Mentors' Manual
**Volume: 2**

# Skilled Birth Attendance Care During Labour, Delivery and Postnatal Periods at 24/7 PHCs

NATIONAL HEALTH MISSION
राष्ट्रीय स्वास्थ्य मिशन

KHPT
Karnataka Health Promotion Trust

Mentors' Manual
Volume **2**

# Skilled Birth Attendance Care During Labour, Delivery and Postnatal Periods at 24/7 Primary Health Centres

Sukshema
Maternal, Neonatal an

An overview of the On – Site mentoring intervention to institutionalize quality improvement strategy within 24/7 Primary Health Care centers in Karnataka state. The philosophy, design, The philosophy, design, implementation process and results are detailed herein.

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**Government of Karnataka**
**Department of Health and Family Welfare**
**National Health Mission**

# PREFACE

Institutional deliveries in Karnataka have risen over recent years due to the efforts by the state health directorate which were strongly complemented by various innovations and schemes implemented under the National Rural Health Mission (NRHM) such as Janani Suraksha Yojana (JSY) and Janani Shishu Suraksha Karyakram (JSSK), ASHA support, 108 ambulance services, etc. There has been a reduction in maternal and newborn mortality rates (MMR, NMR), but not enough to achieve the proposed state targets. With over 80% of pregnant women now delivering in facilities, it is critical that these deliveries are conducted as per the highest standards for quality of care. To accommodate this rising demand, government had prioritized upgradation of Primary Health Centres into 24/7 facilities to provide delivery services in rural areas and reduce the burden on district and larger hospitals enabling them to function more appropriately as first referral units (FRU) to provide emergency care. To achieve good quality of services provided in public health facilities it is important that the service providers working at these facilities are proficient in skills and practices that are appropriate particularly with reference to pregnant women, mothers and new-borns. To facilitate this, the need for dedicated teams to improve and monitor quality is crucial.

As a part of technical assistance to NRHM, Karnataka Health Promotion Trust and its consortium of partners developed an innovative nurse mentor led quality improvement program after detailed situation assessment and consultations with government. It was pilot tested in Bellary and Gulbarga during 2012-2013 where trained Nurse Mentors worked with 24/7 primary health centres (PHCs) staff to improve the quality of delivery and postpartum care. The mentoring programme integrated elements of clinical mentoring with facility-based quality improvement processes. Another critical component of the intervention was the use of revised case sheets by the staff that helped them in multiple ways, i.e. as job aid to adhere to standard practices, as a simple case documentation tool and as a tool to monitor and audit quality of care. The intervention results showed marked improvements in facility readiness and provider preparedness to deal with institutional deliveries and associated complications. Subsequently the program was scaled up in the remaining high priority districts of northern Karnataka and further taken up both within and outside the country.

As a part of this intervention, several technical products and training material were developed; they consist of 1) process documentation of the intervention that details the process of planning, implementing and monitoring the mentoring program, 2) Facilitator/ Trainer and Participant manuals. These materials have as annexures within them, various tools including the case sheets that were implemented under this initiative. We sincerely hope that these resources will be found useful by program managers in terms of gaining an in-depth understanding of the intervention and replicating it in their respective contexts.

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# Contents

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# About the Manual

The Sukshema project aims at providing technical support to National Rural Health Mission of Karnataka to improve the maternal, newborn and child health (MNCH) outcomes in Karnataka with a focus on eight districts of northern Karnataka. As a part of the project, several interventions are implemented at facility, community and health systems level to improve the availability, accessibility, quality, utilization and coverage of critical MNCH services. One of the interventions is on-site mentoring to 24/7 PHCS to improve the quality of delivery and postpartum care with the help of a new cadre of nurse mentors. Being a new cadre, the project designed a training program and manuals for training this cadre. The nurse mentors are expected to be proficient in clinical skills related to delivery and postpartum care and also have the right attitudes and abilities to provide mentorship to the PHC staff. They will be responsible for onsite, on the job coaching and facilitating change in provider practices that will ensure better quality care for women and babies. The purpose of this manual is to guide the MNCH mentors of the Sukshema project in how to assist health care providers at primary health care centres (PHCs) to improve the quality of labour and delivery, postpartum and newborn care services. This manual is used by participants during initial training and also as a guide during mentoring activities in the field.

This manual is divided into three volumes.

**Volume 1 – Volume 1 has two sections.**

**Section A - Approaches to Improving Quality of MNCH Services in Primary Health Centers**

This section introduces the context of MNCH mentoring intervention in the Sukshema Project, Karnataka, principles of quality improvement, Sukshema's quality improvement approach and tools, and their use at various levels, qualities of an MNCH mentor, and mentor responsibilities.

**Section B - PHC Systems Strengthening**

This section contains technical information related to systems strengthening in PHCs and covers infection prevention, referral system strengthening and supply chain management.

Volume I appendix include various tools and reporting formats that the MNCH mentors use to plan, implement and report on their PHC visit activities.

**Volume 2 – Skilled Birth Attendance during Labour, Delivery and Postnatal Periods at 24/7 PHCs**

This volume contains information related to clinical knowledge and skills required to provide quality care during labour, delivery and postnatal period at 24/7 primary health centres. The section covers both provision of routine delivery and postnatal care as well as identification, management and referral of most common maternal complications during these periods.

**Volume 3 – Essential Newborn Care at 24/7 PHCs**

This volume contains information related to clinical knowledge and skills required to provide quality care during the early neonatal period at primary health centres. The section covers both provision of routine newborn care as well as identification, management and referral of most common newborn complications.

Though this manual is divided into three volumes for the convenience of readers, each volume has links and cross references with the others. It is highly recommended that the mentors consult all three volumes when preparing for a mentoring visit and also have them available for ready reference during a mentoring visit.

In the first volume of the manual we introduce the A.M.M.A approach to quality improvement. A.M.M.A approach refers to assess (A), manage (M), measure (M) and advocate (A) for continuous quality improvement and has at its core, the key principles of client and provider rights, self assessment and team building, and mentoring. This approach can be used at several levels to improve PHC linkages with the community, to address PHC level problems, to improve individual provider's knowledge and skills and to improve PHC linkages with the wider health system.

# Abbreviations

| | | |
|---|---|---|
| **ABO** | - | Blood groups A, B, O |
| **A.M.M.A** | - | Assessing and diagnosing, managing, measuring and advocating |
| **AMTSL** | - | Active management of the third stage of labour |
| **ANC** | - | Antenatal care |
| **ANM** | - | Auxiliary nurse midwife |
| **APH** | - | Antepartum hemorrhage |
| **ASHA** | - | Accredited social health activist |
| **ART** | - | Antiretroviral therapy |
| **AWW** | - | Anganwadi worker |
| **AZT** | - | Zidovudine |
| **BCC** | - | Behaviour change communication |
| **BEmONC** | - | Basic emergency obstetric and neonatal care |
| **BM** | - | Breast milk |
| **BMV** | - | Bag and mask ventilation |
| **BPL** | - | Below poverty line |
| **CBO** | - | Community-based organisation |
| **CCT** | - | Controlled cord traction |
| **CEmONC** | - | Comprehensive emergency obstetric and neonatal care |
| **CHC** | - | Community health centre |
| **CBMWTF** | - | Common bio-medical waste treatment facilities |
| **CMO** | - | Chief medical officer |
| **COC** | - | Combined oral contraceptive |
| **CPD** | - | Cephalopelvic disproportion |
| **CVS** | - | Cardiovascular system |
| **DBF** | - | Direct breast feeding |
| **DDK** | - | Disposable delivery kit |
| **DHO** | - | District health officer |
| **DMPA** | - | Depot medroxyprogesterone acetate |
| **DNS** | - | Dextrose normal saline |
| **DPS** | - | District programme specialist |
| **EBM** | - | Expressed breast milk |
| **ECP** | - | Emergency contraceptive pill |
| **EDD** | - | Expected date of delivery |
| **FEFO** | - | First expired, first out |
| **FHR** | - | Fetal heart rate |
| **FHS** | - | Fetal heart sound |
| **FIFO** | - | First in, first out |
| **FRU** | - | First referral unit |
| **FS** | - | Female sterilisation |
| **GoI** | - | Government of India |
| **H/O** | - | History of |
| **Hb** | - | Haemoglobin |
| **HBV** | - | Hepatitis B virus |
| **HCP** | - | Health care providers |
| **Hg** | - | Mercury |
| **HBsAg** | - | Hepatitis B surface antigen |
| **HCG** | - | Human chorionic gonadotrophin |

| | | |
|---|---|---|
| **HIV** | - | Human immuno deficiency virus |
| **HLD** | - | High level disinfection |
| **HMIS** | - | Health management information system |
| **HR** | - | Heart rate |
| **$H_2O$** | - | Water |
| **IM** | - | Intramuscular |
| **Inj** | - | Injection |
| **IV** | - | Intravenous |
| **ICTC** | - | Integrated counselling and testing centre |
| **IFA** | - | Iron and folic acid (supplements) |
| **IMNCI** | - | Integrated management of neonatal and childhood illness |
| **IUCD** | - | Intrauterine contraceptive device |
| **IUD** | - | Intrauterine death |
| **IUGR** | - | Intrauterine growth retardation |
| **JSY** | - | Janani Suraksha Yojana |
| **JHFA** | - | Junior health female assistant |
| **KMC** | - | Kangaroo mother care |
| **LAM** | - | Lactational amenorrhea method |
| **LBW** | - | Low birth weight |
| **LHV** | - | Lady health visitor |
| **LMP** | - | Last menstrual period |
| **$MgSO_4$** | - | Magnesium sulfate |
| **MM** | - | MNCH mentor |
| **MMR** | - | Maternal mortality ratio |
| **MNCH** | - | Maternal neonatal and child health |
| **MO** | - | Medical officer |
| **MoHFW** | - | Ministry of Health and Family Welfare |
| **MoWCD** | - | Ministry of Women and Child Development |
| **MPHW** | - | Multipurpose health worker |
| **MRP** | - | Manual removal of placenta |
| **MTP** | - | Medical termination of pregnancy |
| **MVA** | - | Manual vacuum aspiration |
| **NFHS** | - | National Family Health Survey |
| **NGO** | - | Non-governmental organisation |
| **NRHM** | - | National Rural Health Mission |
| **NS** | - | Normal saline |
| **NSSK** | - | Navjaat Shishu Suraksha Karyakram |
| **NSV** | - | No-scalpel vasectomy |
| **PEP** | - | Post-exposure prophylaxis |
| **PHC** | - | Primary health centre |
| **PIH** | - | Pregnancy induced hypertension |
| **PIP** | - | Project implementation plan |
| **PNC** | - | Postnatal check-up |
| **POC** | - | Products of conception |
| **PPE** | - | Personal protective equipment |
| **PPH** | - | Postpartum hemorrhage |
| **PPTCT** | - | Prevention of parent-to-child transmission |
| **PPV** | - | Positive pressure ventilation |
| **PRI** | - | Panchayati Raj Institution |
| **PROM** | - | Premature or pre-labour rupture of membranes |
| **P/A** | - | Per abdomen |
| **P/S** | - | Per speculum |
| **P/V** | - | Per vaginum |
| **QI** | - | Quality improvement |
| **RCH** | - | Reproductive and child health |

| | | |
|---|---|---|
| **RDK** | - | Rapid diagnostic kit |
| **Rh** | - | Rhesus factor |
| **RL** | - | Ringer lactate |
| **RPR** | - | Rapid plasma reagin |
| **RR** | - | Respiratory rate |
| **RTI** | - | Reproductive tract infection |
| **SBA** | - | Skilled birth attendant |
| **SC** | - | Sub-centre |
| **SDM** | - | Standard days method |
| **SN** | - | Staff nurse |
| **STI** | - | Sexually transmitted infection |
| **TBA** | - | Traditional birth attendant |
| **TT** | - | Tetanus toxoid |
| **UTI** | - | Urinary tract infection |
| **VDRL** | - | Venereal Disease Research Laboratory |
| **VHND** | - | Village health and nutrition day |
| **WBC** | - | White blood cell |
| **WHO** | - | World Health Organization |
| **3TC** | - | Lamivudine |

## Units of measurement

| | | |
|---|---|---|
| @ | - | At the rate of – to measure speed |
| % | - | Percent – to compare anything to 100 |
| °C | - | Degree celsius – for temperature |
| cc | - | Cubic centimetre – to measure volume |
| cm | - | Centimetre – to measure length |
| dl | - | Decilitre – to measure volume |
| °F | - | Degree Fahrenheit – for temperature |
| gm | - | Gram – to measure weight |
| hrs | - | Hours - to measure time |
| IU | - | International units – to measure dose |
| KCal | - | Kilocalories- to measure energy produced |
| Kg | - | Kilogram - to measure weight |
| L | - | Litre to measure volume |
| lb | - | Pound to measure pressure |
| mcg | - | Microgram to measure weight |
| mg | - | Milligram to measure weight |
| min | - | Minute |
| ml | - | Millilitre to measure volume |
| mm | - | Millimetre to measure length |
| mmHg | - | Millimetre of mercury to measure BP |
| secs | - | Seconds |
| U | - | Units to measure dose |

# Glossary of Terminology

**Abortion:** Termination of pregnancy by the removal or expulsion of a foetus or embryo from the uterus before 20 weeks of pregnancy

**Abscess:** A localized collection of pus in any part of the body, with pain and redness.

**Amniotic fluid:** Fluid present in the uterus during pregnancy which protects the fetal inside

**Amnionitis:** Infection of the protective lining around the baby (amnion or inner lining); occurs in PROM

**Anaemia:** Condition caused by low hemoglobin in blood

**ANC:** Check up done during pregnancy to determine the condition of the woman and fetus

**APGAR:** The APGAR score indicates the newborn's well-being. It will be calculated at 1 minute and at 5 minutes after birth. An APGAR score of more than 7 is considered satisfactory. Less than 7 APGAR babies need referral to a higher centre for further management

**APH:** Bleeding in pregnancy (before delivery)

**Asphyxia:** Condition in a newborn due to severely deficient supply of oxygen to the body when the baby is unable to breathe normally

**Atonic:** Lack of muscle tone; loose or soft

**Assisted deliveries:** Vaginal delivery when the baby's delivery has to be assisted/helped out by using forceps or vacuum extraction applied to the baby's head

**Blurred vision:** Unclear or hazy vision, associated with high blood pressure, weakness

**Breech presentation:** When the buttocks of the fetus are in the lower area of the uterus

**Chorioamnionitis:** Infection of the protective lining around the fetus (amnion or inner lining and chorion or outer lining); occurs in premature rupture of membranes (PROM)

**Clammy skin:** When the skin is cool, moist, and pale. Sign of emergency such as shock, dehydration

**CPD:** Size or space of pelvis is narrow and does not allow baby to pass through

**CVS:** System related to heart and circulatory system

**Diastolic blood pressure:** Lower reading of blood pressure

**Depressed/depression:** Sadness, no interest in surroundings; may be seen in postnatal period

**DMPA:** Injectable contraceptive whose action lasts for 6 months

**ECP:** To be taken by a woman within 72 hours of unprotected, unplanned sexual contact to prevent a pregnancy

**Effacement:** Thinning of cervix at the time of labour

**Endometritis:** Infection of uterus; after PROM, repeated per vaginal (PV examination, unsterile conditions, after abortion/ MTP done in unsterile conditions

**Engorgement:** Filling up/ swelling

**Flank pain:** Pain in the side of the abdomen below the ribs

**Fluctuant:** Moving

**Floppy:** Poor muscle tone, limp

**Fetal:** Developing unborn baby inside the uterus

**Fetal distress:** Condition when the fetus is having some problem inside the uterus; detected by abnormal heart rate (FHR more than 160/min or less than 120/min), or irregular FHR

**Fundal height:** Height of the uterus which increases with pregnancy and decreases after delivery; measuring the upper border of the uterus and comparing with the standard in weeks of pregnancy gives the approximate duration of pregnancy

**Gestation:** Pregnancy / the period of development of the fetus in the uterus from conception until birth

**Gestational age:** Age of an embryo or fetus; calculated in weeks

**Gravidity/gravid:** The number of times the woman has been pregnant

**Icterus:** Jaundice or yellowish discolouration of sclera (white part of eye) in adult or skin in newborn

**Infant:** Baby from one month after birth to one year of age

**IUGR:** Inadequate/ slow growth of a fetus inside the uterus

**Jerky movement:** Fast movements which are not controlled and that have no purpose. Seen in fits

**KMC:** Care given to small baby by placing over the chest of mother/parent to provide extra warmth to the baby

**LAM:** Used as a traditional temporary method of contraception, when a woman does not have her monthly periods due to breast feeding

**Latent:** Developing or present but not visible

**LBW:** When the baby weight is below 2500gms (standard weight)

**Lump:** A localised swelling; may be hard or soft

**Lochia:** Discharge from the vagina from delivery up to a week

**Liquor:** Same as amniotic fluid

**LMP:** First day of last menstrual period a woman had before pregnancy, used to calculate EDD

**Madilu kit:** This is a postnatal kit given to mothers after delivery under a government scheme for postnatal care of mother and baby

**Mastitis:** Infection of breast; seen as pain and redness

**Meconium:** Yellow or green coloured stools passed by the fetal inside uterus or by newborn at birth

**MRP:** Done by removing the placenta by hand in condition of retained placenta

**Murmur:** An abnormal sound of the heart

**MVA:** Method of performing MTP where suction is created by a manual pump to remove contents in uterus

**Misoprostol:** Drug used to cause contraction of uterus and thereby prevent or treat postpartum hemorrhage; available as tablets of 200mcg; not given to women with asthma

**Magnesium sulfate:** An anti-convulsant drug used for preventing/treating eclampsia/severe pre eclampsia without causing sedation in mother or baby

**Monitoring:** Observe and check the progress or quality over a period of time

**Nasal flaring:** An increase in nostril size due to any difficulty in breathing

**Newborn:** A recently born baby

**Obstetric:** Related to pregnancy

**Obstructed:** Blocked; unable to come out

**Oedema:** Swelling due to accumulation of water

**Outcome:** End result

**Pallor:** Lack of colour especially in the face; seen in anaemia and long standing diseases

**Parity/Para:** Total number of deliveries and abortions a woman has had till present pregnancy

**Pelvis:** Cavity formed by joining together of the two hip bones and sacrum; contains, protects, and supports the intestines, bladder, and internal reproductive organs

**Perineum:** Area around vagina and the anus in females

**PIH:** Increased blood pressure (more than 140/90 mmHg) without proteinuria in a woman after 20 weeks gestation

**Preterm:** Pregnancy less than 37 completed weeks gestation

**Pre-referral management:** Activities carried out to stabilise the complicated cases before referring to a higher centre

**Presentation:** That part of the fetal lying over the pelvic inlet which would be first to come out at delivery

**P/S:** Using the speculum to view the vagina and cervix

**P/V:** Vaginal examination

**Prolonged:** Long duration/delayed

**PROM:** Rupture of membranes (bag of waters) before labour has begun; can be before 37weeks – premature or before delivery – term or mature

**Puerperal:** The period immediately after delivery to 42 days

**Purulent:** Containing pus

**Pustule:** A small boil over skin filled with pus; a pimple

**Retained:** To hold in a particular place; not coming out

**RPR:** A newer blood test to screen routinely for syphilis in pregnant women

**RR:** Rate of breathing in one minute

**Respiratory distress:** Condition in which patients are not able to breathe properly and get enough oxygen

**SBA:** Person (doctor, nurse, ANM) trained in pregnancy, delivery, postnatal and newborn care

**SDM:** Used as a traditional temporary method of contraception where a woman tracks the days of her menstrual cycle and avoids unprotected sexual contact on fertile days of the cycle

**Sepsis:** Condition where infection from any site spreads throughout the body

**Seizures:** Convulsions, fits

**Spontaneous:** Without any effort or natural

**Sterilization:** A procedure to make free from live bacteria, virus or other microorganisms, used for cleaning needles and surgical instruments

**Stillbirth:** Birth of a dead fetus any time after the completion of 20 weeks of gestation.

**Syphilis:** A sexually transmitted disease which in pregnancy may cause congenital defects in the fetus

**Systolic blood pressure:** The upper level of blood pressure

**Tender/tenderness:** Pain felt if touched

**Term:** State of pregnancy which has completed 37 weeks

**Transverse:** Lying across

**Traction:** Pulling force

**Tubectomy:** It is a female sterilization procedure where a part of the fallopian tubes is cut. It is a permanent method of female sterilization

**Umbilicus:** A scar where an umbilical cord was attached

**Unconsciousness:** Person not responding to calls, stimulus

**Uterine massage:** Gently rubbing the uterus after the delivery of placenta to help the uterus contract and become hard

**Uterine tone:** Tightness of uterine muscles

**Vasectomy:** A surgical procedure performed on males in which the vas deferens (male tubes) are cut. It is a permanent method of male sterilization

**VDRL:** Blood test done routinely for syphilis in pregnant women; similar to RPR test

**Vertex:** Normal presentation of the fetus in which the head lies at the opening of the uterus

**Voiding:** Emptying the urinary bladder

# Chapter 1 Maternal Health Situation In Northern Karnataka

## 1.1 Introduction

Maternal and neonatal child health services have long been seen as inseparable partners. Though clinical interventions needed to avoid maternal and neonatal deaths and disability are well established, it is now known that these interventions require a functioning health system to have the desired impact at the population level. Levels of maternal and neonatal mortality are thus regarded as sensitive indicators of the entire health system and can therefore be used to monitor progress. What is also clear is that maternal and neonatal mortality continue to remain particularly high in northern Karnataka compared to southern Karnataka as well as the neighbouring south Indian states.

## 1.2 Definitions

We define maternal conditions as those events occurring from conception to 42 days postpartum. Within this period, two broad categories of illnesses can be identified: those arising specifically from pregnancy and parturition (direct obstetric complications), and those worsened by pregnancy (indirect obstetric complications). The focus of this manual is on four direct obstetric complications – hemorrhage , hypertensive disorders of pregnancy, sepsis and prolonged/obstructed labour.

## 1.3 Understanding the Maternal Health Situation in Karnataka

To better understand the maternal health situation warranting action in northern Karnataka, we try to answer the following four questions.

### *What are the causes of maternal deaths?*

Common causes of maternal deaths are shown in Figure 1.1. Four of these conditions also called direct causes, (hemorrhage, infections/sepsis, obstructed labour and hypertensive disorders of pregnancy) are responsible for nearly two-thirds (60%) of maternal deaths.

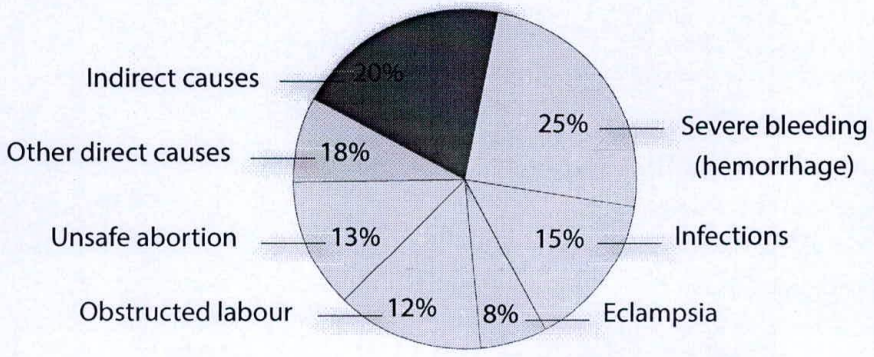
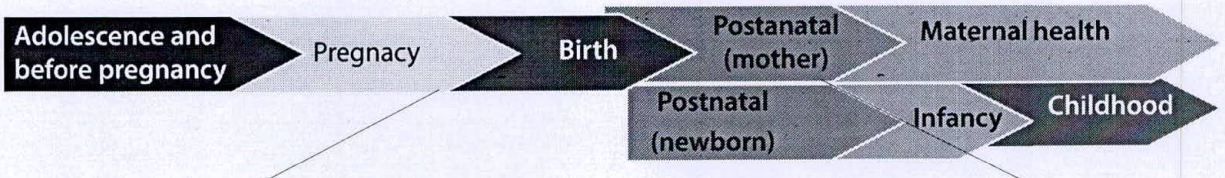



**Figure 1.1 Causes of maternal deaths**

**Please note that four direct obstetric complications contribute to approximately 60% of avoidable maternal mortality**

## *When do most maternal deaths occur?*

The most extreme negative outcome, death of both the woman and the baby, is highly concentrated around the time of delivery, from the onset of labour to two days postnatal (see Figure 1.2). Two-thirds of maternal deaths (77%) occur in this time-window.




Window of opportunity

| Condition | Days | | | | | | | Weeks | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 2 | 3 | 4 | 5 | 6 |
| % of mternal deaths* | 60% | 17% | 13% | | | | | 4% | | | | |

*Figure 1.2: Timing of maternal deaths*

## *What is the urgency associated with these deaths?*

Two important characteristics of these deaths are:

- Unpredictability (cannot foresee or predict in most cases) of these maternal conditions
- The initial clinical presentation of some conditions could be severe, with rapid escalation (worsening) to a life-threatening state.

This means that the average duration from onset until death is short if these conditions become serious (Table 1.1). Thus it is important that these conditions are identified as soon as possible and action is taken immediately to reduce the chance of a woman or neonate dying.

**Table 1.1: Time to act for common direct obstetric conditions**

| Maternal Condition | Average duration until death if condition very serious |
|---|---|
| 1. Hemorrhage | |
| ❖ antepartum | 12 hrs |
| ❖ postnatal | 2 hrs |
| 2. PIH / pre-eclampsia / eclampsia | 2 days |
| 3. Obstructed labour | 3 days |
| 4. Sepsis | 6 days |

Further, it is also clear that maternal mortality continues to remain particularly high in Karnataka compared to the neighbouring south Indian states such as Tamil Nadu, Andra Pradesh, Kerala (Figure 1.3). Several background socioeconomic, historic and cultural reasons exist for this, but the poor conditions of the health centres in the northern districts of Karnataka are also one of the contributory reasons.

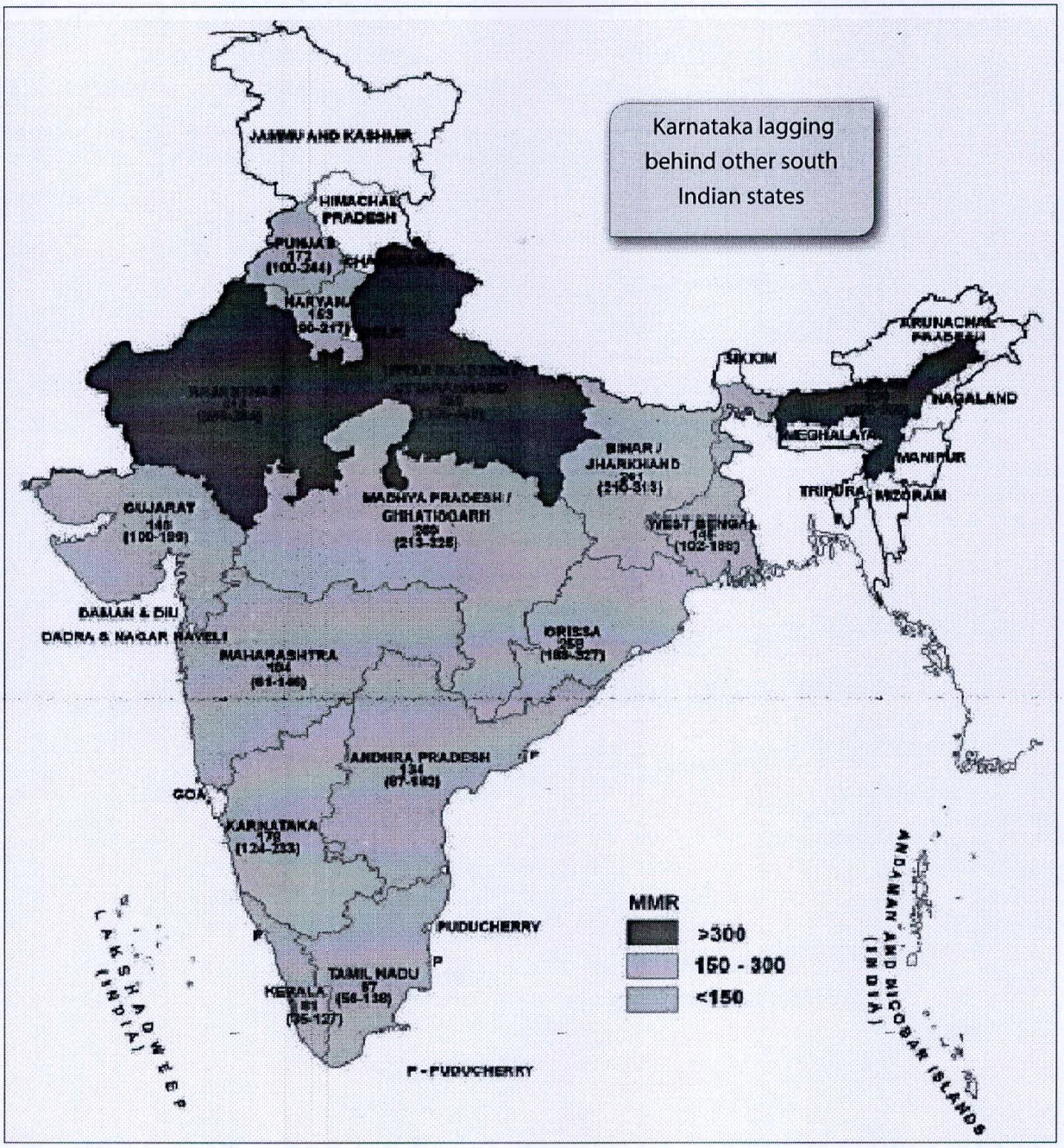



*Figure 1.3: Maternal Mortality state wise in India*

## *What does this mean for your district?*

See the estimated number of births and maternal deaths in a 12-month period in each of your districts (Table 1.2). About one fifth of these births occur in primary health centres (PHCs). Thus as nurse mentors you can help to prevent complications and death by maintaining quality of care in the important window of opportunity period (that means during labour, delivery and early postnatal and neonatal period).This could include simple actions such as to follow infection control guidelines; identify complications, start initial management and refer such women; manage normal labour, delivery and early postnatal effectively.

**Table 1.2: Project Sukshema districts with their population and estimated number of live-births and maternal deaths per year**

| District | Population (year 2011) | Maternal deaths per year* | Live-births* |
|---|---|---|---|
| Bagalkot | 2476587 | 163 | 57900 |
| Bellary | 1848941 | 121 | 43300 |
| Bidar | 1678599 | 110 | 39200 |
| Bijapur | 2134790 | 140 | 50000 |
| Gulbarga | 2522079 | 166 | 59000 |
| Koppal | 1370023 | 90 | 32100 |
| Raichur | 1897372 | 125 | 44400 |
| Yadgir | 1148788 | 76 | 26800 |

* assuming crude birth rate = 23.4/1000 and maternal mortality rate =280/100,000 in northern Karnataka

# Chapter 2 Initial Assessment at Admission

## Learning Objectives

***At the end of this chapter you will***

- Recall the importance of doing a complete initial assessment of pregnant women after 20 weeks of gestation, presenting to the PHC
- List and describe the relevance of the components of a good initial assessment
- Demonstrate how to do a comprehensive assessment
- Demonstrate documentation in the case sheet, the details of complete initial assessment of the woman in labour.
- Demonstrate mentoring skills for doing a complete initial assessment of the pregnant woman

## 2.1 Introduction

A woman who is more than 20 weeks pregnant must have an initial assessment that includes a targeted history and examination to provide comprehensive care. This could help identify normal or abnormal pregnancies. It could also alert the nurse of women with increased risk for complications. If the pregnancy is abnormal and/or if a complication is present, initial assessment could alert the nurse to take immediate action so that the women condition is stabilized before referral to a higher level centre for further treatment.

## 2.2 Components of Initial Assessment

### *History*

- Background information
- Presenting complaints, danger signs
- Menstrual and obstetric history
- Previous obstetric history
- Other medical/surgical history

### *Previous Investigations*

### *Examination*

- General examination
- Abdominal examination
- Pelvic examination

*Diagnosis (Overall initial assessment)*

## 2.3 Importance of Different Components of Initial Assessment

### *Background information*

Background information could help to build rapport, provide important socio-demographic information and facilitate referral.

- ***Age*** is taken because women who are less than 18 or more than 35 years of age have a higher risk of pregnancy-related complications.
- ***Below poverty line (BPL)*** status is taken so that benefits available (madilu kit, financial aid for institutional delivery, transport money for emergency if ambulance 108 is not available) are received by the woman. This is very important for poor families especially in case of referral.
- ***Date and time*** are important to record in order to track quality of care, events, complications and referral.

### *Presenting complaints, danger signs*

Presenting complaints could alert the nurse to danger signs and help differentiate normal from abnormal.

- ***Abdominal pain*** with a contraction is normal. Too much abdominal pain or pain between contractions could be a symptom of ruptured uterus / abruptio placenta (see complication case sheet A) uterine infection (see complication case sheet D) or a complication related to PIH (see complication case sheet B). This is a flag to check vital signs and perform an abdominal examination to help determine the cause or check for bleeding per vagina (see complication case sheet A).
- ***Bleeding per vagina*** could be bloody show (mucus with blood in it), but if it is too much it is a sign of hemorrhage. If placental location is not known per vaginal (PV) exam must NOT be done. It is a flag to check for change in vitals (low BP, rapid and thin pulse), abdominal tenderness and pain between contractions. It also is a flag for immediate referral after initial management so that the woman does not go into shock(see complication case sheet C).
- ***Decreased or absent fetal movement*** can indicate fetal distress or an intra-uterine death. This is a flag to ensure that the fetal heart rate is checked, initiate initial management and refer urgently (see complication case sheet H).
- ***Difficulty passing urine*** may be a complication of pregnancy induced hypertension (PIH), kidney disease or due to obstructed labour or urinary tract infections. It is important to check for a full bladder by examining the lower abdomen.
- ***Fever*** is a symptom of infection. If present, it is a reminder to check temperature and look for a focus of infection (see complication case sheet D).
- ***Foul discharge per vagina*** is a sign of uterine infection (chorioamnionitis). This is a flag to check the vital signs and perform an abdominal exam for uterine tenderness (see complication case sheet D).
- ***Headache,*** *blurred vision, vomiting* are symptoms of PIH/pre-eclampsia. Seizures/ fits are signs of eclampsia. These complaints should serve as a red flag to check the blood pressure to see if it is normal

or not and test urine for protein (see complication case sheet B).

- ***Palpitations, severe tiredness, breathlessness*** at rest or on mild activity could alert of the chance of severe anemia, or cardiac disease. These symptoms are flags to ensure that the pulse, blood pressure, pallor, lungs and heart, as well as previous investigations for hemoglobin (anemia) and are checked (use complication case sheet H).
- ***Watery discharge*** before term (37 completed weeks of gestation) indicates preterm rupture of membranes. This is a flag to check the temperature and check the colour of liquor. It is important to check if woman has labour pains (see complication case sheet E).

## *Menstrual and obstetric history*

The menstrual and obstetric history provides important information to check if this pregnancy may be high or low risk and to find out gestational age.

- ***Gravida and parity*** indicates how many times a woman has been pregnant (gravida) and how many times she has given birth after 28 weeks, irrespective of outcome (parity). Women with more than four deliveries (grand multiparity, P4) are at an increased risk of having complications in pregnancy, labour and delivery or a woman with no live baby could flag risk of complication.
- ***Last day of menses,*** length and regularity of menstrual cycle are needed to calculate the estimated due date of the baby. If the menstrual cycle of a woman is not regular this is a flag that calculation of gestational age will not be accurate.
- ***Gestational age*** will help to know if the baby is preterm (less than 37 weeks), term (37-40 weeks gestation) or post-term (greater than 41 weeks). A woman who comes with preterm or post term labour could be a flag to check if the woman has a pregnancy complication (for example PIH, twin pregnancy if preterm; diabetes if post term) and if needed to refer.
- ***Type of gestation*** is important since multiple pregnancies (twins/triplets) are at greater risk of complications in pregnancy, labour and delivery and must be referred to a higher health care centre (First referral units /district hospital).

## *Previous obstetric history*

A woman's past history of pregnancies and deliveries also provides information to decide if she needs additional treatment, care or referral to a higher centre for the present pregnancy.

