4.0 INTRODUCTION

Early pregnancy and delivery should be considered at risk. However there are certain conditions or risk factor when mother and foetus is at increased risk. The high risk cases must be identified early during pregnancy, child birth and during Postnatal period so that appropriate care can be given and referrals made. Even with adequate antenatal and intranatal care, these conditions are responsible for seventy to eighty percent of perinatal and neonatal morbidity and mortality. All high risk cases need to be screened and referred for specific care. In this unit we shall discuss about early management and referral of complications. We shall focus on the Antepartum Haemorrhage (APH), Post Partum Haemorrhage (PPH), Eclampsia, Anaemia, Foetal distress, Prolonged
labour, Obstructed labour, Vaginal and Perineal tears, Peuperial Sepsis, Breast Conditions, Shock, Referral etc.

4.1 OBJECTIVES

After completing this unit, you should be able to:

- discuss the risk factors during pregnancy, delivery and after birth;
- identify the services for healthy birth outcome;
- discuss specific and emergency management for complication during pregnancy such as APH, PPH, Eclampsia etc;
- identify the need and facility of referral; and
- explain supportive care of mother during pregnancy delivery and after child birth.

4.2 ANTEPARTUM HAEMORRHAGE

Vaginal bleeding any time after 20 weeks of pregnancy and prior to the birth of baby is called Antepartum Haemorrhage (APH). The most serious causes of APH are placenta praevia (placenta lying at or near the cervix), abrupt detachment of the placenta (before the birth of the foetus) or a ruptured uterus. Any bleeding (light or heavy) at this time of pregnancy is dangerous.

**Remember:**

Pervaginal Examination (P/V) should not be performed in women who have bleeding during pregnancy beyond 20 weeks.

Immediate management of bleeding in late pregnancy:

- Establish an intravenous line and start intravenous fluids (Ringer lactate/normal saline).
- Refer the woman to an FRU which has facilities for blood transfusion.

4.3 POSTPARTRUM HAEMORRHAGE

Postpartum Hemorrhage (PPH) is defined as the loss of 500 ml or more of blood during or within 24 hours of the birth and up to six weeks after delivery or blood loss sufficient to cause signs and symptoms of hypovolemia or woman soak 1 pad or cloth in less than 5 minutes.

PPH may be immediate or delayed.

4.3.1 Immediate Postpartrum Haemorrhage (PPH)

When Postpartrum Hemorrhage (PPH) occurs during delivery till first 24 hours after delivery it is referred as immediate postpartum hemorrhage. It can occur due to the following causes:

- Tone causes (Atonic PPH most common cause 80–90%)
- Tears in the lower vagina, cervix or perineum
- Retained or incomplete placenta or placental fragments
• Inverted or ruptured uterus
• Thromboembolic-Coagulopathy

The woman with PPH may also be in shock therefore you need to identify the signs and symptoms of shock for appropriate management and referral.

<table>
<thead>
<tr>
<th>Symptoms of Shock</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trachycardia:</strong> Fast, thin thread pulse, &gt;110 per minutes</td>
</tr>
<tr>
<td><strong>Trachypnoea:</strong> Fast respiratory rate</td>
</tr>
<tr>
<td><strong>Hypotension:</strong> Fall in systolic BP, &lt;90 mm of Hg</td>
</tr>
<tr>
<td><strong>Hypothermia:</strong> Skin cold and clammy</td>
</tr>
<tr>
<td><strong>Altered sensorium:</strong> Drowsy, semi conscious or unconscious</td>
</tr>
</tbody>
</table>

The general steps to be taken for the management of PPH, before referring the woman to an First Referral Unit (FRU), are as follows. (Flow chart 4.1)

**General management in PPH**

• Evaluate her general condition and look for signs of shock (cold, clammy skin), check the level of consciousness, pulse (should not be weak or fast, at 110 per minute or more), blood pressure (systolic should not be less than 90 mmHg), respiration (the RR should not be more than 30 breaths per minute) and temperature.

• Monitor the vital signs every 15 minutes and estimate the amount of blood loss.

• Try and ascertain the cause of PPH using the flow chart 4.1

• Give the woman an Oxytocin injection (10 IU, intramuscular stat). (If she has already received a prophylactic Oxytocin injection or a Misoprostol tablet during AMTSL, this is not required).

• Massage the uterus to expel blood and blood clots. Blood clots trapped in the uterus will inhibit effective contractions.

