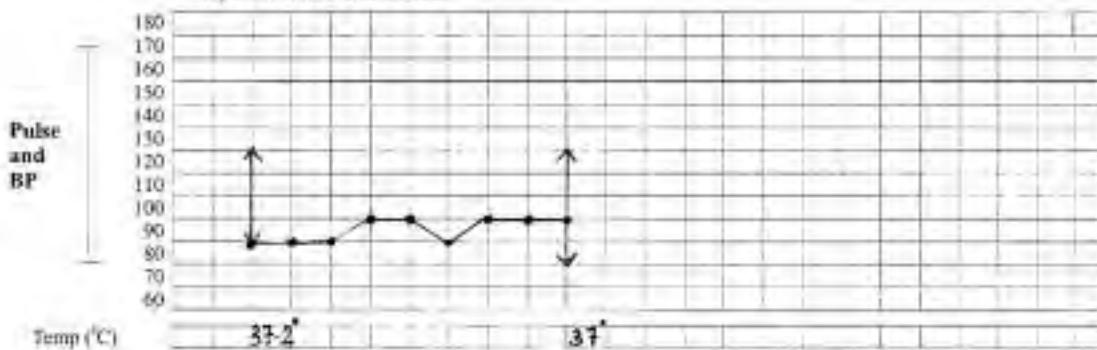


C) Interventions

Drugs and IV fluids given

--	--	--	--	--	--	--	--	--	--	--	--

D) Maternal Condition



Vaginal delivery of female baby at 12.05 pm
on 16.01.2009, Birth weight = 3.2 kg

Plot the findings in blank partograph

Case 1

Partograph, Mrs. Lakshmi a 25 year old primigravida was admitted in labour at 6 p.m. on 2/12/2008.

On admission PR -90/min., BP-120/70 mm. Hg., Temp -37°C, 3 uterine contractions, each lasting for 20 sec. in 10 minutes and FHR 140/min. Cervix was 5 c.m. dilated, membranes ruptured spontaneously and liquor clear.

	PR	BP	Temp	P/A	FHR
6:30pm	80	-	-	3 contractions in 10 min. Each lasting for 30-35 seconds	130/min.
7:00pm	90	-	-	3 contractions in 10 min. Each lasting for 30-35 seconds	140/min.
7:30pm	90	-	-	3 contractions in 10 min. Each lasting for 35-40 seconds	140/min.
8:00pm	80	-	37°C	3 contractions in 10 min. Each lasting for 35-40 seconds	130/min.
8:30pm	80	-	-	4 contractions in 10 min. Each lasting for 40 seconds	130/min.
9:00pm	90	-	-	4 contractions in 10 min. Each lasting for 45 seconds	140/min.
9:30 pm	90	-	-	4 contractions in 10 min. Each lasting for 45-50 seconds	140/min.

At 10 p.m. PR -90/min., BP-120/80 mm. Hg., Temp 37°C, 4 uterine contractions in 10 minutes lasting for 45-50 sec, FHR-140 /min. Cervix was fully dilated and liquor clear. She delivered a male baby of 3 kg at 10:30pm on 2nd December 2008.

Case 2

Mrs. Salma, a 25 year old G₂P₁L₁ was admitted with labour pains at 10 a.m. on 22/10/2007. She gave history of leaking per vaginum one hour prior to admission. On admission her PR -80/min., BP - 110/70 mm. Hg., Temp-37°C, 3 uterine contractions each lasting for 40 seconds in ten minutes, FHR-140/min. Cervix was 6 c.m. dilated, membranes were absent and liquor was clear.

	PR	BP	Temp	P/A	FHR
10:30 a.m.	80	-	-	3 contractions in 10 min. Each lasting for 45 seconds	140/min.
11:00 a.m.	80	-	-	3 contractions in 10 min. Each lasting for 45 seconds	150/min.
11:30 a.m.	90	-	-	4 contractions in 10 min. Each lasting for 45-50 seconds	140/min.

At 12:00 noon PR-90/min., Temp-37°C, 4 contractions lasting for 45 seconds in 10 minutes, FHR-130/min. Patient bearing down. On p/v, cervix was fully dilated with liquor clear. Mrs Salma had full term normal delivery of female weighing 2.9 kg. at 12:20 p.m. on 22nd October 2007.

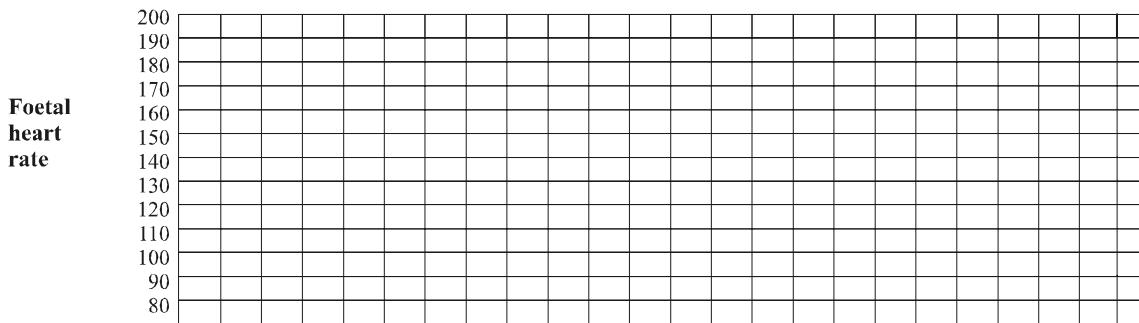
THE SIMPLIFIED PARTOGRAPH

IDENTIFICATION DATA

Name: _____ W/o: _____ Age: _____ Parity: _____ Reg. No.: _____

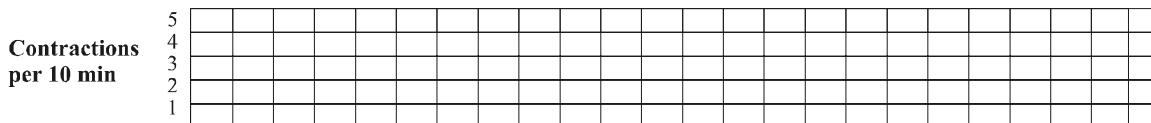
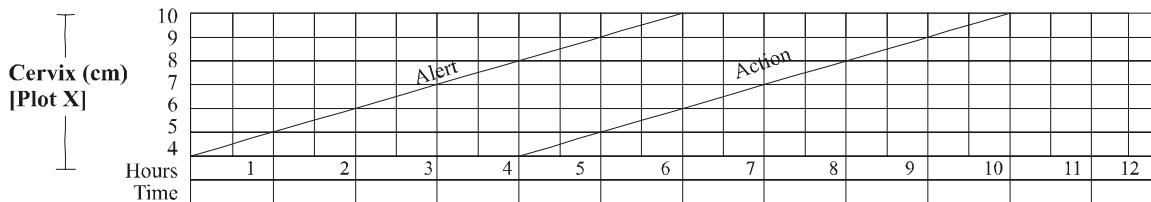
Date & Time of Admission _____ Date & Time of ROM: _____

A) Foetal Condition



Amniotic fluid _____

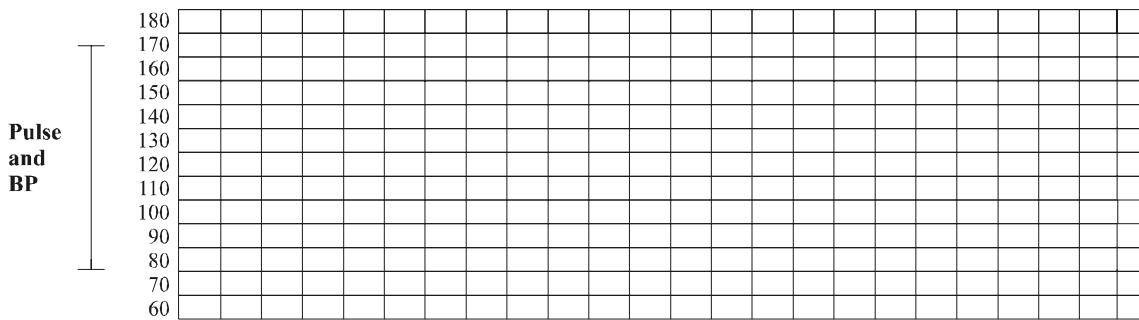
B) Labour



C) Interventions

Drugs and IV fluids given _____

D) Maternal Condition



Temp (°C) _____

Case 3

Mrs. Geeta 20 years old primigravida was admitted with labour pains at 2 p.m. on 25/10/2007. She gave history of leaking per vaginum 3 hours prior to admission.

On admission PR 80/min., BP-100/70mm. Hg., Temp-37°C, 3 uterine contractions in 10 minutes each lasting for 20 seconds, FHR-140/min. Cervix was 5 c.m. dilated and liquor was clear.

	PR	BP	Temp	P/A	FHR
2:30 p.m.	80	-	-	3 contractions in 10 min. Each lasting for 30 seconds	140/min.
3:00 p.m.	90	-	-	3 contractions in 10 min. Each lasting for 35 seconds	140/min.
3:30 p.m.	90	-	-	3 contractions in 10 min. Each lasting for 40 seconds	140/min.
4:00 p.m.	80	-	37°C	3 contractions in 10 min. Each lasting for 40 seconds	130/min.
4:30 p.m.	80	-	-	3 contractions in 10 min. Each lasting for 40-45 seconds	130/min.
5:00 p.m.	90	-	-	4 contractions in 10 min. Each lasting for 30 seconds	150/min.
5:30 p.m.	100	-	-	4 contractions in 10 min. Each lasting for 30 seconds	150/min.

At 6 p.m. PR-100/min., BP-120/80 mm. Hg.,Temp-37°C, 4 uterine contractions in 10 minutes each lasting for 50 seconds FHR-150/min. Cervix was 7 cm dilated, liquor was clear.

Since the graph had crossed the alert line, Mrs. Geeta was referred to FRU along with partograph.

Day 2: Care during labour and delivery

Session 2b: Active Management of Third Stage of Labour (AMTSL).

Time: 1 hour

Activity:

- Refer to guidelines : Module 2, Chapter 1(c).

Notes:

❖ Components of Active Management of the Third Stage of Labour (AMTSL)

- Immediate administration of a uterotonic drug.
- Controlled cord traction.
- Uterine massage.

➤ Uterotonics:

- Injection Oxytocin - administer 10 units IM immediately after the delivery of the baby.
- Oral Misoprostol 600 mcg is the preferred alternative to Oxytocin particularly for home deliveries.

Uterotonic agent	Route	Dosage action	Onset of action	Duration of action	Contraindication	Storage (° C)
Oxytocin	IM	10 Units	2 – 4 mins	20 mins	Never give IV bolus	15 – 30° C
Misoprostol	Oral	600 µg	12 – 15 mins.	20 – 40 mins.	Nil	Room Temp.

➤ Controlled cord traction (CCT):

- Clamp the umbilical cord once the cord pulsations stop (except - Pre maturity, Rh-iso immunization, HIV, Foetal distress).
- Keep one hand on hardened uterus & apply counter traction just above the symphysis pubis.
- Apply gentle traction on the cord.
- Ensure completeness of placenta upon its delivery.

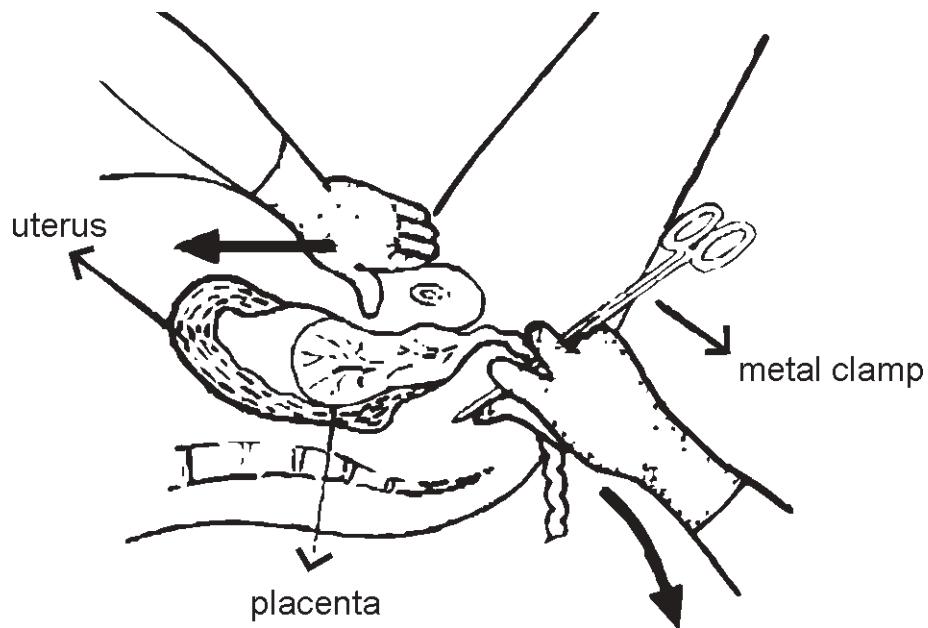


Fig. 2b.1 : Controlled cord traction

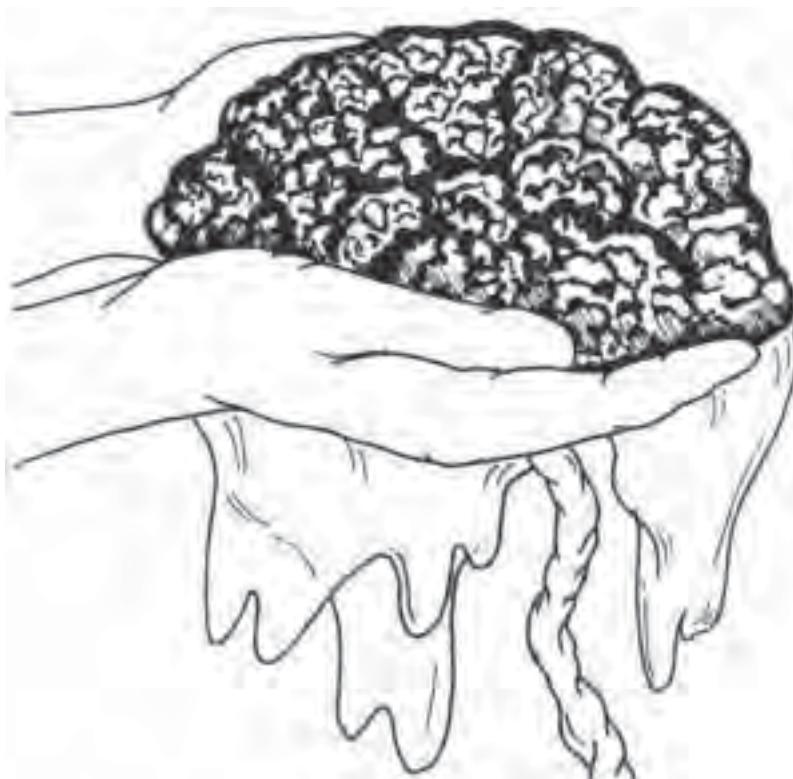


Fig. 2b.2 : Examination of placenta

➤ **Uterine massage:**

- Massage the uterus till uterus is contracted and feels hard.
- Palpate the uterus every 15 minutes and repeat massage as needed during the first 2 hours.
- Monitor that uterus does not relax after the massage is stopped.

Key points

- AMTSL is an intervention to facilitate the delivery of placenta by enhancing uterine contraction and retraction.
- Active management of the third stage should be practiced on all women in labour, since it reduces the incidence of PPH due to uterine atony.
- **Flow chart for AMTSL:**

Confirm the absence of additional baby by per abdominal examination



Immediately after delivery of baby, administer inj. Oxytocin 10U IM.



Clamp the umbilical cord close to perineum and hold with one hand.



Place the other hand just above the pubic symphysis & apply counter traction upwards.



Maintain slight tension on the cord & gently pull downwards when the uterus contracts (as evidenced by uterus becoming hard & globular).



As the placenta delivers hold it with both hands & gently turn the placenta so that the membranes are twisted.



Massage the uterine fundus until the uterus is well contracted.



Examine the maternal & foetal surfaces of the placenta for completeness of cotyledons & membranes.



Make sure that the uterus is firmly contracted, monitor vaginal bleeding & measure vital signs for 2 hours after delivery.

Day 3

3a. Instrumental Delivery (Obstetric outlet forceps and Ventouse)

Session 3a.1: Obstetric outlet forceps

Time: 1 hour

Activity:

- Refer to Guidelines, Annexure 23.

Notes:

❖ Obstetric outlet forceps

➤ Definition:

- An instrument designed for extraction of foetal head.

➤ Parts of forceps:

- Handle – to grip the forceps.
- Lock – holds the two blades together.
- Shank – connects handle and blade.
- Blades – There are two blades right and left which enclose the foetal head.
- Diameter – widest distance between the two blades, 7.5 cms.
- Two curves – cephalic (fits the shape of foetal head) and pelvic (follows direction of birth canal).

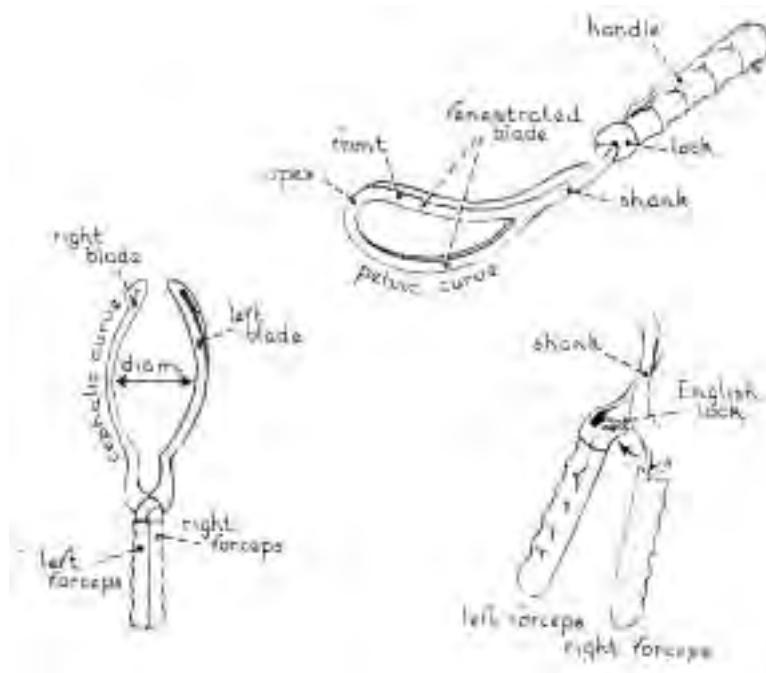


Fig. 3a.1 : Parts of forceps

➤ **Forceps delivery**

1. Identify left and right blades:

- Assemble the blades of forceps in locked up position with the pelvic curve facing anteriorly.
- Hold the right blade in right hand and the left in the left hand.
- Apply left blade first (on the left side of maternal pelvis).
- Next apply right blade (on the right side of maternal pelvis).

2. Apply left blade first :

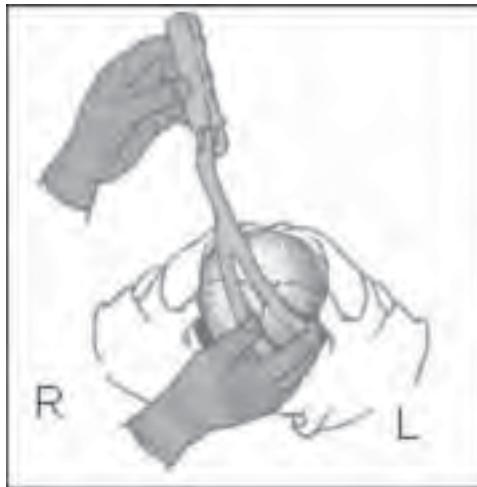


Fig. 3a.2 : Application of Left blade of forceps

- Hold the left blade in the left hand.
- Insert the blade under the guidance of right hand to the left side of pelvis.
- Hold the blade steady.

3. Apply right blade after the left blade:

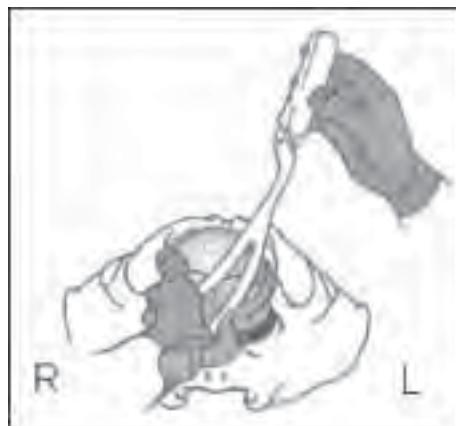


Fig. 3a.3 : Application of Right blade of forceps

4. **Locking:**

- **When forceps are applied correctly, locking is easy.**

The blades should never be forced together.

5. **Give an episiotomy :**

6. **Extraction of foetal head:**

- Apply traction downwards and backwards during a contraction.
- As the head is delivered raise the blades upwards and forward.
- Maintain traction with only the force of forearm muscles.
- Unlock the blades.

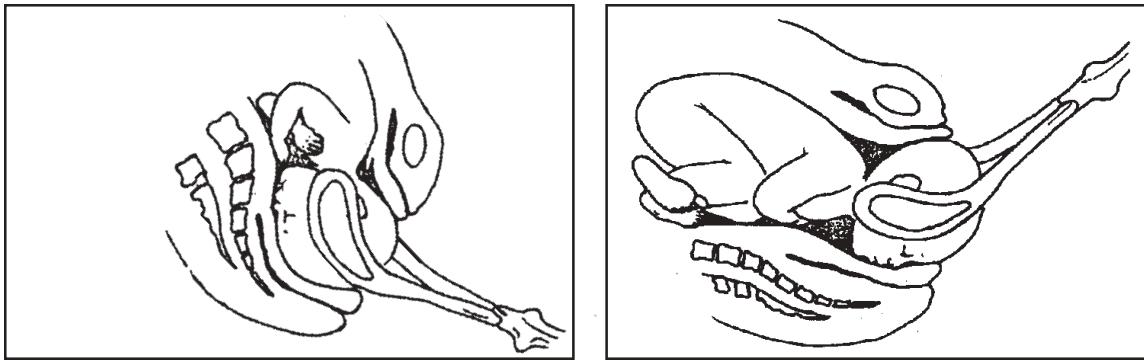


Fig. 3a.4 : Extraction of foetal head

7. **Inspect the vagina, cervix for lacerations and repair if present.**

8. **Examine the baby for injuries.**

➤ **Failed forceps delivery**

- Locking is difficult.
- Failure of head to descend.
- **Never attempt application of forceps more than once.**

➤ **Complications**

- Maternal:
 - Lacerations of vulva, vagina, cervix and extension of episiotomy.
 - Colporrhexis.
 - Traumatic Postpartum hemorrhage.
 - Injury to bladder or rectum.
- Foetal:
 - Cephal haematoma
 - Intracranial hemorrhage
 - Fractured skull
 - Facial palsy
 - Bruising
 - Brachial palsy
 - Late neurological sequelae

Key Points

❖ Forceps delivery

- **Indications:** In second stage of labour
 - Foetal distress.
 - Maternal distress.
 - Prophylactic - cardiac disease, severe pre eclampsia / eclampsia, anaemia, etc.
- **Contra indications for forceps delivery:**
 - Contracted pelvis.
 - Incomplete dilatation of cervix.
 - Malpresentations.
- **Prerequisites:**
 - Adequate pelvis.
 - Cervix fully dilated.
 - Occipito-anterior position.
 - Station of head +2 or more.
 - Membranes should be absent.
 - Bladder and rectum must be empty.
 - **On PA examination – foetal pole should not be palpable**
- **If forceps delivery fails, refer to FRU** (with referral slip as in Annexure I).

Session 3a2: Vacuum Delivery

Objectives

- At the end of training the trainee will develop skills to conduct Ventouse Delivery

Activity

- Refer to Guidelines, Annexure 24.

- **Notes**

➤ Definition

- An instrument designed to assist delivery by creating vacuum between the cup and foetal scalp.

➤ Parts

- Suction cup (4 sizes 30, 40, 50 & 60 mm.).
- Traction tubings.
- Vacuum pump (mechanical / electrical).

➤ Application

- Largest cup to be placed on the foetal head with knob pointing towards the occiput and the centre of the cup 1 c.m. anterior to posterior frontanelle.
- Cup is placed as posteriorly as possible to promote flexion, descent & rotation.
- Rule out soft tissue entrapment within the rim of the cup.
- Increase vacuum pressure at 0.2 Kg/cm² every 2 minute (100 mm Hg in 1 minute), gradually raise upto 0.7 – 0.8 Kg/cm² or 700 mm. Hg.
- As the vacuum pressure progresses, artificial caput succedaneum develops (chignon).
- Traction is applied with uterine contraction at right angle to the cup in a downward direction. (When insufficient time is allowed for development of vacuum, there is increased risk of the cup popping off).
- Rotation should be allowed to take place spontaneously as traction is applied.

Do not try to rotate manually.

- If advancement is not evident after 3-4 pulls, procedure should be discontinued. Refer to FRU (with referral slip as in Annexure I).

➤ Complications

- Maternal :
 - Lacerations of vagina & cervix.

- Foetal :
 - Pronounced caput succadaneum.
 - Abrasion, necrosis & ulceration of scalp.
 - Cephal haematoma.
 - Subaponeurotic/ subgaleal haematoma.
 - Postnatal asphyxia.
 - Cerebral irritation.
 - Intracranial hemorrhage.
 - Retinal hemorrhage.