- ***Year of delivery*** could help to know about the birth spacing/interval. Women who have a space of less than 36 months (3years) between children have more chances of delivering a preterm and low birth-weight baby. These babies are at increased risk of infant mortality. An interval of less than 24 months (2 years) from the previous pregnancy can also increase the chance of maternal anemia.
- ***Mode of delivery*** could be important for management. For example if delivery was by cesarean section then this information shows that the woman should be referred to a FRU as there is a chance of increased risk of complications such as uterine rupture during labour.
- ***Place of delivery*** could help to know where the woman had her delivery the previous time. This could

help to know if women were prepared and had planned for delivery (birth planning).

- ***Women with complications*** in previous pregnancies, labour, delivery and postnatally may have the same complication again. Knowing about past complication could be a flag to watch for and be prepared for the same complication in the present pregnancy. It may also be a flag to initiate preventive screening or treatment in the current pregnancy. For example a woman with pregnancy induced hypertension (PIH) in the previous pregnancy has more chance of developing PIH for the present pregnancy.
- ***Women with adverse fetal outcomes*** (stillbirth, neonatal death) may also have the more risk for adverse outcomes with this pregnancy. This can also cause anxiety and stress during the current pregnancy. Knowing this history could flag to provide reassurance for the woman. In addition the woman and the newborn must be monitored closely for danger signs.

## *Other history*

Pre-existing medical or surgical conditions can increase a woman's risk of developing a complication in her present pregnancy. All pre-existing conditions are red flags for referral to an FRU for further management and ongoing care.

- ***Diabetes*** can lead to maternal (high and low blood sugars, infection, other medical problems) and fetal complications (congenital defects/anomalies, large babies, stillbirths, neonatal complications) including obstructed labour and increased risk for instrumental vaginal delivery or cesarean section.
- ***Pre-existing anemia*** can lead to more severe anemia in pregnancy that could cause heart failure, as well as place the mother at increased risk of death from severe bleeding postnatally.
- ***Pre-existing cardiac disease*** could become worse in pregnancy or labour and delivery. This can result in shock, heart failure or irregular heart rates and heart attacks.
- ***Pre-existing hypertension*** increases the risk of developing hypertensive diseases of pregnancy (PIH, pre-eclampsia, eclampsia). Plus the chance that the fetus growth could be affected is high.
- ***Previous uterine surgeries*** increase the chance for uterine rupture.
- ***Allergies, Medication:*** This information could inform if there are any medications being taken for current or pre-existing medical conditions, if the woman has received recommended medications in the present pregnancy and if there are any medications that cause an allergic reaction in the woman.
  - ***Allergies*** show if there are any medications that need to be avoided in the woman This is important to know before giving any medication especially antibiotics.
  - ***Tetanus vaccination*** prevents neonatal and maternal tetanus. If not received this is a red flag to make sure that it is given.
  - ***Iron and Folic Acid (IFA)*** helps increase iron and hemoglobin which helps prevent anemia and the complications of anemia. If it is not being taken this is a red flag to ensure that it is given.

## *Previous/Current Investigations*

These investigations are important because they screen for conditions in pregnancy that if found could be treated, leading to decreased complications for the woman and unborn baby (fetus).

- ***Hemoglobin*** screening detects anemia, which increases both maternal and fetal complications.

Treatment with IFA or blood (depending on severity) could be given to prevent this. Levels less than 7 gm/dl serve as a red flag to refer to a higher centre for care. Levels between 7 and 11 gm/dl on previous tests serve as a flag to repeat the test to recheck the levels and to be alert for PPH.

- ***Blood group and type*** (ABO and Rh) screens for Rh disease, which helps prevent Rh isoimmunization. If the blood group is known it could be of great help if there is bleeding, since blood transfusion could be started as soon as possible, when required.
- ***Hepatitis B*** screening detects hepatitis infection, which also is easily transmitted to the infant. This could be prevented with immunoglobulin and Hepatitis B vaccination at birth.
- ***HIV screening*** detects HIV infection. There is a high risk of vertical transmission to the newborn / infant from woman during delivery or breast feeding. Prevention of maternal transmission of HIV to the baby (PMTCT) could be reduced greatly with use of antiretrovirals during pregnancy, labour and postnatally; and by counselling on breast feeding.
- ***Syphilis screening*** (RPR/VDRL) detects syphilis infection which carries a high risk of congenital syphilis for the newborn. Treatment with penicillin could be given to prevent this.
- ***Oral glucose tolerance tests*** are used to screen for development of gestational diabetes. This is done only if the woman has a history of diabetes or is at risk for developing diabetes. Gestational diabetes could increase maternal and fetal complications in some women. If positive it is a flag to refer to a higher centre for care.
- ***Dipping the urine for protein screens*** for proteinuria is routinely done to rule out pre-eclampsia or eclampsia. It helps know the degree of proteinuria, which is used to determine the severity of pre-eclampsia. If present it should be a flag to check for elevated blood pressure.
- ***Screening the urine for presence of infection*** by doing a routine urine microscopy would help show if there is a urinary tract infection or kidney infection (pyelonephritis). Infection could increase the risk of preterm labour. If present this is a flag to check vital signs.
- ***Ultrasound*** is used to assess gestational age, single/ multiple gestation, position of placenta, congenital anomalies. Important findings should be recorded, such as placental location in the case sheet.

If tests for Hb or screening for HIV, Hepatitis B or syphilis or urine protein have not been done this is a flag to make sure they are ordered and done at the present visit. If tests are positive /abnormal this should serve as a flag to initiate referral to a higher centre for care, including initial stabilizing treatment if indicated (per the case sheet H).

## *Examination*

The physical examination provides information on physical findings that could help to arrive at a diagnosis and determine if there are any concerns in the pregnancy or labour (normal versus abnormal).

- ***General Examination***

  The general examination could provide information on the overall well being and health of the pregnant woman.

  - ***Weight*** shows if there is any problems about the nutritional status, or if weight gain is good enough to maintain a healthy pregnancy. If weight gain is less it could lead to newborns with less

weight. If weight gain is more for the woman it could lead to large newborns. Poor nutrition of woman could also be a flag for anemia, infection and chronic disease, while too much weight gain could flag for hypertensive disorders and diabetes. Thus if weight gain is either low or too much it should serve as a flag to look for other possible complications and refer if needed.

- ***Height:*** If a woman's (especially primigravida) height is less than 140cms, she could be at increased risk of obstructed labour. She might require referral to a higher centre.
- ***Vital signs*** are parameters that provide extremely relevant information. The *pulse* could be high in case of fever, shock (infections, blood loss) or irregular in case of heart disease. An elevated blood pressure of greater than 140/90 mmHg confirms PIH, while a low *blood pressure* of less than 90/60mmHg is suggestive of shock. A high temperature, greater than 38°C indicates the presence of infection or sepsis. Low temperatures could be seen in some cases of shock.
- ***Pallor:*** The presence of ***pallor*** is a marker for anemia. This should serve as a flag to check if hemoglobin testing has been done and and insert to be alert for PPH.
- ***Generalized oedema*** could be a sign of hypertensive disease of pregnancy, although swelling in the legs and feet of pregnant women is not uncommon. Only if blood pressure is greater than 140/90 mmHg it is diagnostic for hypertensive diseases.
- ***Jaundice*** may indicate liver disease or hemolysis of red blood cells due to a destructive process. It can serve as a flag to make sure blood test for screening hepatitis has been done.
- ***Listening to the breathing sounds*** helps rule out any infections or heart failure.
- ***Listening to the heart sounds*** helps rule out any cardiac disease. The finding of a soft systolic murmur in pregnancy could be normal due to increased flow.

### ❖ *Abdominal Examination*

The abdominal examination provides important information about fetal growth, number of fetuses and fetal presentation, presence of labour, as well as any previous abdominal surgeries.

- ***Measuring symphysis fundal height*** (usually equal to estimated gestational age in weeks): If there is a difference of greater or less than 3 cm it may indicate incorrect dating of last menstrual period (LMP), multiple gestations or growth difference. This serves as a flag to recheck LMP or ultrasound report if available
- ***Presentation*** determines if the baby is in a position (normal position is vertex or highest point of head) that is suitable for vaginal delivery at the PHC. Non vertex presentation at term or in labour is a flag for referral to a higher centre.

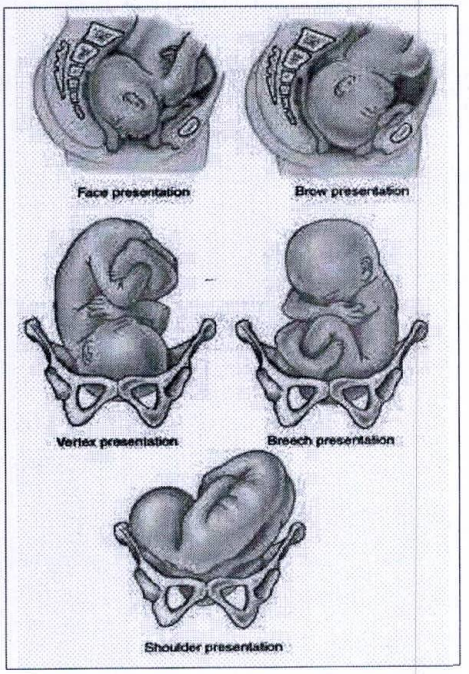



*Figure 2.1: Presentation*

- ***Palpating the uterus*** helps determine if the woman is in labour (regular, frequent contractions), has an intra-uterine infection or abruption (generalized very tender uterus) or possible uterine rupture (localized tenderness, especially over previous scar if present). Any abnormality must be referred.
- ***Examining the abdomen*** for the presence of a previous surgical scar will provide important information for any contraindication for normal labour (e.g classical cesarean section). If prior cesarean section scar is present this should serve as a flag to refer to a higher centre for care in labour.
- ***Measuring the fetal heart rate*** is important to check if the fetus is alive and that the heart rate is normal. When heart rate is between 110-160 beats/minute it means there is no sign of fetal distress. No fetal heart or abnormal fetal heart rate (less than 100 or more than 160 beats/minute) is a flag to refer to a higher centre.

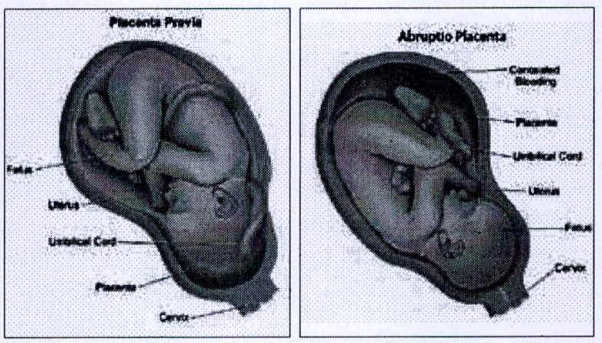


*Figure 2.2: Causes of APH*

❖ ***Vaginal Examination***

The pelvic examination provides important information about labour, progress of labour, complications of pregnancy and fetal well being. The following must be checked for during a vaginal examination:

- ***Bleeding from the vagina*** could be a sign of bloody show (presence of blood stained mucus), placental abruption (separation of placenta), or placenta previa (placenta is attached to lower part of uterus near the cervix). It is a flag to not perform a pelvic examination if the placental location is not known. It is also a flag to check vital signs including fetal heart rate.
- ***Cervical dilation*** (opening of the cervix) and effacement (thinning) helps to know if the woman is in active labour (3-4 cm, 80-90% effaced) and if the labour is progressing normally (rate of cervical change).
- ***Discharge (watery) from the vagina*** is a sign of rupture of membranes. It is a flag to check the gestational age and if the woman is in labour or not.
- ***Discharge (purulent)*** indicates intra-uterine infection /chorioamnionitis (inflammation of fetal membranes due to bacteria). It is a flag to check vital signs including fetal heart rate.
- ***Green stained fluid from the vagina (meconium)*** could be a sign of fetal distress. It is important to think about preventing meconium aspiration at time of delivery.
- ***Presenting part*** helps to know the position of the fetus and whether it is suitable for vaginal delivery at the PHC. If vertex is not the presenting part and the woman is not in active labour it is a flag to refer to a higher centre for care.
- ***Station*** describes where the fetal head is in relation to the woman's ischial spines (above or below) and also tells us if descent of the head is happening normally.
- ***Adequacy of the pelvis*** can help to know if there is risk of obstructed labour. In an adequate pelvis, with strong contractions and a normal size fetus the risk is low.

- ***Recording the time of pelvic examination*** is important in order to know if labour is progressing appropriately.

## Diagnosis (Overall initial assessment)

The final diagnosis determines the next steps of management and care, including need for admission or initial stabilization and referral. It is arrived at by combining the history (especially presenting complaints) and physical exam findings. If there is complications present this is a flag to move to the complication case sheets for further management prior to referral.

# 2.4 Requirements to Perform Initial Assessment of Woman in Labour

## *Equipments and supplies*

Ensure that the following equipment is available at the PHC and in working condition:

- Examination table and stepping stool
- Blood pressure apparatus
- Stethoscope
- Thermometer
- Fetoscope
- Measuring tape, watch with seconds hand
- Case sheet with partograph
- Sterile gloves, sterile/boiled cotton swabs for perineal care
- Antiseptic lotion and 0.5% bleach in a plastic container

*Figure 2.3: Checking radial or brachial pulse*

## *Clinical skills*

### *History taking*

Use the case sheet to collect the complete history of the woman when she comes to PHC with labour pains.

### *General examination*

Maintain the woman's privacy during the entire process. Wash hands thoroughly with soap and water, air dry them before starting.

### *Measuring vital parameters*

Measuring *PULSE*

1. Palpate (feel) the woman's radial pulse by placing the finger tips of 3 fingers on her wrist, below her thumb.
2. Press against the radial artery and then slowly release the pressure until you can feel the pulse.
3. Count the beats for a full minute.

*Measuring **BLOOD PRESSURE** (IN EMERGENCIES, BP HAS TO BE MEASURED RAPIDLY)*

1. Ask the woman to sit or lie down comfortably and relax. If the woman has come walking, let her rest for 5–10 minutes before checking her BP. ***In an emergency skip this step***
2. Place the BP instrument on a flat surface, at the same level with the woman's heart.
3. Ensure that the pointer on the dial or scale is at zero. If not, adjust it by rotating the knob attached to the dial.
4. Keep the dial/ manometer at the same level as the examiner's eyes.
5. Remove all clothing from the upper arm. Wrap the cuff around the upper arm and secure it. The lower border of the cuff should be about 2.5 cm (2 fingers) above the hollow of the elbow. Ensure that the cuff is neither too tight (cannot slip one finger under the cuff) nor too loose (can slip more than three fingers under the tied cuff).

Palpatory method

1. Feel for the pulse over the wrist (radial pulse) of the arm to which the cuff is tied with the left hand.
2. Tighten with the right hand, the screw of the rubber bulb and squeeze the bulb repeatedly to inflate the cuff until the pulse is not felt.
3. Note the manometer reading at the level where the pulse is not felt.
4. Deflate the cuff gradually till the pulse can be felt again. Note this reading on the manometer. This is the systolic pressure.
5. Deflate the cuff by loosening the screw of the rubber bulb. Proceed to measure the BP by the auscultatory method.

***Note :*** The diastolic BP cannot be measured by palpatory method.

Auscultatory method

1. Put the stethoscope earpieces in the ears with it facing forwards after measuring the BP by the palpatory method. Place the flat part (diaphragm) of the stethoscope over the brachial pulse in the hollow of the elbow (cubital fossa) and hold it in place. It is important not to be able to hear any sound. Inflate the cuff, so that the mercury level increases by 10mmHg above the level at which pulse disappeared when checking by palpatory method.
2. Lower the pressure slowly, about 2mmHg at a time, till repetitive thumping sounds is heard.
3. Note the reading on the instrument when the first thumping sound is heard. This is the systolic pressure.
4. Continue lowering the pressure until the thumping sound first gets muffled and finally disappears. Note the reading when the thumping sound disappears. This is the diastolic pressure.
5. Release the valve and quickly allow all the air to go out of the cuff. Remove the cuff.
6. Record the BP reading as 'systolic/diastolic' in mmHg.

*Measuring RESPIRATORY RATE*

1. Count the respiratory rate (RR) by observing the rise and fall of the chest for 1 minute.

*Measuring TEMPERATURE*

1. Clean the thermometer from bulb to tip with spirit swab and wipe dry. Shake the thermometer such that the mercury level is below 36°C.
2. Place the bulb of the thermometer in the axilla of the woman and fold her arm across her chest for 3 minutes.
3. Remove the thermometer and note the reading in degree Celsius
4. Wipe the thermometer with spirit swab from tip to bulb end, replace in its container and store in clean dry place.

***Other aspects of general examination***

*Checking for PALLOR*

1. Look for conjunctiva pallor—ask the woman to look up and pull down the lower eyelid gently with the index finger. Observe the colour of the inside of the lid. It should be bright pink or red. If it is pale pink or white, the woman has pallor.
2. Examine the tongue. If it is white and smooth, the woman has pallor.
3. Examine the nails. If they look white instead of the usual pink, the woman has pallor.

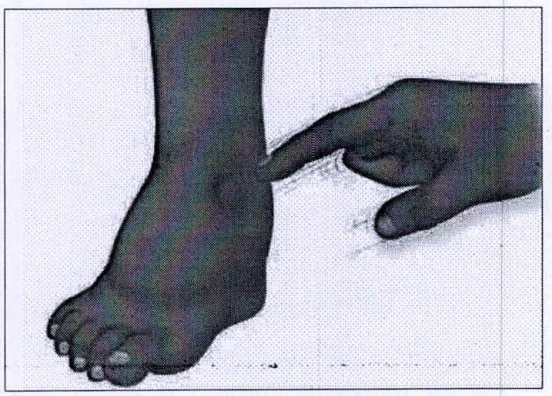


*Figure 2.4: Checking for edema*

*Checking for JAUNDICE*

1. Look for yellowish discoloration of the skin and conjunctiva (upper outer quadrant) in natural light.
2. Check if discoloration is present, then refer the woman to the medical officer or higher centre.

*Checking for EDEMA*

1. Look for edema over the ankles and shin by pressing thumb against the bone for 5 seconds. If the thumb leaves an impression, it indicates the presence of edema.
2. Use the scale to indicate how severe is the edema.

| 0 = None, +1 = Trace, +2 = Moderate, +3 = Deep, +4 = Very deep |
|---|

*Checking the LUNGS*

1. Observe if the woman has laboured breathing or gasping or wheezing. If she is not able to speak short sentences without taking a breath, it indicates difficult respiration.
2. Use the stethoscope to listen for air entry in both lungs and additional sounds.

*Checking the HEART*

1. Check if heart sounds are normal on auscultation.
2. Check for the presence of any abnormal or additional sounds.

### *Normal range of findings at term*

- ✓ Gained approximately 9-11 kilograms during the pregnancy
- ✓ Height at least above 140cms
- ✓ Pulse: 60-100/minute
- ✓ BP: 90-139mmHg systolic, 60-89mmHg diastolic pressure
- ✓ Temperature: 37.2°C
- ✓ No evidence of pallor/ jaundice/ significant oedema
- ✓ Clear Lungs
- ✓ No abnormal heart sounds

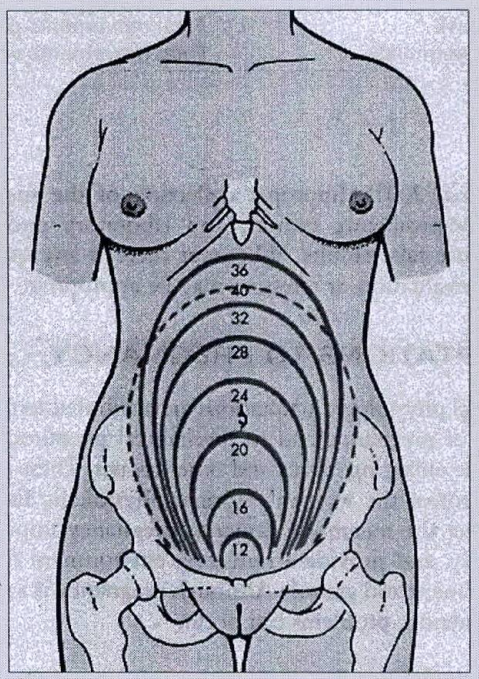
### *Performing abdominal examination*

*Getting ready*

- ❖ Ask the woman to empty her bladder.
- ❖ Give the woman a clean bottle and ask her to collect a little urine in it before emptying her bladder completely. The urine will be required later to test for sugar and proteins.
- ❖ Maintain privacy and obtain the woman's verbal consent after explaining the procedure to the woman.
- ❖ Help the woman lie comfortably on her back, on the examination table. Ask her to loosen her clothes and uncover her abdomen. Use pillow if available to support her back.
- ❖ Check the abdomen for any scars. If there is a scar, find out if it is from a caesarean section or any other surgery check if it is vertical or transverse
  - ⌖ Refer all women with a history of previous LSCS or abdominal surgery.

*Assessing FUNDAL HEIGHT*

1. Ask the woman to keep her legs straight. Provide privacy
2. Wash hands and see that they are warm (rub palms together) before placing on the woman's abdomen
3. See that woman lies flat on back with legs straight
4. Divide the abdomen into parts by imaginary lines.
   - ⌖ Draw an imaginary line passing through the umbilicus. This is the most important line.
   - ⌖ Divide the lower abdomen (below the umbilicus) into three parts, with two equidistant lines (spaced equally) between the symphysis pubis and the umbilicus.
   - ⌖ Divide the upper abdomen into three parts, again with two imaginary equidistant lines, between the umbilicus and the xiphisternum.
   - ⌖ The approximate gestational age is based on where the fundus is palpated as shown in Figure 2.5.




**At 12th week:** Just palpable above the symphysis pubis

**At 16th week:** At lower one-third of the distance between the symphysis pubis and umbilicus

**At 20th week:** At two-thirds of the distance between the symphysis pubis and umbilicus

**At 24th week:** At the level of the umbilicus

**At 28th week:** At lower one-third of the distance between the umbilicus and xiphisternum

**At 32nd week:** At two-thirds of the distance between the umbilicus and xiphisternum

**At 36th week:** At the level of the xiphisternum

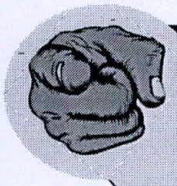
**At 40th week:** Sinks back to the level of the 32nd week, but the flanks are full, unlike that in the 32nd week.

Figure 2.5: Measuring fundal height

***Assessing FOETAL LIE AND PRESENTATION (32 weeks onwards)***

1. Ask the woman to flex her knees and relax her abdomen. Carry out the grips as given below (see Figure 2.6a and 2.6b).
2. Do a fundal palpation/grip – helps assess presentation
   - Place both hands on the sides of the fundus to determine which part of the fetus is occupying the uterine fundus.
   - Check if the part is hard and globular (in cephalic presentation–normal finding) mass (this is fetal head), or if it feels soft and irregular, this is the buttocks (inbreech presentation).
3. Do a lateral palpation/grip
   - Place one hand on one side of the uterus to steady it. Palpate on the opposite side with the other hand to differentiate limbs from the back.
   - Feel for the the fetal back. It would feel like a continuous hard, flat surface on one side of the midline, while the limbs feel like irregular small knobs on the other side.
   - Check to assess if there is more than one fetus.
4. Do a superficial pelvic grip – helps assess presentation
   - Spread right hand widely over the symphysis pubis, with the ulnar border of the hand touching the symphysis pubis.
   - Try to approximate the fingers and thumb, by putting gentle but deep pressure over the lower part of the uterus. The presenting part could be felt between the thumb and four fingers.

- Determine whether it is the head or breech (the head will feel hard and globular, and the breech soft and irregular). If the presenting part is the head, try to move it from side to side. If it cannot be moved, it is engaged.



***Remember: Transverse lie needs referral***

- During superficial pelvic grip if neither the head, nor the buttocks are felt, the baby is lying transverse. This is an abnormal lie.
- In a transverse lie, the baby's back is felt across the abdomen and the pelvic grip is empty.
- Refer the mother to a higher centre for instrumental delivery or cesarean section.

5. Do a deep pelvic grip (only in 3rd trimester) – helps assess presentation
   - Face the foot end of the bed to perform this grip.
   - Place the palms of hands on the sides of the uterus, with the fingers held close together, pointing downwards and inwards, and palpate to recognize the presenting part.
   - Check if the presenting part is the head (feels like a firm, round mass, which is ballotable, unless engaged.), this manoeuvre, in experienced hands, will also be able to tell us about its flexion.
   - Check If the fingers diverge (move outward) below the presenting part it indicates engagement of the presenting part. If the fingers converge (join) below the presenting part it indicates that the presenting part has not engaged.
   - Instruct the woman to flex her legs slightly and to breathe deeply, if she cannot relax. Palpate in between the deep breaths.
   - Feel to assess if there is more than one baby.

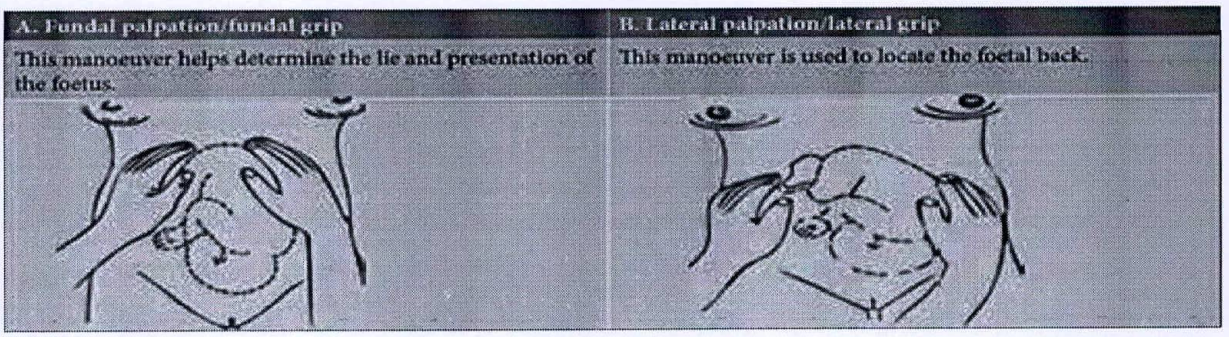



Figure 2.6a: Fetal lie and presentation

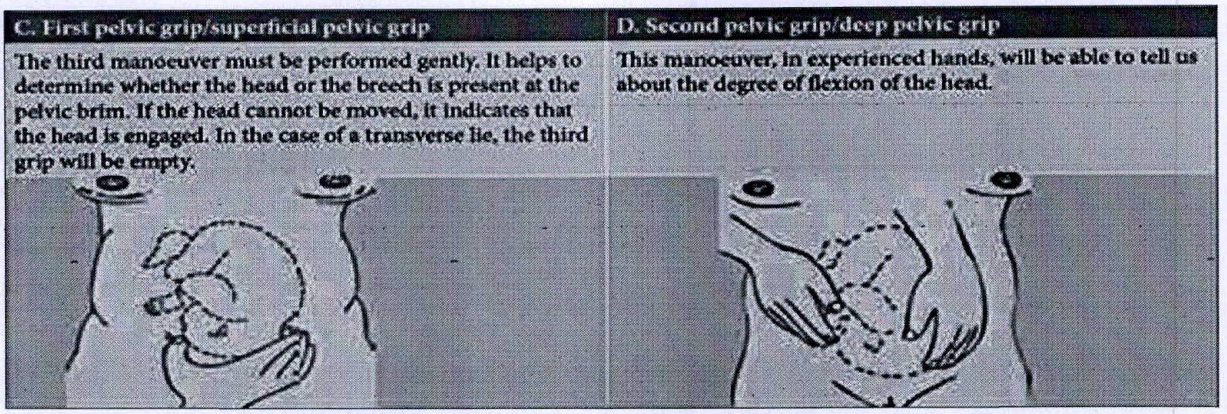
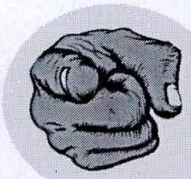



Figure 2.6b: Fetal lie and presentation



## Presentation

**Presentation needs to be confirmed with pelvic examination. The different presentations (see Figure 2.1) may be**

- ✓ Cephalic – most common, where the head of the baby is the presenting part
- ✓ Transverse
- ✓ Breech
- ✓ Others – Face, hand, foot, shoulder

- ❖ Remember a woman with cephalic presentation without any other problem could be managed in the PHC.
- ❖ Check the shape of the uterus, noting if it is longer horizontally than vertically (the latter could mean a transverse lie).
- ❖ Refer a woman presenting with either transverse, breech or any other presentation.

### *Assessing CONTRACTIONS*

1. Place hand on the upper part of the woman's abdomen and feel for contractions over a 10-minute period. Count the number of contractions during that period (frequency of contractions).
2. Keep hand in the same position for the entire 10-minute period and note down the duration of the contractions in seconds.

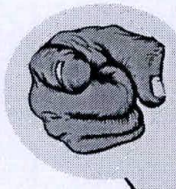
### Remember:

- ❖ Mild: If less than 20 seconds;
- ❖ Moderate: If between 20 to 40 seconds;
- ❖ Strong: If more than 40 seconds

3. Note the duration and number of contractions in the 10minute period in the case sheet.

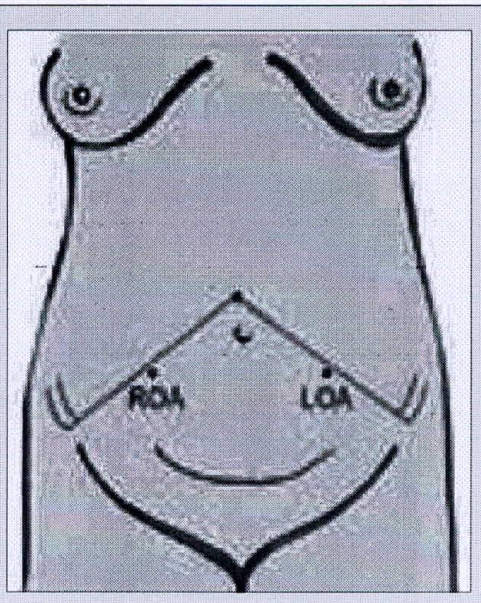
### *Checking FETAL HEART RATE (FHR)*

1. Check FHR only after 24 weeks since FHR cannot be heard before 24 weeks gestation (see Figure 2.7).
2. Place the fetoscope / bell of the stethoscope on the side of the uterus where the fetal back is felt (fetal heart sounds are best heard midway between the umbilicus and anterior superior iliac spine in the vertex and at the level of the umbilicus, or just above it in the breech).
3. Count the fetal heart sounds for one full minute. This is the FHR. If the woman has contractions, check the FHR immediately after a contraction. Normal fetal heart rate is between 120 and 160 beats per minute.
4. Differentiate between the FHR with the pulsations of the uterine blood vessels. This could be done by checking the woman's radial pulse simultaneously along with the abdominal FHR. If it is the same rate, then recheck the location of the FHR.
5. Record all findings on the Case Sheet and discuss them with the woman.

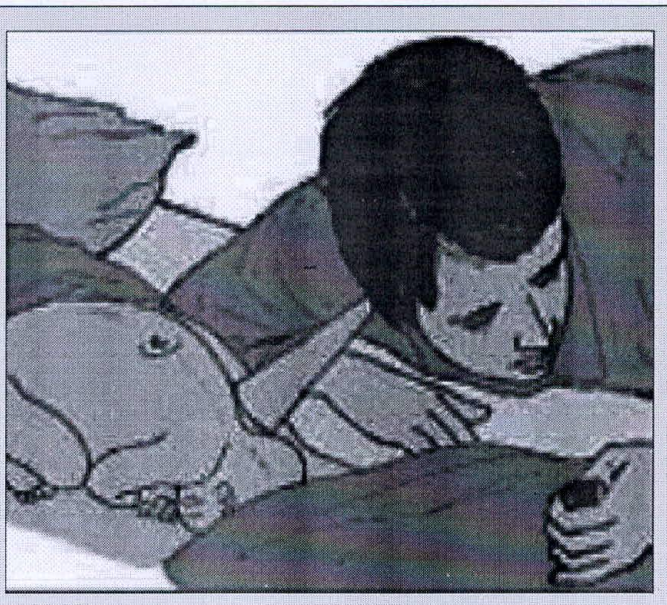


**Remember**

- If FHR is absent or less than 120 beats per minute or more than 160 beats per minute, it indicates fetal distress.
- To alert the medical officer and make arrangements for referral in this case.

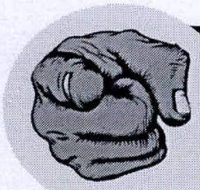



(Note: ROA right occipitoanterior
LOA left occipitoanterior)



Checking FHR using a fetoscope.

*Figure 2.7: Checking FHR*



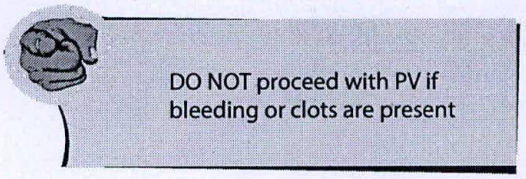
### *Normal abdominal findings in a normal full term situation*

- Fundal height two thirds between umbilicus and xiphoid sternum with full flanks suggests term gestation (38-42 weeks)
- Breech felt as soft irregular mass at uterine fundus
- Back felt as a continuous hard surface on one side of midline, and limbs felt as small round / knob like structures on the opposite side
- Hard round mass felt at superficial pelvic grip is the head, cephalic presentation
- Presenting part not movable means it is engaged (36 weeks-primi and term-multi)
- Only one hard round mass if palpated indicates a single fetus
- Uterus contracts at regular intervals with increasing intensity and duration when in labour
- FHR is between 120 and 160 beats per minute

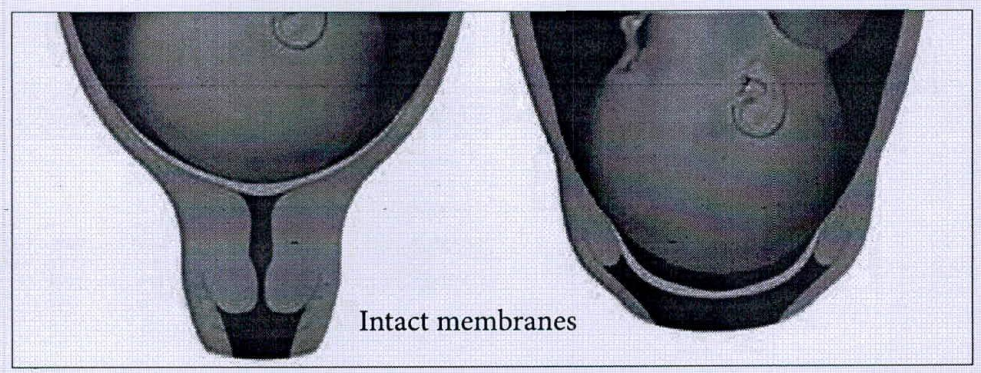
***Pelvic examination during Labour***

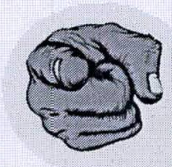
1 Keep the following equipment ready:
   - Sterile/high level disinfection (HLD surgical gloves
   - Plastic apron
   - Cotton swabs / balls (either boiled and cooled or sterile) in Savlon or Dettol
   - 0.5% chlorine solution for decontamination
2 Tell the woman and her support person (ASHA worker/or relative) what is going to be done. Encourage them to ask questions. Listen to what the woman and her support person have to say.
3 Ask the woman to pass urine and then to lie down with her knees flexed and legs apart.
4 Put on a clean plastic apron.
5 Wash hands thoroughly with soap and water, dry them with a clean, dry cloth or air dry.
6 Uncover her genital area and cover or drape her to maintain privacy.
7 Wear HLD/sterile gloves on both hands.
8 Check the vulva for the presence of:
   - Mucus discharge (bloody show)
   - Excessive watery discharge
   - Foul-smelling discharge
   - Bleeding, clots
9 Clean the vulva from the pubis towards the anus and from the labia minora to the thighs without bringing the swab back towards the vulval region with one gloved hand (not the examining hand), using a swab dipped in an antiseptic solution (Dettol/Savlon).