• Establish an intravenous line and start an intravenous infusion of Ringer Lactate or normal saline. Do not use dextrose solutions unless others are unavailable.

• Add 20 IU of oxytocin to 500 ml of Ringer Lactate/normal saline that is running intravenously at the rate of 40–60 drops per minute. (If an intravenous line cannot be established, give her an intramuscular Oxytocin injection (10 IU) stat).

• If the bleeding persists and the uterus continues to be in the relaxed state (i.e. it is soft), make arrangements for transporting the woman to the FRU, where facilities for blood transfusion and appropriate surgical care are available.

• Do not give the woman anything to eat or drink since she may require an obstetric intervention under anaesthesia.
Maternal Health

- If the woman is bleeding heavily, i.e. soaking one pad or cloth in less than five minutes, or if she is in shock, give her fluids rapidly (60 drops per minute) through another drip.
- Raise the foot end of the bed so that her head is lower than her body. This will help increase the flow of blood to the heart.
- Keep the woman warm and covered with a blanket. If she is in shock, she might feel cold even in warm weather.
- Utilise the intervening time to perform bimanual compression (Fig. 4.1). The steps of Bimanual Compression are given below.

Steps of Bimanual compression include the following: (Fig. 4.1)

- Use a Foley catheter (preferable)/Plain catheter to catheterise and empty the urinary bladder.
- Use a pair of sterile gloves.
- Insert a gloved hand in the vagina and remove any clots from the lower part of the uterus or the cervix.
- Form a fist and place it in the anterior vaginal fornix and apply pressure against the anterior wall of the uterus.
- Ensure that family members/attendants accompany the woman to the FRU. You should also accompany her, if possible.
- Arrange for two or three donors to donate blood in case a blood transfusion is required. The donors should also accompany the woman during referral.
- On the way to the FRU, try and estimate the amount of blood lost (by counting the number of pads soiled).

Fig. 4.1: Bimanual Compression

**Remember:**

That the interval from the onset of PPH to death can be as little as two hours, unless appropriate life-saving steps are taken immediately.
Refer the flow chart 4.1 for identifying and managing immediate PPH. You have to ascertain from the records whether oxytocin injection has been given as part of the Acute Management of third stage of labour (AMTSL). You need to refer the cases of PPH to First Referral Unit (FRU).

**Management of PPH**

- Shout for Help: Mobilise all available health personnel.
- Evaluate Vital Signs: Pulse, BP, respiration and temperature
- Establish IV Line (draw blood for blood grouping & cross matching and catheterise the bladder, if at health facility).
- Start rapid infusion of Normal Saline/Ringer Lactate & 11 in 15-20min, if possible
- Massage the uterus to expel the clots.
- Give Oxygen @6-8 1 per minute by mask (if at health facility)
- Monitor Vital Signs and blood loss (every 15 minutes)
- Monitor fluid intake and urinary output.

**Check to see if placenta has been expelled**

- Placenta not delivered
  - Retained Placenta
    - Inj Oxytocin 20 IU in 500 ml RL @ 40-60 drops per minute and refer to FRU*

- Placenta delivered
  - Examine placenta & membranes for completeness
    - Complete
      - (A portion of the maternal surface missing or there are torn membranes & vessels, suspect retained placental fragments)
      - Feel the consistency of Uterus Per Abdomen
      - Uterus well contracted. (Traumatic PPH)
      - Look for tears/lacerations in vagina/cervix.
      - Pack the vagina and refer to FRU*
      - Bimanual Compression of Uterus
      - Continue uterine massage & Oxytocin drip and refer to FRU*

    - Not Complete
      - Soft and flabby Uterus (Atonic PPH)
      - Administer Uterotoniccs
      - continue Uterine massage
        - Inj Oxytocin 20 U in 500ml of RL/DNS-IV
      - Remove retained pieces of placenta & membranes digitally or with sponge holding forceps, under supervision of M.O.
      - Observe and assess bleeding

- *Steps for Referral:
  - Referral should be made with Referral Slip (Annexure III) with I.V. line intact and all interventions recorded.
  - Preferably a Health worker should accompany the patient to referral institution
  - Telephone message should be conveyed to the Referral Institution/Doctor with information on Patient’s Blood Group and status.