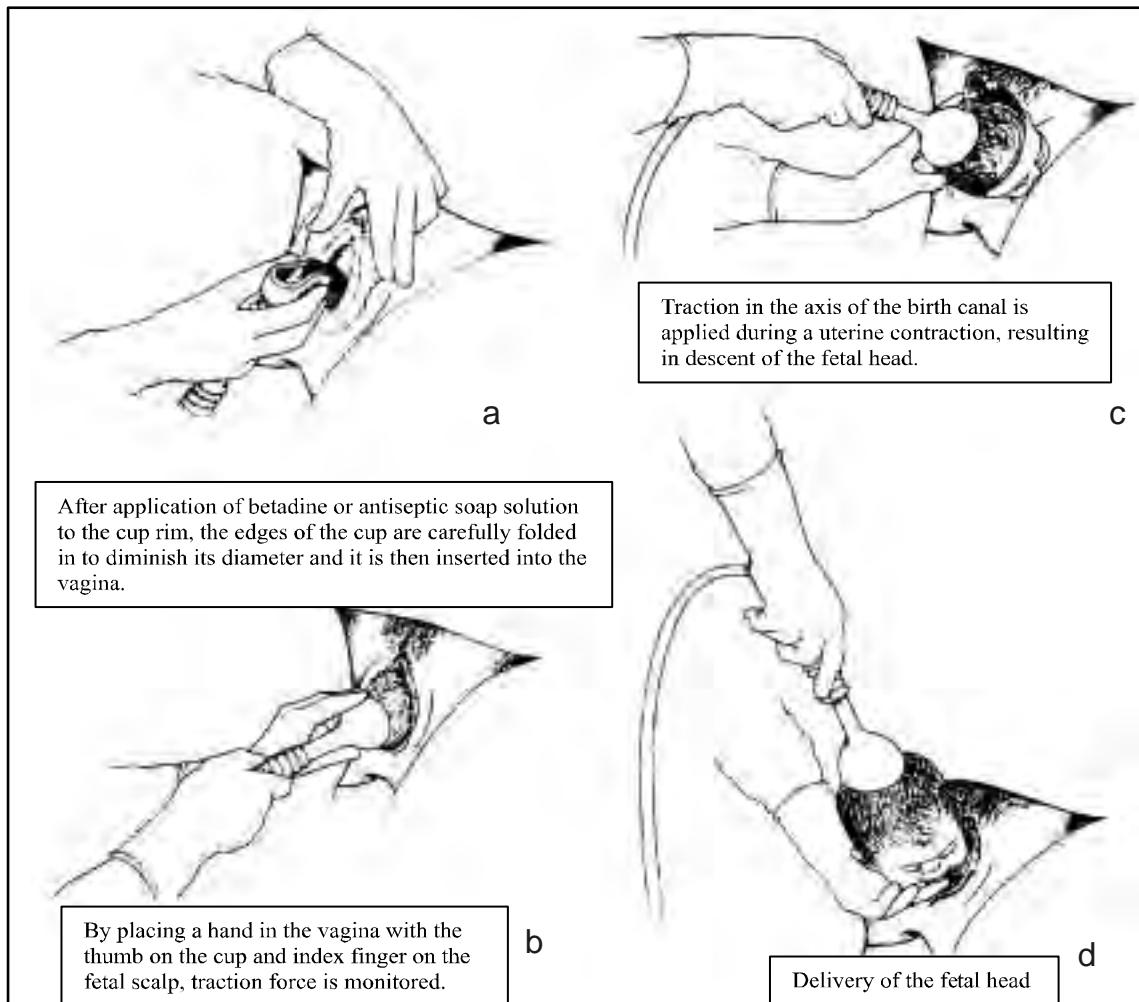


Fig. 3a.5: Ventouse Delivery

Key points

- **Indications:** In second stage of labour
 - Maternal distress
 - Prophylactic - cardiac disease, severe pre-eclampsia / eclampsia, anaemia, etc.
 - Failure of descent or rotation of head
- **Contraindications:**
 - CPD
 - Malpresentations.
 - Preterm fetus.
- **Prerequisites:**
 - Vertex presentation
 - Term foetus
 - No CPD
 - Ruptured membranes
 - Cervix fully dilated
 - Station at or below +1

Ventouse is not preferred in cases of foetal distress as it takes time to build vacuum

Day 3

Session 3b: Post Partum Haemorrhage and Shock

Time: 1 hour

Activity

- Refer to Guidelines 2, Chapter 1(c)

Notes

❖ PPH

➤ Definitions:

- Blood loss of 500 ml or more from the genital tract after childbirth. (However, in anaemic woman blood loss less than 500 ml can lead to PPH and deterioration of maternal condition).
- Any amount of blood loss which leads to deterioration of maternal condition.
- Primary PPH: Excessive vaginal bleeding within the first 24 hours after childbirth.
- Secondary PPH: Excessive vaginal bleeding after the first 24 hours & within 6 weeks of childbirth.

➤ Clinical estimates of blood loss:

Clinical Signs	Class I	Class II	Class III	Class IV
Blood Loss (ml.)	500 – 1000	1200 – 1500	1800 – 2100	> 2400
Pulse (beats/min.)	Normal	100	120	140
Systolic Blood Pressure (mm. Hg.)	Normal	Normal	*60 – 80	60
Mean arterial pressure (mm. Hg.)	80 – 90	80 – 90	50 – 70	50
Tissue perfusion	Postural hypotension	Peripheral Vasoconstriction	Pallor, restlessness, oliguria	Collapse, anuria, air hunger

** By the time a woman presents with systolic blood pressure <90 mm. Hg., she has already lost 1/3rd of the circulating volume. Hence, early recognition and management of PPH is vital, i.e., amount of blood loss and appearance of tachycardia.*

➤ Effects of severe blood loss on the body:

- An average woman has 6 liters of blood in her circulation.
- A woman can lose up to 500 ml of blood in one minute due to PPH.
- It takes 10 minutes for a woman to become exsanguinated or to lose all her blood.
- Kidney is the first vital organ which will stop functioning if the woman is in severe shock. This is because hypovolemia will lead to necrosis of the renal tubules & cortex.
- Renal cortical necrosis is irreversible & has a high mortality.

“Remember, the interval from onset of PPH to death can be as little as two hours, unless appropriate life-saving steps are taken immediately”.

➤ **Assessment of Shock:**

Early Shock	Late Shock
• Pulse > 110/minute	• Pulse very fast/feeble
• Systolic BP ~ 90 mm Hg	• BP very low
• Pale and sweaty	• Pale and cold
• Breathing >30/min	• Breathing extremely fast
• Awake	• Confused
• Aware, conscious	• Unconscious
• Hematocrit > 26%	• Hematocrit < 26%
• Urine output > 30 cc/hr	• Urine output < 30 cc/hr

➤ **Following emergency procedures should be done until woman reaches FRU:**

✓ **Bimanual compression of the uterus**

- Wearing sterile gloves insert a hand into the anterior fornix of vagina and form a fist.
- Apply pressure against the anterior wall of the uterus.
- With the other hand on the abdomen, apply pressure against the posterior wall of the uterus.
- Maintain compression until bleeding is controlled and the uterus contracts.

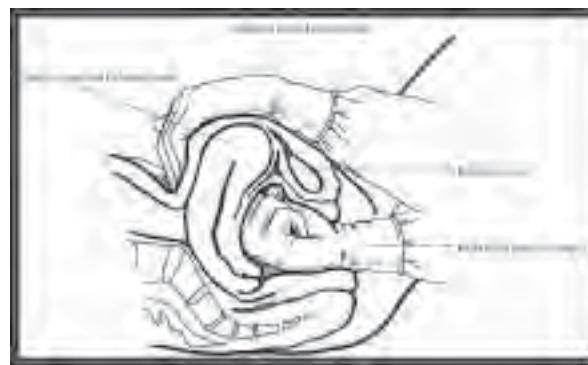


Fig. 3b.1 : Internal bimanual compression

✓ **Aortic compression per abdomen**

- Apply downward pressure with a closed fist over the abdominal aorta directly through the abdominal wall:
 - The point of compression is just above the umbilicus and slightly to the left.
 - Aortic pulsations can be felt easily through the anterior abdominal wall in the immediate postpartum period.

- With the other hand, palpate the femoral pulse to check the adequacy of compression:
 - If the **pulse is palpable during compression**, the pressure exerted by the fist is **inadequate**
 - If the **femoral pulse is not palpable**, the pressure exerted is **adequate**.
- Maintain compression until bleeding is controlled.

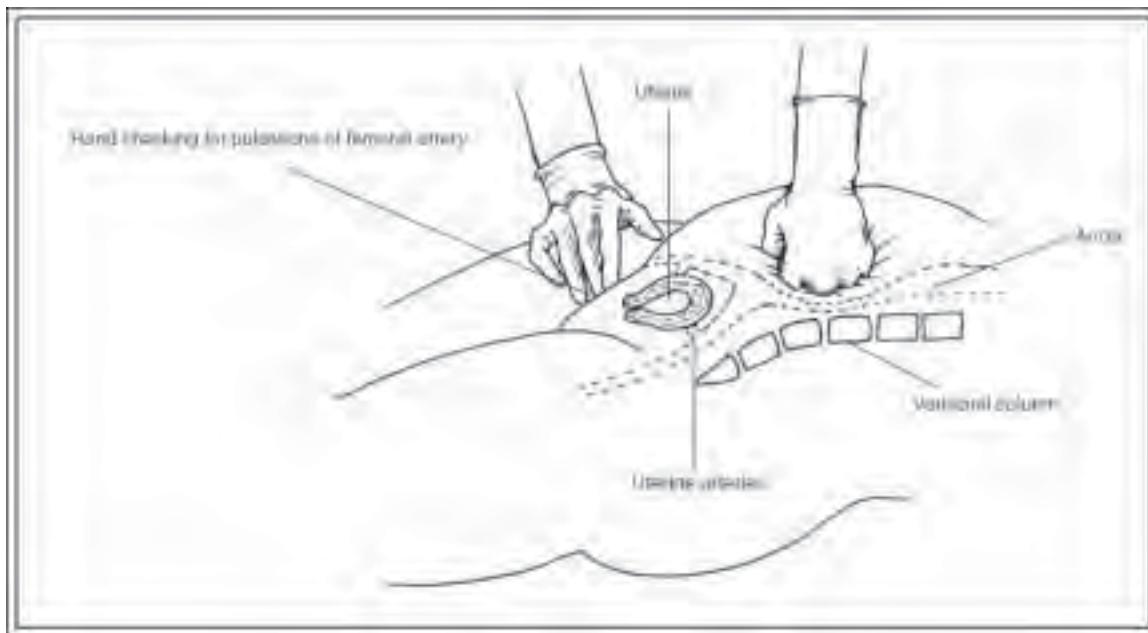
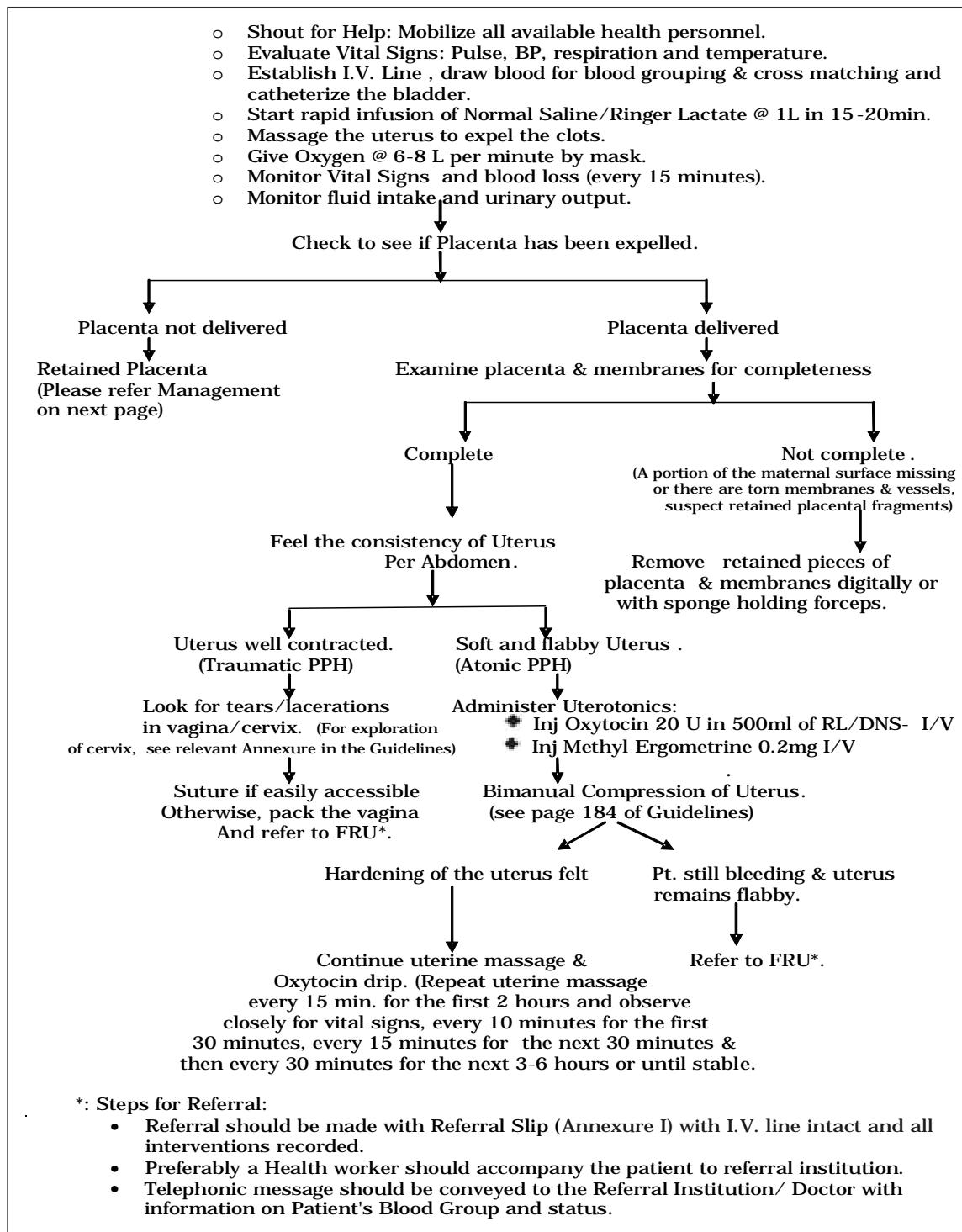


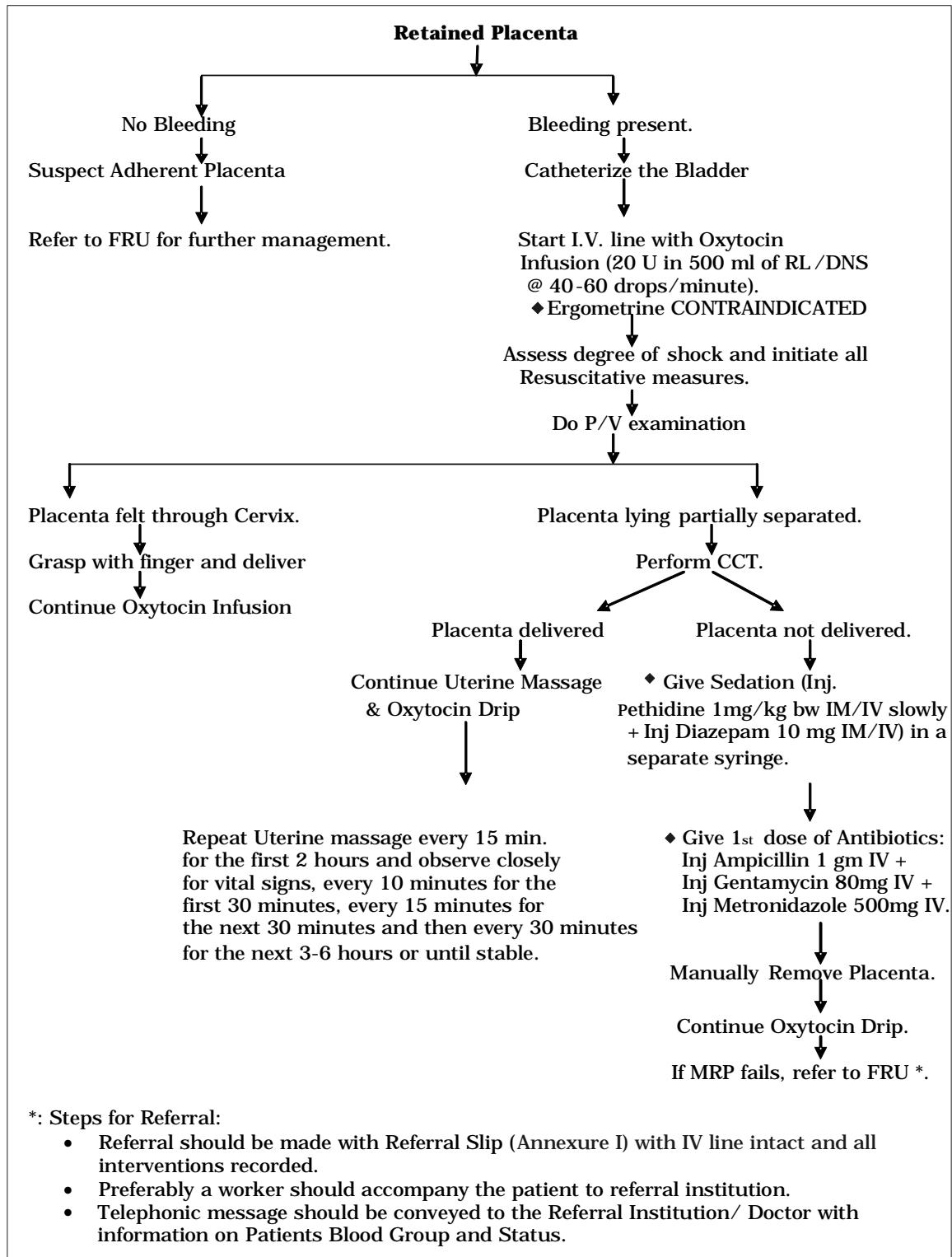
Fig. 3b.2 : Compression of abdominal aorta

- Key points:

Management of PPH



Management of Retained Placenta



Drugs for PPH Management :

Drugs	Dose and Route	Continuing Dose	Max. Dose	Precautions & Contra-indication
Oxytocin	<ul style="list-style-type: none"> • 20 U in 500ml RL/DNS 60 drops/ min. IV Infusion 	IV Infuse 20 U in 500ml. RL/DNS 40 drops/ min. IV Infusion	Not more than 3 L of IV Fluids containing Oxytocin	Do not give IV as a Bolus.
Ergometrine	IM or IV (slowly): 0.2 mg.	Repeat 0.2 mg. after 15 min. If required, give 0.2mg. IM/IV (slowly) every 4 hrs	Five doses (Total 1.0 mg)	High BP, Pre-eclampsia, Heart disease.
15-Methyl Prostaglandins nF _{2α}	IM: 0.25mg.	0.25mg. every 15min.	8 doses (total 2 mg.)	Asthma

• **Case Study 5** (Write down the answers to the questions in the space given below)

A) Mrs. Fatima, 28 years old P₄ L₄ gave birth to a full term newborn 2 hours ago at home. Her birth attendant was a TBA, who has brought Mrs. Fatima to the health center because she has been bleeding heavily since childbirth. The duration of labour was 12 hours, the birth was normal and the placenta was delivered 20 minutes after the child birth. Placenta and membranes were complete. **What will you include in your initial assessment of Mrs. Fatima?**

B) Clinical Examination findings:

She is pale, cold & sweating,

- Pulse - 108 / min.
- BP - 80 / 60 mm. Hg.
- RR - 24 / min.
- P/A – uterus is soft, does not contract with fundal massage
- P / S – heavy bright red vaginal bleeding from Os, no evidence of genital trauma
- **What is Mrs. Fatima's diagnosis?**
- **What is your immediate plan of management?**

C) Fifteen minutes after the initiation of treatment, Mrs. Fatima continues to have heavy vaginal the bleeding.

- Pulse – 110 / min.
- BP - 80 / 60 mm. Hg.
- **What is your further plan of action for Mrs. Fatima?**
- **How do you arrange for transfer?**

- **Case Study 6** (Write down the Answers to the questions in the space given below)

A) Mrs. Bharati, 30 years old P₂ L₂. She gave birth at the PHC to a newborn weighing 4.2 Kgs. Placenta was delivered 10 minutes later. She was given 10 U of Oxytocin IM after the delivery of placenta. Half an hour after the delivery Mrs. Bharati reports that she has heavy vaginal bleeding. **What will you include in your initial assessment of Mrs. Bharati?**

B) Clinical Findings

- She is pale,
- Pulse - 98 / min.
- BP - 110 / 70 mm. Hg.
- RR - 20 / min.
- P/A – uterus is hard , well contracted
- P/S – Heavy bright red vaginal bleeding
- No perineal trauma
- Visualization of cervix & vagina difficult due to heavy vaginal bleeding
- Placenta is complete.
- **What is Mrs. Bharati's Diagnosis?**
- **What is your immediate plan of management?**

C) On per speculum examination, patient has multiple vaginal lacerations, including paraurethral tears. There is a cervical tear which has extended upwards till the vault, however, the extent could not be made out

- Pulse - 110 / min.
- BP - 100 / 60 mm. Hg.
- **What is your further plan of action for Mrs. Bharati and why?**

Day 4 : Essential New Born Care

Session 4a : Care at Birth

Activity

- Refer to guidelines : Module 1, Chapter 4.

Notes

❖ Why care at birth is important?

- A baby's survival is totally dependent on the caregivers and the mother.
- It is important to provide the right care at birth to reduce the risk of complications

The four basic needs of **ALL** newborns at the time of birth and for the first few weeks of life are:

1. To be warm
2. To breathe normally
3. To be protected (against infection)
4. To be fed

Prepare equipment and supplies for care of new born at time of birth:

- 2 or more clean baby sheets/towels
- Gloves
- Scissors
- Sterile ties
- Suction catheter
- Bag and mask
- Stethoscope
- Clock
- Baby clothes and cap

❖ Immediate Newborn Care

1. Assess by checking whether :

- Term gestation?
- Amniotic fluid clear?
- Breathing or crying?
- Good muscle tone?

If yes provide, **Routine care** as given in steps 3 onwards. If no, proceed for resuscitation.

2. Note the time of birth.

3. The baby should be placed onto its mother's abdomen. If this is not possible keep the baby next to the mother on a clean surface.

4. Immediately dry the baby with a warm clean towel or piece of cloth. Wipe the mouth and nose with a clean cloth. 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.

5. Clamp and cut the umbilical cord with a sterile instrument. Tie the cord with a clean thread, rubber band or a sterile cord clamp.

6. Examine the baby quickly for malformations/birth injury:

-If there is a major malformation/severe birth injury, refer the baby to a newborn unit.

-Ensure warmth during examination and transportation.

7. Leave the baby between the mother's breasts to start skin-to-skin care.

8. Cover the baby's head with a cloth. Cover the mother and baby with a warm cloth.

9. Place an identity label on the baby.

10. Give Inj Vit K 1 mg, IM, to prevent haemorrhagic disease of the newborn.

11. Breastfeeding.

The baby's need to breathe normally

- *To 'breathe normally' was identified as one of the baby's immediate and 'basic needs'. A baby can die or suffer from hypoxic injury very quickly if breathing does not start soon after birth.*
- *Oxygen is needed to keep the baby's brain and other vital organs normal. When the umbilical cord is cut, the placenta is no longer a source of oxygen and the baby needs to support his oxygenation through the lungs.*
- *Once a baby is born, and while it is being dried, assess baby's breathing. If a baby is breathing normally, the air entry on both sides of the chest shall be equal and the respiratory rate would be 40-60 per minute.*

Decide: Does the baby need any help with its breathing?

- The majority of babies do not have any problem in initiating breathing after birth, but it is vital to recognize those babies who need immediate help to support respiration.

Keeping the baby warm

- Newborn baby’s temperature falls within seconds of being born. There are 4 ways by which a baby may lose heat (Figure : 4a.1).

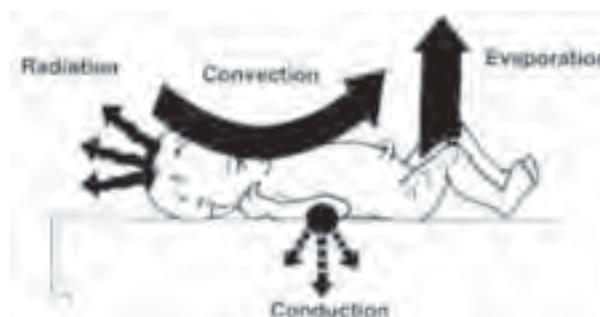


Fig. 4a.1 : Four ways a newborn may lose heat to the environment

- If the temperature continues to fall the baby may become sick and may even die.

Method of heat loss	Prevention
Evaporation: Wet baby	Immediately after birth dry baby with a clean, warm, dry cloth.
Conduction: Cold surface, e.g. weighing scale etc.	Put the baby on the mother’s abdomen or on a warm surface.
Convection: Cold draught	Provide a warm, draught free room for delivery at $\geq 25^{\circ}\text{C}$.
Radiation: Cold metallic surroundings	Keep the room warm.

Keeping 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 between the mother’s breasts.
- Cover the mother and baby with a warm and dry cloth.
- 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. Ensure baby’s head, hands and feet are covered.
- Delay the first bath to beyond 24 hours. period.
- Skin-to-skin contact can restart as soon as possible, provided mother and baby do not need any medical care.

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 the stump.
- Leave stump uncovered and dry.

Care of the eyes

- The eyes should be cleaned with sterile normal saline soaked swabs, using one swab for each eye. Clean from medial to lateral side.
- Do not apply any medication to eyes.

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 to rule out tracheo-oesophageal fistula and imperforate anus.