10. Use the thumb and forefinger of the non dominant hand (for example left hand) to part the labia majora, so that the vaginal opening is clearly visible.
11. Insert the index and middle fingers of the examining hand into the vagina gently. (Once the fingers are inserted, do not take them out till the examination is complete). Assess the following
    - ❖ Cervical dilatation
    - ❖ Cervical effacement
    - ❖ Presence of membranes
    - ❖ Presenting part
    - ❖ Station of presenting part
    - ❖ Pelvic adequacy




12. **Check cervical dilatation:** Keep one hand on the women's lower abdomen, just above the pubic symphysis. When the examining fingers reach the end of the vagina, turn fingers upwards so that they come in contact with the cervix.
    - ❖ Locate the cervical os by gently sweeping the fingers from side to side. The os will be felt as an opening in the cervix. The os is normally situated centrally, but sometimes in early labour, it will be far posterior (backwards).
    - ❖ Feel the cervix: It should be soft and elastic, and closely applied to the presenting part.
    - ❖ Measure the dilatation of the cervical os by inserting middle and index fingers into the open cervix and gently opening the fingers to reach the cervical rim (distance in centimetres between the outer aspects of both examining fingers).
        - ⌖ 0 cm indicates a closed external cervical os (See Figure 2.8).
        - ⌖ 10 cm indicates full dilatation.
13. **Check cervical effacement:** Progressive shortening and thinning of the cervix during labour is assessed in percent (%). Thick and elongated cervix is an uneffaced cervix (See Figure 2.8) while a thinned out/ membranous cervix is fully effaced cervix.
    - ❖ If the cervix is well applied to the presenting part, it is a favourable sign.
    - ❖ If the cervix is not well applied to the presenting part, is a flag to be alert.
14. **Check status of membranes:** Intact membranes can be felt as a bulging balloon during a contraction through the dilating os. If membranes are ruptured check the colour of liquor/ amniotic fluid
    - ❖ Refer urgently if amniotic fluid is meconium-stained and delivery is not impending.
    - ❖ Be prepared for resuscitation of newborn, if labour is impending and refer once stabilized.
15. **Check presenting part:**
    - ❖ Judge if it is hard, round and smooth and the suture lines are felt. If so, it is the head.



***Refer urgently***

- If the umbilical cord is felt (cord presentation)
- If breech presentation (buttocks or legs at the cervix)
- If transverse lie (arm or shoulder felt at the cervix)
- If face presentation (might feel mouth/no sutures palpated)

*Figure 2.8: Cervical dilatation, effacement and status of membranes*

16. **Check station of the presenting part:** Station of presenting part is its position relative to the ischial spine, pelvic inlet and pelvic outlet. It is recorded as "x" centimeters above or below the ischial spine which is level 0.

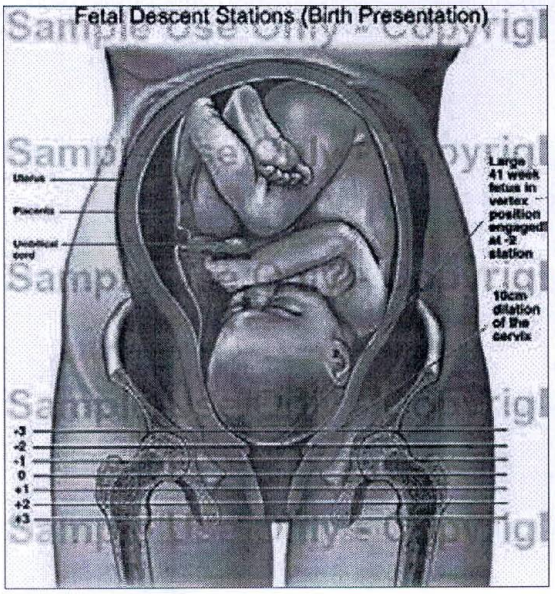



*Figure 2.9: Station of presenting part*

- When the fetal head is at the same level as the ischial spines, this is called station 0.
- If the head is higher up the birth canal than the ischial spines, the station is given a negative number. At station –4 or –3 the fetal head is still 'floating'
- If the fetal head is lower down the birth canal than the ischial spines, the station is given a positive number. At station +1 and even more at station +2, the presenting part of baby's head bulging forward during labour contractions could be seen
- At station +3 the baby's head is crowning, i.e. visible at the vaginal opening even between contractions. The cervix should be fully dilated at this point.

17. **Check for pelvic adequacy:**

Try to reach the sacral promontory (The most prominent anterior projection of the base of the sacrum) if the head is not engaged. If the sacral promontory is felt, the pelvis is contracted.

- If the sacral promontory is not felt, trace downwards and feel for the sacral hollow. A well-curved sacrum is favourable.

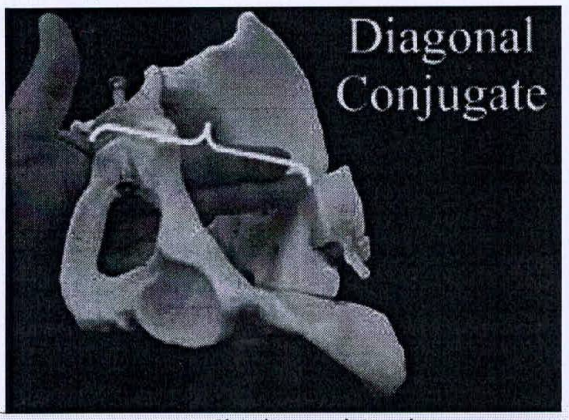
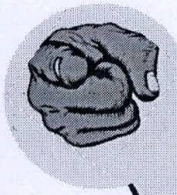



*Figure 2.10: Checking pelvic adequacy*

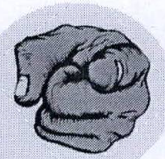


***Refer the woman to the higher facility***

- For instrumental or cesarean section as necessary if both ischial spines are felt at the same time with fingers when spread. This means the pelvic cavity is contracted (CPD).

18. **Complete the procedure**

- Remove fingers from the vagina gently. Examine the glove for meconium, blood.
- Remove the gloves by turning them inside out. Dispose in a leak-proof container or plastic bag.
- Soak gloves if they have to be re-used, in 0.5% chlorine solution for 10 minutes to decontaminate them. Then wash them and dry thoroughly, sterilise (maximum only 3 times).
- Wash hands thoroughly with soap and water, dry with a clean, dry cloth or air dry.
- Inform the woman about the findings and reassure her.
- Record all findings from the vaginal examination on the partograph (See details in Chapter 3, page no: 36-38) given in the case sheet (see Volume 1 Annexure). Use the partograph only if the woman is in active labour (cervix dilated 4 cm or more and at least two uterine contractions per 10 minutes, each of 20 seconds duration). If she is not in active labour, note down findings in the case sheet.



**Remember**

The partograph is a graphical presentation of the progress of labour, and of fetal and maternal condition during labour. It is a tool to help detect whether labour is progressing normally or not, and to warn the staff nurse if there are signs of fetal distress or if the woman's vital signs deviate from the normal range.

## 2.5 Mentoring Skills

The following methods could be used to mentor the staff on initial assessment of a woman in labour:

### *Sample example of one to one mentoring - previous investigations*

- Use the information during one to one mentoring at the PHC.
- Check with the staff nurse at the PHC during a mentoring visit if a woman had any investigations done in this pregnancy and also check if the details have been documented in the case sheet.
- Help the staff nurse with how to interpret the tests as provided in the table below.

| Test | Inference |
|---|---|
| Hemoglobin gm/dl | ❖ Less than 7gm/dl indicates severe anemia needs referral.<br>❖ Less than 11gm/dl indicates anemia. |
| Blood group and Rh | ❖ Rh–ve needs referral<br>❖ If woman's group is O and the baby's group is A or B there is a chance of red blood cell breaking down faster than usual (hemolysis). This can cause jaundice in the baby |
| Test for Syphilis (RPR/VDRL) | ❖ Reactive or Positive (needs referral) |
| Test for HIV | |
| Hepatitis B (HbsAg) | |
| Malaria | |
| Urine test for protein | ❖ If +/++/+++/++++ is an indicator of pre-eclampsia and its severity |
| Urine test to check for infection | ❖ If positive, needs stabilization and treatment |
| Oral glucose tolerance test (OGTT). | ❖ If any one reading is more than the reference values, it indicates Gestational Diabetes. (Not done routinely for all women, but based on history or presenting symptoms) |
| Ultrasound | ❖ Single/ multiple gestations, gestational age, location of placenta, presentation, adequacy of liquor, congenital anomalies may also be documented in the USG report. |
| Any others | |

- Check with staff if all tests done have been documented in the case sheet along with date and results.
- Reinforce the importance of interpreting the results
- Also determine if the tests have to be repeated and record the test results in the case sheet. Reaffirm the staff's motivation and ability to interpret results.

## *Sample example of abdominal examination demonstration by mentor*

- This could be planned or based on need during a mentoring visit.
- If possible check if there is a woman on whom the nurse can demonstrate abdominal examination to elicit the fetal lie, presentation, FHR.
- Introduce self to the woman and seek permission for performing the procedure.
- Encourage the staff to demonstrate the procedure.
- Affirm the correct steps.
- Then ask her if there were some steps that she thought could be done better.
- Use pictures for abdominal examination and check if the nurse was able to identify or demonstrate on model or pillow, correct or wrong steps .
- Demonstrate steps if needed. Refer to the case sheet during the process.
- Ask the staff nurse to demonstrate the steps back. Affirm the correct steps.

## *Sample example of case scenario for history taking that can be used for a group mentoring session*

**Case Study 2.1: - Part i:** *Normal Pregnancy- History and Investigations*

A 24 year G2 P1 presents to the PHC with contractions. What specific information would you like to ask her about on history?

_____

_____

_____

**Case Study 2.1: - Part ii:** *Physical examination*

The woman is 39 weeks gestation. Her last delivery was 2 years ago. She had a normal vaginal delivery of a live born male infant, weighing 2700gm at term. She had no complications in her pregnancy or labour. For the present pregnancy, she has been having regular antenatal care. She is otherwise healthy, has never had surgery, is not taking any medications and does not have any allergies. Her contractions began 3 hours ago. They are every 5 minutes and are becoming closer together and stronger. She has not felt her water break and she can feel good fetal movement.

*What would you like to do on physical examination?*

*What do you think you should focus on when performing a physical examination on this woman?*

## *Sample case scenario for calculation of LMP*

i. **Case study 2.2:** ***LMP known***

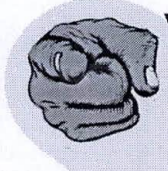
Laxmi, who is 18 years old, says she got her last period on January 21st, 2011. She wants to know when she will deliver. Calculate her due date.

ii. **Case study 2.3:** ***LMP not known***

Seema, who is 30 years old, comes to you and says that she has not got her period for the past three months. She last got her period on the day before Holi, i.e. March 10. Calculate her due date.

iii. **Case Study 2.4 (optional):** ***Irregular cycles***

Mrs. Rekha, 24 years old primigravida comes to OPD with 6 months amenorrhea. This is her first visit to you. How will you calculate the EDD with regular and irregular cycles?



Key (Answer for Case Study 2-4):

Case Study 2.2 Answer: 9 calendar months + 7 days, i.e. September 28th, 2011

Case Study 2.3 Answer: 9 calendar months + 7 days, i.e. December 16

Case Study 2.4 Answer :

- H/O regular periods: Add 9 months and 7 days to the LMP
- Cycles more than 28 – 30 days: Add the extra number of days to arrive at EDD

Cycles less than 28 days: Subtract the number of days from the EDD.

## 2.6 Key Messages-Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO follow up presenting complaints.*** The presenting complaints if altered serve as red flags for the nurse to do something else in order to arrive at a diagnosis. |
| | ***DO calculate gestational age.*** Knowing how to calculate gestational age is important because it provides an estimated due date. It thus will help to know if the baby would be preterm or not or if the baby's growth would be appropriate. |
| | ***DO take vital signs and see if they are abnormal.*** Abnormal vital signs indicate complications that require management before referral. |
| | ***DO a proper abdominal examination.*** The symphsis fundal height plus or minus 3 cm (which could be more or less than the gestational age) usually is equal to the gestational age in weeks. A measurement that is more than 3cm different indicates a problem that needs PHC staff to be alert. |
| | ***DO listen to the fetal heart.*** A fetal heart rate that is absent or that is less than 120 or greater than 160beats/minute is not normal and needs referral. |
| | ***DO assess for prematurity.*** Prematurity (gestational age less than 37 weeks) always needs to be ruled out when a woman presents to the PHC. This is especially important if the woman is in labour or has rupture of membranes. |
| | ***DO always check to see if placental location is known.*** This is important to rule out placenta previa. |
| | ***DO always make sure the woman is stable before referral.*** When a complication is diagnosed there is always something that could be done at the PHC to make the woman stable. The case sheet will guide you. Refer only after taking initial steps of management. |
| | ***DO always use case sheet as a job aid for every case and ensure complete documentation.*** |
| **Don'ts** | ***DO NOT hesitate to call the medical officer or district program specialist*** when in doubt or if there is a complication detected. |
| | ***DO NOT perform a pelvic examination if there is bleeding per vagina*** and the placental location is not known, or the woman is known to have placenta previa or low lying placenta, as it could lead to severe bleeding. (If the location of placenta is known and placenta previa is ruled out pelvic exam can be done). |
| | ***DO NOT perform a pelvic examination if the membranes have ruptured and the woman is not in labour.*** This can lead to infection. |
| | ***DO NOT refer a woman without starting initial management (stabilizing) her first.*** There is always something that could be done prior to referral. |

# Chapter 3 Labour and Delivery

**Reference:** SBA guidelines 2010 Page 43-52

## Learning Objectives:

**At the end of this chapter you will be able to**

- Recall the stages of labour, components of and how to do labour monitoring, the significance of using the partograph
- Demonstrate how to monitor progress of labour using the partograph in a woman admitted to the PHC, and how to manage all four stages of labour
- Demonstrate the correct documentation of the partograph and case sheet for all stages of labour, for a woman admitted to the PHC
- Demonstrate mentoring skills for use of partograph in first stage of labour, management of second to fourth stages of labour, including monitoring and progress of labour in a woman admitted to the PHC

## 3.1 Introduction

Normal labour is the spontaneous process of expulsion of the fetus and placenta. It is made up of four stages. Keen observation, monitoring using the partograph (a graphic tool) and support during this crucial period would help in managing it correctly or in identifying complications and thus enable starting initial management before referral. This could ensure a successful outcome for woman and newborn. The intrapartum and immediate postnatal period is a critical time; worldwide nearly half of all maternal deaths and one-third of all stillbirths and neonatal death occur during this period. Both the third and fourth stages of labour are critical time periods where early postnatal hemorrhage can occur. In northern Karnataka as in rest of India, postnatal hemorrhage remains the leading cause of maternal death. Since complications can occur during all stages of labour, each stage of labour has to be monitored closely in order to detect complications and take prompt action.

## 3.2 Components of Labour and Delivery

### *Determine if the woman is in true versus false labour*

It is not uncommon for women to experience some contractions as their pregnancy progresses, but this does not mean they are in labour. This could occur more often for a primigravida. A nurse must be able to differentiate between true and false labour.

### *Identify the stage of labour and monitor it progress*

There are four stages of labour, all of which are important and need to be monitored carefully by a skilled birth attendant.

- The first stage of labour is from the onset of true labour pains to full dilatation of the cervix.
- The second stage is from full dilatation of cervix till delivery of the fetus.
- The third stage is from expulsion of fetus to delivery of the placenta.
- The fourth stage is from delivery of placenta till 2 hours of delivery. Close monitoring during these stages could help to identify complications early, start initial management and referring the woman early for appropriate management

### *Conduct the delivery, including active management of the third stage of labour (AMTSL)*

A skilled birth attendant could conduct the delivery of a woman. Readiness for the second stage, adequate preparation could help the nurse to conduct the delivery effectively. The nurse must practice AMTSL to reduce the risk of bleeding.

### *Initiate immediate postnatal care*

This is an important period since most maternal deaths could occur during this period. It is important to watch the woman carefully during this period and be aware of the risk for post partum hemorrhage or bleeding.

## 3.3 Importance of Components of Labour and Delivery

### *Determine whether woman is in true or false labour*

True labour consists of regular uterine contractions that increase in frequency and intensity and leads to increase in cervical dilation and effacement. Knowing when true labour has actually started is important as this acts as the point from which we monitor progress and decide whether any intervention is needed.

Misdiagnosing someone when they are not in labour can lead to unnecessary procedures and interventions being performed.

### *Identify the stages of labour and monitor its progress*

Knowing the stage of labour is important to identify whether labour is progressing normally or there are some urgent complications that have to be referred after initial management. The first stage is the period from the onset of labour pain to the full dilatation of the cervix i.e. to 10 cm. The first stage takes about 8 hours in a primigravida and 6 hours in multigravida. If it takes longer than this to reach full dilation or for the fetus to descend, this is a red flag that something is wrong, such as prolonged or obstructed labour (see complication case sheet A).

***Labour has two phases, a latent phase and an active phase.***

- ***In the latent phase,*** the contractions will not be regular, both cervix dilatation (less than 4 cm) and thinning of the cervix (effacement) is slow. It can vary in duration from hours to days. On the case sheet a separate area is provided to monitor a woman in latent labour that is separate from the partograph

(see details following). Complications can occur in the latent phase, it is thus important to monitor the vital signs (BP, pulse, temperature and respiration) and fetal heart rate in this phase. Any abnormalities could be a flag for a developing complication. It is important to also monitor the cervical dilatation every 4 hours to determine when the woman is in the active phase (cervical dilatation of 4cm)

- ***In the active phase*** the cervix dilates faster and the fetus descends. The active phase begins when the cervix is 4 cm dilated and the contractions are strong and regular.

### *Monitoring the progress of active labour by plotting on a partograph*

***Using a partograph*** could help to follow the progress of labour, as well as the condition of the woman and the fetus. It is a graphic recording of the pelvic examination findings (cervical dilation, effacement, station, status of membranes), the fetal heart rate, the frequency and strength of contractions and the vital signs of the woman. It is a tool that helps assess the need for action and recognizes the need for referral at the appropriate time, thus facilitating timely referral and pre-referral management.

The information in the partograph is to be recorded at various time intervals in four separate graphs:

- ***Graph A and B record labour progress:***
  - Once a woman has entered active labour (dilatation of 4 cms or more ), the rate of cervical dilation should be at least 1 cm per hour, although it may be faster (1.2 -1.5 cm per hour). Cervical dilation that is less than 1 cm per hour in the active phase is called prolonged labour or has stopped altogether on Graph A is called obstructed labour and requires referral (see complication case sheet A).
  - Uterine contractions that are not frequent and intense on Graph B also indicate prolonged or obstructed labour and require referral (see complication case sheet A).
- ***Graph C records the maternal condition:*** Maternal vital signs, if abnormal serve as a red flag to check what the underlying cause is. It is then important to start initial management and get help of a doctor immediately.
- ***Graph D records fetal condition.*** If the fetal heart rate is greater than 160 or less than 120 beats per minute on Graph D, this is a flag that there is fetal distress and referral to a higher centre should be made (see complication case sheet H).

It is important to know how to plot and read the partograph to recognize and diagnose any abnormalities or complications of labour progress, maternal and fetal well being.The partograph must be used only when the woman is in active labour (dilatation of 4 cms or more). If it is used before the active phase it could lead to the wrong impression that the labour is abnormal, and thus to unnecessary interventions and procedures. Once the woman has entered the ***active phase of labour,*** information collected must be recorded on the case sheet in the ***labour monitoring section, and on the partograph.***

- The PV examination must be plotted once every 4 hours. Cervical examination is not done more often

than this to reduce the risk of intra-uterine infection in the woman.

- Blood pressure and temperature are also checked every 4 hours. Abnormalities can indicate complications:
  - High blood pressure may indicate hypertensive disease;
  - Low blood pressure can indicate bleeding, infection or shock;
  - Raised temperature can indicate infection.
- Fetal heart rate and maternal pulse is done more frequently (every half hour) since abnormalities in these parameters are often the first clues to a developing complication:
  - Rapid and low volume pulse can indicate bleeding, shock;
  - Rapid FHR ( more than 160/minute) or low FHR (less than100/minute) could indicate fetal distress.

**How to plot and interpret the partograph is covered in the clinical skills section and could be used as a reference during mentoring.**

### *Supportive care during labour*

This may involve emotional support, comfort measures, information and advocacy. It helps create a positive birthing experience for the woman and her family. These measures may increase physiologic labour processes as well as woman's feelings of control and competence, and thus could reduce the need for obstetric intervention. The ways in which supportive care can be provided include

- Encourage, praise, and reassure the woman by speaking in a calm and soothing voice: This could be comforting and relaxing for her
- Maintain respect and privacy at all time: This can be done by explaining all procedures, asking permission and sharing findings: It also makes sure that the basic client rights are met

  Sharing information and seeking permission could help the woman to have a sense of control over the labour experience. Privacy could ensure that she feels comfortable and secure during this vulnerable time.
- Make sure that the delivery room is warm (ideal temperature is 25°C-28°C; best way to know is if you are comfortable) and clean: A warm room could help keep the woman comfortable. It could also help make sure that the baby stays warm when delivered.
- Encourage walking: The woman must be encouraged and helped if needed to walk around during the first stage of labour until rupture of membranes. This could help to make the labour shorter and less painful; with descent of the fetal head and also help prevent the development of fistula if obstructed or prolonged labour occurs.
- Encourage to practice relaxation techniques, such as deep breathing exercises.Deep breathing could help with pain control and coping with pain during labour
- Wipe the forehead of the woman with a damp cloth if needed. Labour is hard work. A damp cloth could be soothening and comforting.
- Remind the woman to empty her bladder every two or so. This could help in the progress of labour.
- Make sure support person is available (like an ASHA or family member) and knows what is expected. The presence of a support person has been shown to decrease need for obstetric intervention.

## *Conduct delivery and do active management of third stage of labour (AMTSL)*

***The second stage*** takes about 2 hours for a primigravida and about half an hour to one hour for a multigravida. If it takes longer than this for the woman to deliver the baby this is a red flag that something is wrong, such as prolonged or obstructed labour (see complication case sheet A).

When the woman reaches the second stage, she should be transferred to the labour room if she is in another room.

- As the head descends the woman will begin to feel more pressure and start to have the urge to bear down or push. This sensation can often be confused with feeling as if one has to go the bathroom to have a bowel movement.
- When the woman begins to push it is important to provide perineal support. This helps prevent the development of third and fourth degree tears.
- It is also important to wear sterile gloves and an apron in order to minimize infection risks for both the woman, newborn and health care provider.
- Immediate management of the baby is crucial to prevent complication (Refer to Volume 3 - Chapter 3 for details of immediate management).

***The third stage of labour*** takes about 15 – 30 minutes irrespective of whether the woman is a primigravida or a multigravida. If after 30 minutes the placenta is still not delivered this is a flag that she has retained placenta (see complication case sheet F).

***Active management of the third stage of labour (AMTSL)*** is a procedure that could prevent postnatal hemorrhage (PPH) and should be done for all deliveries. Before AMTSL it is important to make sure that there is no twin or another live fetus in the uterus. Active management of the third stage of labour involves three key steps:

- Give a uterotonic drug (Injection Oxytocin) after delivery of baby which increases contraction of the uterine muscles. This would help in expulsion of the placenta, reduce bleeding and prevent PPH.
- Do controlled cord traction (CCT) to assist in the delivery of the placenta, and help reduce the chance of a retained placenta and thus bleeding, i.e. PPH. It must be applied correctly to avoid complications.
- Provide uterine massage to make the muscles of the uterus contract (feels like a cricket ball). The contracting muscles constrict around the blood vessels and helps decrease bleeding.

PPH could be caused by uterine atony (soft and tender uterus), genital tears or retained pieces of placenta or membrane, it is important to examine both the placenta once it has been delivered and the woman's perineum.

- Estimate the blood loss soon after delivery of the placenta, to recognize if the amount of blood lost is normal.
- Check if the uterus is well contracted (feels like a cricket ball) when felt over the abdomen.
- Check if placenta is complete or not – missing pieces or lobes is indicative of retained placental products and requires referral and further management.
- Vaginal/perineal tears can bleed significantly and need to be identified so that they could be properly repaired.

- First and second degrees tears could be repaired at the PHC.
- Third and fourth degree tears need initial management and referral for repair to a higher facility.

***Initiate immediate postnatal care fourth stage***

The fourth stage is an important period as severe postnatal hemorrhage (PPH) can occur during this stage, which could lead to death of the woman if not managed well. ***During this period the woman must remain in the labour room.***

Most maternal and newborn deaths occur during the first few hours after delivery. Paying close attention to vital signs (pulse, BP), uterine tone and vaginal bleeding is important as any abnormalities in them act as a flag to alert you to ongoing hemorrhage (see complication case sheet F).The following must be done during this stage:

- Encourage the woman to empty the bladder. A full bladder can prevent the uterus from contracting and lead to postnatal hemorrhage.
- Check vital signs (BP/Pulse), vaginal bleeding and uterine tone/height regularly (every 15 minutes) for the first 2 hours following delivery.
  - Abnormal vital signs (increasing heart rate, decreasing blood pressure, altered level of alertness) could make one suspect postnatal hemorrhage. Increase in vaginal bleeding or the amount of blood on the pad also is a flag for PPH.
  - Soft and spongy uterus: After delivery a normal uterus will feel hard and firm and be at the level of or just below the umbilicus. Examining the uterus tells us if the uterus is remaining contracted or not. A uterus that is soft and spongy/boggy, or that is increasing in size (height above the level of the umbilicus) is a red flag for postnatal hemorrhage due to uterine atony.
  - An elevated blood pressure (greater than 140/90 mmHg) and/or seizures during this time indicates hypertensive disease and eclampsia. This means that initial management must be started to stabilise the woman, and then she must be referred for further management and treatment. An elevated temperature greater than 38$^0$C indicates infection. This must be referred for further management.
- Make sure the woman and baby are together and not separated.
- Assist woman to breastfeed within 30 minutes as this stimulates the release of oxytocin, which helps keep the uterus firm, and contracted and thus prevent postnatal hemorrhage.
- Ensure the woman eats well and drinks enough fluids to replace the energy expended during delivery and to ensure adequate intake to stay healthy postnatal.
- Dispose the placenta in the basin or based on cultural beliefs (give it to the relatives if they request to complete any religious or cultural rituals).
- Clean the room, segregate waste to prevent spread of infection.

## 3.4 Requirements for Management of Labour and Delivery

### *Equipments and supplies*

Ensure that the following equipment is available at the PHC and in working condition:

- Examination table and stepping stool
- Blood pressure apparatus
- Stethoscope
- Thermometer
- Fetoscope
- Case sheet
- HLD gloves, goggles, apron, mask
- One sterile tray to conduct delivery
  - 2 artery forceps
  - 1 thumb forceps
  - Sterile gloves
  - Scissors to cut cord
  - Cord tie/clamp
  - Sterile cotton swabs
  - Sterile pad
  - Sterile gauze pieces
  - Kidney tray
  - Towels to wrap the baby
- Disposable needles and syringes
- Episiotomy scissors if needed
- Local anesthetic (Inj Lignocaine 0.5% 10ml) with syringe and needle
- Suturing set (artery forceps, scissors, forceps/pickups); absorbable sutures – chromic, polysorb if needed
- Disinfectant solution- 0.5% bleach solution
- Antiseptic solution – savlon or betadine
- Kidney tray
- Basin to collect placenta
- One puncture proof container to discard needles and other sharps
- One leak poof container to dispose soiled linen
- Watch / clock to note time for different stages of labour

- Measuring tape
- Adhesive tape to put identity hand on the baby
- Emergency medication
  - Inj Oxytocin (10IU preferred)
  - Tab Misoprostol 600mcg (available as 200mcg strength)
  - Inj Magnesium sulfate
  - Inj Ergotamine 0.2mg
  - Cap Nifedipine 5mg
  - Inj Hydralizine 5mg
  - IV drip Normal saline
  - IV drip Ringer lactate
  - IV set with Venflon/butterfly
  - Adhesive tape or micropore
  - Inj Lignocaine 10 mL 0.5% solution
- Pads for woman
- Madilu kit for those eligible
- Newborn corner

## *Clinical skills*

How to assess vital signs and perform a pelvic examination has been outlined in Chapter 2 and has not been repeated here. Please refer to it for details.

***Management of FIRST STAGE OF LABOUR AND PLOTTING THE PARTOGRAPH***

1 Fill out the labour monitoring section of the case sheet when a woman comes to the PHC with labour pains.
   - This consists of an identification section, monitoring section and the partograph.
   - First , fill in the identification data in the case sheet - name, age, parity, date and time of admission, registration number, date and time of rupture of membranes.
   - Fill in the latent phase component of the labour monitoring sections if the woman is in latent phase. Do not plot information from the latent phase on the partograph. If she is already in active labour then you can go straight to the active phase component of the monitoring section and also begin plotting on the partograph.

***Plotting the PARTOGRAPH***

1 Determine the next steps of management. Refer urgently, after initial management and stabilization, any complications such as:

- ❖ Rupture of membranes more than 12 hours,
- ❖ Prolonged or obstructed labour,
- ❖ Pre eclampsia, eclampsia,
- ❖ Antepartum hemorrhage
- ❖ Infection
- ❖ Fetal distress
- ❖ No fetal movements
- ❖ Review the current reading, at every step of plotting the partograph, in relation to the previous reading and determine if there is a deviation from the normal.

***GRAPH A: Labour***

1 Start plotting the dilatation at 4 centimetres or more with an X on Line A corresponding to the cervical dilatation at first evaluation. NOTE -The first reading will always be on Line A. Record the time corresponding to this reading. The reading on all other parameters should be plotted keeping this as the starting point. Each box represents half an hour or 30 minutes.

2 Measure and plot with an X every four hours.

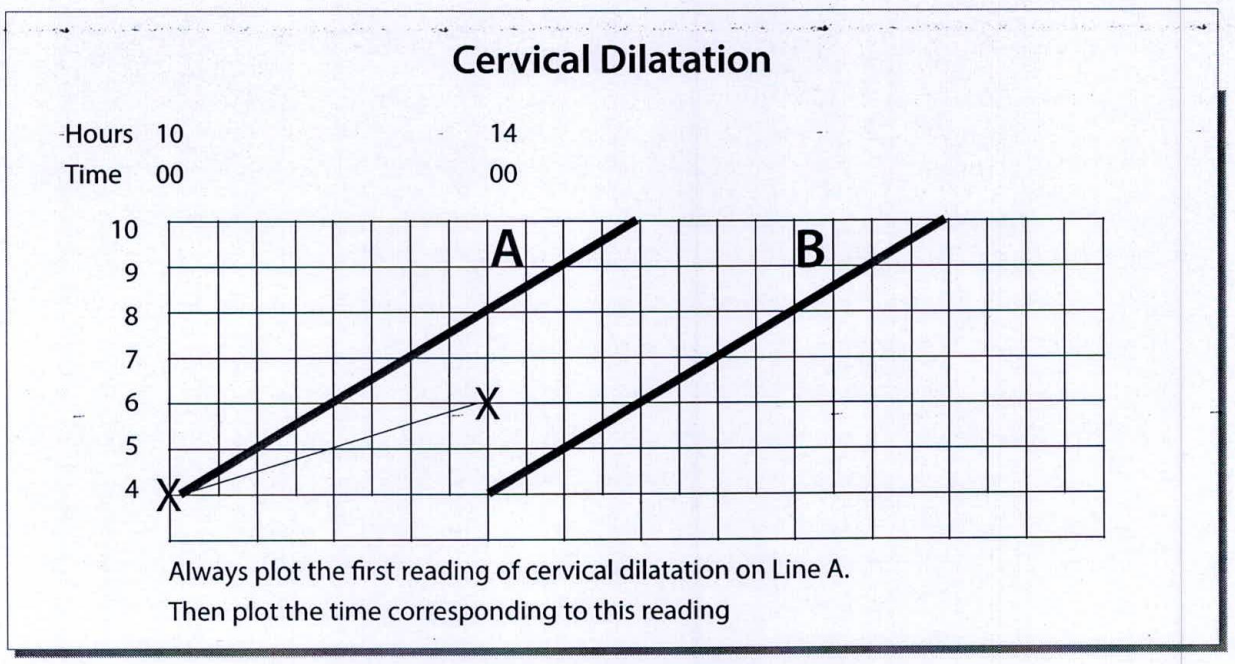



*Figure 3.1: Plotting cervical dilatation on partograph*

***GRAPH B: Labour***

1 Count contractions for 10 minutes every half an hour and record with an X.

2 Record the duration of contractions each time in seconds, in the box denoted.

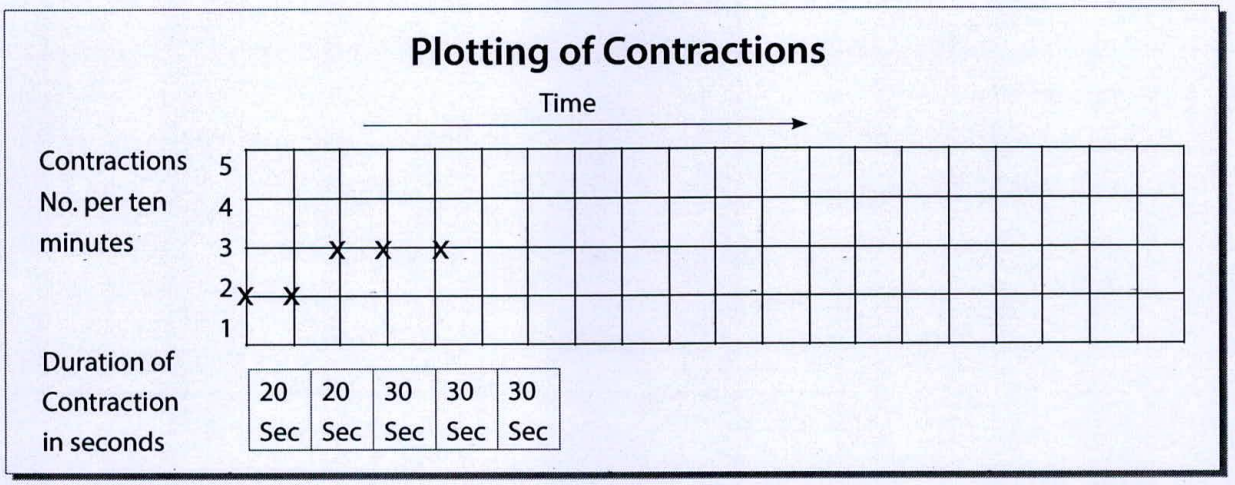



*Figure 3.2: Plotting contraction on partograph*

***GRAPH C: Maternal condition***

1 Record the pulse of the woman with an X at every half hour.

2 Record the blood pressure every four hours using the sign with the top arrow denoting systolic BP and the lower X denoting diastolic BP.

3 Record the temperature in Celsius in the box denoted every four hours.

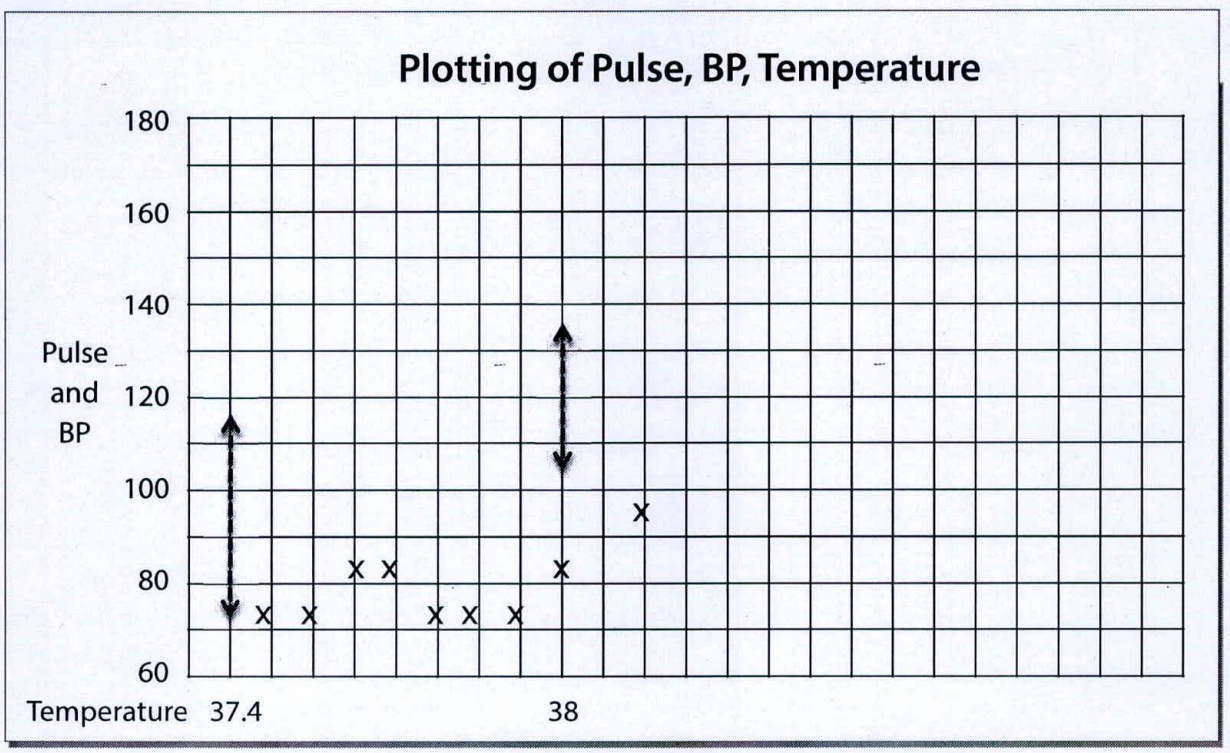



*Figure 3.3: Plotting vital parameters on partograph*

***GRAPH D: Fetal condition***

1 Record the FHR with an X every half hour.

2 Record the status of membranes and amniotic fluid with I, C, B, M where I means intact membranes; C means clear amniotic fluid; B means blood stained amniotic fluid; M means meconium stained.