**Flow Chart 4.1: Management of PPH**

### 4.3.2 Delayed/Secondary Postpartum Haemorrhage

Delayed PPH refers to bleeding which occurs 24 hours after delivery up to six weeks postpartum. It could be due to retained clots or placental fragments, or due to an infection in the uterus.
Management

- Give an Oxytocin injection (10 IU, intramuscular) stat.
- Start an intravenous infusion: inject 20 IU of Oxytocin into 500 ml of Ringer Lactate/normal saline and administer at the rate of 40–60 drops per minute.
- An infection is suspected if there is fever and/or foul-smelling vaginal discharge. Give the woman the first dose of antibiotics (Ampicillin capsule, 1g orally; Metronidazole tablet, 400 mg orally; and a Gentamicin injection, 80 mg intramuscular stat).
- Refer the woman to the FRU.

4.3.3 Retained Placenta

The placenta may be retained fully or there may be placental fragments. The placenta is said to be retained if it is not delivered within half an hour of the birth of the baby. Bleeding may or may not occur in cases of retained placenta.

A partially separated placenta or retained placental fragments cause continuous vaginal bleeding, leading to PPH.

- Give inj oxytocin 10 IU I/m stat given during AMTSL
- Add 20 IU of oxytocin to 500 ml of Ringer Latate or normal saline and infuse at the rate of 40–60 drop/minutes
- Arrange for blood donor. Arrange for transportation to FRU where facilities for blood transfusion and MRP is available
- Give first dose of broad spectrum antibiotics before referral.
- If the placenta is already separated and is lying in the birth canal, then remove it gently.
- If it is not separated, refer the woman immediately to the FRU for manual removal of the placenta. Do not attempt to undertake this procedure.

<table>
<thead>
<tr>
<th>Check Your Progress 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Define Postpartum Haemorrhage (PPH).</td>
</tr>
<tr>
<td>ii) Differentiate between immediate and delayed PPH.</td>
</tr>
<tr>
<td>iii) Write the meaning of retained placenta?</td>
</tr>
</tbody>
</table>
4.4 PRE ECLAMPSIA AND ECLAMPSIA

Toxaemia of pregnancy encompasses Pre-eclampsia and Eclampsia which are life threatening complication of pregnancy and deaths from these can be prevented by proper antenatal care and administration of Magnesium Sulphate (MgSO₄).

Pre-eclampsia and Eclampsia can be prevented and managed by the following:

- Recording and monitoring Blood Pressures (BP) and urine examination of all labouring mothers.
- Timely identification of danger sign
- Giving inj of MgSO₄ in all mothers having severe Pre-eclampsia and Eclampsia

We will focus in Pre eclampsia and Eclampsia in following sub-sections.

4.4.1 Pre Eclampsia

It is called hypertension with proteinuria. In pre-eclampsia a pregnant woman presents with high blood pressure (BP more than 140/90 mmHg and less than 160/110 mmHg) with traces or 1+ or 2+ Proteinuria.

When ever a pregnant women visits your centre, you must take following measure -

Record the woman’s blood pressure during every antenatal visit. If it is high (more than 140/90 mmHg), check it again after four hours. If the situation is urgent, the blood pressure should be measured after one hour.

If the woman has hypertension, check her urine for the presence of proteins. If she has raised blood pressure and proteinuria you can categorise the woman as having pre-eclampsia.

Refer the woman to the 24 hour PHC/FRU so that she can receive anti-hypertensive medication. She should be managed at home as per the advice of the Medical Officer.

Follow up the woman or her family, and provide appropriate follow up.

In case of high blood pressure more than 100 mmHg antihypertensive drugs are given as per Government of India Guidelines:

- Anti-Hypertensive need to be given if Diastolic BP>100 mm Hg
- Tab Alpha- Methyl Dopa or tab labetalol can be used for controlling blood pressure
- Blood pressure should be maintained between 90–100 mmHg (Diastolic)
- In case of severe Pre-eclampsia, use of tab Nifediphine or Inj. Labetalol is recommended for initial control of Blood Pressure
- Magnesium Sulphate is given in severe pre-eclampsia to prevent progression of eclampsia

Follow-up care of women with pre-eclampsia

- Advise the woman to come to you for a check-up twice a week regularly.
- Monitor her blood pressure and the foetal condition and urine for the presence of proteins.
- Encourage her to take rest.
- Encourage her to take a normal diet. She should not be advised to restrict her intake of salt and fluids.
- Advise her to go for an institutional delivery.
- Inform her family members to take her urgently to the PHC/FRU if there are danger signs such as:
  - Headache (increasing in frequency and duration)
  - Visual disturbances (blurring, double vision, blindness)
  - Oliguria (passing less than 400 ml urine in 24 hours)
  - Upper abdominal pain
  - Oedema, especially of the face, sacrum/lower back
- Women who have a history of hypertension in previous pregnancies have a greater chance of having a raised blood pressure in the present pregnancy also. So she must be referred.