Initiate breastfeeding within 1 hour

- Tell the mother to help the baby to her breast within the first hour.
- 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 infections.
- The baby can feed from its mother in any position, whether she is lying down or sitting; Baby and mother must however, be comfortable
- Do not give artificial teats or pre-lacteal feeds to the newborn, e.g., sugar water or local foods or even water.
- There is no need to routinely separate babies born by Caesarean Section or instrumental delivery from mother

Weigh all babies before transfer from the delivery room
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❖ Neonatal resuscitation

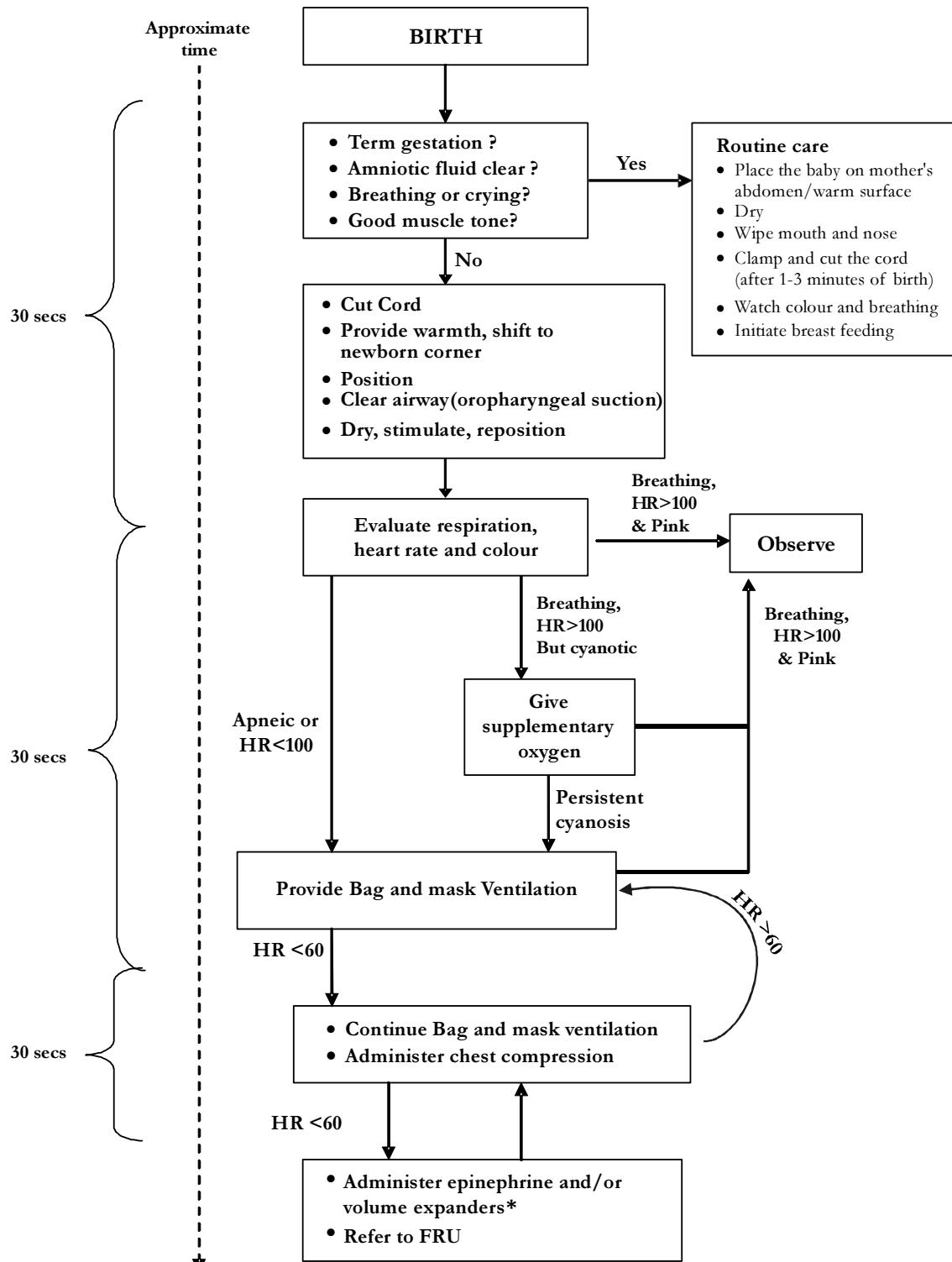
➤ Which babies require resuscitation?

Approximately 10% of newborns require some assistance to begin breathing at birth; about 1% need extensive resuscitative measures to survive.

The “ABCs” of resuscitation are the same for babies as for adults. Ensure that the ‘**Airway**’ is open and clear. Be sure that there is ‘**Breathing**’, whether spontaneous or assisted. Make certain that there is adequate ‘**Circulation**’ of oxygenated blood. Newly born babies are wet following birth and heat loss is great. Therefore, it also is important to maintain body temperature during resuscitation.

➤ How do you determine whether the baby requires resuscitation?

- *Was the baby born at term?*
- *Was the baby clear of meconium?*



*: May be administered if MO is able to administer through I.V. route or umbilical vein. If not possible, refer to higher centre/FRU continuing positive pressure ventilation

Flow Chart of Neonatal Resuscitation

If meconium is present and the baby is not vigorous, it will be necessary to intubate the trachea to clear it of meconium before the baby takes many breaths. If the amniotic fluid is clear or if the meconium stained baby is vigorous, suctioning the trachea will not be necessary. No more than a few seconds should elapse while you make this determination.

- ***Is the baby breathing or crying?***

A vigorous cry also indicates breathing. However, don't be misled by a baby who is gasping. Gasping is a series of deep single or stacked inspirations that occur in the presence of hypoxia and/or ischemia. It is indicative of severe neurologic and respiratory depression and requires same intervention as apnea.

- ***Is there good muscle tone?***

Healthy term babies should have flexed extremities and be active.

- **What are the initial steps and how are they administered?**

Once you decide that resuscitation is required, all of the initial steps should be initiated within a few seconds. Although they are listed as "initial" and are given in a particular order, they should continue to be applied simultaneously throughout the resuscitation process.

- ***Provide warmth***

The baby should be placed under a radiant warmer, where you will have easy access to the baby and the radiant heat will help to reduce heat loss.

- ***Position by slightly extending the neck***

The baby should be **positioned** on the back, with the neck slightly extended in the "sniffing" position. To help maintain the correct position, you may place a rolled blanket or towel under the shoulders (Figure: 4a.2). This will bring the posterior pharynx, larynx, and trachea in line, which will facilitate unrestricted air entry. Care should be taken to prevent hyperextension or flexion of the neck, since either may restrict air entry (Figure: 4a.2).

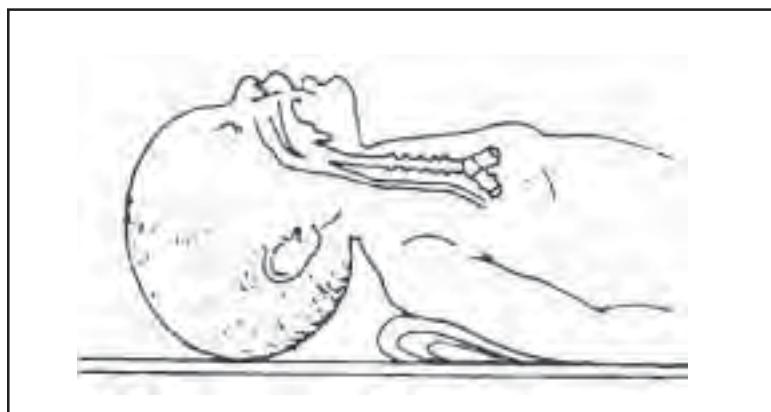


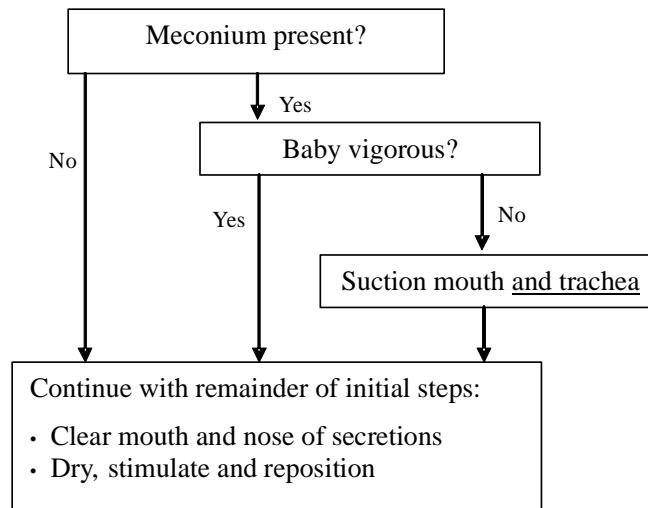
Fig. 4a.2

- ***Clear airway (as necessary)***

After delivery, the appropriate method for clearing the airway further will depend on the :

1. The presence of meconium
2. The baby's level of activity

Study the flow diagram below to understand how you suction newborns with meconium.



* “Vigorous” is defined as strong respiratory efforts, good muscle tone, and a heart rate greater than 100 bpm.

➤ **How do you clear the airway if no meconium is present?**

Secretions may be removed from the airway by wiping the nose and mouth with a towel or by suctioning with a bulb syringe or suction catheter. If the newborn has copious secretions coming from the mouth, turn the head to the side. This will allow secretions to collect in the cheek where they can be removed easily.

When using suction from the wall or from a pump, the suction pressure should be set so that when the suction tubing is blocked, the negative pressure (vacuum) reads approximately 100 mm. Hg.

The mouth is suctioned before the nose to ensure that there is nothing for the newborn to aspirate if he or she should gasp when the nose is suctioned. If material in the mouth and nose is not removed before the newborn breathes, the material can be aspirated into the trachea and lungs. When this occurs, the respiratory consequences can be serious.

If bradycardia occurs during suctioning, stop suctioning and reevaluate the heart rate.

➤ **Once the airway is clear, what should be done to stimulate breathing and prevent further heat loss?**

- **Dry, stimulate to breathe and reposition**

Often positioning the baby and suctioning secretions will provide enough stimulation to initiate breathing. Drying will also provide stimulation. Drying the body and head will also help to prevent heat loss. If two people are present, the second person can be drying the baby while the first person is positioning and clearing the airway.

As part of preparation for resuscitation, you should have several pre-warmed towels available. The baby initially can be placed on one of these towels, which can be used to dry most of the fluid. This towel should then be discarded, and fresh pre-warmed towels or blankets should be used for continued drying and stimulation.

➤ **What other forms of stimulation may help a baby breathe?**

Both drying and suctioning stimulate the newborn. For many newborns, these steps are enough to induce respiration. If the newborn does not have adequate respiration, additional tactile stimulation may be provided briefly to stimulate breathing. It is important for you to understand the correct methods of tactile stimulation. Stimulation may be useful not only to encourage a baby to begin breathing during initial steps of resuscitation, but also may be used to stimulate continued breathing after positive-pressure ventilation.

Safe and appropriate methods of providing additional tactile stimulation include:

- Slapping or flicking the soles of the feet.
- Gently rubbing the newborn's back, trunk or extremities (Figure: 4a.3)



Fig. 4a.3 : Tactile Stimulation

Certain actions of physical stimulation can harm the baby and should not be used.

Harmful Actions	Consequences
Slapping the back	Bruising
Squeezing the rib cage	Fractures, pneumothorax, death
Holding upside down and shaking	Intraventricular bleeding, brain damage.

➤ **What do you do after the initial steps?**

Evaluate the baby in the following order:

- **Respiration.** There should be good chest movements, and the rate and depth of respirations should increase after a few seconds of tactile stimulation.
- **Heart rate.** The heart rate should be more than 100 bpm. The easiest and quickest method to determine the heart rate is to feel for the pulse at the base of the umbilical cord. Count the heart rate for 6 seconds and multiply by 10, to calculate the heart rate per minute.
- **Colour.** The baby should have pink lips and trunk. There should be no central cyanosis.

➤ **What do you do if the baby is breathing, but has central cyanosis?**

A baby's skin colour, changing from blue to pink, can provide the most rapid and visible indicator of adequate breathing and circulation. The baby's skin colour is best determined by looking at the central part of the body. Cyanosis caused by too little oxygen in the blood will appear as a blue hue to the lips, tongue and central trunk. Acrocyanosis which is a blue hue to only the hands and feet does not generally indicate that the baby's blood oxygen level is low and should not, by itself, be treated with oxygen. **Only central cyanosis requires intervention.**

If the baby is breathing but appears blue, administration of supplement oxygen is indicated.

Give free-flow oxygen Give a flow of 5 L/min with a tubing by cupped hand or a mask kept closer to the face (Fig. 4a.4).

Free-flow oxygen cannot be given reliably by a mask attached to a self-inflating bag.

How do you know when to stop giving oxygen?

When the newborn no longer has central cyanosis, gradually withdraw the supplemental oxygen until the newborn can remain pink while breathing room air, or wean the oxygen as indicated by pulse oximetry.

If cyanosis persists despite administration of free-flow oxygen, the baby may have significant lung disease, and a trial of positive-pressure ventilation may be indicated.

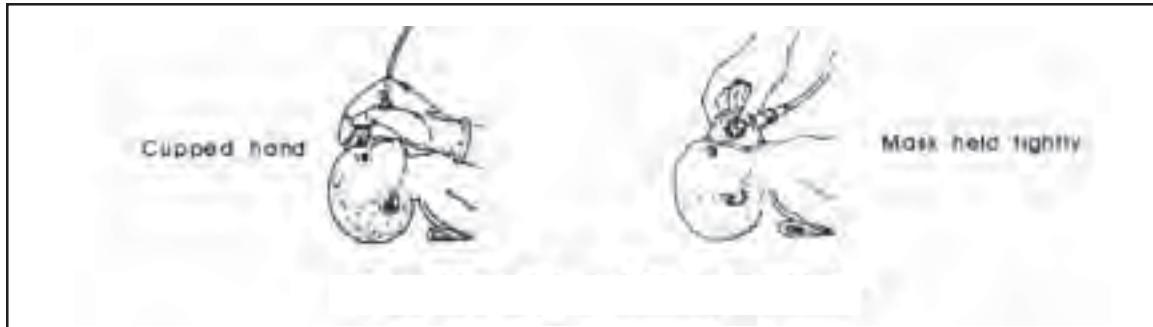


Fig. 4a.4 : Free flow oxygen delivery methods

➤ **Positive Pressure Ventilation (Bag and mask)**

Indications of positive Pressure ventilation

- Baby is not breathing or is gasping.
- Heart rate is less than 100 bpm.
- Persistent central cyanosis despite supplemental oxygen.

Ventilation of the lungs is the single most important and the most effective step in cardiopulmonary resuscitation of the compromised newly born baby.

Use of self inflating bag to ventilate newborns

The self-inflating bag, as its name implies, inflates automatically without a compressed gas source (Figure 4a.5). It remains inflated at all times, unless being squeezed. Peak inspiratory/inflation pressure (PIP) is controlled by how hard the bag is squeezed.

Advantages and disadvantages of self inflating Bag?

The self-inflating bag is more commonly found in the hospital delivery room and resuscitation cart. It is somewhat easier to use and learn resuscitation procedure as it refills after being squeezed, even if it is not attached to oxygen and even if its mask is not on patient's face. The disadvantages of this, of course, are that you will be less likely to know if the oxygen line has become disconnected or if you have not achieved a good seal between the mask and the baby's face-both of which are necessary for effective resuscitation.

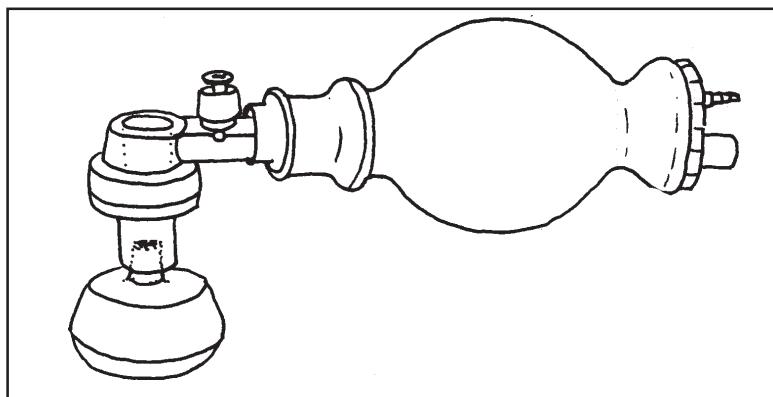


Fig. 4a.5 : Self Inflating Bag

What are the important characteristics of resuscitation bag used to ventilate newborns?

The equipment is specifically designed for newborns. Consideration should be given to the following:

i) Appropriately sized masks

A variety of mask sizes, appropriate for babies of different sizes, should be available at every delivery, since it may be difficult to determine the appropriate size before birth. The mask should cover the chin, mouth, and nose, but not the eyes, while still being small enough to create a tight seal on the face.

ii) Capability to deliver a variable oxygen concentration up to 100%

Babies who require positive-pressure ventilation at birth initially be ventilated with high concentration of oxygen. This can be accomplished by attaching a 100% oxygen source to a self-inflating bag with an oxygen reservoir. High oxygen concentration cannot be achieved with a self-inflating bag without a reservoir.

iii) Appropriately sized bag

You should use bags for newborns which have volume of 200 to 750ml. Term newborns require only 15 to 25ml with each ventilation (5 to 8ml./Kg.). Bags larger than 750ml, which are designed for older children and adults, make it difficult to provide such small volumes. Bags that are too small will not permit long inflation times.

iv) Safety features

To minimize complications resulting from high ventilation pressures, resuscitation devices have certain safety features to prevent or guard against inadvertent use of high pressures. They have a pressure-release valve (commonly called *pop-off valve* Figure 4a.5), which generally is set by the manufacturer at 30 to 40 cm H₂O. If peak inspiratory pressure of greater than 30 to 40 cm H₂O is generated, the valve opens, limiting the pressure being transmitted to the newborn.

What characteristics of face masks make them most effective for ventilating newborns?

Masks come in a variety of shapes, sizes and materials. Selection of a mask for use with a particular newborn will depends on how well the mask fits the newborn's face. The correct mask will achieve a tight seal between the mask and the newborn's face.

Masks come in two shapes: round and anatomically shaped (Figure: 4a.6). Anatomically shaped masks are shaped to fit the contours of the face. They are made to be placed on the face with the most pointed part of the mask fitting over the nose.

Masks also come in several sizes. Masks suitable for small premature babies, as well as for term babies should be available for use.

For the mask to be of the correct size, the rim will cover the tip of the chin, the mouth and the nose but not the eyes. (Figure 4a.6)

- Too large-may cause possible eye damage and will not seal well.
- Too small-will not cover the mouth and nose and may occlude the nose.

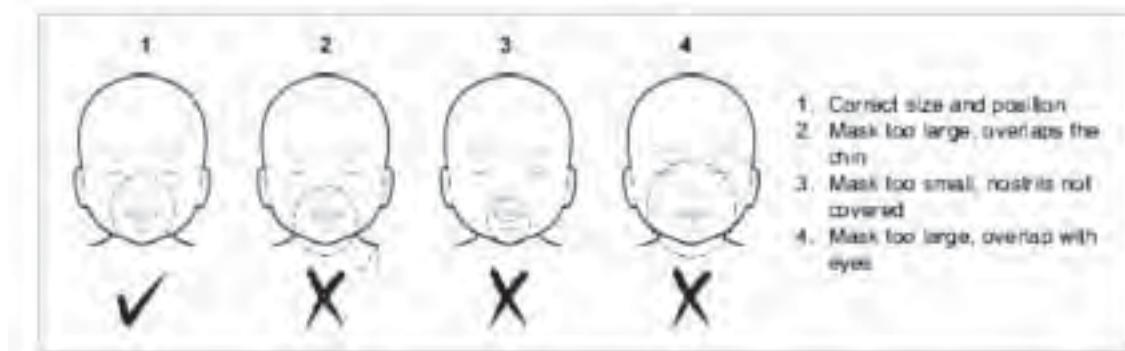


Fig. 4a.6

How do you prepare the resuscitation device for an anticipated resuscitation?

Assemble equipment

The positive-pressure ventilation device should be assembled and connected to oxygen so that it can provide the necessary 90% to 100% concentration, if needed. Be sure to attach oxygen reservoir when using self inflating bag.

Test the equipment

Once the equipment has been selected and assembled, check the bag and mask to be sure that they function properly. Bags that have cracks or tears, valves that stick or leak, or mask that are cracked or deflated must not be used. The equipment should be checked before each delivery. The operator should check it again just before its use.

What do you need to check before beginning positive-pressure ventilation?

Select the appropriate-sized mask: Remember, the mask should cover the mouth, nose, and tip of the chin, but not the eyes (Figure 4a.7).

Be sure there is a clear airway: You may want to suction the mouth and nose one more time to be certain there will be no obstruction to the assisted breaths that you will be delivering.

Position the baby's head: As described earlier the baby's neck should be slightly extended (but not overextended) into the "sniffing position" to maintain an open airway. One way to accomplish this is to place a small roll under the shoulders (Figure: 4a.7).

If the baby's position has shifted, reposition the baby before continuing.

Position yourself at the bedside

You also will need to position yourself at the baby's side or head to use a resuscitation device effectively (Figure: 4a.7). Both positions leave the chest and abdomen unobstructed for visual monitoring of the baby, for chest compressions, and for vascular access via umbilical cord should these procedures become necessary.

How do you position the bag and mask on the face?

Place the mask on the face so that it covers the nose and mouth, and the tip of the chin rests within the rim of the mask. You may find it helpful to begin by cupping the chin in the mask and then covering the nose (Figure: 4a.7).

The mask usually is held on the face with the thumb, index and/or middle finger encircling much of the rim of the mask, while the ring and fifth fingers bring the chin forward to maintain a patent airway.

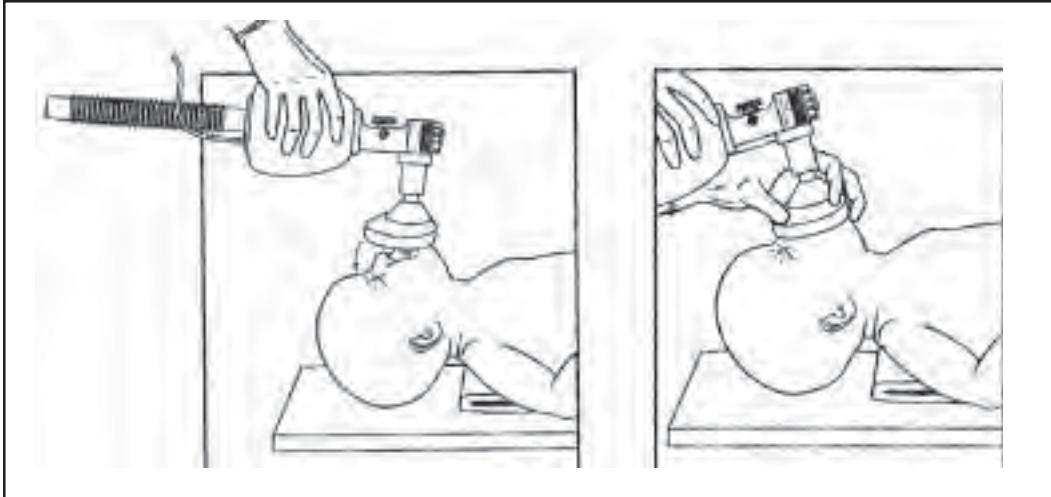


Fig. 4a.7

Why is establishing a seal between the mask and the face so important?

An airtight seal between the rim of the mask and the face is essential to achieve the positive pressure required to inflate the lungs *with the resuscitation devices*.

How do you know how much inflation pressure to deliver?

The best indicator that the mask is sealed and the lungs are being adequately inflated is an improvement in heart rate, colour and muscle tone.

Rapid rise in the baby's heart rate and subsequent improvement in colour and muscle tone are the best indicators that inflation pressures are adequate. If these signs are not improving, you should look for the presence of chest movements with each positive-pressure breath and have an assistant listen to both sides of the lateral areas of the chest with a stethoscope to assess breath sounds.

How often should you squeeze the bag?

During the initial stages of neonatal resuscitation, breaths should be delivered at a rate of **40 to 60 breaths per minute**, or slightly less than once a second.

To help maintain a rate of 40 to 60 breaths per minute, try saying to yourself as you ventilate the newborn:

Breathe.....Two.....Three.....Breathe.....Two.....Three.....

(squeeze) (release.....) (squeeze) (release.....)

How do you know if the baby is improving and that you can stop positive pressure ventilation?

Improvement is indicated by the following 4 signs:

- Increasing heart rate
- Improving colour

- Spontaneous breathing
- Improving muscle tone

Check the 4 signs for improvement after 30 seconds of administering positive pressure. If the heart rate remains below 60 bpm, you need to proceed to the next step of chest compressions as described in the next lesson. But if the heart rate is above 60 bpm, you should continue to administer positive-pressure ventilation and assess the 4 signs every 30 seconds.

As the heart rate increases towards normal, continue ventilating the baby at a rate of 40 to 60 breaths per minute. With improvement, the baby also should become pink and muscle tone should improve. Monitor the movement of the chest and breath sounds to avoid overinflation or underinflation of the lungs.

When the heart rate stabilizes above 100 bpm, reduce the rate and pressure of assisted ventilation until you see effective spontaneous respirations. When colour improves, supplemental oxygen also can be weaned as tolerated.

What do you do if the heart rate, colour, and muscle tone do not improve and baby's chest is not moving during positive-pressure ventilation?

If the heart rate, colour, and muscle tone do not improve, check to see if the chest is moving with each positive-pressure breath and ask the second person to listen with the stethoscope for breath sounds. If the chest does not expand adequately and there are poor breath sounds, it may be due to one or more of the following reasons.

- The seal is inadequate
- The airway is blocked
- Not enough pressure is being given

Inadequate seal

If you hear or feel air escaping from around the mask, reapply the mask to the face and try to form a better seal. Use a little more pressure on the rim of the mask and lift the jaw a little more forward. Do not press down hard on the baby's face. The most common place for a leak to occur is between the cheek and bridge of the nose.

Blocked airway

Another possible reason for insufficient ventilation of the baby's lungs is a blocked airway. To correct this:

- Check the baby's position and extend the neck a bit further.
- Check the mouth, oropharynx and nose for secretions; suction the mouth and nose, if necessary.
- Try ventilating with the baby's mouth slightly open (especially helpful in extremely small premature babies with very small nares)

Not enough pressure

You may be providing inadequate inspiratory pressure.

- Increase the pressure. If using a resuscitation device with a pressure gauge, note the amount of pressure required to achieve improvements in heart rate, colour, breath sounds, and perceptible chest movements.
- If using a bag with pressure-release valve, increase the pressure until the valve actuates. If more pressure is required and it is possible to occlude the pressure release valve, do so, and cautiously increase the pressure.
- If physiologic improvements still cannot be achieved, endotracheal intubation may be required.

Is there anything else to do if positive-pressure with a mask is to be continued several times?

Newborns requiring positive-pressure ventilation with a mask for longer than several minutes should have an orogastric tube inserted and left in place.

The problems related to gastric/abdominal distention and aspiration of gastric contents can be reduced by inserting an orogastric tube, suctioning gastric contents and leaving the uncapped gastric tube in place to act as a vent for stomach gas throughout the remainder of the resuscitation.

➤ **Chest Compression**

What are the indications for beginning chest compressions?

Chest compressions should be started whenever the heart rate remains less than 60 bpm despite 30 seconds of effective positive-pressure ventilation (Check HR for 6 seconds).

Why perform chest compressions?