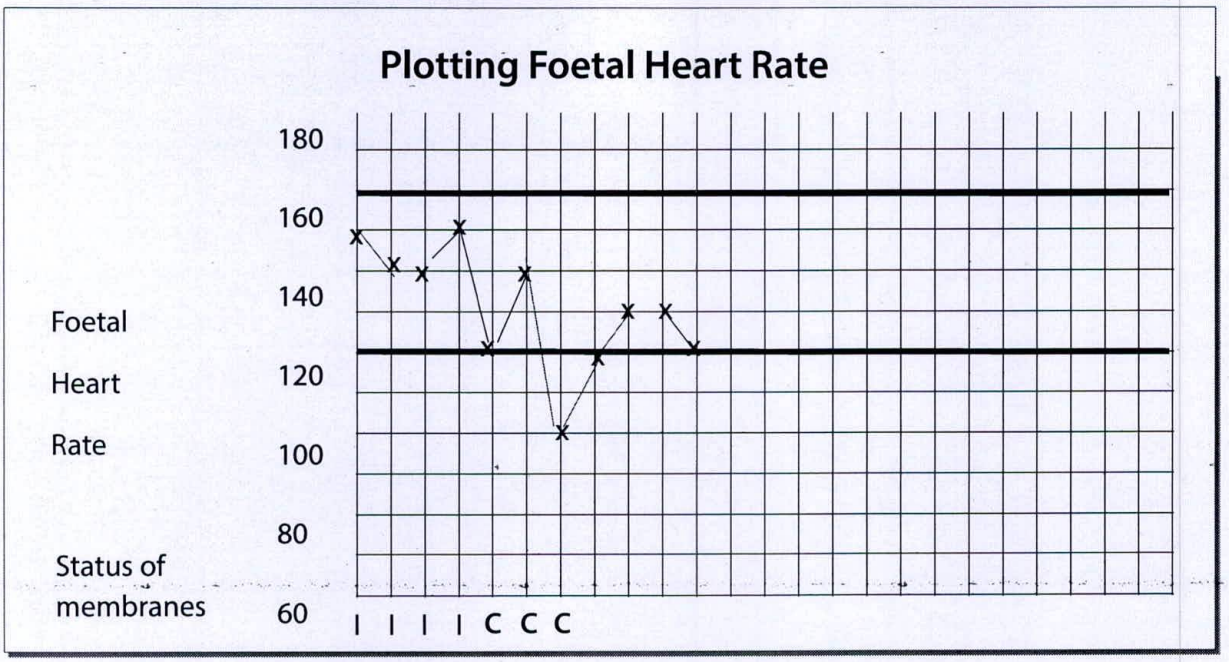



*Figure 3.4: Plotting contraction on partograph*

***Preparation of LABOUR ROOM***

1 Ensure that the oxygen cylinder with flow meter, suction apparatus, and UPS are in working condition at each shift.

2 Keep the equipment, supplies and drugs necessary for conducting a delivery ready.

3 Allow the woman to adopt the position of her choice: semi-sitting or lying on her back with her legs raised/ flexed.

4 Maintain privacy (place a curtain or screen).

5 Tell the woman and her support person what is going to be done.

6 Encourage the woman or support person to ask questions.

7 Listen to what the woman and her support person have to say.

8 Provide emotional support and reassurance.

***Conduct a VAGINAL DELIVERY***

I. Identify signs of delivery

- Transfer the woman to the labour room when she reaches this stage, if she is in another room.
- Advise her not to walk during this stage, especially when the membranes are ruptured to avoid cord prolapse.

2 Continue to monitor the frequency and duration of the contractions, every half an hour.

- Count the number of contractions occurring every 10 minutes and the duration in seconds,
- Monitor the FHR every five minutes. Being alert for any emergency sign is important.

3. Conduct the delivery

- Remove all jewellery, and put on a clean plastic apron, and shoes/shoe cover.
- Place one clean plastic sheet from the delivery kit under the woman's buttocks.
- Wash hands thoroughly with soap and water, and dry them with a clean, dry cloth or air dry.
- Do check to see if woman is eligible to be a beneficiary of the Madilu kit programme of the Govt of Karnataka (based on social and economic status); if so, ensure documents are obtained and the Madilu kit is opened at the time of delivery.
  - The madilu kit contains two towels that could be used to wipe the baby dry and wrap the baby
- Wear sterile gloves on both hands and clean the perineal area from above downward towards the anus and from labia minora outward towards the thighs with cotton swabs dipped in antiseptic lotion.

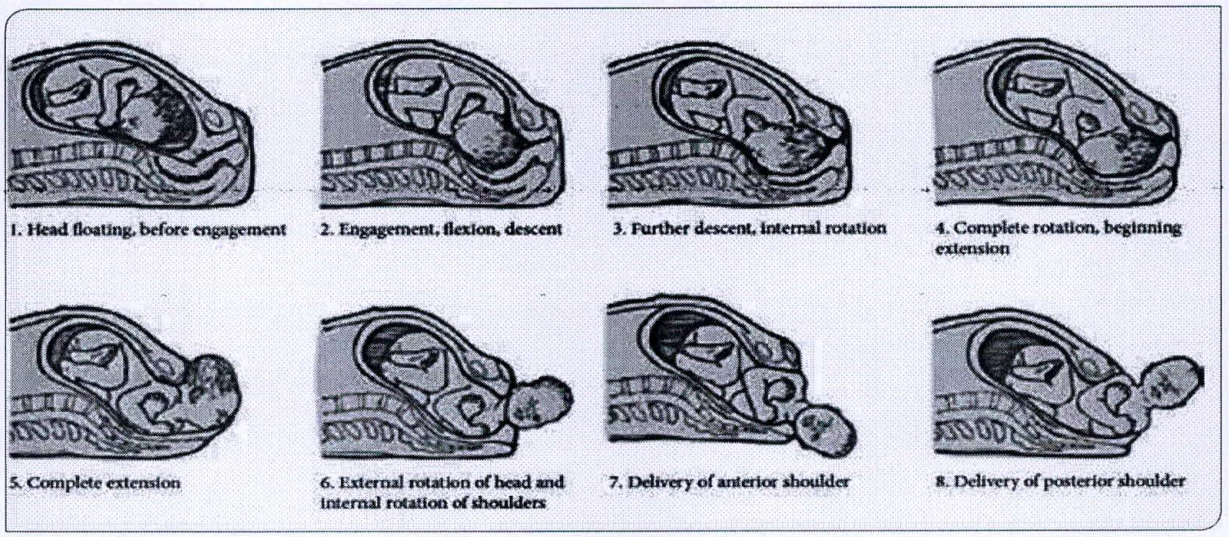



*Figure 3.5: Process of delivery*

4. Delivery of the head

- Keep one hand gently on the head, as it advances with the contractions, to maintain flexion.
- Support the perineum with the other hand, using a clean pad. Give good perineal.support to prevent perineal tears. Leave the perineum visible (between the thumb and the index finger).

The best time to give perineal support is when the woman has a contraction; the perineal skin is stretched

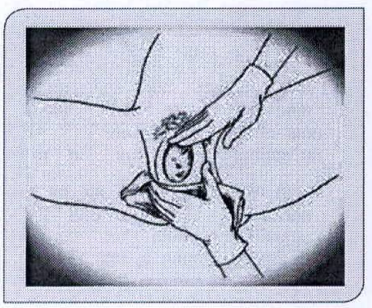


*Figure 3.6: How to give perineal support*



*Figure 3.5: Process of delivery*

- Ask the woman to take deep breaths and bear down (push) only during a contraction.
- Wipe the baby's face once the head is out. Clean the mucus with a clean piece of gauze.
- Feel around the neck gently for the cord.
  - If the cord is around the neck but is loose, slide/slip it over the baby's head.
  - If the cord is tight around the neck, clamp the cord with two artery forceps placed 3 cm apart, and cut the cord between the two clamps and unwind it.

5. Delivery of the shoulders and the rest of the baby
   - Wait for spontaneous rotation and delivery of the shoulders. This happens in about 1–2 minutes.
   - Apply gentle pressure downwards to deliver the anterior shoulder.
   - Deliver the posterior shoulder by lifting the baby up, towards the woman's abdomen.
   - Observe as the rest of the baby's body follows smoothly.
   - Place the baby on the woman's abdomen over a warm clean cloth or towel.
   - Check if the baby has cried or is breathing.
   - Wipe the baby, clamp and cut the cord and place baby for skin-to-skin contact between woman's breasts. Cover the baby with another clean warm towel. (See details under Volume 3, Chapter 3- Routine care of newborn in the first hour after birth).
6. Document: Date, time, sex of the baby and other details as outlined in the case sheet.

***Third stage of Labour: ACTIVE MANAGEMENT OF THIRD STAGE OF LABOUR (AMTSL)***

Before administering AMTSL, rule out the presence of another baby by palpating the abdomen and trying to feel for fetal parts. AMTSL has three parts namely administration of oxytocin, controlled cord traction and uterine massage that are described below.

1. Give IM Injection oxytocin
   - Wash hands.
   - Withdraw 1 ml if 10 IU/ml of Oxytocin is available. If 5 IU/ml, break two ampoules and withdraw 2 ml in a disposable syringe with 22/23G needle. Ensure that there are no air bubbles in the syringe.
   - Explain to the woman that an injection will be given to help decrease the bleeding.
   - Uncover the area to be injected (lateral upper quadrant of buttocks- major gluteal muscle, lateral side of upper leg or upper part of arm).
   - Disinfect the skin with an alcohol swab.
   - Tell the lady to relax the muscle.
   - Insert the needle swiftly at an angle of 90 degrees (watch depth!).
   - Aspirate briefly; if blood appears, withdraw needle. Replace it with a new one, if possible, and inject again at another site.
   - Inject slowly (less painful).

- ❖ Withdraw needle swiftly.
- ❖ Press sterile cotton wool onto the injection site.
- ❖ Check the woman's reaction and give additional reassurance, if necessary.
- ❖ Dispose waste safely; wash your hands.

2. Perform controlled cord traction (CCT)
   - ❖ Assure the woman that delivering the placenta will not hurt, because it is much smaller and softer than the baby.
   - ❖ Hold the clamped end of the umbilical cord with one hand and place the other hand just above the symphysis pubis, for counter traction (see Figure 3.7).
   - ❖ Maintain tension on the cord and wait for a contraction.
   - ❖ Pull gently the cord downwards to deliver the placenta, only during a contraction.
   - ❖ Push upwards with the other hand, by applying counter- traction. (If the placenta does not descend within 30–40 seconds of CCT, do not continue to pull on the cord. Wait for about 5 minutes for the uterus to contract strongly, then repeat CCT with counter-traction).
   - ❖ Hold the placenta with both hands to prevent tearing of the membranes, when it delivers.
   - ❖ Gently twist the membranes so that they are expelled intact.
   - ❖ Place the placenta in a tray or plastic bag, as feasible.

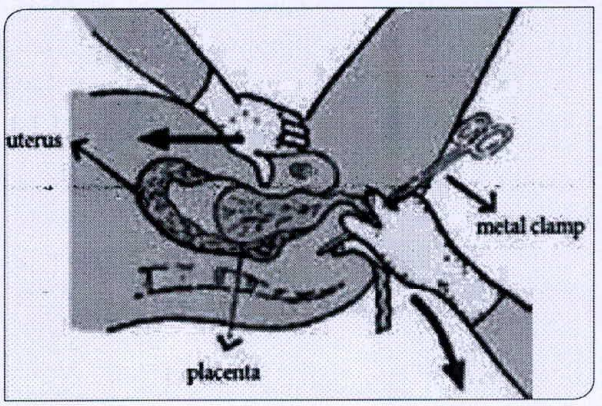



*Figure 3.7: How to perform CCT*

3. Perform uterine massage
   - ❖ Place cupped palm on the uterine fundus and feel for the state of contraction.
   - ❖ Massage the uterine fundus in a circular motion with the cupped palm until the uterus is well contracted. A well-contracted uterus feels hard like a cricket ball.
   - ❖ Place the fingers behind the fundus, when the uterus is well contracted, and push down in one swift action to expel clots.Tell the lady to relax the muscle.

4. Examine the PLACENTA, MEMBRANES, PERINEUM AND UMBILICAL CORD
   - ❖ Examine maternal surface of placenta
     - ⌖ Hold the placenta in the palms of hands, keeping the palms flat (see Figure 3.8). Make sure that the maternal surface is facing you.
     - ⌖ Check if all the lobules are present and fit together.
     - ⌖ Suspect that some placental fragments are retained in the uterus if any of the lobes are missing

or the lobules do not fit together.

- Examine fetal surface of placenta
  - Hold the umbilical cord in one hand and let the placenta and membranes hang down like an inverted umbrella (see Figure 3.9).
  - Look for holes, which may indicate that a part of the membrane has been left behind in the uterus.
  - Look for the point of insertion of the cord (the point where the cord is inserted into the membranes and from where it travels to the placenta).
- Examine membranes
  - Place the membranes together and make sure that they are complete.
- Examine umbilical cord
  - Wipe the tip of the umbilical cord with a sterile cotton swab
  - Inspect the umbilical cord if it has two arteries and one vein. Suspect for congenital malformation if only one artery is found.

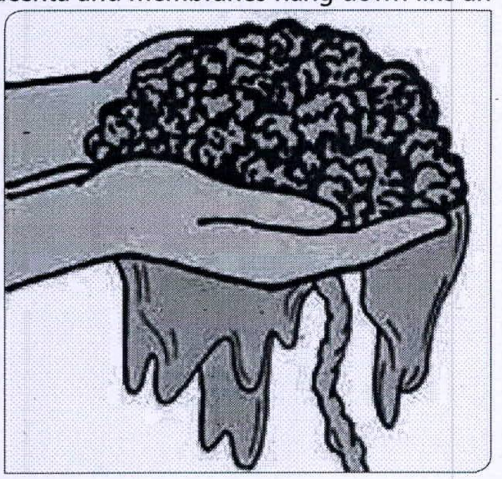


*Figure 3.8: How to examine maternal surface of placenta*

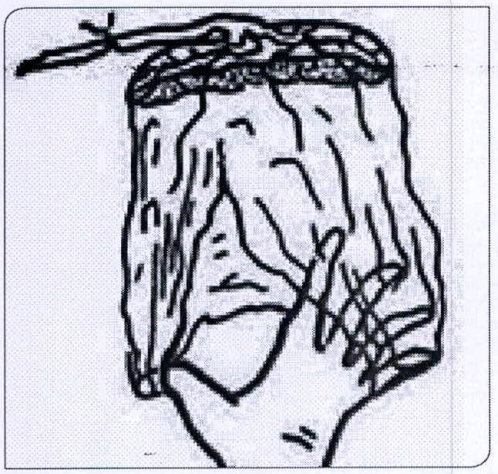


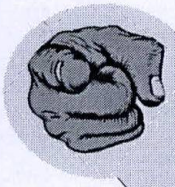
*Figure 3.9: How to examine fetal surface of placenta*

***Infection control measures- HOW TO DISPOSE THE PLACENTA***

1. Keep the gloves on.
2. Put the placenta into leak-proof yellow biodegradable bag containing bleach or hand over to relatives if requested for religious purposes. If handed over to relatives inform them how to dispose it safely and to wear gloves when handling the placenta.
3. Dispose the placenta in a safe and culturally appropriate manner for incineration or burial (at least 10 metres away from a source of water in a pit that is 2 metres deep).
4. Remove gloves inside out.
5. Place them in a leak-proof container or plastic bag if the plan is to discard them.
6. Submerge in 0.5% chlorine solution if the surgical gloves are to be re-used for 10 minutes and then wash, drip dry it. Once dry apply powder and store in appropriate place. Steam sterilize if it is to be reused for next delivery. Do not reuse if adequate number of single use gloves are available.
7. Wash hands thoroughly with soap and water, dry them.

***Immediate post-delivery CARE OF THE WOMAN***

1. Keep the woman warm and comfortable.
2. Monitor the following every 15 minutes for first 2 hours:
   - ❖ General condition;
   - ❖ BP and pulse;
   - ❖ Vaginal bleeding and estimation of blood loss;
   - ❖ Uterus, to make sure it is well contracted by assessing tone and height.
3. Check temperature every hour.
4. Examine the vagina and perineum immediately after delivery to check for tears.
5. Estimate the blood lost
   - ❖ Collect the blood in a container or over a clean plastic sheet placed close to the vulva.
   - ❖ Estimate and record the amount of blood lost as average or heavy.



To determine if the bleeding is average or heavy estimate the amount of blood loss using one of the following methods:

- ❖ Count the number of pads soaked (soaking a pad in less than 5 minutes is heavy)
- ❖ Observe for any continued gushing of blood from the vagina or passage of a number of large clots ( heavy bleeding).

***Examine for LOWER VAGINA AND PERINEUM FOR TEARS***

1. Inspect the lower vagina and perineum when estimating blood loss.
2. Ensure that adequate light is falling onto the perineum.
3. Separate gently the labia and inspect the perineum and vagina for bleeding and lacerations/tears.
4. Carefully examine the vagina, perineum and cervix under good light to determine the type of tear. There are four degrees of tears that can occur during delivery
   - ❖ Most first degree tears (vaginal tissue only) heal without repair, unless they are actively bleeding.

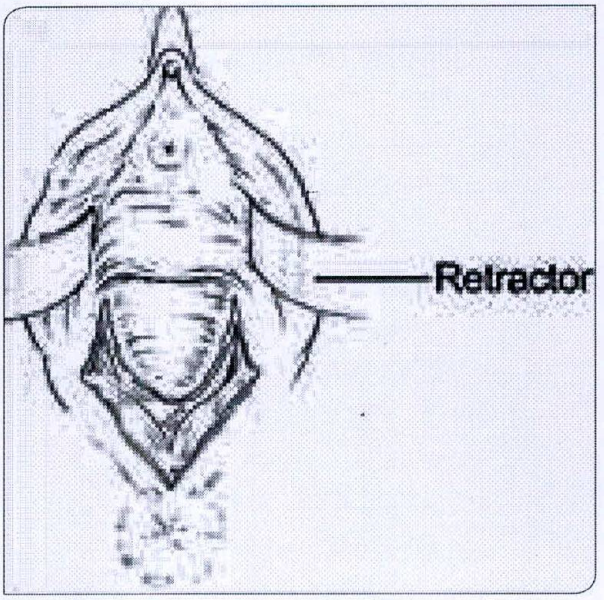



*Figure 3.10: How to check for perineum tears*

- If the tear is long and deep through the perineum, rule out a third or fourth degree tear:
  - To do so place a gloved finger in the anus.
  - Gently lift the finger and identify the anal sphincter, feeling for the tone or tightness of the sphincter.
  - If the tone of the sphincter is not there, suspect a 3rd degree tear.
  - If there is an obvious tear in the anus and rectal mucosa this is a fourth degree tear.

***Check the UTERUS FOR TONE AND HEIGHT*** postnataly

1. Once the delivery of the placenta is completed, place one hand over the abdomen and feel for the fundus of the uterus.
   - The consistency of the uterus must be hard (like that of a cricket ball).
   - The uterus should be at the level of the umbilicus.
2. Check every 15 minutes if the uterus is well contracted, i.e. hard and round.

***How to CARE FOR THE PERINEUM***

1. Clean the vulva and perineum gently with warm water or an antiseptic solution and dry with a clean, soft cloth if no lacerations are present.
2. Place a clean/sun-dried cloth or pad on the woman's perineum.
3. Remove soiled clothes/linen to make the woman comfortable

***Immediate POSTNATAL CARE (1 HOUR OF BIRTH) –INITIATION OF BREAST FEEDING, PERSONAL CARE***

1. Keep the mother and the newborn together.
2. Ensure that the madilu kit is used and the baby is kept warm by wrapping with the towel in the kit.
3. Encourage and help the mother to start breastfeeding, including colostrum, as early as possible/within half an hour of birth (See Volume 3, Chapter 5). The oxytocin produced during the act of breastfeeding will help keep the uterus contracted.
4. Encourage the woman to
   - Take adequate fluids and rest.
   - Clean herself well after passing urine.
   - Pass urine frequently.
   - Report any difficulty immediately (difficulty to pass urine, difficulty to pass stool, too much bleeding, foul smelling discharge, pain in the breasts or head or perineal region, feeling hot, unable to feed the baby).
5. Watch the woman and also ask the support person to call if the woman develops any of the following:
   - Increase in P/V bleeding;
   - Severe headache;

- ❖ Visual disturbance;
- ❖ Epigastric pain;
- ❖ Convulsions;
- ❖ Inability to pass urine.

6. Counsel the woman and family members in the event of a referral for any complications on the following:
   - ❖ Why she needs to be referred;
   - ❖ Where she would /should be taken;
   - ❖ How she should be transported;
   - ❖ With whom she would be transported;
   - ❖ What she must do during transport if the baby is with her.

***Care of the NEWBORN***

1. Shift the mother and baby to the ward for further care in the postnatal period if no complications arise, when both are stable (Refer to Volume 3, Chapter 3-8 for details).

## 3.5 Mentoring Skills

The following methods could be used to mentor staff nurses on assessing and managing a woman during labour and delivery in the PHC:

### *Sample for teaching a staff nurse or staff nurses about identification of true labour.*

- ❖ This can be a planned group teaching but depending on the situation, it could be also used as a one to one teaching.
- ❖ Give participants a scenario, "a 20 year old woman comes to the labour room with a history of abdominal pains since 4 hours. This is her first pregnancy and she is 36 weeks pregnant. What would you ask, look for, feel to decide if this is true or false labour pains?"
- ❖ Help the participants to identify those features that will differentiate between true and false labour
  - ⌖ Additional information that would need to be collected include: if pain is regular, where pain is felt first, whether associated with contractions and continues irrespective of activity, whether there is show.
  - ⌖ If answer is no then it is false labour.
- ❖ Use the information in Table 3.1 below to list all features of true labour.

**Table 3.1 Difference between true and false labour pain**

| True labour pain | False labour pain |
|---|---|
| ❖ Begins irregularly but becomes regular and predictable | ❖ Begins irregularly and remains irregular |
| ❖ Felt first in the lower back and sweeps around to the abdomen in a wave pattern | ❖ Usually felt first abdominally and remains confined to the abdomen and groin |
| ❖ Pain is associated with contraction of the uterus | ❖ Often disappears with ambulation or sleep |
| ❖ Continues no matter what the woman's level of activity | ❖ Increases in duration frequency and intensity with the passage of time |
| ❖ Increases in duration frequency and intensity with the passage of time | ❖ Show absent |
| ❖ Accompanied by show (blood stained mucus discharge) | ❖ Does not achieve cervical effacement and dilatation |
| ❖ Achieves cervical effacement and dilatation | |
| ❖ Accompanied by descent of the presenting part | |

## *Sample exercise for mentoring staff on use of partograph*

### *1. Partograph exercise 3.1–(Total time 15min)*

**Step 1:** Mrs. Chitra, wife of Ramesh, aged 27years, was admitted at 9.00 a.m. on 12.5.2012. Membranes ruptured 8.00 a.m. She is Gravida 4, para 3+0. Her Hospital number 6639. Initial assessment done at the PHC gave the following findings:

a) The cervix is 5 cm dilated

b) There are 3 contractions in 10 minutes, each lasting 30 seconds

c) FHS 140/min

d) Amniotic fluid clear

e) Blood pressure 120/70 mmHg

f) Temperature 36.8°C

g) Pulse 80 per minute

**Step 2:** Monitoring of labour gave the following findings:

❖ 9.30 a.m. FHS 130/min, Contractions 3/10 each 35 sec, Pulse 80/min, liquor clear

- 10.00 a.m. FHS 136/min, Contractions 3/10 each 40 sec, Pulse 90 /min, liquor clear
- 11.00 a.m. FHS 140/min, Contractions 3/10 each 40 sec, Pulse 88/min, liquor clear
- 11.30 a.m. FHS 140/min, Contractions 3/10 each 40 sec, Pulse 90/min, liquor clear
- 12.00 noon. FHS 130/min, Contractions 3/10 each 40 sec, Pulse 90/min, liquor clear
- 12.30 p.m. FHS 130/min, Contractions 3/10 each 40 sec, Pulse 88/min, liquor clear
- 1.00 p.m. FHS 140/min, Contractions 3/10 each 40 sec, Pulse 88/min, liquor clear. Blood pressure 100/70 mmHg. Cervix is fully dilated.

***Question:***

1. What are your diagnoses after plotting the partograph at step1? Why did you make these diagnoses?

_____

_____

_____

2 What advice should be given?

_____

_____

_____

3 Compare partograph plotted at step 2?

_____

_____

_____

4. What action will you take?

_____

_____

_____

## 2. *Partograph exercise 3.2*

**Step 1:**

- Mrs. Suma was admitted at 5.00 a.m. on 12.5.2010
- Membranes ruptured 4.00 a.m.
- Gravida 3, para 2
- Hospital number 7886

- On admission the fetal head was 4/5 palpable above the symphysis pubis and the cervix was 2 cm dilated.

***Question:***

What should be recorded in the partograph?

**Step 2:** 09.00 a.m.

- The cervix is 5 cm dilated.
- There are 3 contractions in 10 minutes, each lasting 20–40 seconds
- Fetal heart rate 120/min
- Membranes ruptured, amniotic fluid clear
- Pulse 80 per minute
- Blood pressure 120/70 mmHg
- Temperature 36.8°C

***Questions:***

What should be recorded in the partograph?

What steps should be taken?

What advice should be given?

What do you expect to find at 1pm?

**Step 3:** Plot the following information on the partograph:

- 09.30 a.m. FHS 120/min, Contractions 3/10 each 30 sec, Pulse 80/min
- 10.00 a.m. FHS 136/min, Contractions 3/10 each 30 sec, Pulse 80/min
- 10.30 a.m. FHS 140/min, Contractions 3/10 each 35 sec, Pulse 88/min
- 11.00 a.m. FHS 130/min, Contractions 3/10 each 40 sec, Pulse 88/min
- 11.30 a.m. FHS 136/min, Contractions 4/10 each 40 sec, Pulse 84/min
- 12.00 noon FHS 140/min, Contractions 4/10 each 40 sec, Pulse 88/min
- 12.30 p.m. FHS 130/min, Contractions 4/10 each 45 sec, Pulse 88/min

***Question:***

What is the diagnosis?

What steps should be taken?

What advice should be given?

When do you expect to happen?

**Step 4:** 1.00 p.m.

- Cervix is fully dilated
- Contractions 4/10 each 45 sec
- FHS 140/min
- Amniotic fluid clear
- Pulse 90/min
- Blood pressure 100/70 mmHg
- Temp $37^0$ C

***Question:***

How long was the first stage of labour?

_____

_____

_____

How long was the second stage of labour?

_____

_____

_____

**Step 5:**

Note: record on case sheet

- 1.20 p.m.: spontaneous delivery of a live female infant, weight. 2850 gm

### *3. Partograph Exercise 3.3*

**Step 1:**

- Mrs Bharathy was admitted at 10.00 a.m. on 2.5.2010
- Membranes intact
- Gravida 1, para 0
- Hospital number 1443

Record the information above on the partograph, together with the following details:

- Cervix is 4 cm dilated
- Contractions 2 in 10 minutes, each lasting 15sec
- FHS 140/min
- Membranes intact

- Pulse 80 per minute
- Blood pressure 100/70 mmHg
- Temperature 36.2°C

**Step 2:** Plot the following information on the partograph:

- 10.30 a.m. FHS 140/min, Contractions 2/10 each 15 sec, Pulse 90/min, membranes intact
- 11.00 a.m. FHS 136/min, Contractions 2/10 each 15 sec, Pulse 88/min, membranes intact
- 11.30 a.m. FHS 140/min, Contractions 2/10 each 20 sec, Pulse 84/min, membranes intact
- 12.00 noon FHS 136/min, Contractions 2/10 each 15 sec, Pulse 88/min, membranes intact
- 12.30 p.m. FHS 136/min, Contractions 1/10 each 15 sec, Pulse 90/min, membranes intact
- 1.00 p.m. FHS 140/min, Contractions 1/10 each 15 sec, Pulse 88/min, membranes intact
- 1.30 p.m. FHS 130/min, Contractions 1/10 each 20 sec, Pulse 88/min, membranes intact

**Step 3:** Record the information above on the partograph, together with the following details:

**At 2.00 p.m.**

- Cervix is 4 cm dilated
- Contractions 2/10 each 20 sec
- FHS 140/min
- Membranes intact
- Pulse 90/min
- BP 120/80 mmHg
- Temperature 36.2°C

***Questions***

What is your diagnosis?

_____

_____

_____

What action should be taken now?

_____

_____

_____



15501

## Key - Partograph exercise 3.1

**Step 1:** Have participants compare the recordings on their partographs

***1. What is your diagnoses?***

- Multi gravida in active labour
- Maternal and fetal condition good

***2. What advice should be given?***

- To eat and drink fluids as tolerated
- To practice breathing exercises to relax

3. ***Compare partograph plotted at step 2***

- Normal progress of labour
- Good maternal and fetal condition
- To inform if she has any discomfort

4. ***What action will you take?***

- Be ready to coduct delivery

## Key - Partograph exercise 3.2

**Step 1**

***Q: What should be recorded on the partograph?***

A: The woman is not in active labour. Record only the details of her history, i.e. first 4 bullets, not the cervical dilatation.

***Q: What steps should be taken?***

A: Inform Suma of the findings and tell her what to expect; encourage her to ask questions; provide comfort measures, hydration, nutrition.

***Q: What advice should be given?***

A: Advise Suma to assume position of choice but not to walk since membranes have ruptured; drink plenty of fluids; eat as desired.

***Q: What do you expect to find at 1.00 pm?***

A: Progress to at least 8 cm dilatation.

Step 2

***Q: What should you now record on the partograph?***

A: The woman is now in the active phase of labour. Plot the given information on the partograph.

***Q: What steps should be taken?***

A: Prepare for the birth.

***Q: What advice should be given?***

A: Advise Mrs Suma to push only when she has the urge to do so.

***Q: What do you expect to happen next?***

A: Spontaneous vertex delivery.

**Steps 3 and 4:**

***Q. What is your diagnosis?***

A. Normal progress of labour; good fetal and maternal condition

***Q: What steps should be taken?***

A: Routine monitoring of labour; reassure the woman; give her fluids to drink.

***Q: What do you expect to happen next?***

A. Looking at the progress, the woman is expected to have a normal delivery.

***Q: How long was the active phase of the first stage of labour?***

A: 5 hours.

***Q: How long was the second stage of labour?***

A: 20 minutes.

## Key - Partograph exercise 3.3

**Step 1**

Have participants compare the recordings on their partographs with the partograph for Case 2.

***Q. What is your diagnosis?***

A. Mrs Bharathy is in active labour.

***Q. What action will you take?***

A. Inform of findings and what to expect; encourage her to ask questions; encourage her to move around and to drink and eat as desired.

**Step 2:** Have participants compare the recordings on their partographs with the partograph for Case 2.

### *Q. What is your diagnosis?*

A. Failure to progress; poor uterine action; but good fetal and maternal condition.

### *Q: What action will you take?*

A: Inform Mrs Bharathy of findings and what to expect, Reassure her; Encourage her to move about; give her fluids to drink.

**Step 3:** Have participants compare the recordings on their partographs with the partograph

### *Q: What is your diagnosis?*

A: Prolonged labour; with good fetal and maternal condition.

### *Q: What action should be taken now?*

A: Refer the patient to a higher centre. See that her vital signs are normal, stabilize if needed and transfer her to the centre urgently where augmentation or surgical intervention could be done.

## *Sample care study to use for mentoring session: Labour Case study 3.1*

Instruction to mentor

- Use this case study to help discus with staff nurses during a planned group teaching
- You might have to make copies of them before your visit.
- Review the case scenario before the session by yourself so that you are thorough with the possible responses to questions.
- Review content in your mentoring manual and be thorough.
- Be sure to ask the District Program specialist if in doubt about any question.
- Read aloud the case scenario and facilitate the discussion.

Radha (wife of Gangaram), 26 years of age, third gravida, was admitted at 5:00 am on 11 June 2010. She was full term and came with labour pains since 2:00 am. Her membranes ruptured at 4:00 am. She has two children of the ages of 5 and 2 years. On admission, her cervix was dilated 2 cm.

*Plot the following findings on the partograph*

At 9:00 am:

- The cervix was dilated 5 cm.
- She had 3 contractions in 10 minutes, each lasting 30 seconds, the FHR was 120 beats per minute.
- The membranes had ruptured and the amniotic fluid was clear.
- Her pulse was 80 per minute, blood pressure was 120/70 mmHg, and temperature was 36.8°C.

***Plot the following findings on the partograph.***

- 9:30 am: FHR 120/min, contractions 3/10 each 30 seconds, pulse 80/minute, amniotic fluid clear
- 10:00 am: FHR 136/min, contractions 3/10 each 35 seconds, pulse 80/minute, amniotic fluid clear
- 10:30 am: FHR 140/min, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear
- 11:00 am: FHR 130/min, contractions 3/10 each 40 seconds, pulse 88/minute, amniotic fluid clear
- 11:30 am: FHR 136/min, contractions 4/10 each 45 seconds, pulse 84/minute, amniotic fluid clear
- 12:00 noon: FHR 140/min, contractions 4/10 each 45 seconds, pulse 88/minute, amniotic fluid clear
- 12:30 pm: FHR 130/min, contractions 4/10 each 50 seconds, pulse 88/minute, amniotic fluid clear

***Plot the following findings on the partograph.***

At 1:00 pm:

- Cervix fully dilated
- Contractions 4/10 each 55 seconds
- FHR 140/min
- Amniotic fluid clear
- Pulse 90/minute
- Blood pressure100/70 mmHg
- Temperature 37° C

***Questions:***

1. What is your diagnosis after plotting the partograph at 1.00pm?

_____

_____

_____

2. What can you predict about the outcome for this woman?

_____

_____

_____

3. Why did you predict the above?

_____

_____

_____

## 2. Labour case study 3.2

Rubina (wife of Zarif), age 26 years, was admitted at 11:00 am on 12 June 2009 in full term pregnancy with labour pains since 4:00 am. Her membranes ruptured at 9:00 am. She has one child aged 3 years. She gave birth to a stillborn baby 5 years back.

Plot the following findings on the partograph.

At 11:00 am:

- The cervix was dilated 4 cm.
- She had 3 contractions in 10 minutes, each lasting less than 20 seconds.
- The FHR was 140 per minute.
- The membranes had ruptured and the amniotic fluid was clear.
- Her blood pressure was 100/70 mmHg.
- Her temperature was 37° C.
- Her pulse was 80 per minute.