**Remember:**

All women should be referred to FRU and admitted if they have BP >140/90 mmHg, Protein Urea+1 or any other sign of pre-eclampsia.

### 4.4.2 Eclampsia

Eclampsia is life threatening condition of pregnancy in which pregnant woman is having high blood pressure more than 140/90 mmHg, with or 1+ or 2+ or 3+ or 4+ Proteinuria and convulsion

**Eclampsia is Hypertension with Proteinuria and Convulsions**

Convulsions that occur during pregnancy, delivery or in the postpartum period should be assumed to be due to eclampsia, unless proved otherwise.

Eclampsia is characterised by:

- Convulsions
- High blood pressure (a systolic blood pressure of 140 mmHg or more and/or a diastolic blood pressure of 90 mmHg or more)
- Proteinuria +2 or more.
- Headache and abdominal pain.

**Causes & Risk Factors**

Actual cause is not known but the risk factors are as follows:

- Elderly and young primigravida.
- Family history of preeclampsia (in mother or sister).
- Poor Diet (Malnutrition).
- Diabetes.
- Multiple pregnancy.
• Rh-incompatibility.
• Polyhydraminos.
• Heredity.
• Smoking.

Signs & symptoms:
• Headache
• Hypertension (BP above 160/110 mmHg)
• Odema (Pitting odema over the ankles and rapidly gain in weight of more than 1 LB in a week)
• Visual disturbances
• Protein urea (Presence of protein in 24 hrs. urine of more than 1 gram per liter).
• Fits
• Abdominal pain
• Decreased urine output
• Signs of foetal distress

Care of women in Eclampsia
Keep in touch with the woman or her family and undertake appropriate follow up of the cases. If the woman has convulsions, provide supportive care. The initial management of convulsions includes the following:
• Ensure that the airway is clear and she is breathing well
  • If the woman is unconscious, position her on her left lateral side to reduce the risk of aspiration (vomitus and blood).
  • Clean the mouth and nostrils by applying gentle suction and remove the secretions.
  • Remove any visible obstruction or foreign body from her mouth.
• Keep a padded mouth gag between the upper and lower jaw to prevent tongue bite (do not attempt this during a convulsion).
• Administer the first dose of Magnesium Sulphate injection (as described below).
• Keep her in the left lateral position.

The first dose of Magnesium Sulphate injection is given to manage eclampsia
• Inform the woman, if she is conscious, that she may feel warm during the injection.
• Inject 10 ml (5 g) of Magnesium Sulphate in each buttock (a total of 20 ml (10 g). Ensure that this is given deep intramuscularly because otherwise, an abscess can form at the site of injection.
• After receiving the injection, the woman may have flushing, may feel thirsty, get a headache, feel nauseous or even vomit.
• Do not repeat the dose of Magnesium Sulphate.
• Do not leave the woman alone. The presence of an attendant is mandatory.
Maternal Health

- Protect the woman from fall or injury.
- Maintain a record of the vital signs.
- Immediately arrange to refer the woman to an FRU and ensure that she reaches the FRU as early as possible, preferably within two hours of receiving the first dose of Magnesium Sulphate injection.
- Accompany the woman to the FRU, if possible. Manage any convulsions that may occur on the way.

If delivery is imminent, you may not have the time to transport the woman to an FRU. In this case, deliver the baby after giving the first dose of Magnesium Sulphate injection. After the delivery, you must refer her, together with the baby, to the FRU for further management.

<table>
<thead>
<tr>
<th>Check Your Progress 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) List signs of eclampsia?</td>
</tr>
<tr>
<td>.................................................................</td>
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<td>.................................................................</td>
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<tr>
<td>ii) Write down the stages of eclamptic fit?</td>
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<td>.................................................................</td>
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<tr>
<td>iii) Write down management of mother during fit?</td>
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<td>.................................................................</td>
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</table>

4.5 ANAEMIA

A haemoglobin level of less than 11 g/dl at any time during pregnancy or the postpartum period is termed as anaemia. A haemoglobin level of less than 7 g/dl is severe anaemia.

How will you manage a pregnant woman with Anaemia?