Babies who have a heart rate below 60 bpm, despite stimulation and 30 seconds of positive-pressure ventilation, probably have very low blood oxygen levels and significant acidosis. As a result, the myocardium is depressed and unable to contract strongly enough to pump blood to the lungs to pick up the oxygen that you have now ensured is in the lungs. Therefore, you will need to mechanically pump the heart while you simultaneously continue to ventilate the lungs until the myocardium becomes sufficiently oxygenated to recover adequate spontaneous function. This process also will help to restore oxygen delivery to the brain.

What are chest compressions?

Chest compressions, sometimes referred to as external cardiac massage, consist of rhythmic compressions of the sternum that :

- Compress the heart against the spine.
- Increase the intrathoracic pressure.
- Circulate blood to the vital organs of the body

The heart lies in the chest between the lower third of the sternum and the spine. Compressing the sternum compresses the heart and increases the pressure in the chest, causing blood to be pumped into the arteries (Figure: 4a.8).

When pressure on the sternum is released, blood enters the heart from the veins.

How many people are needed to administer chest compressions and where should they stand?

Remember that chest compressions are of little value unless the lungs are also being ventilated with oxygen. Therefore, two people are required to administer effective chest compressions—one to compress the chest and one to continue ventilation.

The person performing chest compressions must have access to the chest and be able to position his or her hands correctly. The person assisting ventilation will need to be positioned at the baby's head to achieve an effective mask-face seal (or to stabilize the endotracheal tube) and watch for effective chest movement (Figure: 4a.8).

How do you position your hands on the chest to begin chest compressions?

There are two techniques for performing chest compression. These techniques are:

- *Thumb technique*, where the 2 thumbs are used to depress the sternum, while the hands encircle the torso and the fingers support the spine (Figure 4a.8).
- *2-finger technique*, where the tips of the middle finger and either the index finger or ring finger of one hand are used to compress the sternum, while the other hand is used to support the baby's back (unless the baby is on a very firm surface) (Figure 4a.9).



Fig. 4a.8 : Thumb Technique

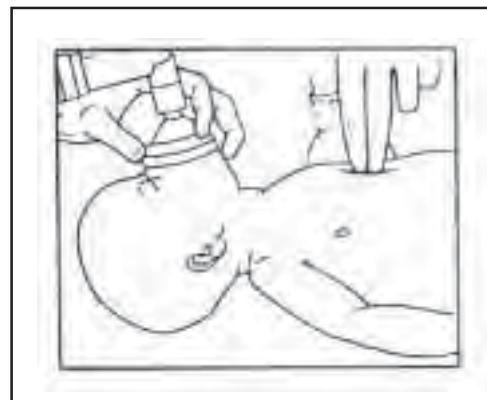


Fig. 4a.9 : 2 Finger Technique

What are the advantages of one technique over the other?

The thumb technique is preferred because it usually is less tiring, and you can generally control the depth of compression somewhat better. This technique is superior in generating peak systolic and coronary perfusion pressure. However, the 2-finger technique is more convenient if the baby is large or your hands are small. The 2-finger technique also is preferable to provide access to the umbilicus when medications need to be given by the umbilical route. Therefore, you should learn both techniques.

The two techniques have the following things in common:

- Position of the baby.

- Firm support for the back.
- Neck slightly extended.
- Compressions
 - Same location, depth and rate

Where on the chest should you position your thumbs or fingers?

Hands should be positioned on the lower third of the sternum, which lies between the xyphoid and a line drawn between the nipples. You can quickly locate the correct area on the sternum by running your fingers along the lower edge of the ribs until you locate the xyphoid. Then place your thumbs or fingers immediately above the xyphoid. Care must be used to avoid putting pressure directly on the xyphoid.

How do you position your hands using the thumb technique?

The thumb technique is accomplished by encircling torso with both hands and placing the thumbs on the sternum and the fingers under the baby’s back supporting the spine (Figure 4a.8).

The thumbs can be placed side by side or, on a small baby, one over the other (Figure 4a.8).

The thumbs will be used to compress the sternum, while your fingers provide the support needed for the back. The thumbs should be flexed at the first joint and pressure applied vertically to compress the heart between the sternum and the spine.

How do you position your hands using the 2-finger technique?

In the 2-finger technique, the tips of the middle finger and either the index or ring finger of one hand are used for compressions (Figure 4a.9). Position the 2-fingers perpendicular to the chest as shown, and press with the fingertips.

As with the thumb technique, apply pressure vertically to compress the heart between the sternum and the spine.

How much pressure do you use to compress the chest?

Controlling the pressure used in compressing the sternum is an important part of the procedure.

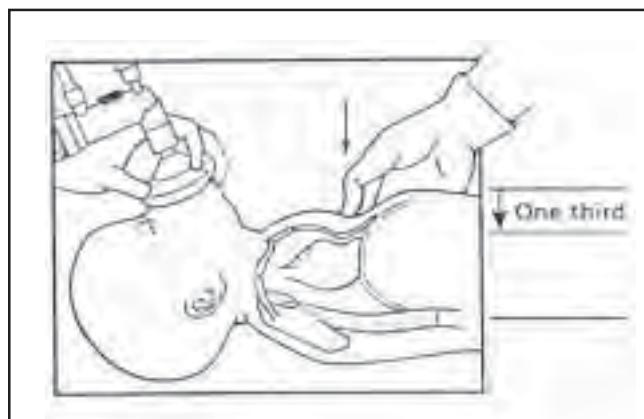


Fig. 4a.10

With the fingers and hands correctly positioned use enough pressure to depress the sternum *to a depth of approximately one third of the anterior posterior diameter of the chest* (Figure 4a.10), and then release the pressure to allow the heart to refill. One compression consists of the downward stroke plus the release. The actual distance compressed will depend on the size of the baby.

The thumbs or the tips of fingers should remain in contact with the chest at all times during both compression and release. Allow the chest to fully expand by lifting the thumbs or fingers during the release phase to permit blood to reenter the heart from the veins. However, *do not* lift the thumb or fingers completely off the sternum after compression. If the thumbs or fingers are completely off the sternum after compression, then:

- Time is wasted in relocating the compression area.
- Control over the depth of compression is lost.
- Compression of the wrong area, may result in producing trauma to the chest or underlying organs.

Are there dangers associated with administering chest compressions?

Chest compressions can cause trauma to the baby.

Two vital organs lie within the ribcage—the heart and lungs. Pressure applied too low, over the xiphoid, can cause laceration of the liver.

Also, the ribs are fragile and can easily be broken.

How often do you compress the chest and coordinate compressions with ventilation?

During cardiopulmonary resuscitation, chest compressions must always be accompanied by positive-pressure ventilation. Avoid giving a compression and ventilation simultaneously, because one will decrease the efficacy of the other. Therefore, the two activities must be coordinated, with one ventilation interposed after every third compression, for a total of 30 breaths and 90 compressions per minute

One cycle of events will consist of 3 compressions plus one ventilation.

There should be approximately 120 “events” per 60 seconds (1 minute) – 90 compressions plus 30 breaths.

How can you practice the rhythm of chest compressions with ventilation?

Practice saying the words and compressing the chest.

One-and-Two-and-Three-and-Breathe-and-One-and-Two-and-Three-and-Breathe-and-

One-and-Two-and-Three-and-Breathe-and-One-and-Two-and-Three-and-Breathe-and

One-and-Two-and-Three-and-Breathe-and

Now time yourself to see if you can say and do these five events in 10 seconds. Remember, squeeze your hand only when you say “Breathe and”

One-and-Two-and-Three-and-**Breathe-and**-One-and-Two-and-Three-and-**Breathe-and-**

One-and-Two-and-Three-and-**Breathe-and**-One-and-Two-and-Three-and-Breathe-and

One-and-Two-and-Three-and-**Breathe-and**

When do you stop chest compressions?

After approximately 30 seconds of well-coordinated chest compressions and ventilation, stop compressions long enough to determine the heart rate again. Feel the pulse at the base of the cord.

If the heart rate is now above 60 bpm, then administer epinephrine

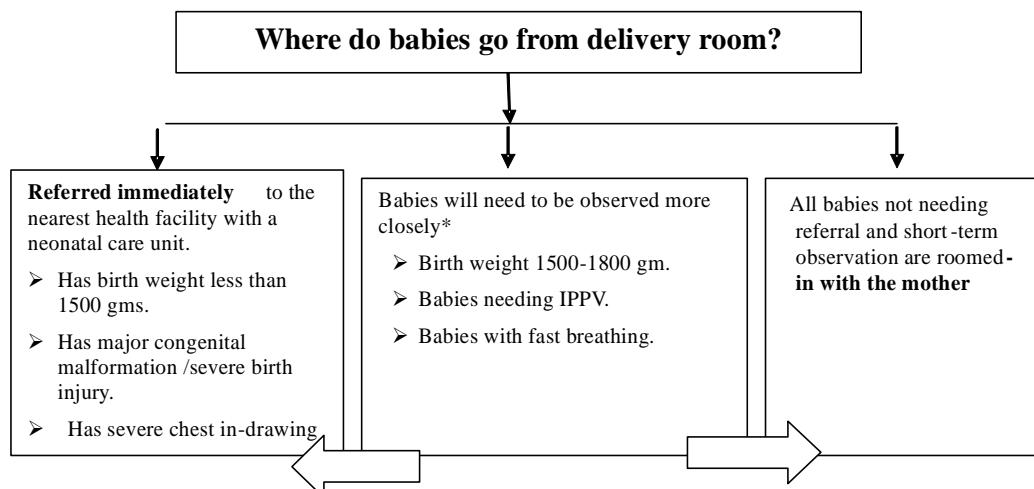
Administration of Epinephrine	Volume Expanders
Recommended concentration= 1:10,000	<ul style="list-style-type: none"> • 0.9% NaCl (Normal saline) • Ringer's lactate.
Recommended dose=0.1 to 0.3 mL/kg. of 1:10,000 solution I.V. or through umbilical vein	The initial dose is 10 mL/kg. If required, you may give an additional dose.
Recommended preparation=1:10,000 solution in 1 mL syringe	
Recommended rate of administration=Rapidly-as quickly as possible	

Discontinue chest compressions, but continue positive-pressure ventilation now at a more rapid rate of 40 to 60 breaths per minute.

Once the heart rate rises above 100 bpm and the baby begins to breathe spontaneously, slowly withdraw positive-pressure ventilation and move the baby to the nursery for post-resuscitation care.

When to terminate resuscitation?

After 10 minutes of continuous and adequate efforts, if there are no signs of life (no heart rate and no respiratory effort), discontinue resuscitative efforts. The prognosis of such babies must be discussed with the parents before discontinuing resuscitation. Remember in all “so-called stillbirths” the resuscitation efforts must be continued for 10 min. The data suggests that in fresh stillbirths prognosis is not all that bad. Approximately 60-65% term babies can be revived with good outcome from two thirds of “so-called stillbirths”.



* If separate newborn care is not available, it is advisable to keep the baby with the mother.

Session 4b : CARE OF NEWBORN IN THE POSTNATAL WARD

Activity:

- Refer to Guidelines' Module 1, Chapter 4.

Notes:

➤ **The postnatal environment**

- A postnatal room should be kept warm with no draughts from open doors or windows.
- Mother and her baby should be kept together from birth, in bed together or very near each other.
- Rapport should be developed by the nursing staff/doctor with the mother, to make her comfortable.

➤ **Review labour and birth record**

Review the labour and birth record to identify any risk factors or any events during the birth which may be important in the management of the mother and the baby.

➤ **Reassure the mother regarding the Normal Phenomena in the baby**

- *Meconium* should be passed by 24 hours. *Passage after 24 hours* is *NOT NORMAL* and needs investigation.
- *Urine* is passed by 48 hours. It is *NOT NORMAL*, if not passed by 48 hours.
- *Transitional stools* are the passage of frequent, loose stools, yellowish-green in colour between day 3 and day 14 of life. It needs *NO* treatment.
- *Vaginal white discharge/bleeding* in female babies is normal.
- *Red rashes* on the skin may be seen on the first 2-3 days of life. These are normal.
- *Weight loss* of up to 6% (10-12% in low birth weight babies) in the first few days of life is normal and most infants regain their birth weight by 10-14 days.

➤ **Take history about breast-feeding**

Ask the mother if she has started breast feeding the baby? Is there any difficulty in feeding the baby?

➤ **Examine the baby**

- **Count the breaths in one minute**
 - Count rate for full **ONE** minute. If breath rate > 60/ min.; repeat the count. If breath rate on second count is also > 60/min., the baby has fast breathing. This is **NOT NORMAL** (Normal breathing in newborns is 30-60/min).
- **Look for severe chest indrawing:**

Mild chest indrawing may be normal in newborns. Severe chest indrawing is **NOT NORMAL**.

➤ **Measure axillary temperature (if not possible, feel for fever or low body temperature):**

- Temperature can be assessed by recording axillary temperature or feeling the baby.
- **Axillary temperature** is recorded by placing the bulb of thermometer against the roof of dry axilla, free from moisture. Baby's arm is held close to the body to keep thermometer in place. The temperature is read after 5 minutes.

Hypothermia severity	Axillary temperature	Assessment by feeling
Mild	36.0 °C to < 36.5 °C	Cold feet, warm abdomen
Moderate	32 °C to <36.0 °C	Cold feet and abdomen
Severe	< 32 °C	Cold feet and abdomen
Fever	> 37.4 °C	Feels hot

➤ **Examine umbilicus for any bleeding, redness or pus**

- Is it red or discharging pus? This is **NOT NORMAL**.

➤ **Examine for skin infection (pustules)**

- Are there 10 or more pustules or a big boil/abscess? This is **NOT NORMAL**.

➤ **Look for Jaundice**

- Jaundice is **NOT NORMAL** if
 - It has appeared at < 24 hrs. of age
 - Palms and soles are stained

➤ **Examine the baby for cry and activity**

- If the baby is not alert and/or has poor cry, the infant is **lethargic/unconscious**. This is **NOT NORMAL**
- If the baby's movements are less than normal or movements are not seen on one side (due to birth injury such as Erb's palsy) then it is **NOT NORMAL**.

➤ **Examine for congenital malformations and birth injury.**

➤ **Assess breastfeeding in all newborns:**

- Examine the breasts and observe breast-feeding.
- Ensure that mother has breastfed the infant in the previous hour. If not, then, ask the mother to put her infant to the breast. Observe the breastfeed for 4 minutes.
- **Check attachment of baby on mother's breast** : Four signs of Good Attachment are:
 - Baby's mouth is wide open.
 - Lower lip is turned outwards.
 - Baby's chin touches mother's breast.
 - More areola visible above than below.

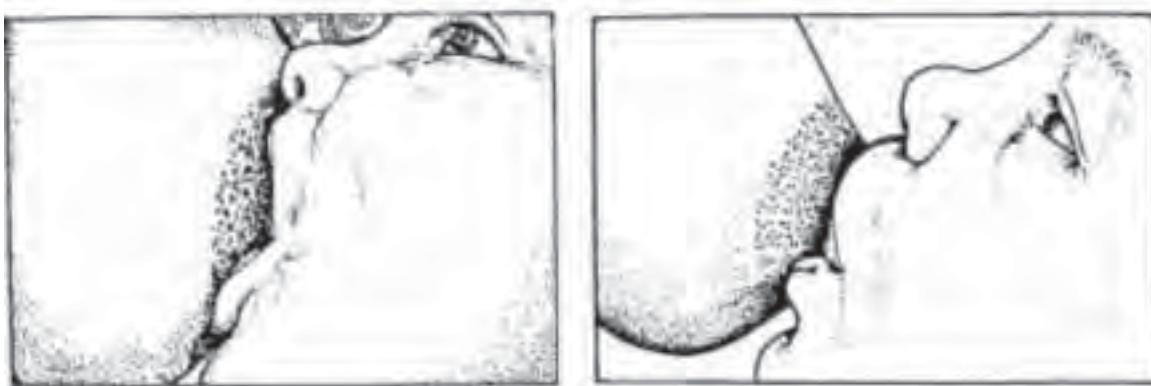


Fig. 4b.1 : Good (left) and poor (right) attachment of infant to the mothers breast

- **It is very important to ensure good attachment because poor attachment results in:**
 - Pain or damage to nipple leading to sore nipple.
 - Breast milk not removed effectively thus causing breast engorgement.
 - Poor milk supply hence baby is not satisfied and irritable after feeding.
 - Breast produces less milk resulting in frustrated baby who refuses to suck. This leads to poor weight gain.
- **If attachment is not good, check for correct positioning**

Signs of good position :

 - Baby's body is well supported.
 - The head, neck and the body of the baby are kept in the same plane.
 - Entire body of the baby faces the mother.
 - Baby's abdomen touches mother's abdomen.
- **Check for baby's sucking :**
 - If not sucking well, then look for ulcers or white patches in the mouth (thrush).



Fig. 4b.2 : Baby's body close, facing breast



Fig. 4b.3 : Baby's body away from mother, neck twisted

➤ **Provide Care/Take Action**

• **Hygiene:**

- Advise mother to wash hands with soap and water before feeding, after changing the diapers of baby or cleaning the baby.
- Mother must maintain personal hygiene – bath, clean clothes and short nails.

• **Maintaining temperature:**

- It is important to keep the young infant warm. Low temperature has an adverse impact on the health of sick young infant and increases the risk of death.
- Keep the baby between the mother's breasts skin-to-skin, or clothed in a warm room. The room may be warmed by a local heating device by using a heater or hot air blower whose heat source is directed towards the wall. **Avoid keeping the baby next to the source of heat as it can lead to thermal burns. Do not place the child in direct contact with a hot water bottle as it can lead to hyperthermia, or hypothermia, if the temperature is not closely monitored.**
- The best way to maintain temperature or rewarm a baby with low temperature is by placing the baby in skin-to-skin contact with the mother (or any adult). Skin to skin contact can also be used to keep a baby warm during transport and at home.

How to provide Kangaroo Mother Care (KMC)

- **Provide privacy to the mother.**
 - Request the mother to sit or recline comfortably.
 - Undress the baby gently, except for cap, nappy and socks.
 - Place the baby prone on mother's chest in an upright and extended posture, between her breasts, in skin to skin contact; turn baby's head to one side to keep airways clear.
 - Cover the baby with mother's blouse, 'pallu' or gown; wrap the baby-mother duo with an added blanket or shawl.
 - Breastfeed the baby frequently.
 - If possible, warm the room with a heating device.
 - If mother is not available, skin to skin contact may be provided by the father or any other adult.
- **When Skin to Skin contact not possible:**
 - Keep the room warm with a home heating device
 - Clothe the baby in 1-2 layers (summer).
 - Clothe the baby in 3-4 layers (winter) and cover the head, hands and feet with cap, gloves and socks, respectively.
 - Let the baby and mother lie together on soft, thick bedding.
 - Cover the baby and the mother with additional quilt, blanket or shawl in cold weather
 - In the health facility this can be achieved by means of a servo controlled radiant warmer.



Fig. 4b.4 : Positioning the baby for KMC

➤ **General principles of feeding small babies:**

- Have the mother follow the general principles of exclusive breastfeeding.
- Ensure that the baby is fed frequently.
- If the baby is not sucking effectively on the breast, the baby may be given expressed breastmilk, shift back to breast feeding as soon as possible.

➤ **Expressing breast milk into cup:**

The mother should:

- Wash her hands.
- Sit or stand comfortably and hold the clean container near her breast.
- Put the thumb on her breast above the nipple and areola, and her first finger on the breast below the nipple and areola, opposite the thumb. She supports the breast with her other fingers.
- Press her thumb and first finger slightly inwards towards the chest wall.
- Press her breast behind the nipple and areola between her forefingers and thumb. Press the areola in the same way from the sides, to make sure that milk is expressed from all segments of the breast.
- Express one breast for at least 3-5 minutes until the flow slows; then express the other side; and then repeat on both sides.



Fig. 4b.5 : Technique to express breast milk by hand

- Wash the container thoroughly with soap and water.
- Cover the container of expressed breast milk (EBM) with a clean cloth or a lid.
- EBM can be kept at room temperature for 8 hours, in the refrigerator for 24 hours and in the deep freeze at -20°C for 3 months.
- EBM stays in good condition longer than animal milk because of the protective substances it contains. It is not advisable to boil the EBM. If it needs to be warmed, place the container in a bowl of warm water.
- Gently shake the container to recombine the separated fat globules with the rest of the milk before feeding. Feed with cup or spoon or paladai, never feed with bottle.

➤ **Cup/spoon feeding with expressed breast milk:**

One can use a cup of glass, plastic or stainless steel which has rounded edge. One can also use a paladai or spoon.

Ask mother to:

- Measure a quantity of milk into cup/spoon
- Hold the baby in a semi-upright, sitting position on her lap
- Hold the cup of milk/spoon to the baby's lips
 - Touch the edge of cup/spoon to outer parts of upper lip
 - Tilt cup/spoon so that milk reaches the baby's lips
 - Do not pour milk into baby's mouth. *It can cause aspiration*

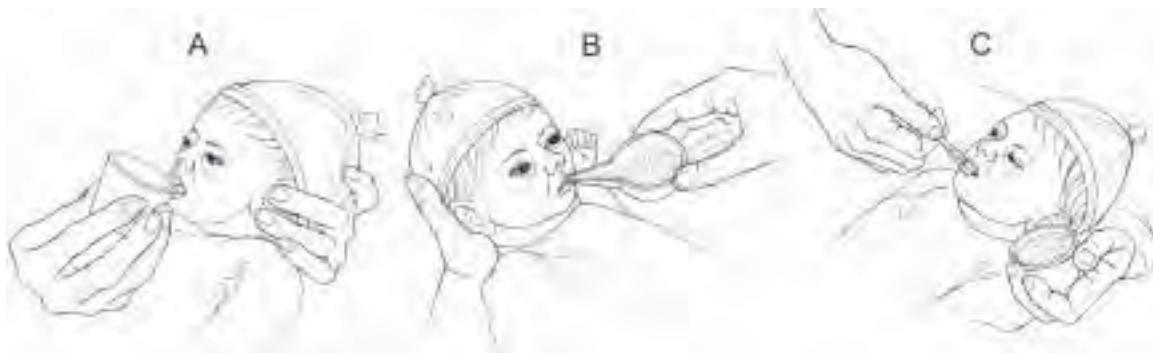


Fig. 4b.6 : Feeding by cup (A), paladai (B), or cup and spoon (C)

➤ **Preparing for discharge:**

- Babies should receive-
 - **BCG** – mandatory as part of Universal Immunization Programme, being implemented by the Government of India.

- **OPV- 0** - mandatory as a part of Universal Immunization Programme.
- **Hepatitis B (HB-1)** – if available.

These vaccines should be given within the first week of life and preferably before discharge from the health facility.

- Advise mother on when she should seek care for danger signs–
 - Breastfeeding or drinking poorly.
 - Develops a fever or feels cold to touch.
 - Fast breathing.
 - Difficult breathing.
 - Diarrhoea with blood in stool.
 - Yellow palms and soles (if infant has jaundice).

➤ **Transport of Sick Newborns:**

Indications for Referral

- Has birth weight less than 1500 grams.
- Has major congenital malformation / severe birth injury.
- Is breathing <30/min. or has fast breathing (≥ 60 /min.).
- Severe chest in-drawing.
- Lethargic/unconscious.
- Unable to feed.
- Jaundice onset < 24 hrs or yellow staining of palms/soles.
- Fever or hypothermia.
- Bleeding.
- Convulsions.

Take the baby to the nearest referral facility, by the shortest route, using the fastest possible mode of transport.

➤ **What to do before transporting the baby?**

- **Assess:** Make sure that there is a genuine reason for referral and baby is going to get better care than available in your facility.
- **Communicate:** Use good communication skills to explain the need for referral to the family, and if possible, inform the referral facility.
- **Stabilize:** Maintain the airway and breathing. Correct hypoglycaemia, if present. Administer first dose of antibiotics, if needed.

- **Correct hypothermia:** If baby is hypothermic, correct it by providing warmth either by skin to skin contact (Kangaroo mother care) or by radiant warmer.
 - **Referral note:** Write a detailed referral note for the providers at the referral facility giving all the details of need for referral and treatments given to the baby.
 - **Encourage mother to accompany:** Encourage the mother to accompany the baby to provide supportive care on the way and in the hospital.
- **What to do during transport?**
- **Ensure an open airway:** Do not cover the baby's mouth and nose. Gently wipe the secretions from the nose and mouth.
 - **Check breathing:** Watch baby's breathing and if baby stops breathing, provide tactile stimulation to the soles to restore it or give bag and mask ventilation.
 - **Maintain temperature.**
 - **Maintain blood sugar:** Maintain the blood sugar by continued breastfeeding during transportation, if baby can breastfeed. If the baby is not breastfed, give animal milk or sugar solution by cup and spoon.

Video demonstration on :

- Signs of illness
- Breast feeding : good attachment
- Kangaroo Mother Care
- Expression of Breast Milk
- How to take care of New Born in Post-natal ward

- **Case study 7** (Write down the answers to the questions in the space given below).

A) B/o Karuna is just born, what are his/her immediate needs?
B) Enlist the steps in the immediate care of B/o. Karuna at birth.
C) What practices interrupt the time the mother and baby may spend together immediately after birth?
D) Mention the places where the baby can get cold?

E) How a baby can get cold?
F) What do you think the temperature of this room is?
G) If a room thermometer is not available what may make you think the room is cold?
H) How a baby can get cold at birth in the PHC and at home?

I) How a baby can be kept warm at birth in the PHC and at home?

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J) How do you diagnose hypothermia?

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K) How to treat hypothermia?

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- **Case Study 8:** (Write down the answers to the questions in the space given below).

A) B/o Karuna is 3 days old, taking feeds well and fit for discharge. What advise will you give to the mother on discharge?

- **Case Study 9:** (Write down the answers to the questions in the space given below).

A) Karuna has just delivered and the baby is crying at birth. Does this baby need help with its breathing?
B) Is suction needed for this baby?

- **Case Study 10:** (Write down the answers to the questions in the space given below).

A) The baby is not crying, but his/her chest is rising regularly between 30 to 60 times in a minute. Does this baby need help with his/her breathing at birth?

- **Case Study 11:** (Write down the answers to the questions in the space given below).

A) Baby not breathing or gasping and the heart rate >100/min. Does this baby need help with his/her breathing at birth?

- **Case Study 12:** (Write down the answers to the questions in the space given below).

A) **The baby is NOT breathing and heart rate below 100/min.** Does this baby need help with his/her breathing?