***Plot the following findings on the partograph***

- 11:30 am: FHR 130/min, contractions 3/10 each 35 seconds, pulse 88/minutes, amniotic fluid clear
- 12:00 noon: FHR 136/min, contractions 3/10 each 40 second, pulse 90/minutes, amniotic fluid clear
- 12:30 pm: FHR 140/min, contractions 3/10 each 40 seconds, pulse 88/minutes, amniotic fluid clear
- 1:00 pm: FHR 130/min, contractions 3/10 each 40 seconds, pulse 90/minutes, amniotic fluid clear
- 1:30 pm: FHR 120/min, contractions 3/10 each 45 seconds, pulse 90/minutes, amniotic fluid clear
- 2:00 pm: FHR 120/min, contractions 3/10 each 45 seconds, pulse 88/minutes, amniotic fluid clear
- 2:30 pm: FHR 118/min, contractions 3/10 each 45 seconds, pulse 90/minutes, amniotic fluid clear

***Plot the following findings on the partograph***

At 3:00 pm:

- Cervix dilated 6 cm
- Contractions 4/10 each 45 seconds
- FHR 100/minute
- Amniotic fluid meconium stained
- Pulse 100/minute
- Blood pressure 120/80 mmHg
- Temperature 37.8°C

***Questions:***

1. What is your diagnosis after plotting the partograph at 3.00pm?

_____

_____

_____

2. What is the action you will take?

_____

_____

_____

3. What initial management should be provided to the woman if she is referred?

_____

_____

_____

## 3.6 Key Messages - Do's and Don'ts

| First stage of labour | |
|---|---|
| **Do's** | ***DO know how to tell the difference between true and false labour.*** True labour consists of regular uterine contractions that are getting stronger and closer together and result in cervical change. |
| | ***DO start the partograph when the woman is in active labour*** (4 cm dilated with regular contractions). Using a partograph helps in the early identification of fetal, maternal and labour complications. |
| **Don'ts** | ***DO NOT start a partograph in the latent phase of labour.*** Doing so can lead to unnecessary obstetric interventions. |
| | ***DO NOT start a partograph for a lady with complications.*** Complications need to be stabilized and referred, not kept to labour at the PHC. |
| | ***DO NOT use an oxytocic (like oxytocin) to induce or accelerate labour,*** as it is associated with a high incident of rupture of the uterus. |
| | ***DO NOT give epidosin to induce or accelerate labour.*** Women who are not having normal progression of labour should not be kept at the PHC. |
| | ***DO NOT give an enema routinely to a woman in labour.*** This is unpleasant and not necessary. |
| | ***DO NOT do a pelvic examination more often than every 4 hours*** as this increases the risk of intra-uterine infection ***(If there is something wrong with the fetal heart or maternal vital signs then this rule does not apply).*** It is not necessary to shave the perineum before delivery. |
| | ***DO NOT delay in referring any complication*** identified after initial stabilization. |
| | ***DO NOT hit, slap or yell at the woman, or her family, in labour.*** This is unacceptable and unprofessional behaviour and against the rights of the woman and her family. |
| | ***DO NOT encourage the woman to push or bear down if the cervix is not fully dilated.*** It could lead to injury of cervix, thereby swelling and obstructed labour. |

| Second stage of labour | |
|---|---|
| Do's | ***DO be prepared at all times for a delivery*** . Make sure all necessary equipment and drugs are available and functional in the delivery room. Being prepared makes dealing with routine delivery or complications easier. |
| | ***DO continue to monitor vital signs and fetal heart rate*** during the second stage as complications can still occur during delivery. |
| | ***DO encourage the women to push when the cervix is fully dilated and she feels a strong urge to bear down*** and the perineum is beginning to bulge. |
| | ***DO give an episiotomy only when required*** as it has been shown to cause increased pain and blood loss. If required, give it as right medio-lateral episiotomy (RMLE). |
| | ***DO provide perineal support during a contraction/pushing.*** This helps prevent tears. |
| | ***DO place the baby over the mother's abdomen*** on a warm towel, dry and simultaneously check if the baby is breathing or crying. Help the mother to give skin to skin contact and cover the baby with a warm towel. |
| Don'ts | ***DO NOT encourage the woman to walk if the cervix is fully dilated*** since there is an increased chance of cord prolapse if the membranes have ruptured and the presenting part is not engaged or the baby could be delivered suddenly. This could be a risk for injury to the baby. |
| | ***DO NOT encourage the woman to push actively until the fetal head*** is distending the perineum and she feels the urge to push. Pushing before increases maternal efforts and can lead to this tiredness |
| | ***DO NOT apply fundal pressure while the woman is pushing*** since this can lead to uterine rupture or other complications |

| Third stage of labour | |
|---|---|
| Do's | ***DO check if there is a second live fetus in the uterus before starting AMTSL.*** |
| | ***DO perform AMTSL routinely on all deliveries.*** This simple procedure is safe and prevents postnatal hemorrhage. Remember AMTSL consists of three steps, administration of oxytocin injection (IM), controlled cord traction and uterine massage. |
| | ***DO routinely inspect the placenta for completeness.*** An incomplete placenta means retained placental fragments and will lead to PPH. It would require initial management to stabilize the woman and referral for further management. |
| | ***DO document all findings on the case sheet.*** Documentation shows that you have performed all of the key procedures involved in provision of care in the third stage of labour. |

| | |
|---|---|
| **Don'ts** | ***DO NOT administer a uterotonic drug until after the baby is delivered,*** or if there is concern that another baby is present and about to be delivered. This is because an uterotonic drug makes the uterus contract which will also prevent the cervix from opening enough to deliver the second baby. |
| | ***DO NOT apply cord traction (pull) without giving a uterotonic, without a contraction and without applying counter traction (push) above the pubic symphysis with the other hand.*** Doing so can lead to tearing off of the cord from the placenta (avulsion) or turning the uterus inside out (inversion). |

| ***Fourth stage of labour*** | |
|---|---|
| **Do's** | ***DO check the woman's vital signs every 15 minutes.*** Abnormal vital signs alert us to complications that need to be quickly recognized and acted on. |
| | ***DO check the uterine tone and height every 15 minutes.*** Increasing height and/or a floppy uterus is a red flag for postnatal hemorrhage and requires immediate management. |
| | ***DO check the amount of vaginal bleeding every 15 minutes.*** Increasing bleeding and/or blood on the pad are a red flag for postnatal hemorrhage and require immediate management. |
| | ***DO routinely estimate the amount of blood loss*** to help you become familiar with recognizing the amount of blood loss that is normal from abnormal during a delivery. This will make is easier to recognize acute postnatal hemorrhage. |
| | ***DO routinely inspect for and repair perineal tears.*** Identification of tears is important to decrease risk of bleeding and ensure proper repair. |
| | ***DO keep the mother and newborn together.*** This encourages bonding and helps keep the baby warm. |
| | ***DO assist and encourage the mother to start immediate breastfeeding.*** It provides the newborn with important calories and stimulates the release of oxytocin in the mother, which helps keep the uterus hard, and contracted to prevent postnatal hemorrhage. |
| **Don'ts** | ***DO NOT leave the mother and baby unattended in the first hour after delivery.*** Complications can arise quickly in this time frame and the mother and newborn need to be closely watched. |
| | ***DO NOT ignore any problem reported by the woman such as discomfort, inability to feed the baby, heavy bleeding, visual disturbances, feelings of uneasiness.*** Complications can arise at any time and complaints need to be listened to and acted upon quickly. |
| | ***DO NOT refer any complication without stabilizing first.*** There is always something that could be done at the PHC prior to referral. Taking the time to stabilize can mean the difference between life and death. |

# Chapter 4 The Postpartum/Postnatal Period

## Learning Objectives

At the end of this chapter you will

- Recall the importance of doing a relevant assessment of the women in the early postnatal period
- List and describe the relevance of the components of a good postnatal assessment
- Demonstrate how to do a comprehensive postnatal assessment and manage postnatal period appropriately
- Demonstrate documentation of relevant early postnatal assessment and management of the women admitted to the PHC, in the case sheet
- Demonstrate mentoring skills for doing a relevant early postnatal assessment and management of the women presenting or admitted to the PHC

## 4.1 Introduction

The postnatal period is defined as the first 6 weeks following the delivery of the newborn. It could be distinguished into early (the first 48 hours) and late (from after 48 hours to the end of 6 weeks) periods. The postnatal period especially the early period is an important time since both mothers and their newborns have a higher chance of developing complications. If complications are not identified and managed early, it could lead to death.

Thus close attention needs to be given to the mother and newborn during this period by watching for any abnormal vital signs and signs of complications while at the PHC or during home visits. It is also important to make sure that the mother and her family have been counselled on possible danger signs in the mother or newborn that she must report immediately for medical attention.

## 4.2 Components of Care in the Postnatal Period and their Importance

### *Maternal assessment*

It is important to pay close attention to the condition of the woman. PHC staff can be alert as early as possible about the presence of any complications and ensures that timely care is given.

### *Counseling on her care including maternal danger signs*

It is best that women are counselled to stay in the PHC at least for 48 hours because complications most often occur in this period. Most women however leave the PHC within 24 hours of giving birth. It is thus very important that they and their families are made aware of the care they require, family planning methods and

of what is normal or abnormal for both themselves and their newborns in order to ensure that complications are recognized early and delays in seeking care are avoided.

### *Medications and immunisation for newborn*

During the early postnatal period the newborn baby would have to be administered Inj vitamin K, and immunisations (BCG, oral polio and hepatitis B).

### *Postnatal assessment of woman and newborn*

Specific assessments must be made during the first two hours after delivery to rule out any complications. The case sheet helps to remember the assessments to be made.

## 4.3 Importance of Components of Postnatal Care

### *Maternal assessment:*

Since the condition of the woman can change from one point in time to another it is important to examine and ask the woman about the specific areas listed below, and this has to be done every sixth hourly for the first two days if she is in the PHC. Asking the woman allows her to provide information about how she is feeling. Her answers can also alert about a possible complication. If the woman gets discharged before 48 hours then she and her family need to be counselled specifically about the following.

- ***Bleeding PV that is heavy*** could be a sign of postnatal hemorrhage or of uterine infection.
- ***Breast pain*** may be a sign of engorgement but can also indicate an infection. If present it is a flag to examine the breasts and make sure no infection is present.
- ***Fever*** is a symptom of infection. If temperature is higher (more than 38°C), it is a reminder to check for a focus of infection.
- ***Headache, blurred vision and vomiting*** are symptoms of PIH/ pre-eclampsia. These complaints should serve as a red flag to recheck the blood pressure to see if it is normal or not.
- ***Lochia colour and odour.*** Normally following a delivery the woman will still have a small amount of bleeding from the uterus – this is called lochia. At first it is red but then it becomes pale yellow and white. Normally, it never has a bad smell. If there is a bad smell or greenish discharge it is a flag to the possibility of an infection such as endometritis/ puerperal sepsis.
- ***Abdominal pain and perineal pain*** may be present after a normal delivery. The abdominal pain could be due to the uterus contracting and the perineal pain may be due to a tear or episiotomy. However, increasing abdominal and/or perineal pain is not normal and is a red flag for uterine or perineal infection. The perineum should be examined to see if it is infected or not.
- ***Other complaints.*** This allows the woman to share any other concerns that she may have with you.

### *The woman should be examined*

- For ***bleeding per vagina:*** excess bleeding could be a sign of postpartum hemorrhage. It is a flag to check if the uterus is contracted (feels like a cricket ball) or soft and tender. It is also a flag to check for 3rd or 4th degree tears or a torn blood vessel.

- ***Checking uterine tone, height and tenderness.*** After delivery a normal uterus will feel hard and firm and be at the level of or just below the umbilicus. Examining the uterus per abdomen tells us if the uterus is remaining contracted or not. A uterus that is soft and boggy, or that is increasing in size (height above the level of the umbilicus) is a red flag for postnatal hemorrhage due to uterine atony. A uterus that is very tender is a red flag for endometritis/puerperal sepsis.
- ***Checking the episiotomy and /or tear.*** If a tear or episiotomy is present it may become infected or separated. Redness and pus indicate an infection, while a large gap between the edges indicates separation of the wound.
- ***Vital signs (blood pressure, temperature, pulse, respiratory rate).*** Assessment of vital signs is important since abnormal vital signs could flag the possibility of a complication. For example
  - ***Pulse*** could be high in case of fever, weak or barely palpable in the case of shock (infections, blood loss) or irregular in case of heart disease.
  - ***An elevated blood pressure*** of greater than 140/90mm Hg confirms PIH, while a low blood pressure of less than 90/60mm Hg is suggestive of shock.
  - ***A high temperature,*** greater than 38$^0$C indicates the presence of infection or sepsis. Low temperatures could be seen in some cases of shock.
  - ***High respiratory rates*** (greater than 18-20/min) can indicate a respiratory problem such as infection or clot.

## Counselling on general care and maternal danger signs

General advice should focus on the care of both the mother and the newborn

- ***Maternal nutrition.*** Women in the postnatal period need to eat well and more than their usual amount, when breastfeeding. They should be able to eat all types of foods such as cereals, pulses, meats, milk products, fruits and vegetables. A good indication that she is getting enough of energy, body building and protective foods is when her plate has food that has different natural colours. Eating well will make her feel better.
- ***Family planning.*** Having babies too close together (less than than 2 years) increases risks for both the woman and newborn. Information about various family planning methods should be shared in order to help the woman delay and space childbirth or stop childbearing if she does not desire to have any more children.
- ***Maternal danger signs:*** The following areas should be discussed with the woman and her family so that if they arise they do not delay seeking care from the PHC:
  - Fever
  - Convulsions
  - Blurred vision / severe headache
  - Increased PV bleeding
  - Foul PV discharge or odour

- Breathing difficulty
- Swollen / red / tender breasts
- Pain / difficulty in passing urine
- Worsening abdominal pain
- Worsening perineal pain

### *Counselling on medications and immunization for the newborn*

Prior to discharge from the PHC the newborn should have been given the first doses of polio, TB (BCG) and hepatitis B vaccine. These vaccinations help prevent infection and death in newborns.

### *Postnatal assessment of the woman and newborn*

This section of the case sheet helps staff nurse to remember to assess / monitor and record important information about the health of the mother and newborn in the postnatal period.

## 4.4 Requirements to Provide Postnatal Care

### *Equipments and supplies*

Ensure that the following equipment is available at the PHC and in working condition:

- Blood pressure apparatus and stethoscope
- Thermometer
- Watch with seconds hand
- Disposable syringes and needles
- Polio vaccination
- TB vaccination
- Hepatitis B vaccination
- Family planning methods - IUD, oral contraceptives, injectables, condoms

### *Clinical skills*

The clinical skills provides detailed information on how to perform each of these procedures and could be used as a resource when mentoring.

Monitoring vital signs including PULSE, BLOOD PRESSURE, TEMPERATURE

Examination of the HEART AND LUNGS

Abdominal examination including UTERINE HEIGHT AND TONE

Counselling skills for any SPECIFIC TOPIC (See details of each topic on Page )

Performing a NEWBORN ASSESSMENT

## 4.5 Mentoring Skills

### *Sample for mentoring using a didactic group teaching method on important elements of communication and counselling skills related to postnatal care*

- Make an assessment of staff nurses ability to communicate effectively in the PHC either by direct observation or an exit interview with women who are getting discharged.
- Plan a session on communication and counselling skills based on the convenience of the staff nurses.
- Reaffirm the good or positive points present in the staff nurses.
- Have a 1 hour participatory session on the topic.
- Reinforce the points on good communication and counselling using the information given in the Table 4.1.

**Table 4.1: Communication skills for counselling**

| What shows you are listening | What shows you are not listening |
|---|---|
| ❖ Facing the woman<br>❖ Looking at the mother or support person while s/he speaks<br>❖ Nodding<br>❖ Smiling or frowning appropriately<br>❖ Being calm<br>❖ Being patient<br>❖ Asking relevant questions<br>❖ Not interrupting, permitting silence<br>❖ Making eye contact | ❖ Looking away or around the room<br>❖ Being distracted<br>❖ Not acknowledging what is being said<br>❖ Fidgeting<br>❖ Writing notes, finding papers<br>❖ Interrupting |
| **Counselling includes** | **Counselling does not include** |
| ❖ Establishing rapport with patients<br>❖ Having conversations with a purpose<br>❖ Listening attentively to patients<br>❖ Helping patients tell their story<br>❖ Giving patients correct and appropriate information<br>❖ Helping patients make informed decisions<br>❖ Helping patients recognize and build on their strengths<br>❖ Helping patients develop a positive attitude to life. | ❖ Telling patients what to do<br>❖ Making decisions on behalf of patients<br>❖ Judging patients<br>❖ Interrogating patients<br>❖ Blaming patients<br>❖ Preaching or lecturing to patients<br>❖ Making promises that you cannot keep<br>❖ Imposing your own beliefs on patients<br>❖ Arguing with patients. |

- Reinforce to the group some important points that must be covered under counselling as given in Table 4.2.

**Table 4.2: Topics for counselling**

1. *Watch for danger signs*
2. *Postnatal care and hygiene*
   - Encourage on need for a support person for the first 48hours after the delivery.
   - Advise on hygiene
     - Have daily bath.
     - Clean perineum daily and after passing stools/ urine
     - Change pads every 4-6 hours and more often if needed.
     - Wash cloth pads with soap and water and dry in the sun.
     - Wash hands before handling baby and especially after cleaning baby or going to toilet.
   - Take enough rest and sleep.
   - Avoid sexual intercourse till the perineal wounds have healed.
3. *Nutrition*
   - Avoid restricting food and fluids.
   - Encourage the family members, such as the husband and mother/mother-in-law to ensure that the woman eats well and avoids heavy physical work.
   - Inform that during lactation the woman needs to eat more than her usual amount in a day. This is not only because she needs to regain her strength, but also because, during the period of exclusive breastfeeding, the baby relies solely on her for his/her nutritional requirements. Giving one extra meal a day is one way to ensure that a lactating woman gets adequate nourishment.
   - Include other important points such as
     - Give cereals like rice and wheat, milk and milk products such as curd, green leafy vegetables and other vegetables, pulses, eggs and meat, including fish and poultry (if the woman is a non-vegetarian), nuts (especially groundnuts), jaggery, fruits, etc.
     - Take locally available foods rich in iron such as green leafy vegetables, drumsticks, brinjal, groundnuts and jaggery.
     - Take enough of foods rich in fibre like fruit/green leafy vegetable to avoid constipation
     - Avoid taking tea or coffee, especially within 1 hour of a meal, as they have been shown to interfere with the absorption of iron.
     - Take foods rich in proteins and vitamin C (e.g. lemon, amla, guava, oranges, etc.) as both help in the absorption of iron.
   - Inform them to choose foods based on the socioeconomic conditions, food habits and taste of the individual.
   - Clarify with the woman and her family on any cultural habits about food, and advise appropriately. Food taboos like restricting water, vegetable and fruit intake in the immediate postnatal period and during lactation are usually stronger and more in number than during pregnancy.

4. *IFA supplementation*
   - ❖ Take IFA tablet once a day for 3 months even if not anemic.
   - ❖ Take IFA tablet twice a day for 3 months if anemic.
   - ❖ Monitor and refer to the FRU, if Hb doesn't improve after 1 month of taking IFA.
5. *Physical activity and post natal exercises*
   - ❖ Inform the woman that she needs sufficient rest during the postnatal period to be able to regain her strength.
   - ❖ Involve the husband and family when providing advise on activity the woman can do.
   - ❖ Encourage her to avoid She any heavy work during the postnatal period but to take part in physical activity such as post natal exercises to strengthen the abdominal and pelvic muscles .
6. *Breastfeeding*
   - ❖ See section on breast feeding counselling Vol 3-Chapter 6.
7. *Care of the newborn*
   - ❖ Refer to (Vol 3) - Chapter 3.
8. *Family planning and contraception*
   - ❖ Explain to the woman and her husband that, after birth, if she has sex and is not exclusively breastfeeding, she could become pregnant as early as six weeks after delivery. Therefore, it is important to start thinking early about what family planning method they will use.
   - ❖ Discuss with the couple to abstain from having sexual intercourse during the first six weeks postnatal, or longer if the perineal wounds have not healed by then.
   - ❖ Ask about the couple's plans for more children. If they desire more, advise them that a gap of 3 to 5 years between pregnancies is healthier for the woman and the child. Inform her about the following:
     - ✣ Family planning methods must be used 1 month after birth when she is exclusively breast feeding.
     - ✣ Exclusive breast feeding alone might not guarantee prevention of pregnancy and it is important to use another FP method simultaneously.
   - ❖ Discuss the advantages and disadvantages of the different family planning methods available to them for birth spacing (or limiting, as the case may be) and help them make an informed choice on what contraceptive method to adopt or accept.
9. *Registration of birth*
   - ❖ Advise them to get baby registered with the local panchayat. Birth registration certificate is a legal document. The birth certificate is required for many purposes, e.g. admission into a school.

## 4.6 Key Messages - Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO monitor the woman and newborn closely in the first 48 hours postnatal.*** This is a important time period where many women and newborns develop complications and die. Being alert helps diagnose complications early and ensure prompt access to treatment. |
| | ***DO always counsel the woman and her family on the maternal and newborn danger signs.*** Knowing when to seek care avoids delays in treatment and can save lives. |
| | ***DO check whether the woman wants a specific family planning method.*** Inform her that it is best to wait till after 2years for the next child. Give her details of when she can start family planning method and about the benefits and disadvantages of each method. This will help her make an informed choice. |
| | ***DO always counsel on general care,*** such as nutrition, family planning, immunization and basic newborn care. Knowing how to stay healthy and prevent illness is important. |
| | ***DO vaccinate the newborn*** against hepatitis, polio and TB (BCG) before discharging from the PHC. Vaccinations prevent illness and save newborn lives. |
| **Don'ts** | ***DO NOT encourage myths*** about diet and newborn care practices. |
| | ***DO NOT restrict foods*** for the woman. Encourage her to take all foods that she normally would eat. |
| | ***DO NOT miss counselling the significant family member (husband / mother in law/ mother) about family planning*** so that choice is made by the couple. |
| | ***DO NOT assume that if a woman is exclusively breast feeding,*** she cannot get pregnant. |

Chapter 5

# Complications during Pregnancy, Labour, Delivery and Postnatal Period – Identification, Initial Management and Referral

At the end of this chapter you will be able to

- Recall how to identify obstetric complications during pregnancy, labour and delivery and in the postnatal period at the PHC
- Explain the appropriate initial management before referral for complications identified
- Demonstrate how to identify danger signs/ obstetric complications and provide the appropriate initial management
- Demonstrate documentation of complications and appropriate initial management at the PHC

## 5.1 Introduction

Fifteen percent of all pregnancies will develop a complication. These complications can occur at any stage during the pregnancy, labour and postnatal period. Of the complications that can occur, hemorrhage, eclampsia and infections account for 60% of maternal deaths in India. This chapter deals with identification, early management and referral of common obstetric complications at the level of 24/7 PHCs.

This chapter has seven sections, each section deals with one complication which may occur during pregnancy, labour, delivery and postnatal period. The sections are arranged in the following order,

Section 5.A – Diagnosis, initial management and referral of complications– General principles

Section 5.B – Prolonged or obstructed labour and rupture of membranes morethan 12 hours duration

Section 5.C – Hypertensive disorders of pregnancy – PIH, pre – eclampsia, eclampsia

Section 5.D – Antepartum hemorrhage

Section 5.E – Infection or sepsis in pregnancy, labour and/or postnatal period

Section 5.F – Preterm labour/preterm or pre labour rupture of membranes

Section 5.G – Post partum hemorrhage

# SECTION 5.A Diagnosis, Initial Management and Referral of Complications – General Principles

## *5.A.1 Components of Management of Complications*

The maternal complications can be studied under the four broad headings:

- Diagnosis
- Initial management
- Referral to the nearest first referral unit (FRU)
- Role of case sheets for identification, initial management and referral

## *5.A.2 Importance of Components*

***Diagnosis of complications***

- When a complication occurs it could be life threatening to both the woman and fetus.
- Three things must be done in a timely manner in order to minimize the risk of severe morbidity and/or death of the woman and fetus/newborn:
  - The complication must be recognized quickly. Initial management must be started before referral.
  - A referral unit where care could be provided must be reached in a timely manner.
  - Within the referral facility appropriate, quality care must be delivered without delay.
- It is important to remain calm rather than being tense or rushed when making a referral. This will help to make sure that the pregnant woman is stable. Otherwise it will take more time to provide the initial management and could result in poor outcomes.
- Knowing how to recognize the common complications of pregnancy, labour and postnatal period could improve quality of care and can help prevent maternal and fetal/neonatal morbidity and mortality.

***Initial management of complications***

- There is always something that could be done at the PHC level before referral.
- This could help stabilize the woman before she reaches the nearest FRU. Both maternal and fetal newborn outcomes are known to improve if complications are identified and initial management is started promptly.

***Referral to the FRU for complications***

- The woman must be referred as soon as she has been stabilized to the nearest centre. Referral if delayed could result in increased risk of maternal or neonatal mortality.

***Role of using case sheets to identify complications***

- The case sheets have been developed to help manage each of the specific complications.
- General principles apply to all the complication case sheets.
- The case sheets help arrive at a diagnosis by assessing specific parameters, provide instructions for the initial steps of management and enables easy documentation while dealing with an emergency.
- They also act as a simple referral note that can accompany the woman, to document what has been done prior to transfer.

## 5A.3 Requirements for Initial Management of Complications during Labour, Delivery and Postnatal Period

***Equipments and supplies***

In order to be able to perform the broad set of skills needed in management of all complications, ensure that the following equipment and drugs are available and functional:

- Stethoscope
- Blood pressure apparatus
- Thermometer
- Fetoscope
- Watch with seconds needle
- IV cannulas/needles
- IV fluids (Normal Saline, Ringers Lactate)
- Foley's catheter and urine drainage bag
- Sterile gloves
- Disposable syringes
- Oxygen cylinders with flow meter
- Nasal prongs
- Inj Betamethasone and/or Dexamethasone
- Inj Oxytocin
- Inj Magnesium sulfate
- Antibiotics Injections – gentamycin, ampicillin, metronidazole, erythromicin

***Clinical skills required for diagnosis and initial management of complications during labour, delivery and post natal period***

- Monitor and interpret VITAL SIGNS INCLUDING FETAL HEART RATE (See chapter 2 page 19)
- Insert IV LINE, ADMINISTER AND CALCULATE FLUID RATES (See Section 5G.3, page 117)
- Insert a FOLEY CATHETER (See chapter 5 page 95)
- Administer OXYGEN (See chapter 5 page 75)
- Administer CORTICOSTEROIDS FOR GESTATIONAL AGES BETWEEN 24-34 WEEKS (See chapter 5 page 75)
- Accompany the woman DURING REFERRAL (See chapter 5 page 75)

## 5A.4 Mentoring Skills

***Sample format to mentor staff on specific skills for management of complications***

- During a mentoring visit, observe how staff are practicing specific skills required for management of complications.
- Remember that there are certain clinical skills applicable to management of all complications (i.e. assessing

vital signs, starting an IV, administering and calculating fluid rates etc). The rationale for the inclusion of the broader set of skills as basic clinical management principles is explained in the table below.

- Use the information in Table 5.1 when reinforcing to staff about the need to gain competence on these skills.
- Demonstrate the procedures to the staff when the opportunity arises.
- Reaffirm positive steps taken by staff to complete the respective procedures.

**Table 5.1: Clinical skill and their importance**

| Clinical skill | Importance |
|---|---|
| Know how to monitor and interpret vital signs including fetal heart rate | ❖ For any of the complications, detecting abnormalities in vital signs is extremely important.<br>❖ An abnormal vital sign or set of vital signs is often the first clue to alert you to the problem and aid in diagnosis.<br>❖ They also provide important information as to how the mother and fetus are responding to initial treatment and care. Since they can change rapidly at any time they need to be monitored frequently. |
| Know how to insert intravenous (IV) line, administer and calculate fluid rates | ❖ Many of the complications would require an IV to be started in order to provide treatment (medications, fluids). This will also ensure that intravenous access is in place if the mother's condition worsens.<br>❖ Provision of fluid is often an important element of initial care (i.e. provides volume replacement in hemorrhage, replaces fluid losses due to dehydration caused by fever, can help decrease fetal tachycardia etc).<br>❖ Intravenous fluid can be given either to maintain the fluid balance or to replace fluid loss (e.g. in the case of shock). Thus the reason why intravenous fluid is given would help to decide how fast you give it. Hence it important that the nurse knows how to calculate the drop rate needed in order to correctly treat the complication (i.e. running the fluid very slowly would not help with the treatment of shock). |
| Know how to insert a Foley's catheter | ❖ Inserting a Foley 's catheter helps keep track of fluid status (intake and output).<br>❖ It also helps prevent the formation of fistula from obstructed or prolonged labour. |
| Know how to administer oxygen | ❖ The provision of oxygen helps improve both maternal and fetal oxygenation. In complications such as severe bleeding, shock, and obstructed labour the oxygen supply to the brain could be lesser. If this is not corrected soon enough, it could have long term complications for both the woman and baby. |

| | |
|---|---|
| Know how to administer corticosteroids for gestational ages between 24-34 weeks | ❖ If any of the complications arise before term gestation (greater than 37 weeks) it is important to administer corticosteroids. Corticosteroids could decrease neonatal mortality and morbidity since the chance of respiratory distress syndrome and necrotizing enterocolitis could be reduced.<br>❖ Thus all women in labour between 24 -34 weeks of gestation must be given corticosteroids to help in the lung maturity. |
| Know who is to accompany the woman during referral | ❖ Aside from the diagnosis of mild pregnancy induced hypertension, all other complications require that a health care provider accompany the mother during transfer. This is because the maternal and fetal condition can deteriorate rapidly while on the way to the higher facility. Delivery can also occur if the woman is in labour.<br>❖ Having a health care provider with the woman ensures that correct monitoring and care is being provided during transport. |

## *5A.5 Key Messages - Do's and Don'ts*

| | |
|---|---|
| **Do's** | ***DO use the case sheets*** to arrive at the correct diagnosis by assessing specific parameters. |
| | ***DO follow the initial steps to stabilize and manage prior to referral*** as given in the case sheets. This will help you provide necessary care in a timely manner and helps decrease adverse outcomes. |
| | ***DO document all actions taken on the case sheets.*** This serves as a simple referral note that shows what emergency care the woman has already received. |
| | ***DO know the common medications used to treat the complications.*** Being familiar with the doses of the medications, routes and contraindications saves time and improves quality of care. |
| **Don'ts** | ***DO NOT rush into making a diagnosis without proper history and assessment*** as given in the case sheet. Taking the time to do a quick, but proper assessment can help in giving the correct treatment. |
| | ***DO NOT diagnose and refer without first seeing that the woman is stable*** (woman is well hydrated, not in shock, pulse palpable, bleeding controlled, no convulsions and the woman will not deliver immediately, FHR good). There is always something that could be done at the PHC first. |
| | ***DO NOT give medications that are not listed on the case sheet.*** These may cause harm and make the situation worse. |

# SECTION 5B Prolonged or Obstructed Labour and Rupture of Membranes more than 12 hours Duration

**(See Complication Case Sheet A)**

## *5B.1 Introduction*

While the length of labour can vary, normal labour and delivery usually does not take more than 12 hours. Once the woman has entered active labour, if 12 hours have passed without delivery this is a red flag to think about obstructed or prolonged labour. Using the partograph can help you make this diagnosis earlier since it helps to easily monitor the progress of labour and pick up any abnormalities. This is important to decrease the risk of uterine rupture, hemorrhage, intra-uterine infection and sepsis, thus reduce risk of maternal death, stillbirth, asphyxia and neonatal death.

The longer the membranes have been ruptured, with or without labour, the greater the risk of intra-uterine infection and sepsis. This could increase the chance for both maternal and neonatal disability and/or death.

In both these situations it is important to recognize these complications early. This will help in providing appropriate initial treatment and care before referral.

## *5B.2 Diagnosis and Provision of Initial Management for Obstructed or Prolonged Labour*

*How to make a diagnosis of prolonged or obstructed labour*

- Criteria for correctly diagnosing prolonged and obstructed labour and rupture of membranes greater than 12 hours are included in complication case sheet A and are listed below. A partograph should also be used to aid in the diagnosis.
- *Prolonged labour:* (Any one sign should be present)
  - Plotted cervical dilatation line in the partograph is to the right of Line A at the four hour and eight hour assessments
  - Contractions do not increase in frequency and duration
  - Cervix not dilated beyond 4 cm after 8 hrs of regular contractions
  - Cervix not dilating at least 1 cm an hour in active labour (regular contractions and initial PV of 3-4 cm)
  - No cervical change with repeat PV after 4 hours in active phase of labour
  - Full dilation of cervix but no descent of fetal head despite maternal pushing efforts
  - Two contractions or less in 10 minutes lasting less than 40 seconds
- *Obstructed labour:* (At least two should be present)
  - Plotted cervical dilatation line in the partograph is to the right of Line A at the four hour and eight hour assessments
  - No cervical change (secondary arrest) with repeat PV after 4 hours in active phase of labour
  - Significant caput and moulding
  - Cervix that is not well applied to presenting part

- Swollen, edematous cervix
- Ballooning lower uterine segment
- Formation of retraction band felt over abdomen
- Fetal or maternal distress
- Labour that is longer than 24 hours duration

❖ *Rupture of membranes for more than 12 hours*

- Membranes have ruptured for more than 12 hours with or without contractions
- Leaking PV

*Initial management of prolonged or obstructed labour or prolonged rupture of membranes morethan 12 hours*

❖ Some common clinical skills/actions have already been explained in the general case sheet section (section 5A) and will not be repeated here. Only skills and initial management that are unique to obstructed/ prolonged labour will be presented.

❖ *Keep the woman nil by mouth*

- Treatment of prolonged/obstructed labour often involves cesarean section, which requires anesthesia. Having a full stomach could increase the risk of complications from anesthesia. Thus if the woman is kept nil by mouth, it would help to decrease this risk.

❖ *Do not give Inj oxytocin*

- Oxytocin could increase the risk of uterine rupture or other complications and should be avoided at the PHC level in cases of prolonged or obstructed labour.
- It is important to transfer the woman as soon as possible to a higher level facility where she could be assisted to deliver.

3. *Administer the following antibiotics (ampicillin, gentamycin and metronidazole)*

- Prolonged and obstructed labour and rupture of membranes for greater than 12 hours could increase the risk of intra-uterine infection. Thus it is important to provide the initial dose of antibiotics to help decrease this risk and/or to begin treating the infection if already present.
- These three antibiotics are used because they cover the organisms most likely to be involved in infection.
- Do not administer other antibiotics unless the woman has a history of allergy to these antibiotics.

❖ *Referral of a woman to the FRU*

- Once the woman is stabilised it is important to transfer her along with a support person to the nearest higher centre where appropriate services to further manage the complication are available (specialist, cesarean section, etc). The centre must be informed, and the staff nurse must make sure the doctor is available before transporting the woman to the facility.
- Any delay in this process could contribute to poor prognosis of either one or both, i.e. the woman and the fetus/newborn.

## 5B.3 Requirements for Initial Management of Prolonged or Obstructed Labour with or without Rupture of Membranes

*Equipments and supplies*

All equipment and drugs listed in the general skill set section (page #) plus the following:

- Cap or inj Ampicillin 1 gram orally or IV
- Inj Gentamicin 80 mg IM or IV
- Tab or inj Metronidazole 400 mg orally or 500 mg IV

*Clinical skills*

In order to accurately diagnose and provide initial management for a woman with prolonged or obstructed labour with or without rupture of membranes select skills are required. These skills should be reviewed and focused on if there is any difficulty in performing them. These skills include:

- Monitor and interpret VITAL SIGNS INCLUDING FETAL HEART RATE (See chapter 2 page 19)
- Insert IV LINE, ADMINISTER AND CALCULATE FLUID RATES (See chapter 5 page 74)
- Insert a FOLEY CATHETER (See chapter 5 page 95)
- Administer OXYGEN (See chapter 5 page 75)
- Administer CORTICOSTEROIDS FOR GESTATIONAL AGES BETWEEN 24-34 WEEKS (See chapter 5 page 75)
- Accompany the woman DURING REFERRAL (See chapter 5 page 75)

## 5B.4 Mentoring Skills

*Sample case study to use for mentors*

*Case Study 5.1-Obstructed labour*

20 yrs. old Mrs. Lakshmi, primigravida is admitted with labour pains at 5 am.

**Step 1** On examination at 5 am: (0 hour)

- Pulse 90/min, BP : 120/80 mmHg, Temp : 37.4°C
- P/A: 3 contractions for 15-20 sec/10 min, FHS : 140/min,
- P/V cervix 4 cm dilated, membranes present

***1. What will you do?***

_____

_____

_____

**Step 2** At 9.00am (after 4 hours):

- Pulse 98/min, BP 120/70 mmHg, Temp : 38°C
- P/A: 3 contractions for 20-25 sec/10 min, FHS 126/min
- P/V: cervix 5 cm dilated, membranes present

***1. Is the progress normal? (Note down the reasons for your answer).***

***2. What are the signs of obstructed labour?***

***3. How will you refer and what will you do before referring?***

## Key for Case Study 5.1 – Obstructed Labour

**The purpose of the case study is to get participants to think through what steps need to be done and why they would or would not do something. In all cases try to avoid directly giving the answers – rather probe around the topic to see if the participants can come up with the responses. Review the key points and answer any questions at the end of the case study.**

Step 1. 20 yrs. old Mrs. Lakshmi, primigravida is admitted with labour pains at 5 am.