- Prophylactic treatment for anaemia, in the form of IFA tablets, should be given to every pregnant woman from the second trimester onwards. Each tablet should contain 100 mg elemental iron and 0.5 mg folic acid, and the dosage should be one tablet daily for six months. The prophylactic treatment against anemia should be continued for three months even in the postpartum period.

- All women with anaemia (haemoglobin less than 11g/dl) must be given the therapeutic dose of IFA, i.e. one tablet twice a day, for a period of at least 100 days (six months). The treatment should be continued till the level of haemoglobin rises. The therapeutic dosage of IFA should be continued for three months even in the postpartum period.
The woman should be given dietary advice regarding foods rich in iron, e.g. green leafy vegetables, eggs, meat, lentils, beans and nuts. Foods rich in Vitamin C, such as citrus fruits, increase the absorption of iron. Anaemic women should be advised to increase their overall dietary intake.

A woman with severe anaemia and/or severe palmar/conjunctival/nail pallor, along with any of the following sign and symptoms should be referred to the FRU for detailed tests and a blood transfusion, if necessary:

- 30 breaths or more per minute
- Easy fatigability
- Breathlessness even at rest

A woman with severe anaemia must deliver in an institutional setting.

**Follow up**

- The mother should be informed to come for regular check up.
- Do blood investigation as advised
- Continue taking IFA as advised in the clinic by doctor
- Take adequate rest

**Check Your Progress 3**

i) Prophylactic treatment of anaemia should be continued for

ii) In severe anaemia haemoglobin level is less than

iii) When a woman with severe anaemia should be referred

---

**4.6 PRE-TERM LABOUR AND PREMATURE RUPTURE OF MEMBRANES**

We shall discuss about Pre-term labour and pre-mature rupture of membrane (PROM) in the following subsections.

**4.6.1 Pre-Term Labour**

It is defined as the onset of labour prior to the completion of 37 weeks of gestation.

**How will you manage this case?**

- Observe the mother for stages of labour and see.
Maternal Health

- If the delivery is not imminent, i.e. there is enough time to transport the woman, refer her to the FRU. This is because the newborn may need specialised care, which might not be possible at the domiciliary level/SC.

- If the delivery is imminent, perform the delivery and refer the woman and baby to the FRU, where facilities for neonatal care are available. The risk to the baby’s life under such circumstances should be explained to the mother and the family. Take appropriate measures for thermal protection and early initiation of breastfeeding during transport.

4.6.2 Premature Rupture of Membrane

Premature rupture of membrane (PROM) is the rupture of membranes (bag of waters) before labour has begun. It can occur either when the foetus is immature (before 37 weeks) or when it is mature (term).

- When a pregnant woman with PROM visits your centre, the woman may complain of watery fluid-like discharge P/V (leaking), which may be a slight trickle or a gush of water before the onset of labour.

- Ask her about LMP and calculate the gestational age.

- Examine the discharge/ fluid on her underwear/pad (if there is no evidence of fluid/ discharge, give her a pad to wear and assess again after an hour) for evidence of the following:
  
  i) Amniotic fluid has a typical odour, by which one can confirm whether it is a case of PROM. If amniotic fluid is present, assess its colour, i.e. whether it is greenish or colourless. A greenish colour indicates foetal distress.

  ii) Foul-smelling vaginal discharge.

- If the membranes rupture after 37 weeks and there is no fever or foul-smelling discharge, it could signify the beginning of labour. If delivery is to be conducted at Sub-centre, wait for the uterine contractions to begin. If the contractions start within 8–12 hours of the rupture of the membranes, manage the case like a normal delivery.

- Refer the woman to the FRU in the following cases:
  
  - If the membranes rupture after 37 weeks of pregnancy and labour pains do not start even after 12 hours.
  
  - If the membranes rupture before 37 weeks (there is a risk of ascending infection, resulting in uterine and foetal infection)

  - If the woman has fever (temperature of above 38°C), or has foul-smelling vaginal discharge (indicates infection)

In the above conditions, before referral, the woman is given the first dose of antibiotics (ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat).

Remember to follow the protocol of sub-centre for any treatment.