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B) How to ventilate the baby?

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- **Case Study 13:** (Write down the answers to the questions in the space given below).

A) The baby is NOT breathing and has a heart rate below 60/min. even after ventilation for 30 seconds. Does this baby need further resuscitation? What are the steps?
B) When to stop ventilating?
C) What are harmful resuscitation practices?
D) Describe the care of a baby AFTER it has been resuscitated?

- **Case Study 14:** (Write down the answers to the questions in the space given below).

A) B/o Meera day 4 of life has developed 2-3 boils on the abdomen. Baby is active and taking feeds adequately. On examination you find few more pustules in the axilla and groin. Identify the danger sign and discuss the management of the child.

- **Case Study 15:** (Write down the answers to the questions in the space given below).

A) A mother notices pus in her baby's eyes. What should she do? What is the first thing you do when the baby comes to the hospital? What treatment should be given for an eye infection? What follow up care will you advice?

- **Case Study 16:** (Write down the answers to the questions in the space given below).

A) A mother complains of discharge from the umbilicus of her baby who is 8 day old. How do you manage this child?

- **Case Study 17:** (Write down the answers to the questions in the space given below).

A) A baby is brought to you with yellow skin on the palms of his/her hands and on the soles of his/her feet. He/she is 30 hours old. Describe how will you treat this baby?
B) What are signs of a sick baby?
C) Which major malformations can be diagnosed on examination of the baby at birth?
D) Which major malformations can be suspected at birth?

Day 5

Session 5a: Hypertensive disorders of pregnancy – Pre Eclampsia

Time: 1 hour

Activity

- Refer to Guidelines : Module 2 Chapter 3 on hypertensive disorders in pregnancy.

Notes

- Pre-eclampsia is multi system disorder of unknown etiology seen after the 20th week of pregnancy in a previously normotensive and non proteinuric patient, characterized by :
 - hypertension to the extent of 140/90 mm. Hg. or more,
 - proteinuria
 - oedema
- **Classification :**

Finding	Mild pre-eclampsia	Severe pre-eclampsia
Blood pressure (BP)	<ul style="list-style-type: none"> • The diastolic pressure rises 15-20 mm Hg above the “usual” level, • The absolute level of BP is >140/90 mm. Hg. but <160/110 mm. Hg. 	<ul style="list-style-type: none"> • The diastolic pressure rises >20 mm Hg above the “usual” level; • The absolute level of BP is >160/110 mm. Hg.
Proteinuria	Present, but 2+ or less	3+ or persistently greater
Generalized oedema (including the face and hands)	May or may not be present	Present
Headache	Absent	Present
Visual disturbances	Absent	Present
Upper abdominal pain	Absent	Present
Oliguria	Absent	Present
IUGR	Absent	Present
Management	Refer to FRU (with referral slip as in Annexure II)	

Session 5b: Eclampsia

Time: 1 hour

Activity

- Refer to Guidelines : Module 2 Chapter 3 on hypertensive disorders in pregnancy.

Notes

- Eclampsia is the occurrence of generalized convulsion(s), usually associated with signs of pre-eclampsia during pregnancy, labour or within seven days of delivery.
- However, it can occur even in normotensive women.
- **Effects of eclampsia on mother:**
 - Physical injuries
 - Cerebral edema & hemorrhage
 - Cardiac complications – left ventricular failure and cardiac arrest
 - Pulmonary edema & embolism
 - Abruption placentae
 - Renal failure
 - Hepatic complication
 - HELLP syndrome and DIC
 - Post partum shock and psychosis
 - Vision abnormalities
- **Effects of eclampsia on fetus:**
 - Intra uterine growth restriction
 - Intra uterine death
 - Preterm birth
- **Prevention of Eclampsia:**
 - Early diagnosis of pre-eclampsia by recording of BP >140/90 mm. Hg. and proteinuria during antenatal check-up and referral to FRU (with referral slip as in Annexure I).

Key Points:

Eclampsia Management

To prevent injury, place the patient on the floor or cot with face turned to one side



Maintain airway
Mouth Gag, Suction, Oxygen



Secure I.V. line
Ringer Lactate (RL) -60 ml./hr.
Catheterise bladder



Inj. Magnesium sulfate

Loading Dose- 14 gm.

- **4 gm. I.V.** - 20 ml of 20% solution over 5 minutes followed by
- **10 gm. I.M.** - 5 gm of 50% solution in each buttock + 1 ml of 2% lignocaine



Status of Labour • Not in labour or early labour - Refer to FRU (with referral slip as in Annexure I).

- Late in labour – deliver. Refer to the higher facility after delivery



Referral

- Accompany the woman
- Maintain semi-prone position/left lateral position with mouth gag in-situ
- Maintain I.V. line with RL
- If BP \geq 160/110 mm Hg - administer Nifedepine, 5 mg, sub-lingually
- Give oxygen with mask

➤ **Recurrence of convulsion:**

- 2 gm magnesium sulfate (20% solution) I.V. over 5 minutes.

➤ **Maintenance Dose:**

- 5 gm IM alternate gluteal region (buttocks) 4 hourly till 24 hours after last convulsion or delivery (whichever is later).

➤ **Before repeating the dose of Magsulf, ensure:**

- Knee jerk - Must be present
- Respiratory rate - \geq 16/min.
- Urine output - \geq 100 ml. in previous 4 hours

➤ **MgSO₄ antidote:**

- Calcium Gluconate 10 % , 10 ml I.V.

- **Case Study 18:** (Write down the answers to the questions in the space given below).

A) Mrs. Anita 35 year old grand multi at 38 weeks has come with complaints of headache, blurring of vision and vomiting. Her BP on admission was 180/120 mm. Hg., proteinuria+++

What is your diagnosis?

B) How will you manage the pregnancy?

C) What are the maternal and foetal effects of the same?

- **Case Study 19:** (Write down the answers to the questions in the space given below).

A) Mrs. Savita, 18 year old primi gravida came to the OPD at 32 weeks. Her BP readings were 150/100 mm. Hg. on admission. Urine examination revealed proteinuria +.

What is your diagnosis?

B) How will you further manage the pregnancy?

- **Case Study 20:** (Write down the answers to the questions in the space given below).

<p>A) Mrs. Angela, 30 year old multi gravida came to the antenatal OPD at 22 weeks. Her BP 140/90 mm. Hg. on admission.</p> <p>What is your diagnosis?</p>
<p>B) On investigation, Proteinuria is absent.</p> <p>What is your diagnosis and how will you manage?</p>

- **Case Study 21:** (Write down the answers to the questions in the space given below).

<p>A) Mrs. Savita P. is 18 years old and is 37 weeks pregnant. This is her first pregnancy. She was brought to the labour room with convulsions.</p> <p>What will you do?</p>
<p>B) After 5 minutes, Mrs. Savita. P. is no longer convulsing. Her diastolic blood pressure is 110 mm. Hg. and her respiratory rate is 20 per minute.</p> <p>What is Mrs. Savita. P's problem?</p>

C) What will you do next?
D) What should the aim be with respect to controlling Mrs. Savita P's blood pressure?
E) What other care does Mrs. Savita P. require now?
F) How will you refer?

G) Where you will refer?

H) What are the maternal complications of Eclampsia?

I) What are the foetal complications?

Day 6

Session 6a: Care after delivery – Postpartum Care.

Time: 1 hour

Activity

- Refer to Guidelines Module 1, Chapter 3.

Notes

➤ Danger signs during puerperium:

- Excessive vaginal bleeding, foul smelling lochia.
- Convulsions.
- Fast /difficult breathing.
- Fever and weakness.
- Severe abdominal pain.

➤ Counselling:

During puerperium women should

- Take nutritious food to meet the need for extra calories for lactation & take plenty of oral fluids.
- Avoid strenuous physical activity.
- Iron supplementation for a period of 3 months is advised.
- Contraception at 6 weeks after delivery.
- Exclusive breast feeding for 6 months.
- Infant care and personal hygiene.
- Immunization of baby.
- Registration of birth.

Session 6b: Puerperal Sepsis.

Time: 1 hour

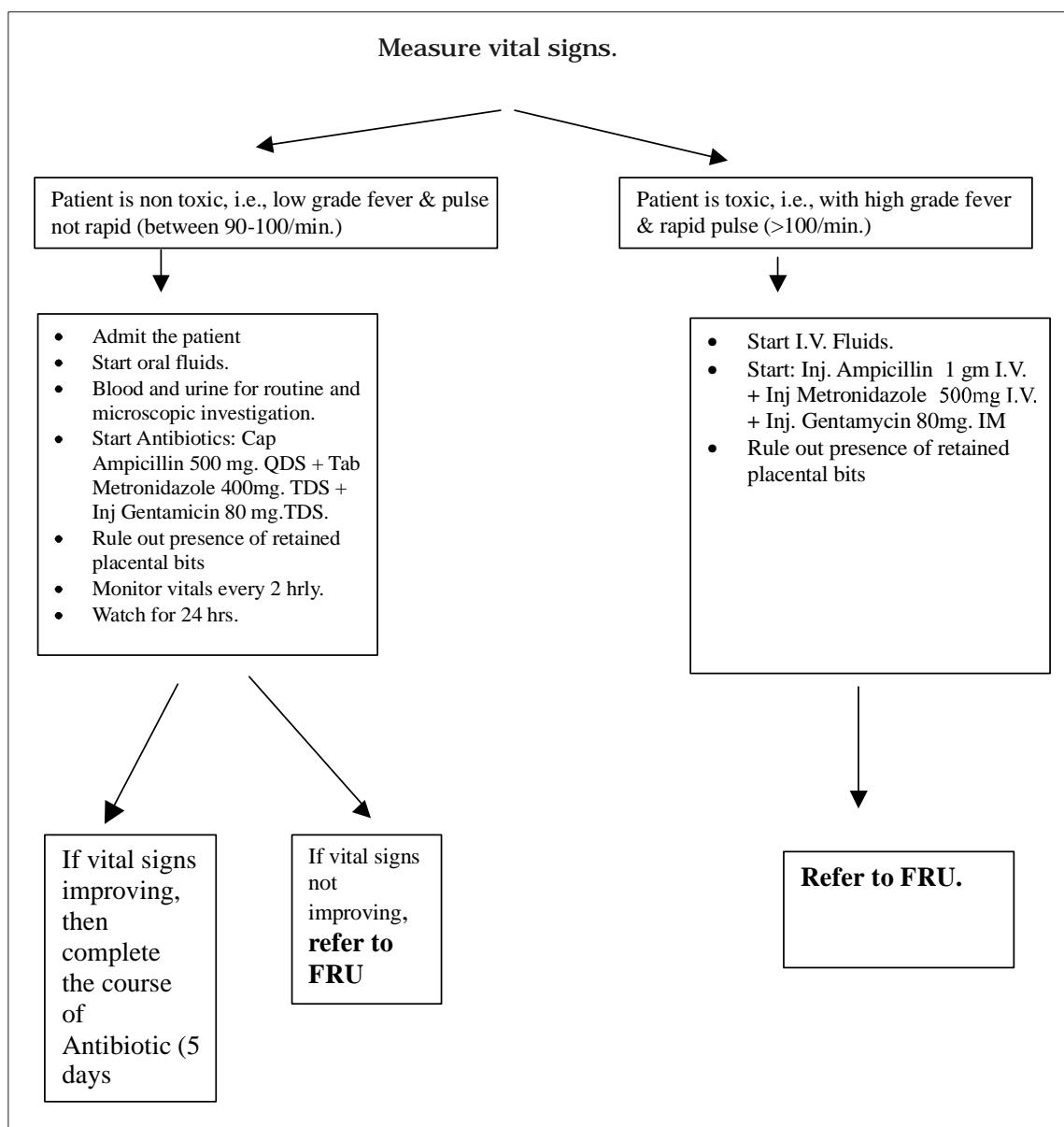
Activity

- Refer to Guidelines Module 2, Chapter 4.

Notes

- Puerperal sepsis is defined as infection of the genital tract which occurs as a complication of delivery, characterized by any two or more of the following signs and symptoms:
 - Fever > 100.4° F (>38° C).
 - Abnormal, foul smelling vaginal discharge.
 - Lower abdominal pain.
 - Subinvolved, tender and soft uterus.
- **Prevention:** Puerperal sepsis is to a great extent preventable; provided certain measures are undertaken during antenatal, intranatal and postnatal period.
 - **Antenatal:**
 - Improve Hb level to > 11 gms. %.
 - Treat any septic focus (skin, throat and tonsils, etc.).
 - **Intranatal:**
 - Asepsis during delivery.
 - **Postpartum:**
 - Maintain perineal hygiene
 - Use clean sanitary pad

Management of Puerperal Sepsis



- **Case Study 22:** (Write down the answers to the questions in the space given below).

A) A 23 yrs. old P ₁ L ₁ with FTD at home 4 days back presents with fever, lethargy and foul smelling vaginal discharge since 2 days. What is your diagnosis?
B) How will you examine the case?
C) What investigations will you ask for, if facilities are available?
D) How will you manage?

Day 7

Session 7a: Anaemia during pregnancy and in the postpartum period

Time: 1 hour

Activity

- Refer to Guidelines Module – 2, Chapter on anemia.

➤ Notes

- Anaemia is defined as Hb level < 11gm% in pregnancy or immediate post partum period.
- Anaemia is grouped as mild (10-11gm %), moderate (7-10 gm %), severe (4 - 7gm %), and very severe (<4 gm %).
- Suspect anemia in pregnancy :
 - Breathlessness, easy fatiguability.
 - Last delivery within a year.
 - H/o hookworm infestation or malaria.
- Assess for pallor.
- For prophylaxis give IFA tablet (with 100 mg elemental iron and 0.5 mg folic acid) once daily for 100 days (3 months) starting after the first trimester.
- Mild to moderate anemia is treated by iron and folic acid tablets (100 mg elemental iron + 0.5 mg folic acid) twice daily and to be continued during postpartum period. Administer parenteral iron preparation if there is non compliance / intolerance to oral iron.
- Cases of moderate and severe anaemia may receive antihelminthic durgs (Tab. Mebendazole 100 mg bd for 3 days or Tab. Albendazole 400 mg single dose) especially in hookworm endemic areas during 2nd/3rd trimesters of pregnancy.
- Cases of severe anemia **should be referred to FRU** for further investigations and treatment. This woman might need a blood transfusion.
- Women with Hb < 7 gm% at term should deliver at FRU.
- Blood loss during delivery must be minimized by practicing AMTSL in all cases.

Indications and dose for parenteral iron therapy:

- Indication–
 - Intolerance to oral iron.
 - Persistent non compliance.
 - I.V. Dose : 500 mg of iron dextran in 10 ml. of saline solution given over a period of 10 minutes following a test dose of 1-2 drops (should not be initiated below FRU).
 - IM Dose: 100 mg. of iron dextran in 2 ml. of saline solution.

➤ **Treatment and prophylaxis of malaria during pregnancy**

- No prophylaxis is recommended but insecticide treated bed nets/LLIN be given on priority basis to the all pregnant women in vulnerable population.
- In non endemic areas, all clinical suspected cases (as per NVBDCP guidelines) should preferably be investigated for malaria by Microscopy or Rapid Diagnostic Kit (RDK), if these are available with you.
- In high malaria endemic areas, pregnant woman should be routinely tested for malaria on the 1st ANC and screen for malaria infection in each month conducting examination by RDK tests even if she does not manifest any malaria symptoms. If at any time a pregnant woman shows symptoms she will also be tested and if test comes positive she has to be referred to PHC for treatment.

- **Treatment :**

- **For cases with *P. vivax* & uncomplicated *P. falciparum*** (in chloroquine sensitive areas)

Chloroquine base	Day 1	10mg/kg
Chloroquine base	Day 2	10mg/kg
Chloroquine base	Day 3	5mg/kg

- **For uncomplicated *P. falciparum* cases in chloroquine resistant area:** The treatment of uncomplicated falciparum in pregnancy, which should be available at PHC and higher levels is Quinine (as tablets) 10 mg. quinine salt/kg. body weight 3 times daily for 7 days. Quinine is safe in pregnancy. It has unpleasant side-effects in most patients namely metallic taste, nausea and sometimes tinnitus. These side-effects are self limiting once the treatment is over. Therefore, patient should complete the treatment exactly as prescribed. Since quinine may induce hypoglycaemia, pregnant women should not take quinine on an empty stomach and should eat regularly, while on quinine treatment. No special diet is needed.

- **Severe and complicated malaria :**

- ✓ **Quinine salt** 20 mg/kg. body weight (bw) as a loading dose on admission (I.V. infusion or divided IM injection) followed by maintenance dose of 10 mg./kg. bw 8 hourly; infusion rate should not exceed 5 mg salt/kg bw per hour.

Note : Loading dose may not be given if the patient has already received quinine or if clinician feels inappropriate.

- ✓ The parenteral treatment should be given for minimum of 48 hours and once the patient tolerates oral therapy, quinine 10 mg./kg. bw three times a day with Clindamycin 10mg./kg. bw 12 hrly. for 7 days should be given for 7 days in patients treated with parenteral quinine.

Note : Primaquine is contraindicated during pregnancy.

- **Case study 23:** (Write down the answers to the questions in the space given below.)

A) Mrs. Surekha 22 year old lady comes to your OPD with 7 months amenorrhea with complaints of easy fatigability, lethargy and generalized bodyache since 15 days. What is your probable diagnosis?	
B) What will you look for in general physical examination?	
C) What investigations will you ask for?	
D) Her Hb is 8 gm%. What is the degree of anemia?	
E) What drugs will you prescribe?	
F) What advice will you give?	

G) How will you judge the response to the treatment?
H) When would you call her for follow up?
I) When would you refer her to a FRU?
J) What are the maternal complications?
K) What are the foetal complications?

Session 7b: Other Problems during Pregnancy

Time: 1 hour

Urinary Tract Infection

Activity

- Refer to Guidelines Module 2.

Notes

- Urinary tract infection:
 - May be in the form of cystitis or acute pyelonephritis.
 - Fever $> 38^{\circ}$ C with chills, burning and frequent micturition with abdominal pain is the typical presentation.
 - Can cause abortion, pre-term delivery.
 - Urine examination requires clean mid stream sample.
 - Treat woman with antibiotics which are safe in pregnancy, if no response, refer her to FRU (with referral slip as in Annexure II).

- **Case study 24:** (Write down the answers to the questions in the space given below).

A) Mrs. Shobha, 25 years primi gravida with 28 weeks of pregnancy reports to you with fever and chills since 4 days associated with burning micturition. What other history, will you elicit?
B) What is your diagnosis?
C) What investigations will you advise?
D) Which antibiotics can be given in first trimester?
E) What adverse events can take place due to UTI?

Hyperemesis Gravidarum

Activity

- Refer Guidelines, Module 2-Chapter 6.

Notes

- Excessive vomiting during pregnancy that affects the day to day activity & health of the mother.
- Common in Primigravidas, multiple pregnancy and molar pregnancy.
- Presence of tachycardia, dehydration and ketonuria.
- Severe cases need admission, I.V. fluids and antiemetic drugs.

- **Case Study 25:** (Write down the answers to the questions in the space given below).

A) Mrs. Reena, 18 years primigravida is 12 weeks pregnant. She has come to you with 10-12 episodes of vomiting, not able to retain food & is having giddiness. What is your diagnosis and what will you do?
B) What investigations will you get done for the patient?
C) What are the complications?
D) When will you refer her to FRU?

Retention of Urine

Activity

- Refer to Guidelines Module 2, Chapter 6.

Notes

➤ Causes:

- During early pregnancy - Incarcerated retroverted gravid uterus, impacted pelvic tumors.
- During labour – obstructed labour.
- During puerperium – operative vaginal delivery.

➤ Management:

- Under all aseptic precautions, insert a self retaining Foley's catheter. Drain the urine continuously for 48 hrs.
- These measures allow the uterus to rise above the pelvic brim.
- Once the uterus is palpable P/A, remove the catheter and ensure that the woman voids urine.

- **Case study 26:** (Write down the answers to the questions in the space given below).

A) Mrs. Praveena is 20 yrs. old and is 12 wk pregnant. She came to the antenatal clinic with history of inability to pass urine since 2 days. How will you diagnose retention of urine?

--

B) What could be the cause of retention of urine?

--

C) How will you manage?

--

Prelabour / Premature Rupture of Membranes (PROM)

Activity

- Refer to Guidelines Module 2, Chapter 6

Notes

- Spontaneous rupture of membranes (bas of water) any time beyond 28 weeks of pregnancy but before onset of labour is called prelabour/premature rupture of membranes (PROM).
- Diagnosed by passage of watery discharge from vagina either in the form of sudden gush or slow leakage.
- Diagnosis is confirmed by per speculum exam. with aseptic precautions.
- Avoid per vaginal examination.
- Investigations : (1) Full Blood Count; (2) Urine Routine, Culture and Sensitivity; and (3) High Vaginal swab for Culture and Sensitivity.
- Complications :
 - Increased incidence of pre-term labour and pre-maturity.
 - Cord prolapse.
 - Dry labour.
 - Foetal pulmonary hypoplasia leading to Respiratory Distress Syndrome (RDS).
- **Management during early pregnancy –**
 - If <37 wks: Give steroid to improve lung maturity, i.e.,
 - Inj. Betamethasone 12 mg I.M: 1st dose.
 - Inj. Tocolytics 1st dose.
 - Prophylactic antibiotics (Amoxycillin or Erythromycin) to prevent infection.
 - Referral to higher health facility for specialized neonatal care.
 - >37 wks:
 - Administer antibiotics
 - Assess cervix, if favourable then deliver under Antibiotic cover and if unfavourable refer to FRU (with referral slip as in Annexure I).

- **Case Study 27:** (Write down the answers to the questions in the space given below).

A) Sujatha, 26 yrs., primigravida, with 7 months of amenorrhea, reported to labour room with watery vaginal discharge 1 hr. prior to admission. On P.A. examination – uterus 28 weeks size, relaxed, P/S examination – active leak is present. What is your provisional diagnosis?

B) How will you manage this case?

Day 8

Session 8a: Abortions – Haemorrhage during early pregnancy

Time: 1 hour

Activity

- Refer to Guidelines Module 2, Chapter 1.

Notes

- The important causes of bleeding during early pregnancy (upto 20 weeks of gestation):
 - Abortions.
 - Ectopic pregnancy.
 - Molar pregnancy.
- **Management of bleeding in early Pregnancy**

Diagnosis	Management
Threatened abortion	<ul style="list-style-type: none">○ Restrict activities○ No medication required
Inevitable abortion	<ul style="list-style-type: none">○ Upto 12 weeks – MVA (evacuate the uterus)○ After 12 weeks – Inj. Oxytocin drip (10 – 20 U)○ Control the bleeding
Incomplete abortion	<ul style="list-style-type: none">○ Upto 12 weeks – MVA (evacuate the uterus)○ After 12 weeks – Inj. Oxytocin drip (10 – 20 U)○ If the bleeding is heavy refer the woman to FRU
Complete abortion	<ul style="list-style-type: none">○ Check for any retained products of conception and / or bleeding○ No need of further management, if patient is stable
Septic abortion	<ul style="list-style-type: none">○ IV Fluids○ Antibiotics○ Refer to FRU
Ectopic / molar pregnancy	<ul style="list-style-type: none">○ Assess shock○ Start IV Fluids○ Refer to FRU

All women should be counseled regarding contraception and helped to select the most appropriate method.

- **Case Study 28:** (Write down the answers to the questions in the space given below).

<p>A) Mrs. Humera is 19 years old and is 15 wks. pregnant. This is her first pregnancy. She came to labour room with c/o pain in abdomen and P/V bleeding for 2 hours. What is your probable diagnosis?</p>
<p>B) On examination:</p> <p>P.R – 76 /min., BP – 120/70 mm. of Hg.</p> <p>P/A - NAD, P/S - minimal. bleeding through Os +</p> <p>P/V - size of uterus corresponds to 10 weeks, Os closed.</p> <p>USG – Optional (for viability of foetus).</p> <p>What is your diagnosis?</p>
<p>C) How will you manage this case?</p>

- **Case Study 29:** (Write down the answers to the questions in the space given below).

A) Mrs. Amita is 19 years old, is 10 wks pregnant. This is her first pregnancy. She came to labour room with c/o pain in abdomen and P/V bleeding for 4 hours.

On examination:

PR – 76 /min., BP – 120/70 mm. of Hg.

P/A - NAD

P/S - excessive bleeding +, Os open, products seen at the Os

P/V - uterus corresponds to 10 weeks of gestation

What is your diagnosis?

B) How will you manage this case?

- **Case Study 30:** (Write down the answers to the questions in the space given below).

A) Mrs. Gurupreet 20 yrs. old, G₂P₁L₁ with 10 wks pregnancy came with c/o pain in abdomen, P/V bleeding since 12 hrs and h/o passage of products of conception.

On examination:

Pallor ++

Pulse - 120/min.

BP - 100/60 mm. Hg.

RR - 40/ min.

P/A - NAD

P/S - active bleeding through Os +, clots ++, Products seen at the Os.

P/V - uterus bulky, products of conception felt at the Os.

Os - open.

What is your diagnosis?

B) How will you manage this case?

- **Case Study 31:** (Write down the answers to the questions in the space given below.)

A) Mrs. Catherine, 20 yrs. old, G₂ P₁L₁ with 10 wks pregnancy came with :

- c/o pain in abdomen & P/V bleeding since 12 hrs.
- h/o passage of products of conception

On examination:

PR – 76 /min., BP – 120/70 mm. of Hg.

P/A - NAD, P/S - minimum bleeding

P/V - uterus 6 wks. size, Os closed.

What is your diagnosis?

B) How will you manage this case?

- **Case Study 32:** (Write down the answers to the questions in the space given below.)

A) Ms. Lalita, 18 yr. old girl came with c/o fever since 10 days; bleeding P/V, foul smelling discharge, pain in abdomen and vomiting since 3 days. Past h/o having undergone D&C for termination of 10 wk pregnancy, 12 days back. What is your probable diagnosis?

B) On examination:

Patient is febrile and toxic.

Pallor +++

Pulse : 140/min.

BP : 100/ 60 mm. of Hg.

RR : 30/min.

P/A - fullness in lower abdomen, rigidity +, rebound tenderness +, BS sluggish

P/S - foul smelling discharge +, min bleeding +

P/V - uterus bulky, uterine tenderness +, fornices tender, + fullness felt in the Pouch of Douglas.

What is your diagnosis?

C) How will you manage this case?