- On examination at 5 am: (0 hour)
- Pulse 90/min, BP : 120/80 mmHg, Temp : 37.4°C
- P/A : 3 contractions for 15-20 sec/10 min, FHS : 140/min,
- P/V cervix 4 cm dilated, membranes present

***1. What will you do?***

***Response:*** *Monitor the progress of labour*

Step 2. At 9.00 am (After 4 hours):

- Pulse 98/min, BP 120/70 mmHg, Temp 38°C
- P/A: 3 Contractions for 20-25 sec/10 min, FHS 126/min
- P/V: Cervix 5 cm dilated, membranes present

***1. Is the progress normal?***

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

***2. What are the signs of obstructed labour?***

*Response*

- Plotted cervical dilatation line in the partograph is to the right of Line A at the four hour and eight hour assessments
- No cervical change (secondary arrest) with repeat PV after 4 hours in active phase of labour
- Significant caput and moulding
- Presenting part that is not well applied to cervix
- Swollen, edematous cervix
- Ballooning lower uterine segment
- Formation of retraction band felt over abdomen
- Fetal or maternal distress (Woman: tachycardia, signs of dehydration & fever, baby – fetal distress)
- Labour that is longer than 24 hours duration

***3. How will you refer and what will you do before refering?***

**Do the following**

- Talk to the relatives about the condition of the woman
- Call and determine the nearest higher centre (FRU) where a LSCS could be done if necessary
- Ensure specialist is available at FRU before transporting woman
- Arrange transport
- Keep the woman NPO
- Do not give oxytocin
- Insert 16-18 gauge IV and provide IV normal saline or ringer lactate @ 30 drops/min
- Insert Foley's catheter
- Start oxygen

- Give all the three following antibiotics
  - Cap or inj Ampicillin 1gm either Oral or IV
  - Tab or inj Metronidazole either 400mg Oral or 500mg IV
  - Inj Gentamicin 80mg either IM or IV

**While in transport**

- Keep the woman in left lateral position
- Continue fluid and carry extra bottles to last till she reaches the higher facility / FRU
- Provide oxygen
- Keep a delivery set and essential drugs handy
- Ensure that staff nurse accompanies the woman

**Carry relevant documents**

- Take the plotted partograph
- Take the filled up complication case sheet A

## *5B.4 Key Messages - Do's and Don'ts*

| | |
|---|---|
| **Do's** | ***DO start the initial management and stabilize prior to referral.*** Doing so prevents delays in receiving appropriate care and helps decrease the risk of adverse outcomes in the woman and fetus. |
| | ***DO document all findings and treatment accurately in the case sheet.*** This would act as a referral note and would help with communication and follow up. |
| | ***DO accompany the woman during referral.*** Changes in the status of the maternal and fetal condition can happen quickly. Accompanying the woman would ensure that appropriate monitoring and care are also being delivered during transport. |
| | ***DO be prepared for complications*** that may arise during transport. Since rapid changes in maternal (severe abdominal pain, bleeding PV could be early signs of a ruptured uterus) and fetal status (no fetal heart sounds) can occur, it is important to be prepared and equipped to deal with these issues as they arise (i.e. have extra bottles of fluid, oxygen for the woman etc). |

| | |
|---|---|
| **Don'ts** | ***DO NOT give oxytocin.*** This can increase the risk of uterine rupture. |
| | ***DO NOT give the woman anything orally prior to referral.*** If she does need a cesarean section this can increase her risk of anesthetic complications. |
| | ***DO NOT try to deliver the baby if prolonged or obstructed labour is diagnosed at the PHC.*** Women with prolonged and obstructed labour or rupture of membranes more than 12 hours need to be referred as soon as possible. This can reduce the risk of adverse maternal, fetal and neonatal outcomes. |

# Section 5C Hypertensive Disorders of Pregnancy: Pregnancy-Induced Hypertension, Pre-eclampsia & Eclampsia

**(See Complication Case Sheet B)**

## *5C.1 Introduction*

Hypertensive disorders of pregnancy include pregnancy induced hypertension (PIH), pre-eclampsia and eclampsia. Their presentation can range from mildly elevated blood pressure without any symptoms to sudden onset of full seizures/fits any time in pregnancy after 20 weeks gestation, intrapartum and in the first 6 weeks postnatal. The exact reason as to why this happens in women during pregnancy is not straight forward and many factors appear to play a role. What is certain is that this group of diseases causes serious illness in both the woman and fetus that can lead to increased risk of morbidity (heart failure, placental abruption, renal failure, liver failure, cerebral swelling and bleeding in the woman; intrauterine growth restriction and preterm birth in the fetus) and mortality for both the woman and fetus.

## *5C.2 Diagnosis and Provision of Initial Management for PIH / Preeclapmsia / Eclampsia and its Importance*

*How to make a diagnosis of hypertensive disorders in pregnancy PIH, pre-eclampsia, eclampsia*

- Early detection is very important to manage pregnancy-induced hypertension and prevent convulsions. So it is important that a nurse
  - Checks vital signs (temperature, pulse, respiration and BP) as part of the initial assessment of a woman who comes with labour pains to the PHC.
  - Check the antenatal Thayi card to see if the BP has been checked before and if a diagnosis has already been made. This will save time.
  - Check urine for presence of protein using dipstick method: As hypertensive disease in pregnancy worsens, the woman begins to leak protein into the urine from the kidneys. This is important to know since it can help to correctly distinguish between the different types of hypertensive disorders and determine the severity of disease. For example, the presence of proteinuria changes the diagnosis from pregnancy-induced hypertension to pre-eclampsia. How much protein is in the urine determines if it is severe disease or not. A woman with eclampsia may or may not have protein in the urine.
- Specific findings to diagnose PIH, pre-eclampsia and eclampsia are given in Table 5.2.

**Table 5.2 Classification of PIH/ pre eclampsia and eclampsia**

| Assess if following are present to confirm the diagnosis (refer to the complication case sheet B) | | | | |
|---|---|---|---|---|
| **DIAGNOSIS** | **Gestational age** | **Blood pressure (mmHg)** | **Proteinuria** | **Convulsions** |
| Mild PIH | More than 20 weeks | BP more than or equal140/90 and less than or equal 160/110 | NO | NO |
| Severe PIH | More than 20 weeks | BP more than or equal160/110 | NO | NO |
| Mild pre-eclampsia | More than 20 weeks | BP more than or equal140/90 and less than or equal 160/110 | YES | NO |
| Severe pre-eclampsia | More than 20 weeks | BP more than or equal160/110 | YES | NO |
| Eclampsia | More than 20 weeks | BP more than or equal140/90 | YES | YES |
| Accurate assessment and correct diagnosis is very important for initial management of pregnancy induced hypertension, pre-eclampsia and eclampsia. Criteria for correctly diagnosing these are included in complication case sheet B | | | | |

*Start initial management of the complication*

- Management will be different for pregnancy induced hypertension, pre-eclampsia and eclampsia and is also based on how severe is the disease.
- For severe disease, immediate delivery within 12- 24 hours is the definitive treatment.
- But at the time of diagnosis, prior to delivery, there are things a nurse can do to help prevent complications, such as giving antihypertensive and anticonvulsant medication.

- ***Administer antihypertensives (nifedipine orally or hydralazine IV) in severe PIH and severe pre-eclampsia (BP more than 160/110 mmHg)***
  - In severe cases where the blood pressure is equal to or greater than 160/110 mmHg the woman is at risk of having a stroke.
  - If the first dose of medication to reduce the BP (antihypertensive) is given it will help to lower the blood pressure and prevent stroke from happening.
  - Oral nifedipine and IV hydralazine are the preferred medications. They act quickly and are safe for the woman and baby.
  - These are the only drugs that should be used.
  - Sublingual nifedipine (giving it under the tongue) must never be used since it lowers the blood pressure too quickly, leading to dizziness and fainting.
- ***Administer anticonvulsants***
  - A woman who has a seizure (eclampsia) needs medication to help stop the seizure and to prevent more seizures from happening.
  - A woman who has severe pre-eclampsia also needs medication to prevent seizures from occurring.
  - Inj Magnesium sulfate is the drug of choice and should be the first choice of anticonvulsant drugs in these cases.
  - This is because magnesium sulfate acts better than others to stop and prevent seizures in pregnancy, labour and postnatal. Thus it can reduce maternal mortality.
  - It is given as an intramuscular injection because this route is easier to give a woman who has a seizure or when it is not possible to start an IV.
  - inj Diazepam is the next drug of choice if magnesium sulfate is not available. It is the second choice because it is not so good at stopping and preventing seizures in pregnancy.
  - It can be given rectally as the lining of the rectum quickly absorbs the medication and it thus the onset of action is fast.
- ***Monitor deep tendon reflexes, urine output, respiratory rate for magnesium sulfate toxicity***
  - Magnesium sulfate can cause toxicity if the woman is not able to properly excrete it from her body (this is done via the kidneys ).
  - So it is important to check deep tendon reflexes, urine output and respiratory rate as any abnormality in these could mean to stop giving any more doses. Abnormalities include
    - Urine output that is less than 30 ml per hour over 4 hours,
    - Respiratory rate less than 16 per minute,
    - Loss of patellar deep tendon reflexes.

*Referral to the FRU*

- Refer the woman as soon as she has been stabilised and make sure there is someone to accompany her.
- See that all the documents are completely filled as this will help in management at the referral centre.

## 5C.3 Requirements for Diagnosis and Management of Hypertensive Disorders in Pregnancy

*Equipments and supplies*

In addition to the equipment and drugs listed in the general skill set (Section 5A Page 73), in order to be able to perform the specific set of skills needed to manage this complication ensure that the following drugs and equipment are available and functional:

- Inj magnesium sulfate 10mg
- Inj diazepam 20mg
- Tab nifidipine 5mg orally
- Inj hydralizine 5 mg IV
- Knee hammer to elicit deep tendon reflexes
- Urinary catheter if catherisation is required
- Measuring bag for urine output

*Clinical skills*

***Administration of MAGNESIUM SULFATE INTRAMUSCULARLY***

1. Give inj magnesium sulfate in case of severe pre-eclampsia and eclampsia. Give the first dose (only one dose) of magnesium sulfate injection (a total of 10gm).
2. Collect all articles required for an IM injection such as needle, syringe, cotton swab with spirit, puncture proof container to discard the needle.
3. Wash hands thoroughly.
4. Take a sterile 10 cc syringe and 22 gauge needle.
5. Break 5 ampoules and fill the syringe with the inj magnesium sulfate solution, ampoule by ampoule (10 ml in all).
6. Take care not to suck in air bubbles while filling the syringe. (Each ampoule has 2 ml of magnesium sulfate 50% w/v, 1 gm in 2 ml).
7. Identify the upper outer quadrant of the hip, clean it with a spirit swab and let the area dry.
8. Administer the 10 ml (5 gm) injection (deep intramuscular) in the upper outer quadrant in one buttock, slowly. This site is chosen since the amount to be injected is large and this muscle is best.
   - Divide the buttocks into 4 quadrants.
   - Draw an imaginary line from the anterior superior iliac spine to the sacrum. Feel for the highest portion of the pelvis crest.
   - Draw a vertical line to divide the previous line into half.

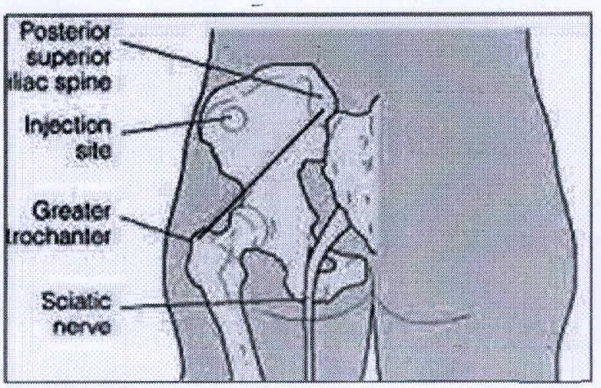



*Figure 5.1: Site for IM injection(gluteal site)*

- Draw an imaginary line from the greater trochanter of the femur to the posterior iliac spine (see Figure 5.1). The site identified must be above this line. Then you are sure of avoiding the sciatic nerve.
- Administer the injection in the upper outer quadrant.

9. Tell the woman she will feel warm while the injection is being given.
10. Repeat the procedure with the same dose (i.e. 5 ampoules—10 ml/ 5 gm) in the other buttock.
11. Dispose of the syringe in a puncture-proof container (if disposable).
12. Wash hands.

*Monitoring for MAGNESIUM SULFATE TOXICITY*

1. Check the respiratory rate after giving inj magnesium sulfate.
2. Check the patellar deep tendon reflexes.
3. If respiratory rate is less than 16/minute, patellar deep tendon reflex is absent or urine output is less than 30 ml/hour, it indicates $MgSO_4$ toxicity. Then give inj calcium gluconate 1gm IV over 10 minutes

*Checking PATELLAR DEEP TENDON REFLEXES*

1. Get all articles required such as knee hammer/ reflex hammer.
2. Wash hands.
3. Tell the woman to lie down, relax and inform what will be done. Show her the knee hammer but don't tell the name as this can cause anxiety.
4. Place arm under one knee and lift it from the bed while supporting hand on the woman's other knee. Lift up both knees together if desired. Locate the patellar tendon between the tibial tubercle and the lower border of the patella (just below the knee cap see Figure 5.2).
5. Swing the patellar hammer so that it falls onto the patellar tendon.

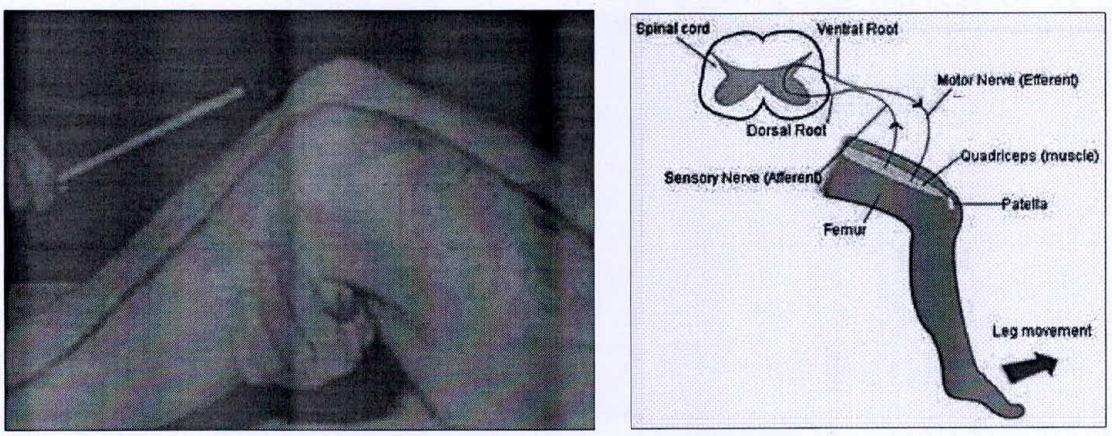



*Fig. 5.2 How to check patellar reflex*

[3] http://www.cetl.org.uk/learning/skills_sheets/Tendon-Reflexes-KJ.pdf

6. At the same time watch for a contraction in the quadriceps muscle. Note the strength of the reflex as given below:
   - ❖ 0: absent reflex (abnormal)
   - ❖ 1+: trace/seen only with reinforcement
   - ❖ 2+: normal
   - ❖ 3+: brisk
   - ❖ 4+: non sustained clonus (i.e., repetitive vibratory movements. abnormal)
   - ❖ 5+: sustained clonus (abnormal)

*Estimation of URINE OUTPUT*

- ❖ Expected urine output for an adult is more than 1ml/kg/hour. Thus on an average 30ml/hour of urine output can be considered as normal.

## 5C.4: Mentoring Skills

*Sample of case study for use when mentoring*

*Case Study – PIH/pre-eclampsia/eclampsia*

*Case study 5.2-Part A*

Mrs. Basanthy is a 16 year old gravida 1 para 0 referred to your PHC from the ANM at the Sub-Centre. She reports that she was told she had "high blood pressure" and to come to the PHC for further assessment. A review of her records shows that she had three antenatal visits this pregnancy and that all findings were within normal limits, except for the last visit. At her last visit, her blood pressure was 140/90 mmHg. Her urine was negative for protein. The fetal heart sounds were normal, the fetus was active and uterine size was consistent with dates. She is currently 37 weeks gestational age.

***1 What do you think about the blood pressure measurement of 140/90? Is this normal or abnormal?***

_____

_____

_____

***2 Why is it important to know that the urine was negative for protein?***

_____

_____

_____

3 ***Based on this information from her last visit of a blood pressure of 140/90 mmHg and no proteinuria what would your diagnosis have been then?***

4. ***Now, at her visit with you, what would you like to include on your initial history when talking with Mrs. Basanthy and why?***

5 ***What would you like to do on physical examination and why?***

6 ***What screening procedures/laboratory tests will you include (if available) in your assessment of her, and why?***

*Case study 5.2-Part B:*

You have completed your assessment of Mrs. Basanthy, and your main findings include the following:

- History: Mrs. Basanthy is complaining of severe headache, and blurred vision. She says she does not have any upper abdominal pain, convulsions or loss of consciousness. She reports normal fetal movement.
- Physical Examination: Mrs. Basanthy's blood pressure is 170/120mmHg, and she has 4+ proteinuria.
- The fetus is active and fetal heart rate is 136 per minute. Uterine size is consistent with dates.

7. ***Based on these findings, what is Mrs. Basanthy's diagnosis (problem/need), and why?***

*Case study 5.2-Part C:*

***8. Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. B., and why?***

_____

_____

_____

***9. If Mrs. Basanthy had presented with convulsions, what would your diagnosis have been?***

_____

_____

_____

***10. What would your plan of care be for Mrs. Basanthy if she was having convulsions?***

_____

_____

_____

## Key for Case Study 5.2

*Case study 5.2: Part A*

Mrs. Basanthy is a 16 year old gravid 1 para 0 referred to your PHC from the ANM at the Sub-Centre. She reports that at that visit she was told she had "high blood pressure" and to come to the PHC for further assessment. A review of her records shows that she has had three antenatal visits this pregnancy and that before this last visit all findings were within normal limits. At her last visit, it was found that her blood pressure was 140/90 mmHg. Her urine was negative for protein. The fetal heart sounds were normal, the fetus was active and uterine size was consistent with dates. She is currently 37 weeks gestational age.

***1. What do you think about the blood pressure measurement of 140/90? Is this normal or abnormzal?***

Answer: It is abnormal. Discuss normal blood pressure in pregnancy. Blood pressure of greater than or equal to 140/90 mmHg after 20 weeks gestational age is not normal and is consistent with the diagnosis of pregnancy induced hypertension.

***2. Why is it important to know that the urine was negative for protein?***

***Answer:*** The absence of protein in the urine indicates that the patient only has pregnancy induced hypertension and not pre-eclampsia. If there was protein in the urine with a blood pressure of greater than or equal to 140/90 mmHg after 20 weeks then the woman would have pre-eclampsia. Whenever someone presents with high blood pressure it is absolutely essential to determine if there is protein in the urine or not as this changes your diagnosis and management.

3. ***Based on this information from her last visit of a blood pressure of 140/90 mm Hg and no proteinuria what would your diagnosis have been then?***

***Answer:*** Mrs. Basanthy's signs and symptoms: diastolic blood pressure 90–110 mmHg after 20 weeks gestation and no proteinuria are consistent with pregnancy induced hypertension.

4. ***Now, at her visit with you, what would you like to include on your initial history when talking with Mrs. Basanthy and why?***

***Answer:*** The following should be discussed and if they do not mention all steps probe by asking, "Is there anything else you would want to ask, why or why not?"

- Mrs. Basanthy should be greeted respectfully and with kindness. This helps build rapport with her.
- She should be told what is going to be done and listened to carefully. In addition, her questions should be answered in a calm and reassuring manner. This reassures the patient and also helps build rapport.
- Ask specifically about the following: has she had headache, blurred vision, upper abdominal pain or fits/seizures other problems since her last clinic visit. These are important questions to ask because they are symptoms of hypertensive disorders of pregnancy. They area also the danger signs that should be discussed with all pregnant women as indications to seek care immediately.
- She should be asked whether fetal activity has changed since her last visit. This is important to ask about because it provides an indication of fetal well being.

5. ***What would you like to do on physical examination and why?***

***Answer:*** The following should be discussed and if they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?"

- Blood pressure should be measured. Blood pressure greater than or equal to 140/90 after 20 weeks gestational age is indicative of pregnancy induced hypertension. If protein is present in the urine then it is indicative or pre-eclampsia.
- An abdominal examination should be done to check fetal growth and to listen for fetal heart sounds. This is an indication of fetal wellbeing (in cases of pre-eclampsia/eclampsia reduced placental function may lead to low birthweight; there is an increased risk of hypoxia in both the antenatal and intrapartum periods, and an increased risk of abruptio placentae).

6. ***What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Basanthy, and why?***

***Answer:*** Urine should be checked for protein, since the presence of protein in the urine changes the diagnosis from pregnancy induced hypertension to pre-eclampsia.

A-FEB-31

06/02/16

Party : **Shree Ambe Stationers**
# 1002, 7th Main,80 Feet Road,
Wipro Park Signal, 1st Block,
Koramangala,
Bangalore-560 034

| Description of Goods | Quantity | Rate | per | Amount |
|---|---|---|---|---|
| **A4 Size Jk Easy Copier Paper 70gsm 210x297mm** | **200 REAMS** | 140.00 | REAMS | **28,000.00** |
| Total | **200 REAMS** | | | **₹ 28,000.00** |

*E. & O.E*

Amount Chargeable (in words)

**Rupees Twenty Eight Thousand Only**

***9. If Mrs. Basanthy had presented with convulsions what would your diagnosis have been?***

***Answer:*** Eclampsia. All seizures in a pregnant woman from after 20 weeks up until 6 weeks postnatal are eclampsia until proven otherwise.

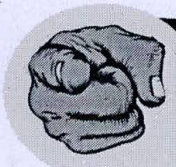
***10. What would your plan of care be for Mrs. Basanthy if she was having convulsions?***

***Answer:*** The following should be mentioned. In discussion explain why. If they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?

- Do not leave the woman by herself. Being with her helps to prevent from fall or injury.
- Protect the woman from fall or injury, but do not restrain her. Restraining her can actually harm her.
- Ensure a clear airway and breathing. If the woman is unconscious, keep her on her back with her arms at the side; tilt her head backwards and lift her chin to open the airway.
- Turn her to a left lateral position after the convulsion. Keep the woman in this position throughout transportation.
- Keep a mouth gag between the upper and lower jaw to prevent tongue bite. (Do not attempt to do this during a convulsion).
- Measure the BP of the woman. Maintain a record of these. Knowing the blood pressure will let you know if the mother will also need a dose of antihypertensive medications. If the systolic is greater than 160 mmHg or the diastolic greater than 110 mmHg then she will need an antihypertensive. This prevents against the risk of her having a stroke.
- Give the first dose of inj magnesium sulfate. Give 10 ml deep IM in each buttock (a total of 20 ml). It is important to ensure that this is given deep because otherwise it can lead to the formation of an abscess at the injection site. Magnesium sulfate is the preferred drug of choice for treating seizures in pregnancy.
- Start an IV infusion, and give IV fluids slowly @ 30 drops/minute and insert a Foley's catheter. This will prevent the woman from becoming dehydrated, allow you to monitor urine output (which can decrease significantly in eclamptic women) and provides IV access if you need additional medication.
- Tranquilizers and sedative should NOT be given. There is no benefit to given these – they may actually harm the woman and her baby.
- Immediately arrange to refer the woman to an FRU. Eclampsia is a life threatening condition for the both the woman and baby and she needs to be transferred to a centre where delivery can be conducted early as possible.
- Ensure that the woman reaches the referral centre within 2 hours of receiving the first dose of magnesium sulfate. This is because women with eclampsia need to be delivered within 12 hours from the onset of the seizure.
- She should not be sent alone. She should be transported via ambulance. This is because this is a life threatening condition and she needs to have help with her.

***11. If magnesium sulfate is not available in your PHC what other drug would you use for treatment of seizures in pregnancy and how would you give it?***

***Answer:*** Diazepam 20 mg rectally in 10 ml syringe. This is second line and should be given only if magnesium sulfate is not available. Magnesium sulfate is the preferred drug since it is better and stopping seizures in and preventing them in cases of pre-eclampsia and eclampsia.



*Key points to review at the end of the case study 5.2*

- Severe pre-eclampsia and eclampsia are life threatening conditions that need to be recognized and treated immediately.
- Blood pressure greater than or equal to 140/90 mmHg in pregnancy is not normal.
- All women with increased blood pressure in pregnancy should have their urine checked for the presence of protein.
- Blood pressure greater or equal to 160/110 mmHg requires a dose of antihypertensive before referral.
- Women with severe pre-eclampsia and eclampsia need to be stabilized before being referred to the FRU.
- Women with severe pre-eclampsia need a prophylactic dose of magnesium sulfate prior to transfer to the FRU. This helps prevent seizures.
- Magnesium sulfate is the drug of choice to treat seizures in pregnant women.
- Tranquilizers and /or sedatives should NOT be given to women with, pregnancy induced hypertension, severe- pre-eclampsia or eclampsia.
- DO NOT leave a woman who has a seizure alone.

## 5C.5 Key Messages - Do's and Don'ts

| | |
|---|---|
| **Do's** | *DO know the normal (120/80 mmHg) and abnormal values for blood pressure in pregnancy.* This is important in order to be able to correctly diagnose hypertensive disorders of pregnancy. A blood pressure of 140/90 is never normal. |
| | *DO always check urine for protein (normal means nil protein).* This is vital for correct diagnosis and management. The presence of proteinuria changes the diagnosis from pregnancy-induced hypertension to pre-eclampsia. |
| | *DO actively treat and refer all women with hypertensive disease.* Delays in treatment and care are what lead to adverse outcomes, including convulsions and death. |

| | |
|---|---|
| **Do's** | *DO treat all pregnant and postnatal women who have seizures as eclampsia* until proven otherwise. |
| | *DO give nifedipine orally or IV hydralazine if the diastolic blood pressure is greater than 110mmHg.* These are the first drugs of choice. They help prevents stroke and cerebral hemorrhage |
| | *DO know that injection magnesium sulfate is the drug of choice for preventing and treating convulsions in severe pre-eclampsia and eclampsia.* All women with severe pre-eclampsia and eclampsia should be given this drug before referral. |
| | *DO closely monitor the woman for signs of toxicity.* If signs of toxicity are present do not give additional doses of magnesium sulfate. |
| | *DO insert a Foley's catheter and intravenous access.* A Foley catheter helps to know what the urine output and IV fluids help keep the woman hydrated and will ensure an access to give medications. |
| | *DO give the first dose of corticosteroid if the gestational age is between 24-34 weeks.* This decreases neonatal morbidity and mortality. |
| | *DO accompany the woman during referral.* Changes in the status of the maternal and fetal condition can happen quickly. Accompanying the woman ensures that appropriate monitoring and care will be delivered during transport. |
| **Don'ts** | *DO NOT give methyl-ergometrine in women with hypertensive disorders of pregnancy.* It increases the risk of convulsions and cerebrovascular accidents (stroke). |
| | *DO NOT try to deliver the baby at the PHC even in case of mild PIH unless delivery is imminent.* Delays in treatment and care are what lead to poor outcomes, including convulsions and death. |
| | *DO NOT diagnose and refer without stabilizing first.* There is always something that could be done at the PHC first. |
| | *DO NOT use diazepam to treat convulsions unless magnesium sulfate is unavailable.* Magnesium sulfate is the first choice for treatment and prevention of convulsions |
| | *DO NOT give nifedipine sublingually (under the tongue).* This can cause the blood pressure to drop much too quickly. |
| | *DO NOT leave the woman alone.* Severe pre-eclampsia and eclampsia are life threatening conditions and mothers must always have someone with her. |
| | *DO NOT give an antihypertensive unless the diastolic blood pressure is 110 mmHg.* If the diastolic is below 110 mm Hg giving a medication can make the blood pressure too low. |

# Section 5D Antepartum Hemorrhage

**(See Complication Case Sheet C)**

## 5D.1 Introduction

Vaginal bleeding anytime after 20 weeks of pregnancy is called antepartum hemorrhage (APH). The most serious causes are placenta praevia (placenta lying at or near the cervix), abruptio placentae (separation of the placenta before the birth of the fetus) or a ruptured uterus. Since these conditions could be life-threatening for the woman and fetus it is important to diagnose the cause of bleeding so as to initiate the right initial management. Criteria for correctly diagnosing the different causes of antepartum hemorrhage are included in complication case sheet C

## *5D.2: Diagnosis and Provision of Initial Management for APH*

*Identify APH early*

- The commonest causes of APH include placenta previa, abruption placenta and ruptured uterus. See complication case sheet C-APH
- If diagnosed early, the woman could be started on IV fluids immediately and this could prevent shock
- For severe disease, delivery within 12- 24 hours is the definitive treatment.
- It is important to look for specific signs and symptoms in the woman who presents with bleeding after 20 weeks. This will help to differentiate between the causes and could determine the management for the woman. The signs and symptoms of the major causes of APH are given in Table 5.3

**Table 5.3: The signs and symptoms of the major causes of APH**

| Placenta praevia | Abruptio placenta |
|---|---|
| ❖ No abdominal pain (the woman is pain free or if having contractions has no pain between contractions)<br>❖ Bleeding from the vagina present and in past<br>❖ Relaxed uterus on palpation / uterus irritable | ❖ Abdominal pain (if contractions are present and the pain is present in between contractions)<br>❖ Tense or tender uterus on palpation<br>❖ Bleeding from the vagina (if concealed there may be no bleeding seen) |

**Remember**

APH is an emergency and has high chance of making the woman/fetus more sick or causing death of both. Act promptly

*Start initial management*

- Whenever there is bleeding it is important to determine the extent of blood loss.
- ***Assess for shock whether present or not***
  - Significant blood loss leads to shock. The most important aspect of managing APH is to assess if shock is present or not.
  - If shock is suspected, start an IV line and replace fluids with IV fluid or and blood transfusion.
  - Elevate legs as this will increase blood flow to the heart and brain.
  - If shock is not present at the onset it is important to keep it in mind because the woman's status may worsen rapidly. Keep an IV line patent so that fluids could be given to woman fast if shock develops.
- ***Keep the woman nil per oral (NPO)/nil by mouth***

  Treatment of APH involves cesarean section, which requires anesthesia. Having a full stomach increases the risk of complications from anesthesia. Keeping the woman from taking anything orally helps decrease this risk.
- ***Arrange for blood donor***

  If bleeding is significant, even if shock is not present, the woman may need a blood transfusion. Identify a donor so that blood is available for her and that critical life saving care could be delivered in a timely manner when she reaches FRU
- ***Do not do a per vaginal examination***

  Since placenta previa may be the cause of the bleeding, if placental location is not known, a pelvic examination must not be performed, since this can lead to dangerous amount of bleeding.
- ***Administer antibiotics for rupture of uterus (ampicillin, gentamycin and metrogyl)***

  A ruptured uterus increases the risk of intra- abdominal infection. Give the initial dose of antibiotics as it can help decrease this risk and/or begins treating the infection if already present. Three antibiotics (gentamycin/ampicillin/metrogyl) are used because they cover the organisms most likely to be involved in infection. Other antibiotics should not be used unless there is an allergy, as they may not be as effective.
- ***Do not give inj oxytocin***

  Giving oxytocin contracts the uterine muscles and can make the bleeding worse.

*Referral of woman to FRU urgently*

- Refer depending on the status of the woman urgently to the FRU. However if delivery is likely to occur, it is important to conduct the delivery, continue the initial management, resuscitate the baby if needed and then rapidly transport the baby and woman to a higher centre.
- The woman would require support through IV fluid administration and oxygen administration. The baby might require to be resuscitated based on the status. It is important that the all equipment are ready and at hand for such an emergency.

## 5D.3 Requirement for Initial Management for APH before Referral

*Equipments and supplies*

In addition to the equipment and drugs listed in the general skill set section, in order to be able to perform the specific set of skills needed to manage this complication ensure that the following drugs and equipment are available and functional:

- Cap or inj Ampicillin 1 gm orally or IV
- Inj Gentamicin 80 mg IM of IV
- Tab or inj Metronidazole 400 mg orally or 500 mg IV

*Clinical skills*

In addition to the skills listed in the general skill set section, the following skills are needed to manage this complication:

- Assessment of BLOOD LOSS PER VAGINA (See Page number 115)
- Management of SHOCK (See page number 97)

## 5D.4 Key mentoring messages - Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO always assess for signs of shock*** and continuously be on the alert in a woman that is bleeding. Hemorrhagic shock is life threatening and needs immediate treatment with fluid replacement. |
| | ***DO keep the woman nil per orally.*** Treatment of antepartum hemorrhage involves cesarean section, which requires anesthesia. Having a full stomach increases the risk of complications from anesthesia. Keeping the woman from taking anything orally helps decrease this risk. |
| | ***DO insert a Foley's catheter and IV access.*** A Foley's catheter helps you keep track of urine output, which tells you if you are adequately replacing the blood loss. IV access is needed to help provide volume replacement (fluids, blood) and treat shock. |
| | ***DO identify and arrange for a blood donor.*** Identifying a donor ensures that blood is available for the woman and that critical life saving care could be delivered in a timely manner. |
| | ***DO use a large gauge IV (16-18) since this lets fluid to go faster.*** This is important when you need to replace blood loss quickly with large amounts of fluid in a short period of time. |
| | ***DO give the first dose of antibiotics in the case of ruptured uterus.*** This helps prevent infection. |

| | |
|---|---|
| | ***DO give the first dose of corticosteroid*** if the gestational age is between 24-34 weeks. This decreases neonatal morbidity and mortality. |
| | ***DO accompany the woman during referral.*** Changes in the status of the maternal and fetal condition can happen quickly. Accompanying the woman ensures that appropriate monitoring and care are also being delivered during transport. |
| **Don'ts** | ***DO NOT perform a pelvic examination*** on a pregnant woman over 20 weeks gestation who presents with vaginal bleeding or a history of bleeding. If there is a placenta previa, PV examination can cause very dangerous amount of bleeding that could result in death. |
| | ***DO NOT give uterotonics to a woman with antepartum hemorrhage.*** This can increase the bleeding. |
| | ***DO NOT refer without making the woman stable first.*** In a bleeding woman, with or without shock, IV access must be inserted, fluids must be given through IV access and a Foley's catheter must be inserted. This is because bleeding can quickly become dangerous and could lead to death if not initially treated. |

# Section 5E Infection or Sepsis in Pregnancy, Labour and/or Postnatal Period

**(See Complication Case Sheet D)**

## 5E.1 Introduction

Infections are also a significant cause of maternal morbidity and mortality. Nearly 15% of maternal deaths in India are due to infections that are otherwise preventable. Infections can occur anytime during pregnancy, labour, delivery and postnatal period. The most common causes of infection with fever are: pyelonephritis (kidney infection), amnionitis (infection of the uterus in pregnancy due to rupture of membranes), endometritis/puerperal sepsis (infection of the uterus in the postnatal period), mastitis (breast infection), breast abscess and wound infection/abscess (could be abdominal or perineal). Mild infections if untreated can lead to severe infection or septic shock which could be fatal. Infections in pregnancy also increase the risk of preterm birth; an intrauterine infection then it also increases the risk of neonatal sepsis.

## *5E.2: Diagnosis and Initial Management of Sepsis*

*Identification of sepsis*

- If you do suspect septic shock, it is important to manage it appropriately before assessing for and managing the specific cause of infection. All of these infections require treatment with antibiotics.
- Specific criteria are used to identify what is the cause for sepsis. Details of which are given in Table 5.3.

**Table 5.3: Criteria for diognosis of infection**

| Infection | Signs/Symtoms |
|---|---|
| 1. Septic shock | ❖ Systolic BP more than 90 mmHg<br>❖ Pulse more than 110/min<br>❖ Skin is cold and clammy<br>❖ Woman appears anxious or confused or unconscious<br>❖ Fever may or may not be present |
| 2. Amnionitis | ❖ Fever (temperature more than or equal 38°C)<br>❖ Rupture of membranes<br>❖ Abdominal pain<br>❖ Foul smelling or purulent discharge per vagina (may or may not be present) |
| 3. Endometritis / Puerperal sepsis | ❖ Fever (temperature more than or equal 38°C)<br>❖ Abdominal pain<br>❖ Tender uterus<br>❖ Foul smelling or purulent lochia<br>❖ Increased vaginal bleeding (may or may not be present) |

| | |
|---|---|
| 4. Pyelonephritis | ❖ Burning sensation while passing urine<br>❖ Flank pain<br>❖ Fever (temperature more than or equal 38°C) and chills |
| 5. Mastitis | ❖ Red and tender breast<br>❖ Fever (temperature more than or equal 38°C) |
| 6. Breast abscess | ❖ Tender, discreet fluctuant mass in the breast<br>❖ Fever (temperature more than or equal 38°C) and chills<br>❖ Pain in the breast |

If any of the signs given are observed or reported by the woman, start initial management and refer the woman to the nearest FRU or higher centre.