4.7 FOETAL DISTRESS

Foetal distress indicates foetal hypoxia (lack of oxygen in the blood). It can be diagnosed by: abnormal Foetal Heart Rate (FHR) (<120 or >160 beats/minute) and if there is Meconium-stained amniotic fluid.
If a pregnant woman comes with sign of foetal distress you need to take following steps:

- Check the FHR every 15 minutes.
- If the FHR remains below 120 or above 160 beats per minute even after 30 minutes and the woman is in early labour, then take the following action:
  - Explain the situation to the family.
  - Start an intravenous line with Ringer Lactate.
  - Administer intranasal oxygen, if available.
  - Keep the woman lying on her left side throughout the time she is being transported.
  - Refer her to an FRU, which has facilities for the resuscitation of newborns.
- If the FHR remains below 120 or above 160 beats per minute even after 30 minutes; the woman is in late labour and delivery is imminent; and there is no time for transportation, then do the following:
  - Call for assistance if available (person trained in care during pregnancy and child birth).
  - While conducting the delivery, monitor the FHR after every contraction. If it does not return to normal, explain to the woman and her family that the baby may not be well.
  - Be prepared to resuscitate the newborn.
  - Let the assistant manage the woman after the delivery while you focus on the process of neonatal resuscitation.
  - The fetal distress can occur due to prolapsed cord also.

**Prolapsed cord** is the condition in which the umbilical cord lies in the birth canal below the foetal presenting part, or is visible at the vagina following rupture of the membranes. This is associated with foetal distress and can lead to death of the foetus because of an obstruction of the blood flow to the foetus from the placenta.

- The foetal outcome is poor in cases of prolapsed cord. The family should be counselled and the woman should be referred to the FRU as early as possible.
- When delivery is imminent, you have to be prepared to resuscitate the newborn and also refer the woman and infant to the FRU.

### 4.8 PROLONGED AND OBSTRUCTED LABOUR

We shall discuss Prolonged Labour an Obstructed Labour as given below:

#### 4.8.1 Prolonged Labour

Labour is said to be prolonged when the pregnant woman in true labour experiences labour pains longer than 24 hours.

**Important clinical situation of Prolonged Labour**

- **Prolonged latent phase**: Women is in true labour but her cervical dilation has not progressed at all or has not reached 4 cm in 8 hours
• **Prolonged Active Phase:** Woman is in active phase of labour (cervix $\geq 4$ cm dilation achieved) but cervical dilation is not occurring at the rate of 1 cm/hour.

• **Prolonged Expulsive phase:** Woman is in second stage of labour ($>10$ cm dilation achieved) but baby is not delivered for more than 2 hours even after the woman has an urge to push.

• Inadequate uterine activity - less than 3 contractions in 10 minutes each lasting less than 40 seconds can lead to Prolonged labour.

### 4.8.2 Obstructed Labour

When the foetus cannot be delivered via the natural passage due to mechanical obstruction, labour is said to be ‘obstructed’. Obstructed labour is a major obstetric emergency and causes a high proportion of maternal and neonatal deaths. (Table 4.2)

It occurs due to Cephalopelvic disproportion (CPD), malpresentations/malpositions, foetal abnormalities etc. With proper antenatal care and close monitoring of labour with a partograph, the problem of obstructed labour can be avoided altogether.

**Clinical Features / Sign and symptoms**

<table>
<thead>
<tr>
<th>General Examination FHR Vaginal Examination</th>
<th>Foetal Condition : Try and Listen for</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical and mental exhaustion</td>
<td>Foul smelling meconium may be seen</td>
</tr>
<tr>
<td>Dehydration</td>
<td>Amniotic fluid may have already drained away</td>
</tr>
<tr>
<td>Ketoacidosis</td>
<td>Oedema of the vulva</td>
</tr>
<tr>
<td>Fever</td>
<td>Vagina hot and dry</td>
</tr>
<tr>
<td>Shock due to ruptured uterus or sepsis</td>
<td>Large caput</td>
</tr>
</tbody>
</table>

**You can identify Obstructed Labour as given below**

• Strong uterine contractions not leading to descent of the presenting part. The partograph, showing the graph crossing the alert line. Strong uterine contractions, both in number and duration; foetal distress and rapid maternal pulse.

• Horizontal ridge across the abdomen, below the level of the umbilicus.

• Transverse lie and abnormal presentations are commonly associated with obstructed labour. All cases of obstructed labour require management at a referral centre.

• Refer the woman immediately to an FRU.

The following steps should be taken during transportation.

• Establish an intravenous line and give fluids at a moderate rate (30 drops per minute). If you cannot establish an intravenous line, give the woman sips of sweet fluids or Oral Rehydration Solution (ORS) to prevent hypoglycaemia and dehydration. Do not give solid food as she may need surgery.

• Give the woman, the first dose of antibiotics (ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat).
Ensure that you or any other health worker, who has sufficient knowledge and skills related to labour and delivery, accompany the woman to the FRU.