- **Case Study 33:** (Write down the answers to the questions in the space given below).

A) Ms. Salma, 20 yrs. old nullipara, came with h/o bleeding per vagina since 2 days, pain in lower abdomen with vomiting and one episode of giddiness since 4 hours. Her LMP was 2 days back . O/E pulse 120 / min., BP 80/60 mm. Hg, Pallor +++, P/A – tenderness in the lower abdomen, P/V – cervical motion tenderness, fullness in pouch of Douglas. What is your probable diagnosis?

B) How will you manage this case?

Session 8b: Ante partum haemorrhage bleeding during late pregnancy & labour

Time: 1 hour

Activity

- Refer to Guidelines Module 2, Chapter 1(b).

Notes

- **Antepartum haemorrhage** is haemorrhage from the genital tract occurring after 20 weeks of pregnancy but before delivery of the baby.
- Vaginal examination at the health facility is **CONTRAINDICATED** for fear of heavy bleeding.

Haemorrhage during Late Pregnancy & Labour

Diagnosis

Do not conduct vaginal examination

Palpate the Abdomen

Placenta Praevia	Abruptio placentae	Rupture uterus
<ul style="list-style-type: none">• Bleeding is painless, causeless and recurrent.• Uterus is relaxed.• FHS usually present (may be absent).	<ul style="list-style-type: none">• Abdominal pain• Anaemia out of proportion to blood loss (concealed abruption).• Uterus is tense and tender.• Fetal parts are not easily felt.• FHS is usually absent (may be present).	<ul style="list-style-type: none">• Shock.• Abdomen – tender• uterine contour - not felt / may be felt on one side of lower abdomen.• Fetal parts - Superficial.• FHS absent.

Management

<ul style="list-style-type: none">• Start I.V. fluids.• Collect blood for Hb%, grouping and cross matching.• Assess degree of shock.• Refer to FRU (with referral slip as in Annexure I).	<ul style="list-style-type: none">• Start I.V. fluids.• Collect blood for Hb%, grouping and cross matching.• Assess degree of shock.• Refer to FRU (with referral slip as in Annexure I).	<ul style="list-style-type: none">• Start I.V. fluids.• Collect blood for Hb%, grouping and cross matching.• Assess degree of shock.• Refer to FRU (with referral slip as in Annexure I).
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- **Case Study 34:** (Write down the answers to the questions in the space given below).

<p>A) Mrs. Swati, 30 year old G₄P₃ L₃ with 32 wks of pregnancy has come with H/o painless vaginal bleeding for 2 hours . What is your probable diagnosis?</p>
<p>B) General examination reveals: Pallor +, Pulse 100/ min., BP 110/ 70 mm. Hg., oedema absent P/A - Ut 32 wks. size, relaxed, soft, not tense/not tender, FHS + 142/ min., regular P/S - bleeding from the Os present What is your diagnosis?</p>
<p>C) How will you manage this case?</p>

- **Case Study 35:** (Write down the answers to the questions in the space given below).

A) Mrs. Seeta , 20 year old primigravida with 30 wks. pregnancy comes with H/o pain in abdomen followed by bleeding per vagina. **What is your probable diagnosis?**

--

B) **General examination: reveals**

Pallor +++, Pedal oedema ++, Pulse 120/ minute, BP 90/ 60 mm. Hg.

P/A - Ut 36 wks., tense tender, FHS absent.

P/S – slight bleeding + from the Os.

What is your diagnosis?

--

C) **How will you manage this case?**

--

Day 9

Session 9a: Other problems during pregnancy and labour

Time: 1 hour

Prolonged and Obstructed Labour & Partograph

Activity

- Refer to Guidelines Module 2, Chapter 3.

Key Points

- Labour is labelled as “Prolonged labour” when active stage of labour lasts for more than 12 hours.
- Obstructed labour is arrest of labour inspite of good uterine contractions.
- Partograph helps in detection of prolonged labour and prevents obstructed labour.
- If alert line on Partograph has been crossed then refer to FRU (with referral slip as in Annexure II).

- **Case Study 36:** (Write down the answers to the questions in the space given below).

<p>A) 20 yrs. old Mrs. Lakshmi, primigravida is admitted with labour pains at 5 am. On examination at 5 am: (0 hour)</p> <p>PR : 90/min., BP : 120/80 mm. Hg, Temp : 37.4°C,</p> <p>P/A : 3 contractions for 15-20 sec./10 min., FHS : 140/min.,</p> <p>P/V cervix 4 cm. dilated, membranes present</p> <p>What will you do?</p>
<p>B) At 4 hours:</p> <p>PR : 98/min., BP 120/70 mm. Hg, Temp : 38°C</p> <p>P/A 3 contractions for 20-25 sec./10 min., FHS 126/min.</p> <p>P/V cervix 5 cm dilated, membranes present</p> <p>Is the progress normal?</p>
<p>C) How will you refer?</p>
<p>D) What are the signs of obstructed labour?</p>

Preterm Labour

Activity

- Refer to Guidelines Module 2

Key points

- Preterm labour is onset of labour after 20 weeks and before 37 wks. of gestation.
- Estimate gestational age of foetus.
- Administer antibiotics.
- < 34 weeks Inj. Betamethasone 12 mg. IM, first dose.
- Give first dose of Tocolytics.
- Refer to FRU (with referral slip as in Annexure II), if not in active labour..

- **Case study 37:** (Write down the answers to the questions in the space given below).

A) Mrs. Latha, 20 years old primigravida has come with 8 months amenorrhea and labour pains for 1 ½ hours. How will you diagnose preterm labour?
B) How will you manage this case?

Foetal distress

Activity

- Refer to Guidelines Module 2, Chapter 7.

Key Points

- Normal FHR is between 120-160 bpm.
- Foetal bradycardia i.e. <120 bpm.
- Foetal tachycardia i.e. >160 bpm.
- FHR slowing down during contraction and picking up immediately after is physiological.
- If a maternal cause for FHR abnormality is identified (maternal fever, drugs) initiate appropriate management.
- Thick meconium stained liquor with FHR abnormalities indicates foetal distress (Meconium in breech presentation is not a sign of foetal distress).
- If delivery is not imminent refer to FRU (with referral slip as in Annexure II).
- If delivery imminent – left lateral position, oxygen, rapid infusion of I.V. fluid and expedite delivery.

Cord Prolapse:

Activity

- Refer to Guidelines Module 2, Chapter 7.

Key Points

- Cord Prolapse – Prolapse of the umbilical cord into or outside the vagina after the membranes have ruptured.
- Cord presentation – presence of umbilical cord below the presenting part with membranes intact.
- If delivery is imminent expedite delivery.
- If not, refer to FRU after distending the bladder with 500 ml. normal saline through a foley's self retaining catheter. Clamp the catheter. Release the clamp only when one is ready to extract the baby by C. Section (This will relieve the pressure of the presenting part on the cord).

Twins

Activity

- Refer to Guidelines Module 2, Chapter 7.

Key Points

- Early diagnosis can improve maternal and foetal outcome.
- Requires more frequent visits, increased calories, protein intake, iron supplementation and appropriate rest.
- Refer to FRU at 36 weeks for delivery.

- **Case Study 38:** (Write down the answers to the questions in the space given below).

A) Mrs. Parvathi, 20 yrs. old primi gravida comes to OPD with 7 1/2 months amenorrhea. O/E pallor +, uterus 32 weeks size, multiple foetal parts felt with palpation of 2 foetal heads. What is your diagnosis?	
B) Will your ANC differ for case of multiple pregnancy?	
C) What are the antenatal complications?	
D) What are the danger signs you will warn her against?	
E) When will you refer?	

Session 9b: Other problems during postpartum period

Time: 1 hour

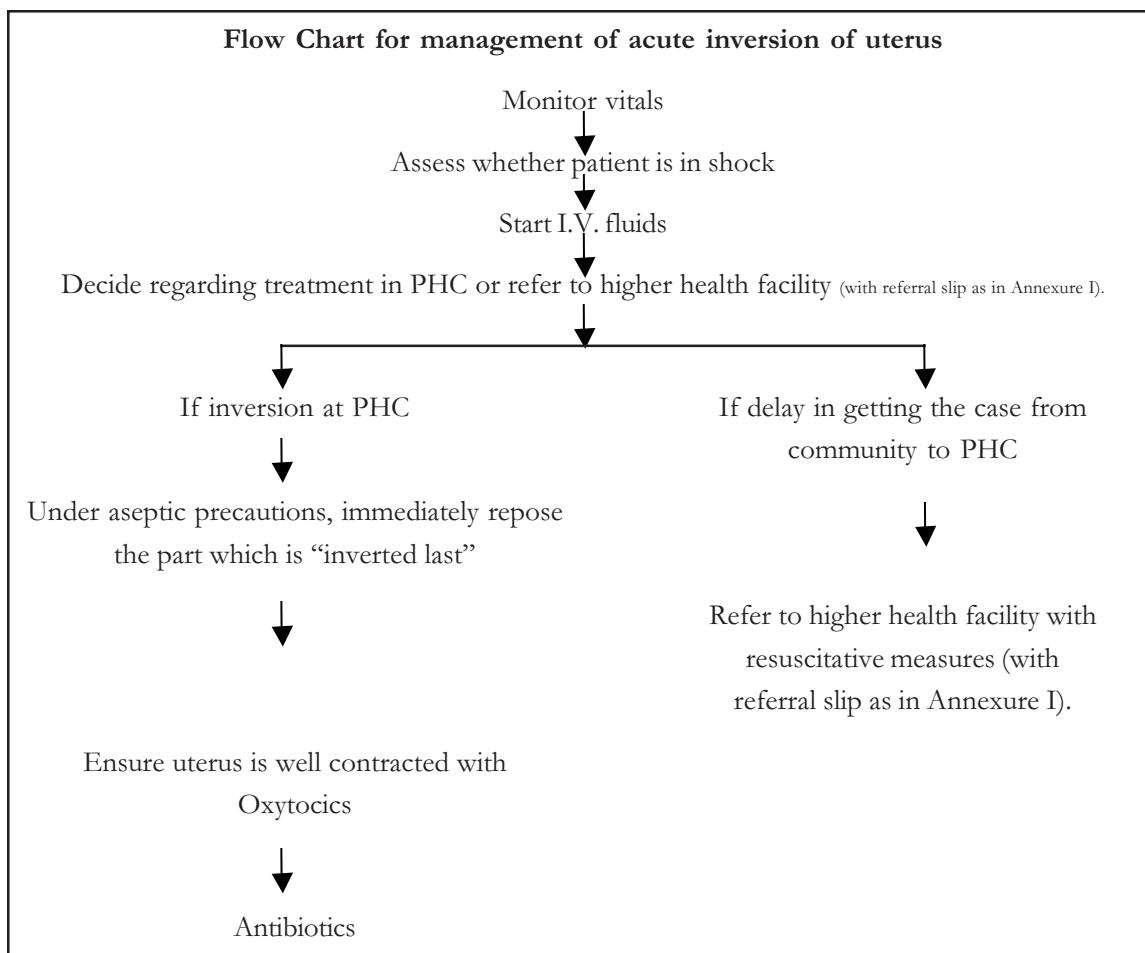
Inversion of Uterus

Activity

- Refer to Guidelines–Module 2, chapter 8.

Key points

- Prevent uterine inversion:
 - By practicing AMTSL during labour in all women.
 - By following DON'TS.
 - Do not pull cord in absence of uterine contraction.
 - Do not exert fundal pressure to deliver placenta.
 - Do not pull cord in placenta accreta.
- Anticipate complications like hemorrhage, shock, sudden death.



Breast Feeding Problems

Activity

- Refer to Guidelines Module 2; Chapter 8.

Notes

- Antenatal period :
 - Identification of inverted nipples.
 - Correction by gently applying pressure over nipple from base of areola in horizontal and vertical direction.
- Puerperal period :
 - Breast engorgement is painful breast condition occurring 3-5 days after delivery–
 - Treatment is manual expression of milk.
 - Mastitis is tender, reddened breast 3-4 wks after delivery:
 - Treatment is with antibiotics (Cap. Ampicillin 500 mg, 1-1-1x 10 days).
 - Prevention by proper positioning of baby and good attachment of baby's mouth to breast.
 - Breast abscess is firm, acutely tender breast with erythema–
 - Treatment is – Antibiotics (Cap. Ampicillin 500 mg, 1-1-1x10 days)
 - Refer to higher health facility (with referral slip as in Annexure I) for drainage of abscess.
 - In all the above conditions –
 - Encourage breast feeding.
 - Support breasts with binder/brassiere.
 - Follow-up case in 3 days.
 - Exclusive breast feeding for 6 months.

- **Case 39:** (Write down the answers to the questions in the space given below).

A) Karuna has come to you complaining of painful nipples when she breastfeeds. How will you help her?

- **Case 40:** (Write down the answers to the questions in the space given below).

A) Laxmi c/o fullness of breasts in the first two days after delivery what other information and advice will you give. What do you think is wrong?	
B) What are the differences between full and engorged breasts?	
Full Breasts	Engorged Breasts

- **Case 41:** (Write down the answers to the questions in the space given below).

A) A mother complains of pain in the breasts and fever. On assessment of a breastfeed, the baby is not well attached. On examination, both breasts are swollen and painful. What is your diagnosis and how will you treat her? What advice will you give to this mother?

- **Case 42:** (Write down the answers to the questions in the space given below).

A) Smitha c/o high fever and feels ill. On examination of the breast, there is a well-defined, red, sore and swollen area in ONE of her breasts. What is your diagnosis and how will you treat her?

--

- **Case 43:** (Write down the answers to the questions in the space given below).

A) Sujatha c/o fever and painful, soft swelling in the left breast .On examination of the breast , there is a tender, soft, fluctuant swelling . What is your diagnosis and how will you treat her?

--

B) How to prevent breast feeding problems?

--

Day 10

Session 10a: Prevention of Infection

Time: 1 hour

Activity

- Refer to Guidelines Module 3 chapter 2.

Key points

- Follow Government of India guideline's IMEP (Infection Management and Environment Plan).
- Wash your hands after touching blood, secretions, excretions, contaminated items, or after removing gloves and between patient contacts. Wash hands using plain soap or antimicrobial agent for specific circumstances. For surgical procedures, wash your hands for 3 to 5 minutes.
- Use pair of double gloves before touching the mucus membranes and non intact skin or touching blood, body fluids, secretions, excretions and contaminated items.
- Use mask, eye protection, face shield and gown during procedures and patient care activities that are likely to generate splashing or spraying of blood, body fluids secretions and excretions.
- Take care to prevent injuries while using needles, scalpels and other sharp instruments and devices. Use disposable needles and syringes. Dispose them in puncture proof containers without disassembling / bending / recapping / breaking the needles.
- Proper handling of contaminated waste (blood or body fluid contaminated items) is required to minimize the spread of infection to hospital personnel and the community, i.e., dispose:
 - Solid contaminated waste - covered containers to disposal site.
 - Sharp items - puncture resistant containers.
 - Liquid waste poured down a drain/flushable toilet.
 - Burning or burying contaminated solid waste.
- Decontamination is the first step in processing which kills viruses and other micro organisms. It is done by placing instruments in 0.5% chlorine solution after use for 10 minutes and rinse. Decontamination makes items safer to handle for cleaning and further processing.
- High level disinfection, performed by boiling, using chemicals or steaming (only when sterilization is not available).
- Sterilization (preferred to HDL) should be performed on any item that will come in contact with the tissues under the skin, as well as drapes and surgical attire.
- Sterilization can be performed using steam (autoclaving) dry heat and chemicals.
- Ensure that the hospital has adequate procedures for adequate care, cleaning and disinfection of environmental surfaces.

Answers to Case Studies

Day 1

Session 1: Care during pregnancy – Antenatal Care

Case study 1: (Write down the Answers to the questions in the space given below).

A) Mrs. Rekha, 24 years old primi gravida comes to OPD with 6 months amenorrhea. This is her first visit to you. What history will you elicit?

- *Ask her LMP,
Menstrual History - Regular / Irregular
Foetal movements (b/o quickening),
Previous antenatal checkup,
H/o any complaints,
Pedal edema, headache, urinary complaints,
Past H/o diabetes, hypertension, asthma, RHD, tuberculosis.
Family history,
Received tetanus injection, iron folic acid supplements.*

B) How will you calculate the EDD with regular and irregular cycles?

- *H/o regular periods – add 9 months and 7 days to the LMP

Cycles > 28 – 30 days
Add the extra number of days to arrive at EDD

Cycles < 28 days
Subtract the number of days from the EDD.*

C) What general, physical & systemic examination will you perform?

- *GPE –
 - *Height and Weight*
 - *Pulse, blood pressure, respiratory rate, temperature*
 - *Pallor, Pedal edema, Icterus*
 - *Breast examination (retracted nipple)**
- *Cardiovascular system
 - *Heart sounds & murmurs.**
- *Respiratory system
 - *Adventitious sounds.**

<ul style="list-style-type: none"> • <i>Per abdomen</i> <ul style="list-style-type: none"> ○ <i>Fundal height</i> ○ <i>Presentation</i> ○ <i>Position & foetal heart rate</i>
<p>D) What investigations will you do?</p> <ul style="list-style-type: none"> • <i>Hemoglobin, blood group & Rb typing, urine for albumin & sugar</i> <i>*HIV, *HbsAg and *USG. (*Optional)</i>
<p>E) What drugs will you prescribe to her?</p> <ul style="list-style-type: none"> • <i>Iron & folic acid tab (100 mg elemental iron + 0.5 mg folic acid) every day from 14th week</i>
<p>F) What advice will you give her regarding immunization?</p> <ul style="list-style-type: none"> • <i>She should receive 2 doses of tetanus toxoid (1st-as soon as pregnancy is registered and 2nd dose after 1 month of receiving the 1st dose preferably at least 4 weeks prior to EDD)</i>
<p>G) What other advice will you give her?</p> <ul style="list-style-type: none"> • <i>Advice regarding :</i> <ul style="list-style-type: none"> ○ <i>Adequate diet</i> ○ <i>Rest (8 hrs. at night and 2 hrs. in afternoon)</i> ○ <i>Importance of breast feeding</i> ○ <i>Birth preparedness</i> ○ <i>Ideal visits</i> ○ <i>Warning signs</i> ○ <i>Encourage institutional delivery</i>
<p>H) When would you call her for the next check up?</p> <ul style="list-style-type: none"> • <i>Mandatory visits – Registration within 12 weeks, 14-26 weeks, 28-34 weeks, 36 weeks to term.</i>
<p>I) What are the danger signs that you will warn her against?</p> <ul style="list-style-type: none"> • <i>Fever</i> • <i>Headache, Blurring of vision</i> • <i>Generalized swelling of the body and puffiness of face</i> • <i>Palpitations, easy fatigability and Breathlessness at rest</i> • <i>Pain in abdomen</i> • <i>Vaginal bleeding/watery discharge</i> • <i>Reduced foetal movements</i>

Day 2: Care during labour and delivery

Session 2a: Intrapartum care & Partograph

Case 2:

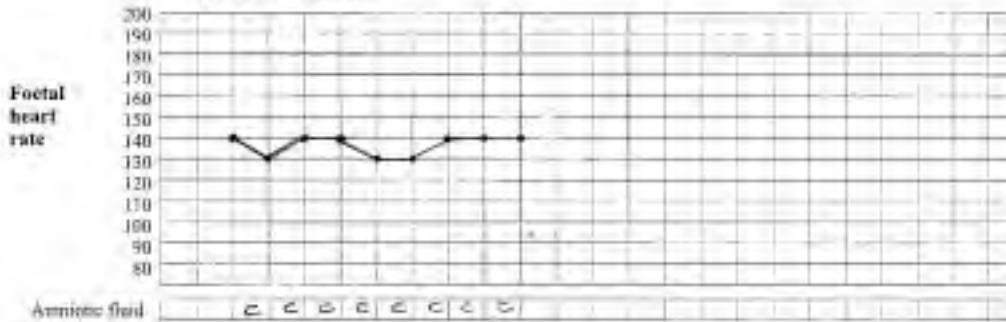
THE SIMPLIFIED PARTOGRAPH

IDENTIFICATION DATA

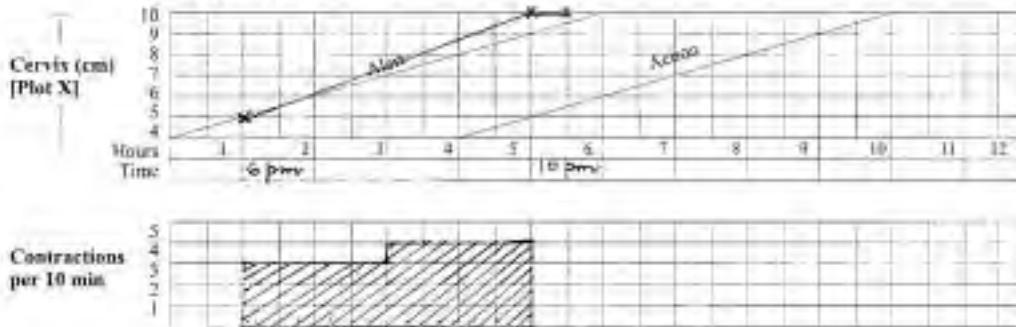
Name: *MRS. LAKSHMI* W/o: _____ Age: *25* Parity: *0* Reg. No.: _____
YES

Date & Time of Admission: *2.12.2008, 6 pm* Date & Time of ROM: *2.12.2008, 6.15 pm*

A) Foetal Condition



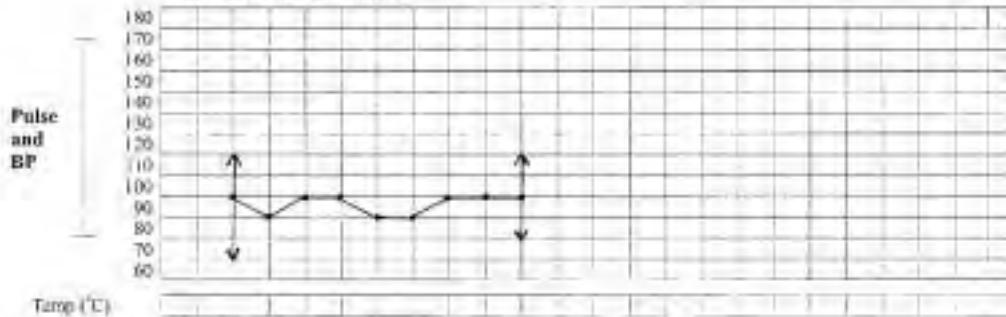
B) Labour



C) Interventions

Drugs and IV fluids given: _____

D) Maternal Condition



FTNVB of male baby at 10/30 pm on 2.12.2008.
 Birth weight = 3 kg

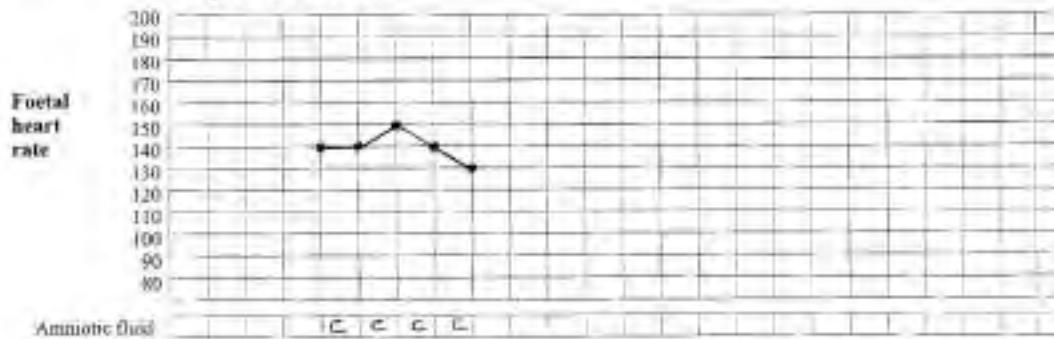
Case 3:

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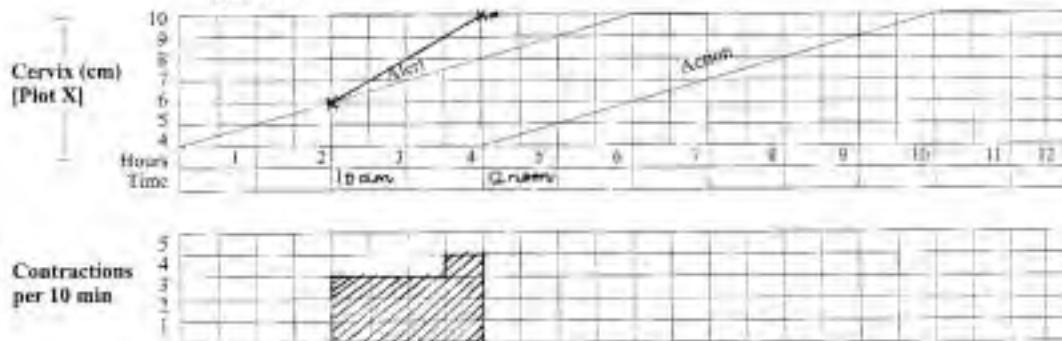
IDENTIFICATION DATA

Name: Mrs SALMA W/o: Age: 25 Parity: Reg. No:
 Yrs: 4₂P₁L₁
 Date & Time of Admission: 22.10.2008, 10 am Date & Time of ROM: 22.10.2008, 9 am

A) Foetal Condition



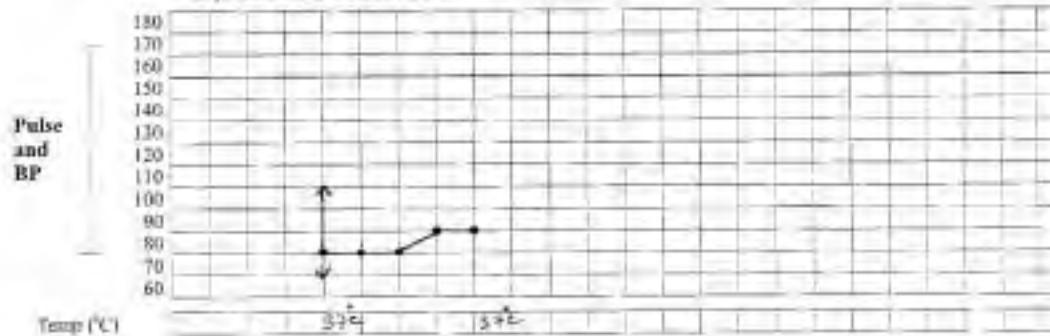
B) Labour



C) Interventions

Drugs and IV fluids given

D) Maternal Condition



FTND of a female baby at 12.20 pm on 22.10.2008
 Birth weight = 2.9 kg.