*Initial management of sepsis*

- Assess if shock is present or not – if present, provide fluids and antibiotics
  - Inj Ampicillin 2 gm IV
  - Inj Metronidazole 500 mg IV
  - Inj Gentamicin 80 mg IM or IV
- Whenever there is a serious infection it can spread from the original source to the blood leading to sepsis. Sepsis can lead to septic shock. If shock is suspected, start IV line, replace fluids immediately and give antibiotics. The three antibiotics are used because they cover the organisms most likely to be involved in infection and septic shock. Other antibiotics should not be used unless there is an allergy, as they may not be as effective
  - Pyelonephritis: Administer inj ampicillin 2 g IV and inj gentamycin 80 mg IM or IV: These are the two drugs of choice for treating kidney infections. The reason they are not given orally is that the IV route acts faster and these women are usually quite sick.
  - Amnionitis, endometritis /puerperal sepsis: Provide inj ampicillin 1 gm orally or IV, tab or inj metronidazole 400 mg orally or 500 mg IV and inj gentamycin 80 mg IM or IV.
  - Mastitis and breast abscess: Provide cap cloxacillin 500 mg orally or cap ampicillin 500 mg orally or tab erythromycin 250 mg orally Only one of these antibiotics are given – choose based on availability as all of them cover the organisms most likely to be causing the infection. Usually cloxacillin is first choice since there is less resistance to it, giving it has before a greater chance of being effective.
  - Wound infection: Provide cap ampicillin 500 mg orally and tab metronidazole 400 mg orally.
- Provide tab paracetamol 500mg orally unless in shock. Paracetamol is a medication that helps to treat fever (decreases the temperature) and pain.

## 5E.3 Requirement for Initial Management for Sepsis

*Equipments and supplies*

In addition to the equipment and drugs listed in the general skill set section, in order to be able to perform the specific set of skills needed to manage this complication ensure that the following drugs and equipment are available and functional:

- Normal saline IV fluid
- Ringer lactate IV fluid
- Cap or inj Ampicillin 1 gm orally or IV
- Inj Gentamicin 80 mg IM of IV
- Tab or inj Metronidazole 400 mg orally or 500 mg IV
- Cap Cloxacillin 500 mg orally
- Cap Erythromicin 250 mg orally
- Tab Paracetamol 500 mg orally

*Clinical skills*

- Performing ABDOMINAL EXAMINATION (See Chapter 2, page 10)
- Performing PERINEAL EXAMINATION (See Chapter 3, page 43)
- Performing a BREAST EXAMNATION (See Key for Case Study 5.3, page 105)
- Monitor and interpret VITAL SIGNS INCLUDING FETAL HEART RATE (See Chapter 2 page 19)
- Insert IV LINE, ADMINISTER AND CALCULATE FLUID RATES OR ADMINSTER IV INJECTIONS (See Section 5G.3, page 117)
- Insert a FOLEY'S CATHETER (See Section 5G.3, page 117)
- Administer OXYGEN (see Chapter 3, page....)

## 5E.4 Mentoring Skills

*Sample of case study for use in mentoring*

*Case Study 5.3–Sepsis*

***Part A***

Mrs. Geetha is a 22-year-old para 1 has come to the health centre complaining that she feels hot and unwell. She reports that she gave birth vaginally to a full-term newborn 3 days ago at the health centre. The newborn weighed 2.8 kg. She had a perineal laceration that required suturing. She was counseled about danger signs before leaving the health centre, including the need to seek care early if any danger signs occur.

1. ***Before you assess Mrs. Geetha, what are the possible common illnesses that could be causing her fever today?***

2. ***What will you include in your initial assessment of Mrs. Geetha, and why? This refers to both history and physical examination.***

3. ***What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Geetha and why?***

### *Part B*

You have completed your assessment of Mrs. Geetha and your main findings include the following:

***History:*** Mrs. Geetha does not have abdominal pain, frequent or painful urination, abdominal tenderness, foul-smelling lochia, breast swelling or redness, vomiting or diarrhea or loss of consciousness. ***Physical Examination:*** Mrs. Geetha's temperature is 38°C, her pulse rate is 88 beats per minute, her blood pressure is 120/80 mmHg and her respiration rate is 20 breaths per minute. There is no abdominal tenderness. Her lochia is of normal colour and amount, and without bad smell. Her breasts are normal with no swelling or redness. Her perineal wound is tender with redness and swelling present extending beyond the edge of the incision. There is no discharge or pus present.

4. ***Based on these findings, what is Mrs. Geetha's diagnosis (problem/need), and why?***

5. ***Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Geetha, and why?***

_____

_____

_____

## Key for Case Study 5.3 – Sepsis

### *Part A*

Mrs. Geetha is a 22-year-old para 1 who has come to the health centre complaining that she feel shot and unwell. Mrs. Geetha reports that she gave birth vaginally to a full-term newborn 3 days ago at the health centre. The newborn weighed 2.8 kg and Mrs. Geetha suffered a perineal laceration that required suturing. She was counseled about danger signs before leaving the health centre, including the need to seek care early if any danger signs occur.

1. ***Before you assess Mrs. Geetha, what are the possible common illnesses that could be causing her fever today?***

***Answer:*** All of the following points need to be mentioned and discussed. You do not want to give away the answers but probe to see if the participants can provide them. For example if they do not mention one ask "Are there any other causes of fever you can think of, why or why not?" – This encourages them to actually think about the possible illnesses that could be causing the fever. Explain that it is important to think about what the common causes are because this helps direct you on what questions to ask on history and what to look at on physical exam.

All of the following are common causes of fever in the postnatal woman:

- Uterine infection (also called endometritis or puerperal sepsis)
- Wound infection – this could be either an infection of a perineal wound or a cesarean section wound
- Kidney infection (pyelonephritis)
- Breast engorgement
- Breast infection (this could be either a mastitis or a breast abscess)
- Viral infection causing diarrhea or vomiting

2. ***What will you include in your initial assessment of Mrs. Geetha, and why? This refers to both history and physical examination.?***

***Answer:*** The following should be mentioned. In discussion explain why. If they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?

- Greet Mrs. Geetha respectfully and with kindness. This helps build rapport with the patient.
- Tell her what is going to be done and listen carefully to her. Answer her questions in a calm and reassuring manner. This helps build rapport with the patient.
- A rapid initial assessment should be done to determine the degree of illness: her temperature, pulse, blood pressure and respirations should be noted. This is important to do as it quickly lets you know how sick Mrs. Geetha is and if she has any signs of septic shock.
- Ask while taking history specifically about the presence of other signs or symptoms, such as:
  - Abdominal pain or tenderness (this is a sign of uterine infection/endometritis /puerperal sepsis),
  - Bleeding, foul-smelling lochia (this also is a sign of uterine infection/endometritis / puerperal sepsis),
  - Frequent or painful urination and flank pain (this is a sign of a kidney infection/pyelonephritis),
  - Swollen or red breasts (this could be a sign of breast engorgement or breast infection/ mastitis/abscess),
  - Any vomiting or diarrhea (this is a sign of a viral infection), and
  - Any loss of consciousness (this can indicate sepsis).
- In addition to the initial rapid assessment on physical examination you want to perform the following:
  - Examine the breasts for signs of swelling, pain and tenderness (these are a sign of engorgement), for any redness and swelling (this is a sign of an breast infection, mastitis), cracked nipples, and for the presence of a lump or mass (this indicates a breast abscess)
  - Examine the perineal wound for any pain, tenderness, redness, discharge, swelling, abscess formation (these are signs of a wound infection or abscess),
  - Examine the abdomen to see if there is any uterine tenderness (this is a sign of uterine infection), and
  - Check the lochia to see if there is any purulent foul smelling lochia (this is also a sign of uterine infection).

3. ***What screening procedures/laboratory tests will you include (if available) in your assessment of Mrs. Geetha and why?***

***Answer:*** None at this stage – she is stable.

## *Part B*

You have completed your assessment of Mrs. Geetha and your main findings include the following:

***History:*** Mrs. Geetha denies abdominal pain, frequent or painful urination, abdominal tenderness, foul-smelling lochia, breast swelling or redness, vomiting or diarrhea or loss of consciousness. Physical examination reveals: Mrs. Geetha's temperature is 38°C, her pulse rate is 88 beats per minute, her blood pressure is 120/80 mmHg andher respiration rate is 20 breaths per minute. There is no abdominal

tenderness. Her lochia is of normal colour and amount, and without offensive odor. Her breasts are normal with no swelling or redness. Her perineal wound is tender with redness and swelling present extending beyond the edge of the incision. There is no discharge or pus present.

4. ***Based on these findings, what is Mrs. Geetha's diagnosis (problem/need), and why?***

***Answer:*** Mrs. Geetha's symptoms and signs (e.g., wound tenderness, redness, fever) are consistent with the diagnosis of perineal wound infection.

5. ***Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. Geetha, and why?***

***Answer:*** The following should be mentioned. In discussion explain why. If they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?

- Explain the steps taken to manage the complication to Mrs. Geetha. Encourage her to express her concerns, listen carefully, provide emotional support and reassurance.
- Perform one of two options: provide the first dose of antibiotic and refer to an FRU or if your MO is comfortable with managing as an outpatient you can prescribe a five day course of antibiotics and have her return for follow up.

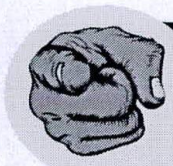
**Option one: Referral**

- Provide the following antibiotics Cap Ampicillin 1 gm, Tab Metronidazole 400 mg and Inj Gentamicin 80 mg IM stat. This will start to treat the infection immediately.
- Provide analgesia to help with the pain and the fever. Tab Paracetamol 500 mg to take as 3-5 times per day as needed could be given.
- Make sure there is a good referral note including reason for referral, and medications given. This provides very helpful information for the people who will see Mrs Geetha at the higher centre.

**Option two: Outpatient management and follow up**

Get a prescription for Antiobiotics. This should consist of cap ampicillin 500 mg orally four times a day for 5 days and tab metronidazole 400 mg orally three times a day for five days.

- See that analgesia is given to help with the pain and the fever. Tab paracetamol 500 mg to take 3-5 times per day as needed could be given
- Counsel about the need for good hygiene, to change her perineal pad/cloth at least three times a day and to wear clean clothes. This will help keep the area clean.
- Inform her to return the next day for follow up and to have the perineal dressing changed. This will let you reassess Mrs. Geetha's wound to make sure it is getting better and not worse.
- Follow up on a daily basis until the wound has healed satisfactorily. This is necessary to make sure that Mrs Geetha is improving and not getting worse. If she does not improve then she would require referral for further management.



## Key points to review at the end of case study 5.3

- Uterine infection, breast engorgement and infection, wound infection and kidney infection are all common causes of fever in a postnatal mother. Anytime a postnatal mother presents with a fever you should be thinking about these possible causes.
- A careful history and physical examination focusing on these common causes will help provide the correct diagnosis.
- If the woman is managed as an outpatient, whatever the diagnosis is for the cause of the fever, follow up is always needed to make sure that she is getting better.
- If the woman is referred a good referral note should always be done and sent with her.

### *5D.4 Key Messages - Do's and Don'ts*

| | |
|---|---|
| **Do's** | ***DO always assess for signs of septic shock*** and continuously be on the alert for it in a woman that has a fever and sepsis. Septic shock is life threatening and needs immediate treatment with IV fluids and antibiotics. |
| | ***DO provide the first dose of antibiotic prior to referral.*** Giving this first dose starts treating the infection immediately and avoids delay in care. |
| | ***DO determine the cause of the fever and use the correct antibiotic.*** Using the wrong antibiotic can result in ineffective treatment and can lead to worsening infection. |
| | ***DO encourage woman to practice good hygiene*** by having a bath daily, washing the perineal area whenever she goes to the toilet and changing clothes. |
| | ***DO practice infection control steps*** when performing any procedure on the woman. |
| **Don'ts** | ***DO NOT refer without initial treatment.*** Giving the first dose of antibiotics starts treating the infection immediately and could be life saving. |
| | ***DO NOT forget to determine the cause of the fever.*** Different causes need different types of antibiotics. |
| | ***DO NOT give antibiotics that are not listed on the case sheets,*** unless there is an allergy. These drugs may not be as effective at treating the infection. |

# Section 5F Preterm Labour/ Preterm or Prelabour Rupture of Membranes

**See Complications Case Sheet**

## *5F.1 Introduction*

Pre-term labour is defined as the onset of labour prior to the completion of 37 weeks of gestation. Preterm / premature pre labour rupture of membranes is the rupture of membranes (bag of water) before 37 weeks gestation and before labour begins. Premature prelabour rupture of membranes is the most common cause of preterm labour. Preterm labour is important because infants born before 37 weeks are at much greater risk of complications, such as infections, breathing problems, and even death.

## *5F.2 Diagnosis and Initial Management of Preterm Labour with or without Preterm Rupture of Membranes*

*Identification of preterm labour or premature pre labour rupture of membranes*

- Recognizing preterm labour and rupture of membranes is important as giving the woman antibiotics and corticosteroids greatly improve outcomes in preterm newborns. The corticosteroids are safe to be used for the woman and fetus and should always be given before referral.
- Thus early identification of either complication is important for prompt action to be taken. Some typical signs of the two complications are given below

**Table 5.4: Typical signs of preterm labour and PROM**

| *Preterm labour* | *Premature rupture of membranes (PROM)* |
|---|---|
| ❖ Gestational age between 24 and 37 weeks<br>❖ Active labour<br>❖ Temperature more than 38°C (may or may not be present)<br>❖ Rupture of membranes (may or may not be present) | ❖ Gestational age between 24 and 37 weeks<br>❖ Rupture of membranes<br>❖ Not in active labour<br>❖ Temperature more than or equal 38°C (may or may not be present) |

*Initial management*

- If a woman presents with any of the two conditions it is best to refer her urgently to a higher centre unless delivery is imminent. Before referral it is important to stabilise the woman.
- ***Give ampicillin if preterm labour with or without rupture of membranes and no fever***
  - Premature babies are more at risk for getting infections. This antibiotic is given to prevent possible infection transmission to the baby, during passage through the birth canal.
  - This antibiotic is used because it covers the organisms most likely to be causing the infection.
  - Other antibiotics should not be used unless there is an allergy, as they may not be as effective.

- ***Give ampicillin, gentamicin and metronidazole if preterm labour (regardless of membrane status) with fever or premature preterm rupture of membranes with fever with or without labour***
  - In this situation the woman already has an infection, since she has a fever. We are giving these antibiotics to treat the infection. These three antibiotics are used because they cover the organisms most likely to be causing the infection.
  - Other antibiotics should not be used unless there is an allergy, as they may not be as effective.
- ***Give ampicillin and erythromycin if rupture of membranes and no labour***
  - In this case the woman has ruptured her membranes but is not in labour and has no fever. We are giving the antibiotic to prevent infection and try to delay the start of labour until she can reach a higher centre that has the needed facilities for the preterm baby. This is different than the other cases where the woman is already in labour or has an infection/fever.
- ***Give corticosteroids if gestational age between 24 and 34 weeks gestational age***
  - Babies born early do not have fully developed organs – especially their lungs. Corticosteroids help reduce neonatal complications due to respiratory issues, as well as others including death. They cause no harm to either the woman or fetus so should always be given. They are not given above 34 weeks gestation because studies show the benefits are only between 24-34 weeks gestation.

*Referral to FRU*

- Unless delivery is imminent all women with preterm labour and rupture of membranes should be referred to a higher centre. The reason for referral is that the preterm newborn will require extra special care.
- If the baby is born at the PHC, breastfeeding should be initiated and the baby kept warm and close to the mother (skin to skin contact) before and during transport.
- Criteria for correctly diagnosing preterm labour and preterm pre labour rupture of membranes are included in complication case sheet E.

## *5F.3 Requirements for Initial Management of Preterm Labour with or without Rupture of Membranes*

### *Equipments and supplies*

In addition to the equipment and drugs listed in the general skill set section, in order to be able to perform the specific set of skills needed to manage this complication ensure that the following drugs and equipment are available and functional:

- Cap or Inj Ampicillin 1 gm orally or IV
- Inj Gentamicin 80 mg IM of IV
- Tab or inj Metronidazole 400 mg orally or 500 mg IV
- Tab Erythromycin 250 mg orally
- Corticosteroids such as inj dexamethasone or inj betamethasone

### *Clinical skills*

In addition to the skills listed in the general skill set section, the following skills are needed to manage this complication:

1. Estimate EDD (See Chapter 2, page 26)
2. Administer corticosteroids for gestational ages between 24-34 weeks (Refer Case sheet E)

## *5F.4 Mentoring Skills*

***Sample example for mentoring using the complication case sheet E***

- ❖ Review some case sheets that have been completed in the respective PHC before the planned mentoring visit.
- ❖ Identify the strengths, gaps in documentation and make a note of it.
- ❖ Show some sample case sheets to the staff nurse on the day selected. Ask them "give the good points and the gaps you can identify in the case sheet".
- ❖ Affirm them for the contribution.
- ❖ Highlight the strengths, gaps and then again the strengths of the documentation with specific emphasis of complication case sheet E.
- ❖ Reinforce the importance of early identification, initial management and referral of the woman promptly.
- ❖ Check if they have any doubts.
- ❖ Thank them for their participation and cooperation.

## 5F.5 Key Messages - Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO always calculate gestational age*** for women who present in labour or with rupture of membranes. Identifying preterm baby allows you to refer to higher facilities where special newborn care could be provided, if delivery is not imminent. |
| | ***DO always check to see if the woman has increased body temperature with rupture of membranes.*** A woman with a fever already has an infection and needs different types of antibiotics than one who is just in preterm labour. |
| | ***DO provide the first dose of antibiotic prior to referral.*** Giving this first dose starts preventing and /or treating the infection immediately and avoids delay in care. |
| | ***DO give corticosteroids to all women who present between 24-34 weeks gestation*** with preterm labour or preterm prelabour rupture of membranes. |
| | ***DO refer to a higher centre that has the ability to care for premature infants.*** Being able to appropriately care for a preterm infant increase its survival. |
| **Don'ts** | ***DO NOT forget to give corticosteroids to all women who present between 24-34 weeks gestation*** with preterm labour or preterm prelabour rupture of membranes. They cause no harm and significantly decrease neonatal morbidity and mortality. |
| | ***DO NOT give antibiotics that are not listed on the case sheets,*** unless there is an allergy. These drugs may not be as effective at treating the infection. |

# Section 5G Postpartum Hemorrhage

**(See Complication Case sheet F)**

## *5G.1 Introduction*

Worldwide, postnatal hemorrhage is the leading cause of maternal deaths. It is also the leading cause of maternal deaths in India and Northern Karnataka. It is defined as the loss of 500 ml or more of blood and can occur early after delivery (the first 24 hours) or later (after 24 hours to 6 weeks post delivery). The most common causes are uterine atony (flabby, boggy uterus that does not contract), cervical/ perineal tears and retained placenta (complete or partial). It can occur as large and fast (torrential) sudden bleeding or continuous slow bleeding over several hours.

The importance of the amount of blood loss is that it varies with the woman's hemoglobin level. Women who are not anemic can tolerate blood loss which otherwise may lead to death in anemic women. However even non-anemic women can also have severe blood loss that could be fatal.

## *5G.2 Diagnosis and Initial Management for PPH*

*How to make a diagnosis of PPH*

- Sudden bleeding or continuous slow bleeding in any woman is an emergency. Early and quick management is needed.
- Whenever PPH is suspected, it is important to assess for shock as well.
- Criteria for correctly diagnosing causes of PPH and shock are included in complication case sheet F. These are listed in Table 5.5.

**Table 5.5: Causes and diagnosis of PPH**

| Cause | Criteria for diagnosis |
|---|---|
| 1. Atonic uterus | ❖ Increased bleeding<br>❖ Placenta expelled<br>❖ Soft and flabby uterus |
| 2. Perineal / Cervical tears | ❖ Increased bleeding<br>❖ Placenta expelled<br>❖ Uterus well contracted<br>❖ Presence of tears seen |
| 3. Retained placenta (within first 24 hours after delivery, could be complete or partial).This could be a torn membrane with blood vessels. | ❖ Increased bleeding<br>❖ Placenta not delivered either completely or partially<br>❖ Uterus may or may not be contracted |
| 4. Delayed PPH (due to retained placental fragments) | ❖ Bleeding 24 hours after delivery not due to any other cause |

*Start initial management for PPH*

- ***Assess if shock is present or not – if present give fluids***
- ***Do arrange for a blood donor***
- ***Administer uterotonics for uterine atony:*** Giving uterotonics helps the uterus contract, which stops the bleeding. Oxytocin is the first choice of treatment, but any of the other three drugs could be used if oxytocin is not available.
  - Inj Oxytocin 20 IU in IV infusion in 1L of Ringer lactate or
  - Inj Methergine / Ergotamine 0.2 mg IM per dose (up to 5 doses) or
  - Inj Prostaglandin/ Carboprost 0.25 mg IM per dose (up to 8 doses) or
  - Tab Misoprostol 800 mcg orally or rectally
- ***Massage the uterus:*** Massaging the uterus expels clots and helps it to contract to stop bleeding.
- ***Insert large gauge IV (16-18) and insert Foley's catheter:*** All bleeding women need an IV started and IV access.
  - Start IV with a large gauge IV (16-18) since this lets fluid run in faster. This is important when blood loss must be replaced quickly.
  - Inserting a Foley has two benefits: it helps to monitor fluid status and keeps the bladder empty. This could help uterus to contract.
- ***Remove the placenta manually (with hand) and give prophylactic antibiotics: Inj ampicillin 1 gm IV or orally and inj metronidazole 500 mg IV or 400 mg orally and inj gentamycin 80 mg IV or IM***
  - When bleeding is due to retained placenta knowing how to manually separate it from the uterus is a life saving procedure.
  - Since the hand has to be put into the woman's uterus to do this, a dose of antibiotics is given to help prevent infection.
- ***Do bimanual compression of the uterus:*** When bleeding from the uterus has not responded to treatment, compressing the uterus between two hands could directly apply pressure to it and decrease the blood loss.
- ***Repair of vaginal tears and pack vagina with anti-septic soaked gauze if unable to repair:*** Actively bleeding tears can cause lot of blood loss. It is important to identify this early and repair it early to stop the bleeding. Suture, if easily accessible (first and second degree tears).
  - If the tear cannot be made out or reached easily (or third and fourth degree tears): Pack the vagina with sterile dressing soaked in antiseptic prior to referral. This could decrease blood loss during transfer of the woman to the FRU.
  - Give the following prophylactic antibiotic in case of fourth degree tear
    - Cap ampicillin 500 mg orally
    - Tab metronidazole 400 mg orally
  - Call and check the FRU for surgical intervention, if necessary.
  - Arrange for transport

- ***Administer uterotonics for delayed postnatal hemorrhage (either inj oxytocin 10 IU, IM or IV or tab misoprosol 800 mcg rectally or orally) and antibiotics if foul smelling discharge :*** Delayed PPH (more than 24 hours after delivery) is usually due to retained placental fragments. These retained fragments act as a source of infection in the uterus and lead to bleeding. Giving antibiotics treats the infection and the uterotonic helps contract the uterus and decreases the bleeding.
  - Call and determine the nearest FRU for dilatation and curettage (D&C), if necessary.
  - Arrange transport for transfer to FRU.
  - Give either inj oxytocin 10 IU IM or IV or Tab misoprostol 800 mcg rectally or orally.
  - If there is foul smelling discharge, give the following antibiotics
    - Cap or inj ampicillin 1 gm orally or IV and
    - Tab or inj metronidazole 400 mg orally or 500 mg IV and
    - Inj gentamycin 80 mg IM or IV

*Referral to FRU*

- Once the woman is stabilised it is important to make every effort to transfer her along with a support person to the nearest FRU.
- Any delay in this process could contribute to poor prognosis of either one or both, i.e. the woman and the baby.

## 5G.3 Requirements for Initial Management for PPH

### Equipments and supplies

In addition to the equipment and drugs listed in the general skill set section, in order to be able to perform the specific set of skills needed to manage this complication ensure that the following drugs and equipment are available and functional:

- Cap or inj ampicillin 1 gm orally or IV
- Inj gentamycin 80 mg IM of IV
- Tab or inj metronidazole 400 mg orally or 500 mg IV
- Inj lignocaine 0.5% (10ml)
- Inj Methergin / ergotamine 0.25mg IM
- Inj prostaglandin / carboprost 0.25mg IM
- Inj oxytocin 20 IU in IV infusion in 1L of ringer lactate
- Tab misoprostol 800 mcg orally or rectally
- Sutures and suture kit

### Clinical skills

In addition to the skills listed in the general skill set section, the following skills are needed to manage this complication:

- Assessment of BLOOD LOSS PER VAGINA

- Starting an INTRAVENOUS LINE
- Giving INTRAVENOUS FLUIDS
- CATHETERISING urinary bladder
- How to do MANUAL REMOVAL OF PLACENTA
- How to perform BIMANUAL COMPRESSION
- How to REPAIR TEARS
- How to PACK THE VAGINA (see session on labour and delivery, page no 46)

1. If the **sphincter is not injured,** and there is no third or fourth degree tear, proceed with repair.Change to clean, high-level disinfected or sterile gloves (you do not want to use the same gloves as the ones you had used for performing the rectal exam as they can lead to infection).
2. Repair **first and second degree tears**
   - Call for help (ask the ASHA worker if available) if a perineal tear is suspected.
   - Explain what will be done to the woman, reassure her that analgesics/local anesthetic will be given and encourage her to cooperate.
   - Ask an assistant to check the uterus and ensure that it is contracted.
   - Change gloves.
   - Apply antiseptic solution to the area around the tear.
   - Administer local anesthetic beneath the vaginal mucosa, beneath the skin of the perineum and deeply into the perineal muscle.
     - Load 10 ml 0.5% lignocaine solution in a syringe.
     - Use a small gauge needle to infiltrate as this is less painful for the woman.
     - Insert the needle carefully at a 15-30 degree angle after explaining to the woman what to expect.
     - Aspirate (pull back on the plunger) to be sure that no vessel has been penetrated. If **blood is returned in the syringe with aspiration,** remove the needle. Recheck the position carefully and try again. Never inject if blood is aspirated. **The woman can suffer convulsions and death if IV injection of lignocaine occurs.**
     - Administer the injection in all layers, wait for two minutes and then pinch the area gently with forceps. If the **woman feels the pinch,** wait for two more minutes and then retest.
   - **Repair the vaginal mucosa** using a continuous 2-0 suture
     - Start the repair about 1 cm above the apex (top) of the vaginal tear. This will ensure that any vessels that may be bleeding from above the very top of the tear are included. Not doing so can lead to ongoing bleeding.
     - Continue the suture to the level of the vaginal opening; at the opening of the vagina, bring together the cut edges of the vaginal opening; bring the needle under the vaginal opening and out through the perineal tear and tie.
   - Repair the perineal muscles using interrupted 2-0 suture (See Figure 3.11). If the tear is deep, place a second layer of the same stitch to close the space.
   - Repair the skin using interrupted (or subcuticular) 2-0 sutures starting at the vaginal opening. If the tear was deep, perform a rectal examination. Make sure no stitches are in the rectum.

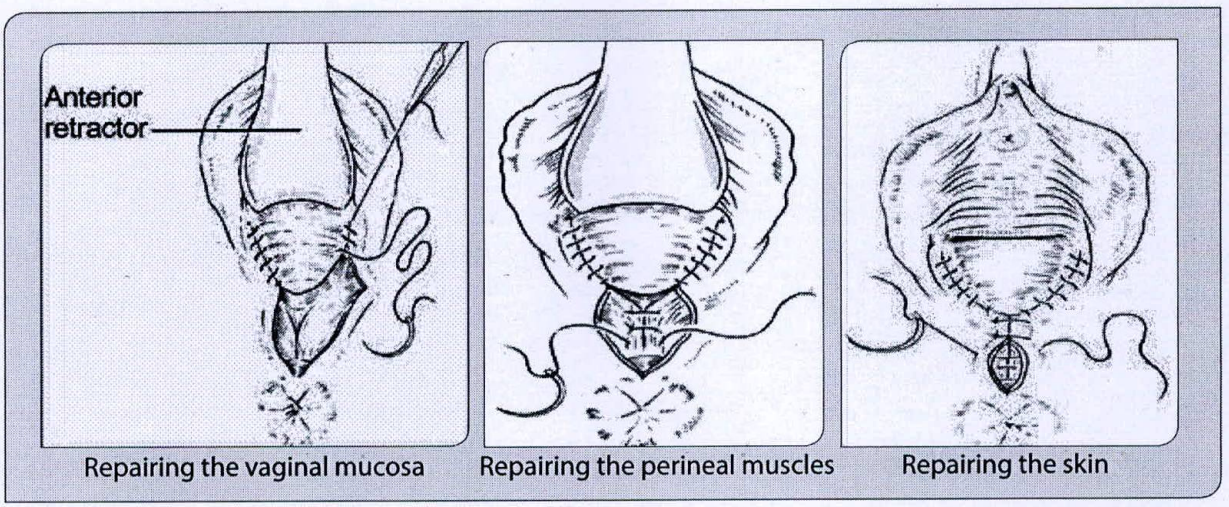



*Figure 3.11: How to repair perineum tears*

3. Post procedure care for ALL TEARS
   - ❖ Ask assistant to monitor pulse, during and after repair of the tears. Check whether the woman is feeling comfortable or has any uneasy feeling.
   - ❖ Administer intravenous fluid if there is excessive bleeding.
   - ❖ Follow up closely for signs of wound infection.
   - ❖ Advise / administer sitz bath or warm compresses to help bring down the pain (encourage the woman to sit on a basin with warm water with antiseptic solution once or twice a day as is possible).
   - ❖ Give stool softener by mouth for one week, if possible.

***Initial management of THIRD AND FOURTH DEGREE TEARS***

1. Do not attempt to repair a third or fourth degree tear at the PHC.
2. Keep articles ready:
   - ❖ Assorted sterile speculum –Sims or Bi-valve , various sizes
   - ❖ Sterile scissors
   - ❖ Sterile sponge holding forceps
   - ❖ Gauze packs – 10cm width rolls. If more than one roll is required ensure they are tied together securely
   - ❖ Normal saline
   - ❖ Sterile gloves
   - ❖ Antiseptic like povidone iodine.
3. Wash hands, wear sterile gloves.
4. Ensure that the bladder is emptied by inserting a catheter.
5. Start an IV line for the woman.
6. Give an analgesic to reduce pain.
7. Pack the vagina with sterile dressing.
   - ❖ Soak the gauze in antiseptic solution and squeeze to drain the excess antiseptic.

- ❖ Expose the vagina using the Sims or Bivalve speculum under good light.
- ❖ Introduce one end of the gauze into the uppermost part of the vagina using the sponge holding forceps.
- ❖ Pack the vagina with the gauze by folding with the sponge holding forceps.
- ❖ Ensure that the other end of the gauze is clearly visible after packing. Place a perineal pad and ask the woman to place her legs together and lie in the left lateral position.

8. Note in the case sheet (use complication case sheet F) the time and date of insertion of the vaginal pack.
9. Give the following prophylactic antibiotic in case of third or fourth degree tear:
   - ❖ Ampicillin 500 mg orally;
   - ❖ Metronidazole 400 mg orally.
10. Call and inform the higher centre for surgical intervention, if necessary.
11. Arrange transport to a higher facility for repair.

***Assessment of BLOOD LOSS PER VAGINA***

1. Estimate amount of blood loss after the delivery. Any blood loss can affect the woman adversely during labour or after birth up to six weeks after delivery.
2. Remember that very accurate assessment of vaginal bleeding may not be possible. The other indicators of increased bleeding are:
   - ❖ Continuous passage of clots per vaginum or passage of large clots.
   - ❖ Soakage of more than one pad (sanitary pad 6x10 inches in size, ½ inch thick) in five minutes.
   - ❖ Gushing of blood from the vagina.
3. Check the vital signs and be alert for shock
   - ❖ If pulse rate is rapid and feels very weak it could indicate more blood loss.
   - ❖ If the BP is below 90/60 mmHg.
4. When in doubt start treatment and reassess for shock ***(Shock in the woman is defined as a condition with a systolic BP less than 90 mmHg and /or pulse of more than 110/minute and may be associated with loss of consciousness, cold and clammy skin)***
   - ❖ Give IV fluids as detailed below.
   - ❖ Slow the IV drip to 3 drops per minute if the systolic BP increases to more than or equal 100 mmHg and pulse slows down to less than100/min.
   - ❖ Keep the woman warm, keep her feet elevated.
   - ❖ Give oxygen.
   - ❖ Keep the woman nil by mouth (This is necessary if she needs a surgery).

***Starting AN INTRAVENOUS LINE***

1. Keep articles and equipment required for the procedure
   - ❖ Intravenous stand
   - ❖ Intravenous drip set and intravenous fluid – Ringer Lactate/ Dextrose Normal Saline/Normal Saline

- ❖ IV cannula of 16/18 gauge
- ❖ Clean gloves
- ❖ Spirit swab
- ❖ Tourniquet
- ❖ Leucoplast/ adhesive plaster
- ❖ Splint with bandage.

2. Tell the woman and her support person what is about to be done.
3. Prepare the tubing by filling it with the IV fluid to be given and making sure there are no large air bubbles.
4. Position the woman's arm. The arm should be extended and supported. Apply the tourniquet or ask her companion to hold the upper arm firmly. (Veins are easiest to see at the back of the hand or forearm). Palpate the vein to be cannulated.
5. Wash hands with soap and water. Wear clean gloves on both hands.
6. Identify and clean the site with cotton and spirit. Allow to dry. Do not repalpate the vein
7. Remove the cannula from its packaging and remove the needle cover. Be careful not to touch the needle.
8. Stretch the skin distally and tell the woman to expect a sharp scratch. Insert the needle, bevel upwards at about 30 degrees.
9. Advance the needle until a flashback of blood is seen in the hub at the back of the cannula. Once this is seen, progress the entire cannula a further 2mm then fix the needle advancing the rest of the cannula into the vein.
10. Release the tourniquet, apply pressure to the vein at the tip of the cannula and remove the needle fully.
11. Remove the cap from the needle and put this on the end of the cannula.
12. Carefully dispose of the needle into the sharps box.
13. Apply the plaster to the cannula to fix it in place.
14. Take a syringe (5cc) filled with saline and flush it through the cannula to check for patency. If there is any resistance, if it causes any pain or if any localised tissue swelling is noticed immediately stop flushing, remove the cannula and start again. If there is no swelling or pain, connect the IV tubing with the IV fluid.
15. Dispose of the cotton swabs in the waste bin, needle in the needle destroyer and mutilated syringe in the puncture-proof box.
16. Take off gloves and put them in 0.5% chlorine for 10 minutes for decontamination.
17. Wash hands with soap and water.
18. Record the proceedings in the complication case sheet F.

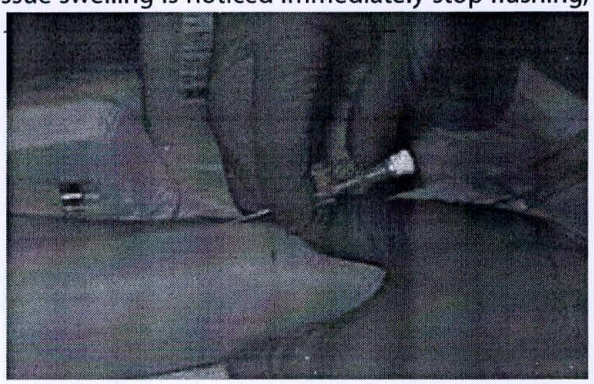


**Figure 5.3: Starting an IV line**

### *Giving INTRAVENOUS FLUIDS*

1. Insert an IV line using a 16–18 gauge cannula.
2. Attach a bottle of ringer lactate or normal saline or dextrose normal saline. Ensure that the infusion is running well.
3. Infuse fluids rapidly if the woman is in shock (systolic BP less than 90 mmHg, and/or pulse more than 110/minute), or if the woman has heavy vaginal bleeding
   - ❖ Infuse the first 1 litre (2 bottles) in15–20 minutes, i.e. as fast as possible.
   - ❖ Infuse the next 1litre in 30 minutes (at a rate 30 ml/minute). Repeat if necessary.
4. Monitor the BP and pulse every 15 minutes. Check for the presence of shortness of breath and/or puffiness.
5. If the systolic BP increases to100mmHg or more, and the pulse slows down to less than100/ min,
   - ❖ Slow down the IV infusion to 3ml/minute (i.e.1 litre in 6–8 hours).
   - ❖ Reduce to 0.5ml/minute if the woman has difficulty in breathing or puffiness.
6. Give fluids at a moderate rate in cases of obstructed labour.
   - ❖ Infuse1litre (2 bottles) of fluid in 2–3 hours.
7. Give fluids at a slow rate in cases of severe anaemia, severe pre-eclampsia and eclampsia.
   - ❖ Infuse1litre (2 bottles) of fluid in 6–8 hours.