**Management of Obstructed labour:** In ideal situation obstructed labour can be avoided through timely identification of cephalo-pelvic disproportion and appropriate monitoring of progress of labour. If obstructed labour has been confirmed, you should take following measures:

- **Rehydrate the patient,** start an i/v line R/L or normal saline @ 25–30 drops/min
- **Give antibiotics**
  - Inj. Ampicillin 1 gm IV after sensitivity testing
  - Inj Gentamicin 80 mg IV
  - In Metroidazole 500 mg IV
  - Refer the patient to FRU

**Table 4.2: Complications of Obstructed Labour**

<table>
<thead>
<tr>
<th>Maternal Complication</th>
<th>Foetal Complications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Death</td>
<td>Foetal Death</td>
</tr>
<tr>
<td>Uterine rupture</td>
<td>Birth asphyxia and its complications</td>
</tr>
<tr>
<td>Fistula</td>
<td>Caput succedaneum</td>
</tr>
<tr>
<td>Premature rapture of membranes</td>
<td>Excessive moulding of foetal skull</td>
</tr>
<tr>
<td>Slow dilation or Oedema of cervix</td>
<td>Sepsis</td>
</tr>
<tr>
<td>Maternal fatigue</td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td></td>
</tr>
</tbody>
</table>

**Check Your Progress 4**

i) Define following
   a) Obstructed Labour
   b) Prolonged Labour

ii) List the cause of Obstructed Labour.

iii) List the maternal complication of obstructed labour.

---

**4.9 VAGINAL TEARS, PERINEAL TEARS AND RUPTURED UTERUS**

During the delivery process a woman may have vaginal and perineal tears and these tears are of four degrees:
A first-degree tear involves the vaginal mucosa and connective tissues.

A second-degree tear involves the vaginal mucosa, connective tissues and underlying muscles.

A third-degree tear involves complete transection of the anal sphincter.

A fourth-degree tear involves the rectal mucosa.

As a midlevel care provider your responsibility is to take following measures:

- Distinguish between superficial (first-degree) and deep perineal tears. **You are only permitted to manage first-degree tears.**
- A superficial tear that is not bleeding need not be sutured. Clean the area and cover it with a clean pad.
- If the superficial tear is bleeding, apply pressure on it for some time, approximately 10–15 minutes. This will help control the bleeding.
- For deeper perineal tears (i.e. second-, third- and fourth-degree tears), refer the woman to a 24 hour PHC/FRU.

Before transporting the woman, cover the tear with a sterile pad or gauze. Put the legs of the woman together, but do not cross the ankles.

If the woman is bleeding heavily because of tears and you are unable to decide the degree of the tear, put a vaginal pad into the vaginal cavity and refer the woman to the FRU.

Before referral, establish an intravenous line and infuse fluids rapidly. Raise the foot end of the stretcher and keep the woman warm during transportation.

**Ruptured uterus**

Rupture uterus is a tear along the length and through all layers of the uterus. It is a life threatening condition in which the amniotic sac surrounding the baby ruptures and the baby or placenta can be pushed through the rupture and into the amniotic cavity.

**Sign and Symptoms of Ruptured Uterus**

**Signs:**
- Shock may be present
- Severe abdominal pain
- Vaginal bleeding may be present

**Symptoms:**
- Abdominal tenderness
- Foetal parts felt superficially
- Uterine contour not felt
- FHS not heard

Refer immediately to higher facility.
4.10 PUERPERAL SEPSIS

Puerperal sepsis is one of the leading causes of maternal deaths. Puerperal sepsis is an infection of the genital tract at any time between the onset of rupture of membranes or labour and till 42 days after delivery or abortion. Puerperal sepsis can be suspected if any two or more of the following signs and symptoms are present.

- Fever (temperature >38°C or > 100.5°F)
- Lower abdominal pain and tenderness
- Abnormal and foul-smelling lochia, may be blood-stained
- Burning micturition
- Uterus not well contracted
- Feeling of weakness
- Vaginal bleeding

Fever in the postpartum period could be due to causes other than puerperal sepsis such as urinary tract infection (UTI), mastitis or other non-obstetric causes.

If the general condition of the woman is fair, give her the first dose of antibiotics (i.e. ampicillin capsule, 1 g orally; Metronidazole tablet, 400 mg orally; and Gentamicin injection, 80 mg intramuscular stat) and refer her to a PHC/FRU.