Case 4:

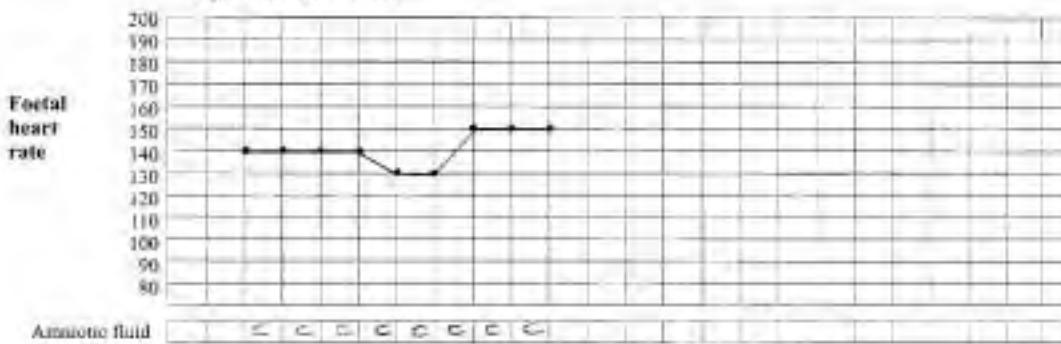
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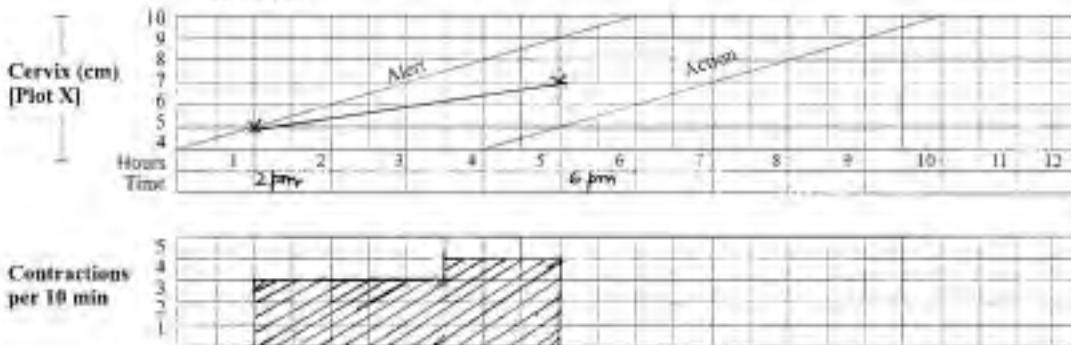
Name: Mrs GEETA W/o: Age: ²⁰/_{Yes} Parity: 0 Reg. No.:

Date & Time of Admission: 25.10.2007, 2 pm Date & Time of ROM: 25.10.2007, 11 am

A) Foetal Condition



B) Labour

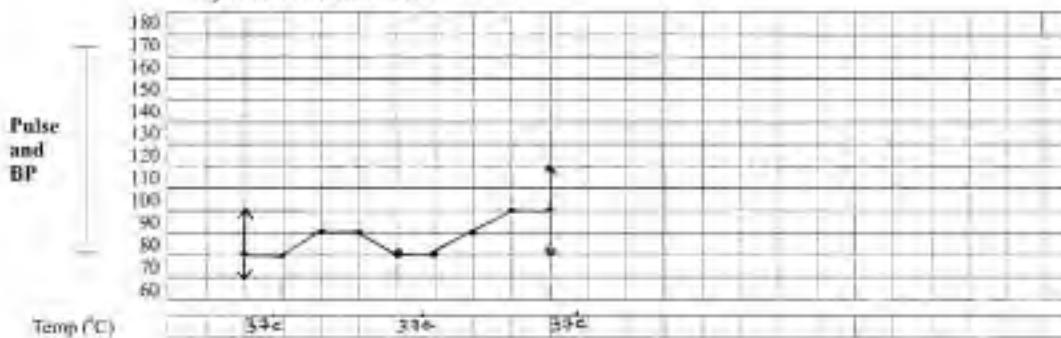


C) Interventions

Drugs and IV fluids given

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D) Maternal Condition



REFERRING MRS. GEETA SINCE GRAPH HAS CROSSED THE ALERT LINE

Day 3

Session 3b: Post Partum Haemorrhage and Shock

Case Study 5

A) Mrs. Fatima, 28 years old P₄ L₄ gave birth to a full term newborn 2 hours ago at home. Her birth attendant was a TBA, who has brought Mrs. Fatima to the health center because she has been bleeding heavily since childbirth. The duration of labour was 12 hours, the birth was normal and the placenta was delivered 20 minutes after the child birth. Placenta and membranes were complete. What will you include in your initial assessment of Mrs. Fatima?

- *Assess whether patient is in shock*

Clinical Examination findings:

She is pale, cold & sweating—

- Pulse - 108 / min.
- BP - 80 / 60 mm. Hg.
- RR - 24 / min.
- P/A – uterus is soft, does not contract with fundal massage.
- P/S – heavy bright red vaginal bleeding from Os, no evidence of genital trauma.

B) What is Mrs. Fatima's diagnosis?

- *Atonic PPH*

C) What is your immediate management?

- *Call for help, resuscitate, give uterotonics and uterine massage*

Evaluation:

Fifteen minutes after the initiation of treatment, Mrs. Fatima continues to have heavy vaginal bleeding.

- Pulse – 110 / min.
- BP - 80 / 60 mm. Hg.

D) What is your further plan of action for Mrs. Fatima?

- *Continue resuscitation, Anticipate the need for blood transfusion and arrange for immediate transfer.*
- *Bimanual compression of uterus and Aortic compression (Details are given in guidelines and Trainees' Handbook).*

E) How do you arrange for transfer?

- *Rapidly arrange for transport & refer where blood transfusion facilities are available.*
 - *Communicate with the referral hospital and while referring enclose the referral slip (Annexure-1)*
 - *Accompany the woman to the referral centre or ensure a responsible attendant accompanies the woman to the FRU.*
 - *If possible, identify donors & ensure donors also accompany the woman during referral, but do not delay the referral.*
 - *Continue resuscitation*

Case Study 6

A) Mrs. Bharati, 30 years old P₂ L₂. She gave birth at the PHC to a newborn weighing 4.2 Kgs. Placenta was delivered 10 minutes later. She was given 10 U of Oxytocin IM after the delivery of placenta. Half an hour after the delivery Mrs. Bharati reports that she has heavy vaginal bleeding

What will you include in your initial assessment of Mrs. Bharati?

- *Assess whether patient is in shock*

Clinical Findings:

She is pale–

Pulse - 98 / min.

BP - 110 / 70 mm. Hg.

RR - 20 / min.

P/A – uterus is hard , well contracted.

P/S – Heavy bright red vaginal bleeding, No perineal trauma.

Visualization of cervix & vagina difficult due to heavy vaginal bleeding.

Placenta is complete.

B) What is Mrs. Bharati diagnosis?

- *Traumatic PPH*

C) What is your immediate management?

- *Resuscitate*
- *Inspect vagina and cervix for tears*
- *If possible, repair immediately*

Evaluation:

On per speculum examination, patient has multiple vaginal lacerations, including para-urethral tears. There is a cervical tear which has extended upwards till the vault, however, the extent could not be made out.

Pulse - 110 / min.

BP - 100 / 60 mm. Hg.

D) What is your further plan of action for Mrs. Bharati?

- *Continue resuscitation*
- *Tightly pack the vagina*
- *Arrange for quick transfer*

Day 4

Session 4: Essential Newborn Care

Case study 7:

A) B/o Karuna is just born, what are his/her immediate needs?

- *To be warm*
- *To breathe normally*
- *To be protected (prevent infection)*
- *To be fed*

B) Enlist the steps in the immediate care of the B/o. Karuna at birth.

- *Note the time of birth.*
- *A baby should be placed onto its mother's abdomen, If this is not possible, keep the baby next to the mother on a clean surface.*
- *Immediately dry the baby with a warm clean towel or piece of cloth. Wipe the mouth and nose with a clean cloth.*
- *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.*
- *Clamp and cut the umbilical cord with a sterile instrument. Tie the cord with a clean thread, rubber band or a sterile cord clamp.*
- *Examine the baby quickly for malformations/birth injury. If there is a major malformation/severe birth injury refer the baby to a newborn unit. Ensure warmth during examination and transportation.*
- *Leave the baby between the mother's breasts to start skin-to-skin care.*
- *Cover the baby's head with a cloth. Cover the mother and baby with a warm cloth.*
- *Place an identity label on the baby.*
- *Give Inj. Vit. K 1mg. IM*
- *Encourage the initiation of breast feeding.*

C) What practices interrupt the time the mother and baby may spend together immediately after birth?

In the first two hours after birth it is not necessary to:

- *Weigh or measure the baby*
- *Bathe the baby*
- *Give the baby any other food apart from breast milk*
- *Give the baby to anyone apart from the mother. However, normal cultural practices should be respected.*
- *A newborn baby should not be given bath for at least 24 hours after birth.*

<p>D) Mention the places where the baby can get cold?</p> <ul style="list-style-type: none"> • <i>Delivery room, post natal ward and at home.</i>
<p>E) How a baby can get cold?</p> <p><i>THE ENVIRONMENT :</i></p> <ul style="list-style-type: none"> • <i>Cold delivery room, post natal ward and home environment</i> • <i>Open windows</i> • <i>Broken glass frames, handles</i> • <i>Ceiling fans</i> • <i>Broken sockets</i> • <i>No heaters</i> • <i>No room thermometer</i>
<p>F) What do you think the temperature of this room is?</p> <ul style="list-style-type: none"> • <i>It is not possible to accurately guess the temperature of a delivery room or any other room. It is better to have a thermometer to measure the temperature accurately. The room temperature should be between 25^o C to 30^o C.</i>
<p>G) If a room thermometer is not available what may make you think the room is cold?</p> <ul style="list-style-type: none"> • <i>You feel cold</i> • <i>You need to wear a jacket</i> • <i>You feel a draught</i> • <i>Babies feel cold to touch</i> • <i>Mothers tell you they are cold</i>
<p>H) How a baby can get cold at birth in the PHC and at home?</p> <ul style="list-style-type: none"> • <i>Not drying the baby immediately after delivery.</i> • <i>Not drying the baby's head.</i> • <i>Baby left on or in a wet cloth.</i> • <i>Leaving the baby's head uncovered. Placing the baby on a cold surface or under a ceiling fan.</i> • <i>Separating mother and baby and then not covering the baby with sufficient covers.</i> • <i>No skin-to-skin contact.</i> • <i>Not breastfeeding soon after birth.</i> • <i>Giving the baby a bath just after birth.</i> • <i>Not covering the baby adequately.</i>

- I) How a baby can be kept warm at birth in the PHC and at home?
- *Dry the baby: immediately after birth with a clean dry cloth. Discard the cloth used for drying, cover the head with cap.*
 - *The baby should be placed on the mother's abdomen, in her arms or on a warm and dry surface and covered with a dry clean cloth. Cover both the mother and baby with blankets.*
 - *Skin-to-skin contact between the mother and baby is the best way to keep the baby protected against hypothermia.*
 - *Do not bathe the baby until it is at least 24 hours old.*
 - *Encourage the mother to breastfeed her baby within one hour after delivery.*
 - *If a baby and its mother are separated: wrap the baby in a clean, dry and warm cloth and place him/her on a cot. Cover the baby with a blanket. (Use a radiant warmer if the room is cold or if the baby is small).*
 - *If the baby needs any emergency treatment make sure it is kept warm while the treatment is provided.*
 - *Regular assessment of the baby by touch method is advisable.*
 - *Change wet nappies regularly*

J) How do you diagnose hypothermia?
Diagnosis of hypothermia by human touch :

Feel by touch-Trunk	Feel by touch-Extremities	Interpretation
<i>Warm</i>	<i>Warm</i>	<i>Normal</i>
<i>Warm</i>	<i>Cold</i>	<i>Cold stress</i>
<i>Cold</i>	<i>Cold</i>	<i>Hypothermia</i>

- K) How to treat hypothermia?
- *Rewarming.*
 - *Skin-to-skin contact is the best way of re-warming.*
 - *Before re-warming a baby remove all of its clothes.*
 - *Put the baby into:*
 - *A warm shirt that opens down the front*
 - *A nappy*
 - *Warm Cap and socks*
 - *Put the baby between the mother's naked breasts providing skin-to-skin contact. Make sure:*
 - *The baby's clothes are open in the front.*
 - *Ensure the baby's naked chest and abdomen are next to the mother's naked chest, so that skin-to-skin contact is maintained.*
 - *Cover the baby with the mother's clothes and an additional pre-warmed blanket.*
 - *Check the baby's temperature every hour until normal.*

Case Study 8:

- A) B/o Karuna is 3 days old, taking feeds well and fit for discharge. What advise will you give to the mother on discharge?
- *Exclusive breast feeding for 6 months.*
 - *Keep the baby warm.*
 - *Follow immunization schedule as per UIP (i.e., National Schedule).*
 - *Don'ts :*
 - *Do not put oil in the eyes, ears, nose.*
 - *Do not give gutti, gripe water, sugar water to the baby.*
 - *Do not apply kaajal to the eyes.*
 - *Return for follow-up after 6 weeks (next dose of immunization) .*
- Watch for danger sign and report immediately!!***

Case Study 9:

- A) **Karuna has just delivered and the baby is crying at birth.** Does this baby need help with its breathing?
- ***No, this baby can be given straight away to his/ her mother to start skin-to-skin contact and breastfeeding.***
- B) Is suction needed for this baby?
- ***No, suctioning is not necessary if the baby is crying.***

Case Study 10:

- A) **The baby is not crying, but his/her chest is rising regularly between 30 to 60 times in a minute.** Does this baby need help with his/her breathing at birth?
- ***No, this baby needs no help with his breathing as long as his chest is rising and falling equally on both sides, around 30 – 60 times a minute and his colour is good.***
 - ***This baby can be given straight to his mother for skin-to-skin contact.***
 - ***No suction is necessary***

Case Study 11:

- A) **Baby not breathing or gasping and the heart rate >100.** Does this baby need help with his/her breathing at birth?
- ***CALL FOR HELP!!***
 - ***Cut cord quickly, transfer to a firm, warm surface [under a radiant warmer]***
 - ***Lightly wrap the baby.***
 - ***Inform the mother that baby has difficult breathing and you will help the baby to breathe.***
 - ***If drying the baby and additional methods of tactile stimulations does not stimulate baby to breathe, the first step of resuscitation should be started immediately within 1 minute.***

Case Study 12:

A) The baby is NOT breathing and heart rate below 100/min.

Does this baby need help with his/her breathing?

This baby needs immediate help with his breathing by using bag and mask. The steps are :

- *Tie and cut the cord.*
- *Tell the mother that her baby is having difficulty in beginning to breathe and that you are going to help him/her. Tell her quickly but calmly.*
- *Remove the wet cloth or towel.*
- *Lightly wrap the baby in a warm, dry towel or cloth.*
- *Leave the face and upper chest free.*
- *Transfer the baby to a warm clean and dry surface, under a radiant or warmer? if possible.*
- *If drying the baby and additional methods of stimulation does not stimulate him to breathe, the first step of resuscitation should be started immediately.*
- *Open the Baby's Airway.*
- *Position the Head.*
- *If the baby is still not breathing, VENTILATE.*

B. How to ventilate the baby?

- *Re-check the baby's position.*
- *Slightly re-position the baby so that its neck is extended.*



- *Put the folded up piece of cloth under the baby's shoulders at this time.*
- *Place the correct mask size on the baby's face so that it covers the baby's chin, mouth and the nose.*



- *Squeeze the bag attached to the mask with two fingers only (adult size bag) or with the whole hand (newborn size bag).*
- *Squeeze and release the bag two or three times.*
- *Watch the baby's chest as the bag is squeezed. It should rise as the bag is squeezed.*



Case Study 13:

<p>A) The baby is NOT breathing and has a heart rate below 60/min. even after ventilation for 30 seconds. Does this baby need further resuscitation? What are the steps?</p> <ul style="list-style-type: none">• <i>Chest compressions.</i>• <i>Place the baby on a firm surface.</i>• <i>Identify the lower one third of the sternum (i.e., the area between the inter nipple line and the xiphisternum).</i>• <i>Use the index and the middle fingers for compression, compress the sternum by one third of the anterior posterior diameter of the chest @90 times/minute.</i>• <i>Ensure coordination between ventilation and cardiac massage, for every 3 chest compressions, offer one assisted ventilation, i.e., a ratio of 3:1.</i>• <i>Assess the response to cardiac massage and ventilation by counting the RR and the heart rate. Check whether spontaneous respiration has been established</i>• <i>Chest compression can be discontinued when the heart rate rises to >60 beats /min.</i>
<p>B) When to stop ventilating?</p> <ul style="list-style-type: none">• <i>If breathing or crying and Heart rate >100/min: STOP VENTILATION</i><ul style="list-style-type: none">○ <i>Count breaths per minute</i>○ <i>Look for chest in-drawing</i>• <i>If breathing >30/min., and no chest in-drawing/grunting:</i><ul style="list-style-type: none">○ <i>Stop ventilating</i>○ <i>Put the baby in skin-to-skin contact on mother's chest and continue care</i>○ <i>Monitor every 15 minutes for breathing and warmth</i>○ <i>Tell the mother the baby will probably be well</i>• <i>Encourage the mother to start breastfeeding as soon as possible.</i>• <i>NEVER leave the baby alone.</i>
<p>C) What are harmful resuscitation practices?</p> <ul style="list-style-type: none">• <i>Holding baby up side down and slapping the back,</i>• <i>Squeezing the chest,</i>• <i>Sprinkling cold and hot water,</i>
<p>D) Describe the care of a baby AFTER it has been resuscitated:</p> <ul style="list-style-type: none">• <i>After resuscitation check the mother, explain to the mother and family what has happened and how the baby is now.</i>• <i>Keep the mother and baby in the delivery room and DO NOT separate them.</i>• <i>NEVER leave the woman and newborn alone. Monitor them every 15 minutes during the first hour.</i>• <i>The mother and baby should be kept together with the baby in skin-to-skin contact.</i>• <i>Encourage the mother to breastfeed her baby as soon as it is ready.</i>• <i>The baby should be thoroughly examined before it is discharged.</i>• <i>Tell parents that although the possibility of complications is low, there is still a small probability that the baby may have problems such as feeding difficulties or convulsions in the first few days.</i>• <i>Instruct them to take the baby to the nearest hospital if these problems occur.</i> <p>Encourage the mother to maintain skin-to-skin contact as much as possible in the early days after birth.</p>

Case Study 14:

- A) B/o Meera day 4 of life has developed 2-3 boils on the abdomen. Baby is active and taking feeds adequately. On examination you find few more pustules in the axilla and groin. Identify the danger signs and discuss the management of the child.

Local skin infection : Less than 10 pustules

- Give oral antibiotic Tab. Cotrimoxazole/Tab. Amoxicillin for 5 days.
- Teach mother to treat skin infection—
 - Wash hands with clean water and soap.
 - Gently wash off pus and crusts with boiled and cooled water and soap.
 - Dry the area with clean cloth.
 - Paint with gentian violet.
 - Wash hands.
- Follow up in 2 days.
- If no improvement of pustules in 2 days or more, refer urgently to hospital (with referral slip as in Annexure II).

Case Study 15:

- A) A mother notices pus in her baby's eyes.
What should she do?
What is the first thing you do, when the baby comes to the hospital?
What treatment should be given for an eye infection?
What follow up care will you advise?

Eye Infection:

- Give appropriate antibiotic Tab. Cotrimoxazole/Tab. Amoxicillin for 5 days
- Teach mother how to take care of her Baby's eyes :
 - Wash hands with clean water and soap.
 - Wet clean cloth with boiled and cooled water.
 - Use the wet cloth to gently wash off pus from the baby's eyes.
 - Apply 1% tetracycline eye ointment in each eye 3 times daily.
 - Wash hands.
- Follow up in 2 days. If no improvement or worse, refer urgently to hospital (with referral slip as in Annexure II).
Assess and treat mother and her partner for possible gonorrhoea.

Case Study 16:

- A) A mother complains of discharge from the umbilicus of her baby who is 8 days old. How do you manage this child?

Local Umbilical Infection :

- Give oral antibiotic Tab. Cotrimoxazole/Tab. Amoxicillin for 5 days.
- Teach mother to treat umbilical infection
- Wash hands with clean water and soap—
 - Gently wash off pus and crusts with boiled and cooled water and soap.
 - Dry the area with clean cloth.
 - Paint with gentian violet.
 - Wash hands.
- If no improvement in 2 days, or if worse, refer urgently to hospital (with referral slip as in Annexure II).

Case Study 17:

A) A baby is brought to you with yellow skin on the palms of his/her hands and on the soles of his/her feet. He/She is 30 hours old. Describe how will you treat this baby?

- *Jaundice :*
 - *Yellow skin on face and only <24 hours old.*
 - *Yellow palms and soles and >24 hours old.*
- *Management :*
 - *Refer baby urgently to hospital.*
 - *Encourage breastfeeding on the way.*
 - *If feeding difficulty, give expressed breast milk by cup/ katori.*

B) What are signs of a sick baby?

- *Fast breathing (more than 60 breaths per minute).*
- *Slow breathing (less than 30 breaths per minute).*
- *Severe chest in-drawing*
- *Grunting.*
- *Convulsions.*
- *Floppy or stiff.*
- *Fever (temperature >38°C).*
- *Temperature <35°C or not rising after rewarming.*
- *Umbilicus draining pus or umbilical redness extending to skin.*
- *More than 10 skin pustules or bullae, or swelling, redness, hardness of skin.*
- *Bleeding from stump or cord.*
- *Pallor.*

Management :

- *Give first dose of IM antibiotics (as per IMNCI protocols).*
- *Refer baby urgently to hospital.*

In addition:

- *Re-warm and keep warm during referral.*
- *Treat local umbilical infection before referral.*
- *Treat skin infection before referral.*
- *Stop the bleeding.*

C) Which major malformations can be diagnosed on examination of the baby at birth?

- *Newborns with major malformations such as a meningomyelocele, hydrocephalus, or anterior abdominal wall defects such as a large omphalocele are easily identified on inspection of the baby at birth.*

D) Which major malformations can be suspected at birth?

- *Diaphragmatic hernia may be suspected in a baby with respiratory distress and a scaphoid abdomen. Babies with excessive salivation and mucus discharge from the oral cavity may have oesophageal atresia. There is an inability to pass a rubber catheter into the stomach. Stools not passed for more than 24 hours suggest anorectal malformations. Urine not passed for more than 48 hours suggest obstructive uropathy Persistent Bile stained vomitus suggests intestinal obstruction.*
- *Most of these babies require immediate surgery for them to survive, and therefore, should be referred to facility where such babies can be cared.*

Day 5

Session 5a: Hypertensive disorders of pregnancy – Pre eclampsia

Case Study 18:

A) Mrs. Anita 35 years old grand multi at 38 weeks has come with complaints of headache, blurring of vision and vomiting. Her BP on admission was 180/120 mm Hg, proteinuria+++ . What is your diagnosis?

- *Severe pre eclampsia*

B) How will you manage the pregnancy?

- *Administer anti-hypertensives and refer to FRU (with referral slip as in Annexure I).*

C) What are the maternal and foetal effects of the same?

- *Maternal: eclampsia, cerebral hemorrhage, abruptio placenta, pulmonary oedema, acute left ventricular failure, acute renal failure, HELLP Syndrome, pneumonia, hepatic necrosis, pulmonary embolism.*
- *Foetal: Prematurity, IUGR, IUD.*

Case Study 19:

A) Mrs. Savita, 18 year old primi gravida came to the OPD at 32 weeks. Her BP readings were 150/100 mm. Hg. on admission. Urine examination revealed proteinuria +.

B) What is your diagnosis?

- *Mild pre-eclampsia.*

C) How will you further manage the pregnancy?

- *Inform patient regarding danger signs like headache, vomiting, blurring of vision, epigastric discomfort so that the patient reports immediately to the hospital for further treatment*
- *Refer to FRU (with referral slip as in Annexure II).*

Case Study 20:

A) Mrs. Angela, 30 year old multi gravida came to the antenatal OPD at 22 weeks. Her BP 140/90 mm. Hg. on admission.

B) What is your diagnosis?

- *Pregnancy induced hypertension*

On investigation: Proteinuria is absent.

C) What is your diagnosis and how will you manage?