### *How to CATHETERISE THE URINARY BLADDER*

1. Keep all the articles ready
   - ❖ Sterile/HLD gloves.
   - ❖ Pre-sterile indwelling catheter (Foley) or disposable (sterile) plain catheter.
   - ❖ Lignocaine jelly/ Lubricant Jelly
   - ❖ 10 cc syringe and needle.
   - ❖ Normal saline/ Sterile water for balloon inflation.
   - ❖ Kidney tray.
   - ❖ Sterile gauze/ cotton swabs, antiseptic solution: savlon/ povidone Iodine
   - ❖ Urine collection bag with tubing.
   - ❖ Leucoplast/ adhesive plaster.
   - ❖ Torch light in case of power failure/ inadequate light
2. Explain to the woman (and her support person) what is going to be done. Respond to her questions and concerns if any. Provide continual emotional support and reassurance.
3. Place a clean cloth under the woman's buttocks.
4. Wash hands thoroughly with soap and water, and dry them with a clean, dry cloth or air dry.
5. Wear new, sterile or HLD gloves on both hands.
6. Use one hand to gently separate the woman's labia

7. Use the other hand to cleanse the labia and urethral opening with clean or sterile cotton or gauze and antiseptic solution, wiping from front to back towards the anus.
8. Place a kidney tray between the woman's legs, close to the perineum. Place the open end of the catheter in the kidney tray Ask the person assisting to squeeze a few drops of Lignocaine jelly/ Lubricant jelly into the kidney tray. Lubricate upto 2 inches of the tip of the catheter by rolling it the jelly. Maintain sterility of the tip of the catheter throughout.
9. Use one gloved hand to gently separate the labia from above.
10. Use the other hand to gently insert the tip of the catheter into the urethral opening upto 3 inches.
11. Gently give pressure over the pubis to empty the bladder completely.
12. Gently remove the plain catheter when the bladder is empty (when urine stops draining into the kidney basin).
13. Attach the open end to tubing on a sterile urine bag and tubing, in the case of a self-retaining catheter,
14. Use a sterile syringe to inflate the balloon with 10cc of sterile water. Check if the woman has any pain or discomfort. If so stop, and push catheter in slightly more inside. Again inflate the balloon.
15. Attach the catheter to the inside of the woman's thigh, using tape.
16. Secure the catheter bag to the side of the bed, below the level of the mother's bladder.
17. Measure and record urine output in all cases.
18. After the procedure
    - ❖ Before taking off gloves, dispose of the waste materials in a leak- proof container or plastic bag.
    - ❖ Destroy the needle and syringe with needle cutter, and dispose in puncture proof container.
    - ❖ Take off gloves.
    - ❖ Dispose the gloves, in a plastic bag or leak-proof, covered waste container.
    - ❖ Wash hands thoroughly with soap and water, and dry them with a clean, dry cloth (or air dry).
    - ❖ Document action taken in the case sheet

***Removal of RETAINED PLACENTAL FRAGMENTS***

1. Get help, if MO officer is available or another staff nurse.
2. Keep article ready (sterile gloves, towel, artery forceps, thumb forceps, sterile pads, speculum, ovum forceps or wide currette)
3. Wash hands
4. With gloved fingers, insert the fingers gently per vagina, feel inside the uterus for placental fragments. (manual exploration of the uterus is similar to the technique described for removal of the retained placenta)
5. Remove placental fragments by hand, ovum forceps or wide curette

***Remember:***

- Very adherent tissue may be placenta accreta. If an attempt is made to remove these pieces of placenta from the uterus, may result in heavy bleeding or uterine perforation which usually requires hysterectomy.
- If bleeding continues, assess clotting status using a bedside clotting test. Failure of a clot to form after seven minutes or a soft clot that breaks down easily suggests coagulopathy (bleeding problem).
- Refer the woman urgently to the nearest FRU or health centre.

***Performing under professional supervision or with help MANUAL REMOVAL OF PLACENTA***

1. Call for help. Do not attempt manual removal of placenta without supervision of medical officer.
2. Provide emotional support and encouragement.
3. Start IV infusion to stabilise the woman.
4. Review the indications.
5. Collect all the needed articles, equipment and medications.
6. Wash hands and wear protective equipment (sterile gloves, mask, goggles, apron and mask).
7. Give pethidine and diazepam IV slowly (do not mix in the same syringe) or use ketamine.
8. Catheterize the bladder or ensure that it is empty.
9. Give a single dose of prophylactic antibiotics (all three);
   - Cap or inj ampicillin 1gm IV or orally and
   - Tab or inj metronidazole 500mg IV or 400 mg orally and
   - Inj gentamycin 80mg IV or IM
10. Give inj oxytocin 20 units in 1L IV fluids (normal saline or ringer's lactate) at 60 drops per minute. Hold the umbilical cord with a clamp. Pull the cord gently until it is parallel to the floor
11. Start the actual procedure once professional help is available.
    - Insert a hand into the uterine cavity if the **cord has been detached previously.** Explore the entire cavity until a line of cleavage is identified between the placenta and the uterine wall.
    - Hold the umbilical cord with one hand if the **cord had not been detached.** Insert the other hand (dominant hand) into the vagina as given in the, Figure 5.4a
      - Let go of the cord and move the hand up over the abdomen in order to support the fundus of the uterus and to provide counter-traction during removal to prevent inversion of the uterus.
      - Move the fingers of the hand in the uterus laterally until the edge of the placenta is located.

- Detaching the placenta
  - **Support the fundus while detaching the placenta,** from the implantation site by keeping the fingers tightly together and using the edge of the hand to gradually make a space between the placenta and the uterine wall. Proceed slowly all around the placental bed until the whole placenta is detached from the uterine wall.
  - Use gentle lateral movement of the fingertips at the line of cleavage, remove placental fragments if the **placenta does not separate from the uterine surface.**
  - Hold the placenta and slowly withdraw the hand from the uterus, bringing the placenta with it. With the other hand, continue to provide counter-traction to the fundus by pushing it in the opposite direction of the hand that is being withdrawn.
  - Palpate the inside of the uterine cavity to ensure that all placental tissue has been removed.
  - Continue inj oxytcoin 20 IU in 1L of ringer's lactate or normal saline or 5% dextrose salin at 30 drops per min.
  - Ask an assistant to massage the fundus of the uterus to encourage a tonic uterine contraction. and to monitor BP/Pulse.

12. Examine the uterine surface of the placenta to ensure that it is complete.
13. If any **placental lobe or tissue is missing,** explore the uterine cavity to remove it.

**14. After the procedure**

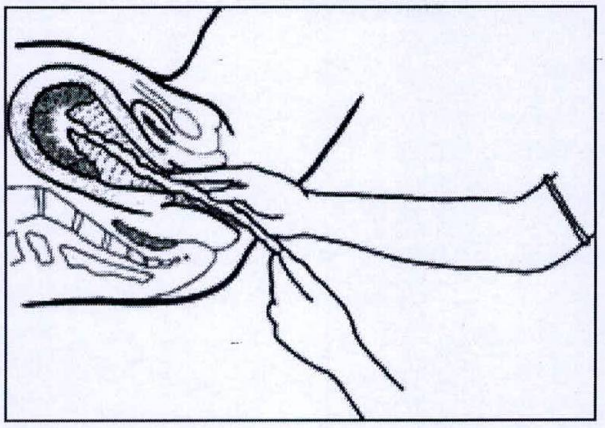


*Figure 5.4a: Apply traction to cord while inserting other hand into vagina*

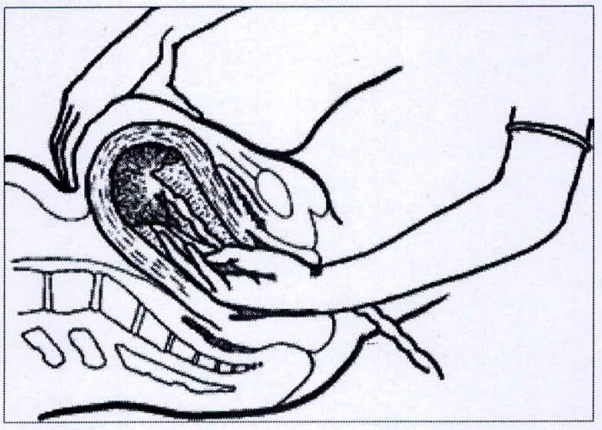


*Figure 5.4b: Apply fundal pressure while gently separating the placenta*

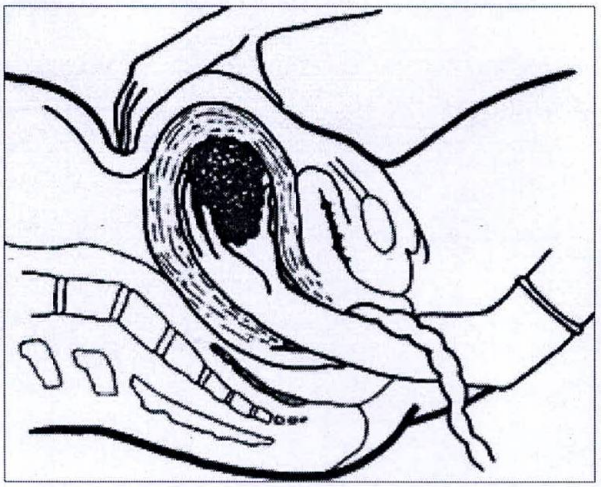
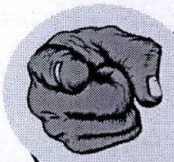


*Figure 5.4c: Give counter traction at the fundus while gently removing hand with placenta. Apply fundal pressure while gently separating the placenta.*



If the placenta is retained due to a constriction ring or if hours or days have passed since delivery, it may not be possible to get the entire hand into the uterus. Call the medical officer urgently to extract the placenta in fragments using two fingers, ovum forceps or a wide curette.

- Observe the woman closely until the effect of IV sedation has worn off.
- Monitor vital signs (pulse, blood pressure, respiration) every 30 minutes for the next 6 hours or until stable.
- Palpate the uterine fundus to ensure that the uterus remains contracted.
- Check for excessive lochia.
- Continue infusion of IV fluids.
- Blood transfusion may be required,make arrangement for a donor.

***Performing BIMANUAL COMPRESSION***

1. Wear sterile gloves, insert a hand into the vagina and remove any blood clots from the lower part of the uterus or cervix; form a fist.
2. Place the fist into the anteriorfornix and apply pressure against the anterior wall of the uterus.
3. Press deeply into the abdomen behind the uterus with the other hand,applying pressure against the posterior wall of the uterus.
4. Maintain compression during transport and until bleeding is controlled and the uterus contracts.

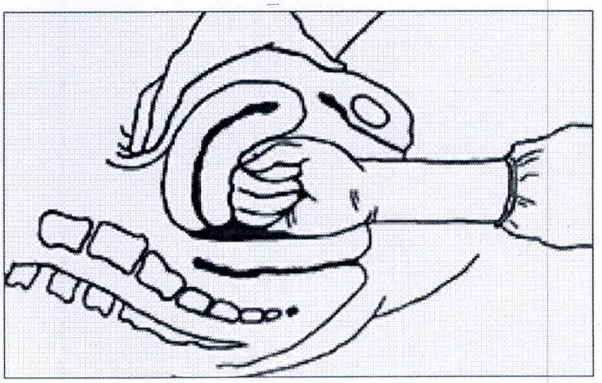


*Figure 5.5: Applying bimanual compression*

## 5G.4: Mentoring Skills

## Case Study 5.4 -PPH

### Part A

You have just delivered Mrs. Yasmin, a 30 year old gravida 4 para 4 at the PHC. She had a vaginal delivery for a live born, 2.6 kg baby boy.

1. ***What will you do to actively manage the third stage of labour and decrease the risk of postnatal hemorrhage in this woman?***

_____

_____

_____

### Part B

2. ***Mrs. Yasmin delivers the placenta. After delivery of the placenta what do you want to check for and why?***

_____

_____

_____

### Part C

3. ***On examination the uterus is well contracted and there are no perineal tears. The placenta and membranes are intact. One hour later she begins to have heavy PV bleeding. What would you like to do on your initial assessment of Mrs. Yasmin and why?***

_____

_____

_____

### Part D

You have completed your initial rapid assessment of Mrs. Yasmin and your findings include the following: Her temperature is 36.8$^{0}$C, her heart rate is 100 beats per minute, her blood pressure is 116/74 mmHg and her respirations are 18 per minute. She is alert and oriented. Her uterus is soft and boggy. There are no perineal, vaginal or cervical tears.

4. ***Based on these findings, what is Mrs. Yasmin's diagnosis and why?***

5. ***Based on these findings do you think shock is present?***

6. ***How will you manage her and why?***

## *Part E*

You correctly diagnose uterine atony. You have performed uterine massage, removed all clots from the uterus, administered oxytocin 10 Units IM x 1, started an IV with and inserted a Foley's catheter. She has IV fluids of 1 litre of NS with 20 units of oxytocin running at 60 drops per minute. Her uterus is now firm and well contracted. Repeat vital signs show a heart rate of 86/min, blood pressure of 108/72, temperature of 36.9$^0$C and respiratory rate of 16/min. Her haemoglobin is 8 gm/dl. There is no further PV bleeding.

7. ***Based on these findings, what is your continuing plan of care for Mrs. Yasmin and why?***

# Key for case study 5.4 – PPH

## *Part A*

You have just delivered Mrs. Yasmin, a 30 year old gravida 4, para 4, at the PHC. She had a vaginal delivery for a live born, 2.6 kg baby boy.

1. ***What will you do to actively manage the third stage of labour and decrease the risk of postnatal hemorrhage in this woman?***

***Answer:*** Perform active management of the third stage of labour, which involves the following components. You do not want to give away the answers but probe to see if the participants can provide them. For example if they do not mention giving uterotonics -ask "would you give any medications, why or why not?" – this encourages them to actually think about the steps that need to be taken.

- Administer a uterotonic drug (5-10 mg IV or IM of oxytocin or 600 micrograms rectally of misoprostol, or 0.2 mg IM of ergometrine). Mention that oxytocin is the preferred drug but that the others are also acceptable to use if oxytocin is not available.
- Clamp the cord.
- Give gentle, controlled cord traction with one hand on the fundus to prevent uterine inversion.
- Discuss that these three actions have been shown to decrease the risk of PPH and should be performed on all women as routine care. This is especially important to do in the Northern Karnataka context since PPH is the leading cause of maternal deaths.

## *Part B*

2. ***Mrs. Yasmin. delivers the placenta. After delivery of the placenta what do you want to check for and why?***

***Answer:*** The following should be mentioned. In discussion explain why. If they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?"

- Check if the placenta and membranes are intact, because retained placental tissue/ fragments can lead to ongoing bleeding and be a cause of PPH.
- Check if the uterus is firm and contracted since uterine atony is the most common cause of PPH ( it is responsible for 80% of all PPH cases).
- Examine the perineum, vagina and cervix for tears. This is because tears are the most likely cause of PPH if the uterus is firm and well contracted and the placenta is complete.
- Estimate if the amount of blood loss at delivery is normal or abnormal. This helps to get a sense of what is a normal or too much bleeding after delivery.

## Part C

On examination the uterus is well contracted and there are no perineal tears. The placenta and membranes are intact. One hour later she begins to have heavy PV bleeding.

***3. What would you like to do on your initial assessment of Mrs. Yasmin and why?***

*Answer:* All of the following points need to be mentioned and discussed. You want to reinforce that there needs to be a sequential order to doing things and that in reality if two health care providers are present at the same time many of these steps happen simultaneously. If they do not mention all steps probe by asking, "Is there anything else you would want to do, why or why not?"

- Call for help - this allows the nurse to have additional help to manage the woman. If help is not available do not wait for help to come to assess the woman.
- Do an initial rapid assessment of Mrs. Yasmin to look for signs of shock and if she is in need of emergency resuscitation. These signs include: pulse more than 110, systolic blood pressure less than 90mm Hg, sweatiness, cold, clammy skin, rapid breathing, altered level of consciousness, confusion. Temperature should also be checked to rule out infection.
- Check the uterus immediately to see if it is contracted. Explain that this is done because 80% of all PPH is due to uterine atony and even though it was firm before it may have become atonic.
- Re examine the perineum, vagina and cervix carefully for tears. While this was done previously – now that the bleeding has started again, this is done to make sure that you did not miss anything on earlier examination.

## Part D

You have completed your initial rapid assessment of Mrs. Yasmin and your findings include the following: Her temperature is 36.8$^0$ C, her heart rate is 100 beats per minute, her blood pressure is 116/74 and her respirations are 18 per minute. She is alert and oriented. Her uterus is soft and boggy. There are no perineal, vaginal or cervical tears.

***4. Based on these findings, what is Mrs. Yasmin's diagnosis and why?***

***5. Based on these findings do you think shock is present?***

*Answer:* Uterine atony without signs of shock. Explain that the findings of a soft, boggy, uncontracted uterus are consistent with the diagnosis of uterine atony. Review again the signs of shock (pulse more than 110, systolic BP less than 90mmHg, sweatiness, cold, clammy skin, rapid breathing, altered level of consciousness, confusion).

***6. How will you manage her and why?***

*Answer:* All of the following points need to be mentioned and discussed. You want to reinforce that there needs to be a sequential order to doing things and that in reality if two health care providers are present at the same time many of these steps happen simultaneously. You do not want to give away the answers but probe to see if the participants can provide them. For example if they do not mention starting an IV -ask "Would you start an IV, why or why not?" –

this encourages them to actually think about the steps that need to be taken.

- Call for help/assistance as many things need to be done simultaneously. Mrs. ***Yasmin*** should not be left unattended nor should there be a delay caring for Mrs. ***Yasmin*** while help is on its way or if help is unavailable.
- Begin uterine massage and continue until the uterus is firm. This helps the uterus contract. Do a pelvic examination to remove any clot from the uterus. As long as there is clot in the uterus the uterus will not be able to contract.
- Give an additional dose of Oxytocin 10 IU, IM x 1 immediately. If oxytocin is not available then one of the following uterotonics could be given via an alternate route (800 micrograms of misoprostol rectally, 0.2 mg IM of ergometrine) to help the uterus contract. Explain that oxytocin is the preferred drug of choice, followed by misprostol, then ergometrine (ergometrine has more adverse effects such as increasing the blood pressure). Use this point to reinforce that the new case sheets will have information on dosages, repeat dosages and contraindications.
- Start an IV with a large bore needle (16 or 18 guage) and run 20 IU, of injectable oxytocin in 1 litre of ringer lactate or normal saline at 60 drops per minute then follow with an additional 20 IU, of injectable oxytocin in 1 litre of IV fluids at 40 drops per minute.
- Give another dose of uterotonic if the woman continues to bleed and the uterus does not contract after performing the above steps. Any one of the following uterotonics could be given via an alternate route (800 micrograms of misoprostol rectally, 0.2 mg IM of ergometrine) to help the uterus contract. Use this point to reinforce that the new case sheets will have information on dosages, repeat dosages and contraindications.
- Start an IV and begin fluids of either NS or RL at 40-60 drops per minute. Explain that placing an IV ensures that more fluid could be given if needed or additional medications if she continues to bleed. Giving fluids immediately makes sure that the woman does not go
- Insert a Foley's catheter to help. Catheter help keep the uterus contracted by making sure the bladder is empty. It is also is a useful way to measure urine output if the woman continues to bleed.
- Continue to recheck her vital signs. This will let the nurse know if the woman is remaining stable or is beginning to deteriorate and show signs of shock.
- Do not do crossmatch of her for blood if she is not in shock.
- Do not draw blood for hemoglobin immediately if she does not continue to bleed and if she responds to initial management.

## *Part E*

You correctly diagnose uterine atony. You have performed uterine massage, removed all clots from the uterus, administered oxytocin 10 IU, IM x 1, started an IV with normal saline and inserted a Foley's catheter. She has IV fluids of 1 litre of NS with 20 IU of oxytocin running at 60 drops per minute. Her uterus is now firm and well contracted. Repeat vital signs show a heart rate of 86 per minute, blood pressure of 108/72mmHg, temperature of 36.9$^{0}$C and respiratory rate of 16. Her hemoglobin is 8gm/dl. There is no further PV bleeding.

***7. Based on these findings, what is your continuing plan of care for Mrs. Yasmin and why?***

- Continue to monitor Mrs. Yasmin's vital signs and blood loss, every 15 minutes for 1 hour, then every 30 minutes for 2 hours, every hour for 3 hours and then every 4 hours for 24 hours. Check her uterus to make sure that it remains firm and well contracted. Encourage her in addition to breastfeed her newborn. She needs to have this additional close monitoring because you want to make sure she does not start to bleed again. Breastfeeding releases oxytocin and this helps to keep the uterus contracted to prevent bleeding.
- Check for anemia, 24 hours after the bleeding has stopped, by doing a hemoglobin or hematocrit .
- Give Mrs. Yasmin's IFA tablets once daily for 6-9 months if hemoglobin is below 11 gm/dl. This will help increase her iron stores and increase her hemoglobin.
- DO NOT give blood transfusion if her vital signs are stable and there is no further bleeding.
- Encourage the woman to express her concerns, listen carefully, and provide emotional support and reassurance.
- Advise Mrs. Yasmin to remain at the health centre for an additional 24 hours, and before discharge counsel about danger signs in the postnatal period (bleeding, abdominal pain, fever, headache, blurred vision), compliance with iron/folic acid treatment and the inclusion in her diet of locally available foods rich in iron; and to continue breast feeding her newborn.
- Inform her that she and her baby should be seen by a healthcare provider approximately 5 to 6 days after discharge.

## *Key points to review at the end of the case study 5.4*

- Perform AMTSL on all women after delivery of the baby.
- Inspect the placenta and membranes, perineum, vagina and cervix and uterine tone routinely after all deliveries to identify and/or prevent early PPH.
- Remember early PPH is defined as bleeding greater than 500 ml in the first 24 hours after delivery. Determine carefully if the bleeding is much heavier than it should be (i.e. not a normal amount).
- Remember the most common cause of early PPH is uterine atony (80% of all cases). Perineal, vaginal and cervical tears, followed by retained placenta or placental fragments are the next most common causes.
- Perform an initial rapid assessment to determine if the patient is in shock or not and requires immediate resuscitation always
- Never leave a bleeding woman alone. Women who have had an immediate PPH need increased monitoring for the next 24 hours to make sure no further bleeding occurs.

## 5G.5 Key Messages- Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO always practice AMTSL.*** This prevents postnatal hemorrhage from uterine atony. |
| | ***DO watch the woman, her bleeding and vital signs following delivery.*** Being able to recognize postnatal hemorrhage early and act quickly is life saving. |
| | ***DO be fast and treat early any woman*** who has sudden bleeding or continuous slow bleeding after delivery. |
| | ***DO always assess for signs of shock*** and continuously be on the alert for it in a woman that is bleeding. Hemorrhagic shock is life threatening and needs immediate treatment with volume replacement. |
| | ***DO insert a Foley's catheter and IV access with a large bore needle.*** A Foley's catheter helps keep track of urine output, which tells if blood loss has been replaced adequately. IV access is needed to help provide volume replacement (fluids, blood) and treat shock. A large bore needle is better since fluid / blood can be replaced rapidly if needed. |
| | ***DO always take the time to determine the cause of the postnatal hemorrhage.*** This is important since different causes have different treatments. |
| | ***DO identify and arrange for a blood donor.*** Identifying a donor ensures that blood is available for the woman and that critical life saving care could be delivered in a timely manner. |
| | ***DO know the doses, routes and contraindications of the utertonic medications.*** These are life saving drugs and you should be familiar with them. |
| | ***DO keep the emergency drug tray in the labour room.*** Having it in the same room ensures you have immediate access to the needed drugs if hemorrhage occurs. |
| | ***DO accompany the woman during referral.*** Changes in the status of the maternal condition can happen quickly. Accompanying the woman ensures that appropriate monitoring and care are also being delivered during transport. |
| **Don'ts** | ***DO NOT ignore sudden bleeding or continuous slow bleeding after delivery.*** Early and fast management of postnatal hemorrhage is necessary in order to prevent it from being fatal. |
| | ***DO NOT ignore the woman or leave her unattended in first two hours of the postnatal period.*** Close monitoring of the woman, her vital signs and bleeding will help to identify hemorrhage and act quickly to prevent shock. |
| | ***DO NOT refer a bleeding woman without initially stabilizing*** her first. |
| | ***DO NOT keep the emergency drug tray far away from the labour room.*** Not having life saving medication nearby during an emergency wastes precious time and could be fatal. |

# Chapter 6 Preparation for Discharge

**Reference: SBA guidelines 2010 Page 58, 85**

### *Learning Objectives*

**At the end of this chapter you will be able to**

- Demonstrate the counselling skills required before discharge including danger signs for mother and newborn, follow up and care, and FP advice
- Demonstrate documentation of discharge for woman and baby
- Demonstrate mentoring skills for discharge

## 6.1 Introduction

The first 48 hours is known to be the most crucial period for the development of complications both for a woman and her baby. A woman who does not have any complications in the postnatal period could be discharged in 48 hours. However it is important to assess for any danger signs, check whether the woman is aware of her own care and the care of her baby and if she knows when she must come again for a follow up visit.

Effective communication is a major component of providing health care and counselling. It is to be able to listen, hear and respond to the patient's concerns, to make sure the patient feels respected and comfortable discussing health and social problems, to empower the patient with information and skills to manage their own health effectively. Good communication includes listening, being empathetic and non judgemental. Listening means to pay close attention to someone; to hear with intention. Good listening involves listening ACTIVELY. Listening is one of the key roles of a counsellor, a nurse and any health care provider. A good listener doesn't interrupt, allows silences, does not speak until they have listened, let's the other person see you are listening by nodding, maintaining eye contact and asking questions. Good listening skills include good body language too.

## 6.2 Components of Preparation for Discharge

### *Assess for danger signs*

Most of the common complications during the postnatal period could be picked up by careful and regular monitoring of vital signs, and specific signs related to the obstetric period.

### *Check on knowledge of woman on care of herself at home*

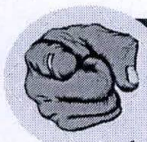
### *Counsel on postnatal care*

### *Counsel on newborn care*

## 6.3 Importance of Components for Discharge Preparation

### *Assess for danger signs*

- It is essential that the woman is checked for the following in the first 48 hours every six hours (See Section 4 of Normal Delivery Case sheet)
  - Bleeding PV, increased
  - Blurred vision / headache
  - Breathing difficulties
  - Convulsions
  - Fever
  - Pain: abdominal, perineal, breast
  - Vomiting
  - Swollen and red, tender breasts
- In addition observation of the uterine tone, height, tenderness; tear condition; lochia characteristics. Any abnormality of these observations could indicate a complication.
- The woman could be discharged if she does not present with any danger signs, is feeding her baby well and is confident about the care or herself and the baby. Thus the staff nurse has an important role in preparing the woman for discharge.



A woman who is healing well will have normal vital signs, uterus that is well contracted, bleeding that is minimal, no problems in feeding her baby, and could manage with the discomfort of a contracting uterus and pain related to episiotomy.

### *Check on knowledge and practice of woman on care of herself and the newborn*

- Ask simple questions to the woman to help elicit how much she knows about the care of herself
  - Her diet
  - Hygiene
  - Danger signs

- Follow up visit
- Specific to the care of baby (See Part C, Chapter 3 page number 47)
- Traditional practices at home with regards to her and her newborns care

## *Counsel on various postnatal aspects of care*

- Counsel the woman on specific aspects of postnatal care (See Normal delivery case sheet-Section 4). It is important that the woman is made comfortable and approached in a friendly, respectful manner. Based on the assessment done, information must be provided to the woman in simple and clear language so that she would understand the message. When counselling it is important to remember the following points for it to be effective:
  - Establish rapport or trust relationship with the woman;
  - Have conversations with a purpose;
  - Listen attentively to the woman's concerns;
  - Help the woman to tell her story;
  - Give the woman correct and appropriate information;
  - Help the woman and her family to make informed decisions;
  - Help the woman to recognize and build on her strengths;
  - Help the woman to develop a positive attitude to life;
- A good way to check if the woman has understood what was communicated is by asking her to repeat the main points that were discussed. She could also be encouraged to ask questions so that her doubts are cleared.
- Inform the woman that she must seek care urgently if she presents with any of the following at home without delay:
  - Vaginal bleeding
  - Convulsions or fits
  - Severe headaches with blurred vision
  - Fever or too weak to get out of bed
  - Severe abdominal
  - Fast or difficult breathing
- These flag a severe complication like either eclampsia, sepsis or PPH and thus would need urgent attention.
- The woman must also be informed to seek help as soon as possible for the following danger signs when at home as they could reflect an infection which would need to be managed:
  - Fever
  - Abdominal pain
  - Feel ill

### *Counsel on various aspects of care of newborn*

- See details in Vol 3

### *Documentation*

- All details related to discharge of woman and newborn are to be filled up in the outcomes sheet. The thayi card if present must be completed by the staff nurse and duly signed.

## 6.4 Requirements to Manage Discharge

### *Equipments and supplies*

Ensure that the following equipment is available at the PHC and in working condition:

- Blood pressure apparatus and stethoscope
- Thermometer
- Watch with seconds hand
- Disposable syringes and needles
- Polio vaccination
- TB vaccination
- Hepatitis B vaccination
- Family planning methods - IUCD, oral contraceptives, injectables, condoms

### *Clinical skills*

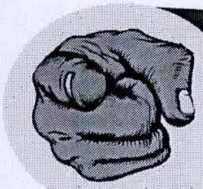
In order to provide postnatal care select skills are required and these skills should be reviewed and focused on if there is any difficulty in performing them. These skills include:

1. Monitoring vital signs including pulse, blood pressure, and temperature and pain (See CHAPTER 2 on page #)
2. Monitoring of uterine tone, height, per vaginal bleeding, (See CHAPTER 3 on page 33)
3. Counselling skills (See CHAPTER 4, page 63)
4. Newborn assessment (See Vol 3 on page 47)
5. Documentation on the case sheet details of postnatal period (Section 4 OF CASE SHEET)

The clinical skills section provides detailed information on how to perform each of these procedures and could be used as a resource when mentoring.

## 6.5 Key Messages - Do's and Don'ts

| | |
|---|---|
| **Do's** | ***DO monitor the woman and newborn closely in the first 48 hours postnatal.*** This is a critical time period where many women and newborns develop complications and die. Being alert helps diagnose complications early and ensure prompt access to treatment. |
| | ***DO show that you are listening to the woman during an interaction*** by facing or looking at her when she speaks; nodding, showing appropriate facial expression, being clam and patient |
| | ***DO always counsel the woman and her family on the maternal and newborn danger signs.*** Knowing when to seek care avoids delays in treatment and can save lives. |
| | ***DO always counsel on general care, such as nutrition, family planning, immunization and basic newborn care.*** Knowing how to stay healthy and prevent illness is important. |
| | ***DO vaccinate the newborn against hepatitis, polio and TB (BCG)*** before discharging from the PHC. Vaccinations prevent illness and save newborn lives. |
| **Don'ts** | ***DO NOT ignore the woman and newborn in the 48 hours postnatal.*** This is an important period where many mothers and newborns develop complications and die. Being alert helps diagnose complications early and ensure prompt access to treatment. |
| | ***DO NOT turn away during an interaction with the woman,*** and while she is talking to you, don't do something else (writing notes, talking on the phone or doing some other work or interrupt). |
| | ***DO NOT tell or instruct the woman what to do during counselling,*** also not make decisions on her behalf; don't judge, blame, preach to or argue with the mother; don't make promises that could not be carried out, don't force your own belief system on her. |



Use AMMA approach for PREPARATION for DISCHARGE

- Assess the condition of the woman and baby before discharge, the understanding of the woman and her family on the various aspects of care of woman and child, the social and economic through exit interview.
- Manage – Advise on postnatal care using the postnatal counselling checklist in the case sheet and the educational material in the thayi card.
  - Agree on the aspects of postnatal care. Resolve conflicts if any especially cultural issues like food taboos.
  - Arrange for follow up (give a mutually convenient date and time) arrange for transport if required. Follow up instructions and follow up date needs to be given.
  - Assist with community level support and follow up by giving the contact details of ASHA and informing the ASHA.
- Monitor
  - Audit the case sheet for completeness and follow up on all above steps to see if it is completed in a timely manner.
- Advocate
  - Once successful, discuss with other staff nurses in PHC and enourage them also to adopt these steps in similar cases in the future.

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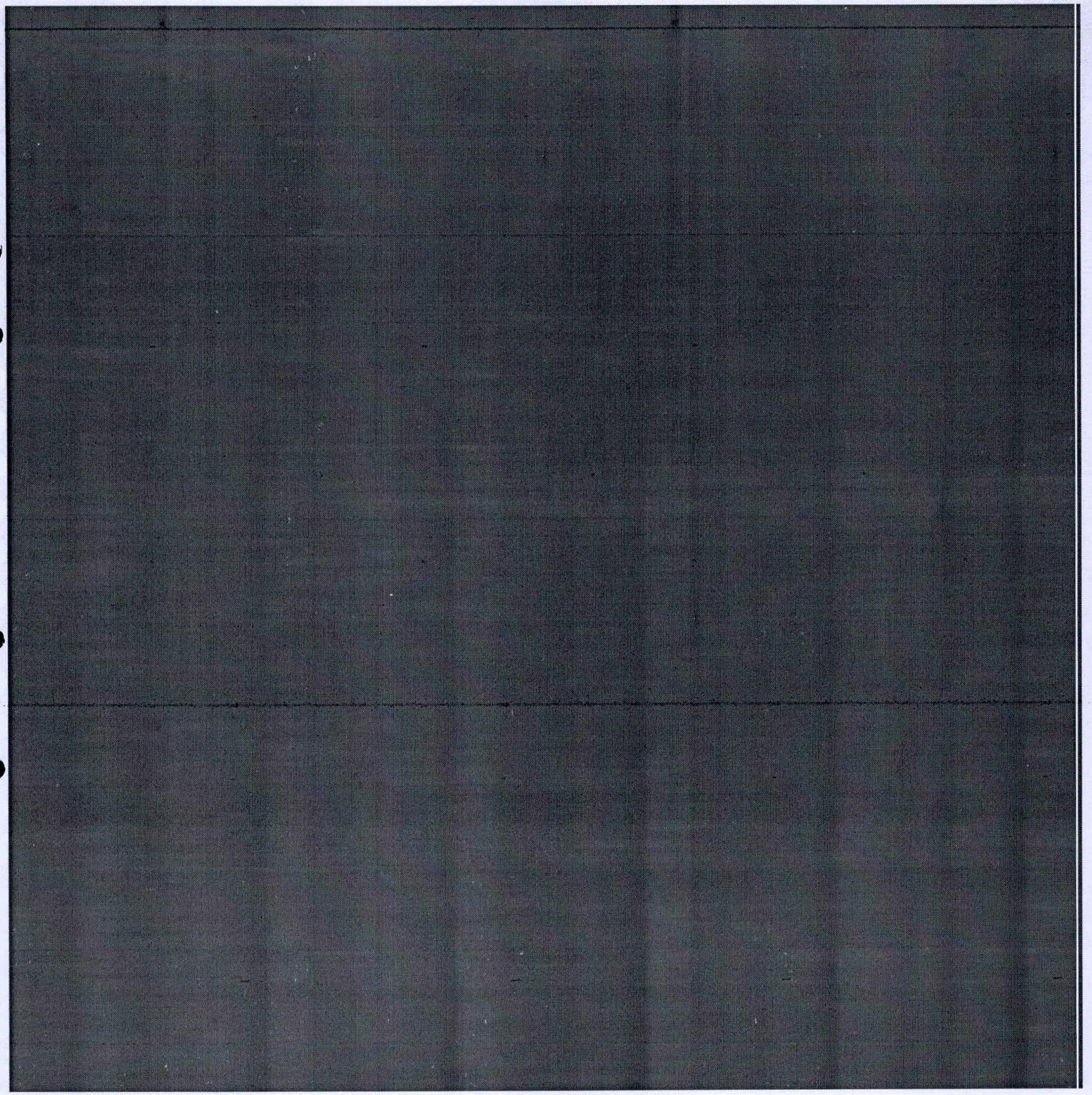

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