- *Gestational hypertension*
- *Follow-up every 2 weeks to have her blood pressure, urine and foetal condition monitored.*
- *Counsel about danger signs with emphasis on appearance of pre eclampsia / eclampsia*
- *Provide basic antenatal care, deliver at PHC at term*
- *Refer to FRU (with referral slip as in Annexure II), if she develops proteinuria / danger signs.*

Case Study 21:

<p>A) Mrs. Savita P. is 18 years old and is 37 weeks pregnant. This is her first pregnancy. She was brought to the labour room with convulsions.</p>
<p>B) What will you do?</p> <ul style="list-style-type: none">• <i>Place the woman in a semi prone position with the head turned to one side.</i>• <i>Place a soft mouth gag in between the teeth to prevent tongue bite and facilitate oropharyngeal suctioning.</i>• <i>Start Oxygen at 4 to 6 lit. per minute.</i>• <i>Secure IV line and infuse fluids at 60 ml./hr. (Ringer Lactate)</i>• <i>Catheterize with a self retaining catheter and note the urine output.</i>• <i>Maintain a strict fluid I/O chart</i>• <i>Prepare and give Magnesium Sulfate 20 ml. of 20% solution, 4 g IV over 5 minutes.</i>• <i>Follow promptly with 10 g. of 50% Magnesium Sulfate solution, 5 g. in each buttock, deep IM injection with 1 ml. of 2% lignocaine in the same syringe.</i>• <i>Counsel about referral & make arrangement for transfer (with referral slip as in Annexure-1).</i>
<p>C) After 5 minutes, Mrs. Savita. P's. is no longer convulsing. Her diastolic blood pressure is 110 mm. Hg. and her respiratory rate is 20 per minute.</p>
<p>D) What is Mrs. Savita. P's problem?</p> <ul style="list-style-type: none">• <i>Mrs. Savita. P's symptoms and signs are consistent with eclampsia.</i>
<p>E) What will you do next?</p> <ul style="list-style-type: none">• <i>Use Nifedepine 5 mg. SL and repeat 5mg. SL if response is inadequate.</i>
<p>F) What should the aim be with respect to controlling Mrs. Savita. P's blood pressure?</p> <ul style="list-style-type: none">• <i>The aim should be to keep diastolic blood pressure below 90 mm. Hg.</i>
<p>G) What other care does Mrs. Savita P. require now?</p> <ul style="list-style-type: none">• <i>Obstetric management- depending upon her status of labour.</i><ul style="list-style-type: none">○ <i>If the woman is not in labour or in early first stage of labour, refer to FRU (with referral slip as in Annexure I).</i>○ <i>If the woman is in late first stage or second stage of labour, conduct the delivery and refer to FRU for further management.</i>
<p>H) How will you refer?</p> <ul style="list-style-type: none">• <i>Inform the place of referral telephonically and fill in the referral slip as in Annexure I.</i>• <i>Accompany the woman (medical officer/paramedical worker).</i>• <i>Place the woman in semiprone position, with mouth gag in-situ.</i>• <i>Close monitoring of B.P., administer Nifedepine if BP > 160/110 mm. Hg.</i>• <i>Maintain IV line with RL.</i>• <i>keep emergency drugs ready - MgSO₄.</i>• <i>Give Oxygen.</i>

I) Where you will refer?	<ul style="list-style-type: none"> • <i>FRU/CHCs with facilities for emergency obstetric care.</i>
J) What are the maternal complications of Eclampsia?	<ul style="list-style-type: none"> • <i>Abruptio Placenta.</i> • <i>Cerebrovascular accidents (Cerebral Haemorrhage).</i> • <i>Renal Failure.</i> • <i>Disseminated intravascular coagulation.</i> • <i>Pulmonary oedema.</i> • <i>HELLP Syndrome.</i> • <i>Postpartum psychosis.</i>
K) What are the foetal complications?	<ul style="list-style-type: none"> • <i>Preterm birth.</i> • <i>IUGR.</i> • <i>Birth asphyxia.</i> • <i>Intrauterine death.</i>

Day 6

Session 6b: Puerperal sepsis

Case Study 22:

A) A 23 yr. old P ₁ L ₁ with FTD at home 4 days back presents with fever, lethargy and foul smelling vaginal discharge since 2 days. What is your diagnosis?	<ul style="list-style-type: none"> • <i>Puerperal sepsis</i>
B) How will you examine the case?	<ul style="list-style-type: none"> • <i>GPE – level of consciousness, dry & coated tongue, temperature, pallor, pedal edema, calf tenderness.</i> • <i>CVS – tachycardia, hypotension.</i> • <i>RS – Rate, crepitations.</i> • <i>PA – sub involuted, soft & tender uterus.</i> • <i>PS– foul smelling discharge.</i>
C) What investigations will you ask for if facilities are available?	<ul style="list-style-type: none"> • <i>Hemoglobin %, peripheral smear for toxic granules, TC, DC, urine routine.</i>
D) How will you manage?	<ul style="list-style-type: none"> • <i>Management should be as per the flow chart in the Trainees Handbook.</i>

Day 7

Session 7a: Anaemia during pregnancy and in the postpartum period

Case study 23:

A) Mrs. Surekha, 22 years old lady comes to your OPD with 7 months amenorrhoea with complaints of easy fatigability, lethargy and generalized bodyache since 15 days. What is your probable diagnosis? <ul style="list-style-type: none">• <i>Anaemia</i>
B) What will you look for in general physical examination? <ul style="list-style-type: none">• <i>Look for pallor</i>
C) What investigations will you ask for? <ul style="list-style-type: none">• <i>Hemoglobin</i>• <i>Urine routine</i>• <i>Peripheral smear for typing of anemia and malarial parasite</i>• <i>Stool for ova and cyst</i>• <i>(If facilities are available Blood group and Rb type)</i>
D) Her Hb is 8 gm%. What is the degree of anemia? <ul style="list-style-type: none">• <i>Moderate anemia</i>
E) What drugs will you prescribe? <ul style="list-style-type: none">• <i>Iron and folic acid (100 mg. + 0.5 mg. B.D.).</i>
F) What advice will you give? <ul style="list-style-type: none">• <i>Diet consisting of green leafy vegetables, jaggery, ragi, pulses, liver and meat</i>• <i>Do not take tea and coffee within one hour of meals or iron tablets</i>• <i>Delivery at PHC</i>
G) How will you judge the response to the treatment? <ul style="list-style-type: none">• <i>Sense of well being</i>• <i>Increased appetite</i>• <i>Investigation - increase in Hb% and hematocrit (2 – 3 weeks after starting treatment, irrespective of oral / parental iron therapy)</i>
H) When would you call her for follow up? <ul style="list-style-type: none">• <i>After 4 weeks</i>
I) When would you refer her to a FRU? <ul style="list-style-type: none">• <i>Refer her, if no improvement occurs after 4 weeks of treatment (refractory anemia).</i>• <i>If Hb does not improve and is less than 7 gms% at term, refer to FRU for delivery (with referral slip as in Annexure I)</i>
J) What are the maternal complications? <ul style="list-style-type: none">• <i>Infections, cardiac failure, postpartum haemorrhage, puerperal sepsis, subinvolution of uterus and death</i>
K) What are the foetal complications? <ul style="list-style-type: none">• <i>Low birth weight & intrauterine death</i>

Day 7

Session 7b: Other problems during pregnancy

Case study 24:

A) Mrs. Shobha 25 years primigravida with 28 weeks of pregnancy reports to you with fever and chills since 4 days associated with burning micturition. What other specific history will you elicit? <ul style="list-style-type: none">• <i>Increased frequency, urgency, hematuria, any abdominal / flank pain.</i>
B) What is your diagnosis? <ul style="list-style-type: none">• <i>Urinary tract infection.</i>
C) What investigations will you advice? <ul style="list-style-type: none">• <i>Urine microscopy (clean midstream sample)</i>
D) Which antibiotics can be given in first trimester? <ul style="list-style-type: none">• <i>Cap. Amoxicillin 500 mg. TID for 3 days,</i>• <i>Cap. Cefadroxil 500 mg. BD × 10 days</i>• <i>Tab. Nitrofurantoin 100 mg. TID × 10 days</i>• <i>See response after 3 days & if the woman responds then continue for 10-14 days</i>
E) What adverse events can take place due to UTI? <ul style="list-style-type: none">• <i>Abortion and pre term delivery.</i>

Hyperemesis Gravidarum

Case Study 25:

A) Mrs. Reena, 18 years primigravida is 12 weeks pregnant, she has come to you with 10-12 episodes of vomiting, not able to retain food & is having giddiness. What is your diagnosis and what will you do?

- *Hyperemesis gravidarum.*
- *Admit the patient, reassure her & her family, start I.V. fluids either RL or DNS, send for urine ketones & repeat every 4 hours till it becomes negative, give antiemetics and multivitamins.*
- *Once the vomiting stops and dehydration is corrected, discharge after 24 hours.*
- *Advice the woman to take small, frequent, carbohydrate rich meals.*

B) What are the investigations you will send?

- *Urine examination to rule out ketones (USG optional – rule out twins and vesicular mole).*

C) What are the complications?

- *Wernicke's encephalopathy, peripheral neuritis, stress ulcers, esophageal tears and rupture & jaundice.*

D) When will you refer to FRU?

- *If vomiting persists inspite of treatment.*

Retention of urine

Case study 26:

A) Mrs. Praveena is 20 yrs. old and is 12 wks. pregnant. She came to the antenatal clinic with history of inability to pass urine since 2 days. How will you diagnose retention of urine?

- *On P/A examination - cystic swelling (bladder).*

B) What could be the cause of retention of urine?

- *UTI.*
- *Incarcerated retroverted gravid uterus.*
- *Impacted pelvic tumor.*

C) How will you manage?

- *Under all aseptic precautions insert a self retaining Foley's catheter and collect urine for microscopy (this measure allows the uterus to rise above the pelvic brim) or put the woman in prone position so that the uterus becomes anteverted.*
- *Continue catheterization for 48 hours.*
- *Prophylactic antibiotics – Cap. Amoxicillin 500 mg. TID for 5 days.*
- *Ensure that the woman passes urine after removal of catheter.*

Prelabour / Premature Rupture of Membranes (PROM)

Case Study 27:

A) Sujatha, 26 yrs., primigravida, with 7 months of amenorrhea, reported to labour room with watery vaginal discharge 1 hr. prior to admission. On P.A. examination – uterus 28 weeks size, relaxed, P/S examination – active leak is present. What is your provisional diagnosis?

- *Primi with 28 weeks pregnancy with pre term PROM not in labour.*

B) How will you manage this case?

- *Sterile pad.*
- *Antibiotics – Ampicillin, Metronidazole and Inj. Gentamycin (combination of antibiotics to reduce morbidity caused by infection)*
- *Give first dose of Inj. Betamethasone IM 12 mg,*
- *If there are contractions, manage accordingly by giving tocolytics.*
- *Refer to FRU (with referral slip as in Annexure II).*

Day 8

Session 8a: Abortions – Hemorrhage during early pregnancy case study

Session 8b: Bleeding during late pregnancy & labour

Case Study 28:

A) Mrs. Humera is 19 years old and 10 wks. pregnant. This is her first pregnancy. She came to labour room with c/o pain in abdomen and P/V bleeding for 2 hours. What is your probable diagnosis?

- *Abortion*

On examination:

P.R – 76 /min., BP – 120/70 mm. of Hg.

P/A - NAD

P/S - minimum bleeding through Os +

P/V - size of uterus corresponds to 10 weeks, Os closed

B) What is your diagnosis?

- *Threatened abortion*

C) How will you manage this case?

- *Restrict activities*
- *No medication required*
- Refer to FRU for ultrasound subsequently

Case Study 29:

A) Mrs. Amita is 19 years old and is 10 wks. pregnant. This is her first pregnancy. She came to labour room with c/o pain in abdomen and P/V bleeding for 4 hours.

On examination:

P.R – 76 /min., BP – 120/70 mm. of Hg.

P/A - NAD

P/S - excessive bleeding +, Os open, products seen at the Os

P/V - uterus corresponds to 10 weeks of gestation

What is your diagnosis?

- *Inevitable abortion*

B) How will you manage this case?

- Evacuate the uterus using MVA.

Case Study 30:

A) Mrs. Gurupreet 20 yrs. old, G₂P₁L₁ with 10 wks. pregnancy came with c/o pain in abdomen, P/V bleeding since 12 hrs and h/o passage of products of conception.

On examination:

Pallor ++

Pulse - 120/min.

BP - 100/60 mm. Hg.

RR - 40/ min.

P/A - NAD

P/S - active bleeding through Os +, clots ++, Products seen at the Os

P/V - uterus 6 weeks, products of conception felt at the Os

Os - open

What is your diagnosis?

- *Incomplete Abortion*

B) How will you manage this case?

- *Using ovum holding forceps remove the protruding products of conception*
- *If the bleeding is heavy / shock, stabilize her (Start I.V. fluids, collect blood for grouping and cross matching) and refer to FRU (with referral slip as in Annexure II).*

Case Study 31:

A) Mrs. Catherine, 20 yrs. old, G₂P₁L₁ with 10 wks. pregnancy came with

- c/o pain in abdomen & P/V bleeding since 12 hrs.
- h/o passage of products of conception

On examination:

P.R - 76 /min., BP - 120/70 mm. of Hg.

P/A - NAD

P/S - minimum bleeding

P/V - uterus 6 bulky, Os closed.

What is your diagnosis?

- *Complete abortion*

B) How will you manage this case?

- *No further management is required if she is stable*
- *USG optional (to confirm complete abortion)*
- *F/up after 1 week/ or when bleeding starts*

Case Study 32:

<p>A) Ms. Lalita, 18 yrs. old girl came with c/o fever since 10 days; bleeding P/V, foul smelling discharge, pain in abdomen and vomiting since 3 days. Past h/o having undergone D&C for 10 wks. pregnancy, 12 days back. What is your probable diagnosis?</p> <ul style="list-style-type: none">• <i>Septic abortion</i> <p>On examination:</p> <p>Patient is febrile and toxic. Pallor +++ Pulse 140/min. BP 100/ 60 mm. of Hg. RR 30/min. P/A - fullness in lower abdomen, rigidity +, rebound tenderness +, BS sluggish P/S - foul smelling discharge +, minimum leading + P/V - uterus bulky, uterine tenderness +, fornices tender, + fullness felt in the Pouch of Douglas.</p>
<p>B) What is your diagnosis?</p> <ul style="list-style-type: none">• <i>Septic abortion with peritonitis</i>
<p>C) How will you manage this case?</p> <ul style="list-style-type: none">• <i>First dose of I.V. Antibiotics – Ampicillin, Gentamycin & Metronidazole</i>• <i>Refer to FRU (with referral slip as in Annexure II)</i>

Case Study 33:

<p>A) Ms. Salma, 20 yrs. old nullipara, came with h/o bleeding per vagina since 2 days, pain in lower abdomen with vomiting and one episode of giddiness since 4 hours. Her LMP was 2 days back. O/E pulse 120 / min., BP 80/60 mm. Hg., Pallor +++, P/A – tenderness in the lower abdomen, P/V – cervical motion tenderness, fullness in Pouch of Douglas. What is your probable diagnosis?</p> <ul style="list-style-type: none">• <i>Ruptured ectopic pregnancy in shock</i>
<p>B) How will you manage this case?</p> <ul style="list-style-type: none">• <i>Start I.V. fluids (rapid infusion),</i>• <i>Draw blood for Hb%, grouping and cross matching</i>• <i>Give Oxygen</i>• <i>Position her to one side</i>• <i>Keep her warm</i>• <i>Elevate the legs</i>• <i>Monitor pulse, BP and urinary output</i>• <i>Refer to FRU (with referral slip as in Annexure II) as soon as possible for laparotomy</i>

Case Study 34:

<p>A) Mrs. Swati, 30 years old G₄P₃ L₃ with 32 wks. of pregnancy has come with H/o painless vaginal bleeding for 2 hours.</p> <p>What is your probable diagnosis?</p> <ul style="list-style-type: none">• <i>Antepartum haemorrhage</i>
<p>B) General examination: reveals Pallor +, Pulse 100/ min., BP 110/ 70 mm. Hg., oedema absent P/A - Ut 32 wks. size, relaxed soft, not tense/not tender FHS + 142/ min., regular P/S - bleeding from the Os present</p> <p>What is your diagnosis?</p> <ul style="list-style-type: none">• <i>Placenta Praevia</i>
<p>C) How will you manage this case?</p> <ul style="list-style-type: none">• <i>Start I.V. fluids, collect blood for Hb%, grouping and cross matching</i>• <i>Assess degree of shock</i>• <i>Refer to FRU (with referral slip as in Annexure II)</i>

Case Study 35:

<p>A) Mrs. Seeta , 20 years old primigravida with 30 wks. pregnancy comes with H/o pain in abdomen followed by bleeding per vagina.</p> <p>What is your probable diagnosis?</p> <ul style="list-style-type: none">• <i>Ante-partum haemorrhage.</i> <p>General examination reveals: Pallor +++, Pedal oedema ++, Pulse 120/ minute, BP 90/ 60 mm. Hg. P/A - Ut 36 wks., tense tender, FHS absent. P/S – slight bleeding + from the Os.</p>
<p>B) What is your diagnosis?</p> <ul style="list-style-type: none">• <i>Abruptio Placenta</i>
<p>C) How will you manage this case?</p> <ul style="list-style-type: none">• <i>Start I.V. fluids, collect blood for Hb%, grouping and cross matching.</i>• <i>Assess degree of shock.</i>• <i>Refer to FRU (with referral slip as in Annexure II).</i>

Day 9

Session 9a: Other Problems during pregnancy and labour

Prolonged and Obstructed Labour & Partograph

Case Study 36:

A) 20 yrs. old Mrs. Lakshmi, primigravida is admitted with labour pains at 5 am.
On examination at 5 am: (0 hour)
PR 90/min., BP 120/80mm. Hg., Temp 37.4°C,
P/A 3 Contractions for 15-20 sec/10 minute, FHS 140/minute,
P/V Cervix 4 cm. dilated, membranes present

What will you do?

- *Monitor for progress of labour*

B) At 4 hours:
PR 98/min., BP 120/70 mm. Hg., Temp 38°C
P/A 3 Contractions for 20-25 sec./10 min., FHS 126/min.
P/V Cervix 5 cm dilated, membranes present
Is the progress normal?

- *The cervical dilatation is not as expected, i.e., 1 cm / hr., hence the progress is delayed*

C) How will you refer?

- *Talk to the relatives about the condition of the patient*
- *Call the tertiary care center and inform about the case*
- *Arrange for transport*
- *A skilled birth attendant should accompany the woman with the delivery kits.*
- *Take the plotted partograph*
- *Shift the woman in preferably left lateral position (LLP).*
- *Secure an I.V. line*
- *Oxygen mask (if there is foetal distress)*

D) What are the signs of obstructed labour?

- *General physical examination: tachycardia, signs of dehydration & febrile.*
- *Per abdomen: Bandl's ring.*
- *Local examination: oedema of the vulva.*
- *PV: Hot & dry vagina.*
- *Oedema of the cervix, Caput and moulding.*

Preterm Labour

Case study 37:

- A) Mrs. Latha, 20 years old primigravida has come with 8 months amenorrhoea and labour pains for 1 ½ hours
- B) How will you diagnose preterm labour?
- *Pain abdomen with vaginal discharge/show*
 - *P/A –Regular uterine contraction (atleast four in 20 min)*
 - *Threatened preterm – cervical dilatation < 3 cms and effacement <80%*
 - *Established preterm labour - cervical dilatation >3cms and effacement of >80 %.*
- C) How will you manage this case?
- *Admission.*
 - *Bed rest.*
 - *Inj Betamethasone 12 mg IM, 2 1st dose.*
 - *Start tocolytics (Salbutamol, Indomethacin) as per Module 2 Chapter 7 of Guidelines for Pregnancy Care and Management of Common Obstetric Complications for Medical Officer*
 - *In-utero transfer to higher health facility after 1st dose of Inj. Bethamethasone and Tocolytic (with referral slip as in Annexure).*
 - *If in advanced stage of labour conduct delivery and shift mother and baby to FRU.*

Twins

Case Study 38:

- A) Mrs. Parvathi, 20 yrs. old primi gravida comes to OPD with 7 1/2 months amenorrhea. O/E pallor +, uterus 32 weeks size, multiple foetal parts felt with palpation of 2 foetal heads. What is your diagnosis?
- Twin pregnancy*
- B) Will your ANC differ for case of multiple pregnancy?
- No, provide routine ANC but stress upon frequent visits and rest in later trimester*
- C) What are the antenatal complications?
- Maternal Complications:*
- *Hyperemesis*
 - *Abortion*
 - *Anaemia*
 - *Antepartum hemorrhage*
 - *Respiratory distress*
 - *Polyhydramnios*
 - *Preeclampsia*
 - *Malpresentation*
 - *Preterm delivery*
- Foetal Complications :*
- *IUGR, congenital malformation, IUD*
- D) What are the danger signs you will warn her against?
- To report immediately if*
- *Pain abdomen*
 - *Bleeding p/v*
 - *Leaking p/v*
 - *Decreased foetal movements*
- When will you refer?*
- *Refer to FRU for delivery (with referral slip as in Annexure II).*

Breast Feeding Problems:

Case 39:

A) Karuna has come to you complaining of painful nipples when she breastfeeds. How will you help her?

- *Look for the cause:*
 - *Check the baby's position at the breast*
 - *Check the baby's attachment to the breast*
 - *Examine the breasts – engorgement, fissures*
- *Give appropriate treatment:*
 - *Build the mother's confidence*
 - *Improve the baby's attachment and continue breastfeeding*
 - *Reduce engorgement, feed frequently, express breast milk*

Case 40:

A) Laxmi c/o fullness of breasts in the first two days after delivery what other information and advice will you give. What do you think is wrong?

- *She should feed whenever her baby wants to be fed (on demand).*
- *She should not restrict the length of time the baby spends at the breast.*
- *If she becomes uncomfortably full she should offer to feed her baby more often.*
- *The mother needs to be reassured that this 'condition' is **NORMAL** and lasts for around 36 to 72 hours.*

B) What are the differences between full and engorged breasts?

<i>Full Breasts</i>	<i>Engorged Breasts</i>
<ul style="list-style-type: none"> • <i>Normal, occurs 36/72 hours after birth</i> • <i>Hot, heavy, may be hard</i> • <i>Milk flowing</i> • <i>Fever uncommon</i> 	<ul style="list-style-type: none"> • <i>Abnormal, can occur at any time during breastfeeding</i> • <i>Painful. Oedematous</i> • <i>Tight, especially nipple area</i> • <i>Shiny</i> • <i>May look red</i> • <i>Milk not flowing</i> • <i>Fever may occur</i> • <i>Engorgement may cause a decrease in milk supply if it happens often</i>

Case 41:

A) A mother complains of pain in the breasts and fever. On assessment of a breastfeed, the baby is not well attached. On examination, both breasts are swollen and painful. What is your diagnosis and how will you treat her? What advice will you give to this mother?

- *Engorged breasts*
- *Treatment :*
 - *If the mother has very full or engorged breasts, and her baby has difficulty attaching, advise her to express a little milk to soften the nipple area. This makes it easier for the baby to attach correctly*
 - *It is important that the mother continues to feed on demand and does not restrict the time the baby breastfeeds. Breastfeeding more frequently may help the mother*
 - *Make sure the baby is correctly attached and positioned*
 - *Look for the cause:*
 - ✓ *Is the interval between feeds long period?*
 - ✓ *Is she restricting the length of the feeds?*
 - ✓ *Is the baby well attached?*
- *Give analgesics to the mother. Tab. paracetamol 500mg tid*
- *Hot fomentation to relieve pain*
- *Promote :*
 - *Early initiation.*
 - *Good attachment and positioning.*
 - *Demand feeding.*
 - *Bedding in.*
 - *Encouraging night feeds.*

Case 42:

A) Smitha c/o high fever and feels ill. On examination of the breast, there is a well-defined, red, sore and swollen area in ONE of her breasts

What is your diagnosis and how will you treat her?

- *Mastitis.*
- *Treatment.*
 - *The mother should continue breastfeeding.*
 - *Correct attachment and positioning.*
 - *Give her Tab. Cloxacillin for 10 days.*
 - *If in severe pain, give her paracetamol.*
 - *Reassess in 2 days. If no improvement refer her to hospital (with referral slip as in Annexure II).*

Case 43:

A) Sujatha c/o fever and painful, soft swelling in the left breast. On examination of the breast , there is a tender, soft, fluctuant swelling. What is your diagnosis and how will you treat her?

- *Breast abscess*

B) How to prevent breast feeding problems?

By Promoting :

- *Early initiation*
- *Good attachment and positioning*
- *Demand feeding*
- *Bedding in*
- *Encouraging night feeds*

Annexure I
Recommended Client Practice by Trainee

	Activity	Observe	Perform Independently
1.	Antenatal check-up	5	20
2.	Identify and management of different complications of pregnancy	5	5
3.	Preparing delivery trolley/ equipment	5	-
4.	Perform PV examination	2	5
5.	Monitor labour, plot & interpret Partograph	2	5
6.	a) Conduct normal delivery	2	5
	b) Active Management of 3 rd stage of labour	2	5
	c) Examination of placenta, membranes, Umbilical Cord	2	5
7.	ENBC procedures & Assess and provide NBC, including Resuscitation of *new born and check weight.	2	5
8.	Assist the mother to initiate & continue BF	2	5
9.	Management of PPH*	2	1
10.	Removal of products of conception/ clots under supervision*	2	2
11.	Identification & Management of perineal Tears	2	2
12.	Emergency management of Eclampsia*	1	1
13.	Identify and management of other complications of labour	3	-
14.	Postnatal checkup	2	5
15.	Identification and management of complications of post partum period	2	3
16.	Identification and management of danger signs in neonate	2	2
17.	Emergency obstetric procedure Forceps delivery / vacuum extractions*	2	2

- **The trainers will ensure and monitor quality and practicing of these skills.**
- **Trainee should keep a daily signed Cumulative Client Practice Record.**
- **This record will be utilized by Trainer for certification.**

*** Note:** in case there is no client/patient in whom any of the above skills cannot be performed, then in such situations, the trainer should use models or innovative approaches suggested, to enable the trainees to perform the skills.

Annexure II : Referral Slip

Name of the Referring Facility: Address: Telephone:

Name of Patient: _____ **Age:** ____yrs:

Husband's Name: _____

Address: _____

Referred on ___/___/___(d/m/yr) **at** _____ (time) **to** _____
_____ (*Name of the facility*) **for management.**

Provisional Diagnosis:

--

Admitted in the referring facility on ___/___/___(d/m/yr) **at** _____ (time) with **chief complaints** of :

- _____
- _____
- _____

Summary of Management (*Procedures, Critical Interventions, Drugs given for Management*):

Investigations:

Blood Group:

Hb:

Urine R/E:

Condition at time of Referral:

Consciousness: _____ **Temp:** _____ **Pulse:** _____ **BP:** _____

Others (Specify): _____

Information on Referral provided to the Institution Referred to: Yes / No

If yes, then name of the person spoken to: _____

Mode of Transport for Referral : Govt/Outsourced/EMRI/Personal/Others/None.

Signature of Referring Physician/MO
(Name/Designation/Stamp)

**Annexure III
Discharge Slip**

Name of the SC/PHC/CHC/FRU/DH :

Name of the Patient :

Reg. No.:

Age :

Address:

Date and Time of Admission :

Date and Time of Delivery :

Date and Time of Discharge :

Mode of Delivery : Vaginal/Instrumental/LSCS :

Indication for Instrumental/LSCS :

Delivery Outcome:

(Live/Multiple/Preterm/SB/Abortion/Any other)

Details of the baby :

Sex :

Weight :

BF initiation: (mention duration in min. after delivery):

Investigation done : (if any, both for the mother and baby):

Any h/o complications : (if any, both for the mother and baby):

Mother

Baby

(also mention immunization given):

Condition at

time of discharge :

Advise given at

time of discharge :

Date and place of next f/up:

Signature and Name of Health Care Provider:

Designation:

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Ministry of Health & Family Welfare
Government of India