If the general condition of the woman is poor and she has the above signs and symptoms, start her on intravenous fluids and give her the first dose of antibiotics. Refer her to a 24 hour PHC/FRU immediately.

Puerperal sepsis can be prevented and managed by taking following measures:

- Maintaining hygiene and hand washing and following strict infection prevention practices before handling mother.
- Use of clean sanitary pads
- Reducing frequent PV examination during labour
- Early Identification and judicious use of antibiotics in mothers showing sign of infection
Maternal Health

- Giving first dose of antibiotics before referral.
- Before delivery avoid prolonged labour by using partograph
- Maintaining asepsis during delivery

Follow the protocol treatment at your level.

Check Your Progress 6

i) Explain meaning of Puerperal sepsis.

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ii) List any five signs and symptoms of Puerperal sepsis.

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4.11 BREAST CONDITIONS

Breast conditions include mastitis, cracked/fissured nipples and breast engorgement (being too full) and breast abscess. Breast examination should be an essential part of routine postpartum examination.

During Postnatal examination you should give the following advice to mother.

- Encourage the mother to continue breastfeeding. Tell her that if she does not breastfeed, there will be further engorgement of the breasts.
- If the breasts are engorged, and the baby is unable to take the areola and nipple in and suckle, tell the mother to apply hot, wet cloth on the breasts for 5–10 minutes to make them soft. Ask her to express a small amount of milk with her hands before putting the baby to the breast.
- Ask the mother to feed the baby from both the breasts during each feed.
- If engorgement persists despite regular feeding, the mother may be advised to express breast milk. She should empty her breasts at regular intervals and feed the expressed milk to the baby.
- Applying hind milk (the milk which comes out during the latter part of breastfeeding) to sore and cracked nipples has a healing effect.
- Ask the mother to avoid wearing tight-fitting bras.
- If there is accompanying fever, redness or pain that does not subside despite the above measures, refer the woman to the PHC.

4.12 SHOCK IN OBSTETRICS

Shock is defined as a state of circulatory inadequacy with poor tissue perfusion resulting in generalised cellular hypoxia. Shock is a condition resulting from inability of a circulatory system to provide the tissue requirements from oxygen, nutrients and remove metabolites.
Shock during pregnancy is one of the most difficult problems. 90% of shock in obstetrics is due to placental abnormalities or alterations in the uterine tone. The remaining 10% are associated with tears or lacerations of the birth canal. Management depends on duration and cause.

**Classification of shock / Types of shock:**
- Haemorrhagic shock – due to hypovolemia.
- Septic/Bacteraemic/Endotoxic shock – due to release of toxins.
- Cardiogenic shock – due to inefficiency of pumping of heart.
- Neurogenic shock – due to chemical injury or drug induced.
- Others (Embolism) – by amniotic fluid or air or thrombus.

Let us focus on haemorrhagic shock.

**Haemorrhagic Shock (Hypovolemic shock)** – It is due to excessive blood loss in:
- Early pregnancy due to abortion, ectopic pregnancy, trophoblastic disease.
- Antepartum haemorrhage due to placenta Previa and abruptio placenta.
- Postpartum due to PPH, rupture uterus.

**Sign & Symptoms:**
- Hypotension
- Rapid weak pulse
- Pallor
- Sweating
- Cold clammy extremities
- Oliguria/anuria
- Confusion

**Management:**

**Initial Management:**

**Resuscitation by ABC:**

**A – Airway:**
- Patent airway is assumed
- Provide oxygen by mask six to ten liters per mt
- No oral fluids
- Keep the patient warm
- Elevate legs or place in trendelenberg position

**B – Breathing:**
- Ventilation checked and supported if needed
- Monitor response to therapy
- Check pulse, BP, SPO2 / pulse oximetry
Maternal Health

- Central Venus pressure
- Monitor pallor and cyanosis
- Position the patient head down and left lateral
- Tilt to avoid aortocaval compression which may further worsen the hypotension

C – Circulatory Blood volume:

- Ensure adequate fluid replacement
- Deliver fluids as quickly as possible for the first 500 ml and slowed for subsequent I/V fluids
- Start 2 I/V lines with short, large gauge cannula 16 to 18
- Restore blood volume and reverse hypotension by use of only crystalloid fluids like ringers lactate, normal saline
- Initial request for +6 units of blood
- Specific medical and surgical management for control of haemorrhage along the general management keeping in mind the cause.

<table>
<thead>
<tr>
<th>Check Your Progress 7</th>
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<tbody>
<tr>
<td>i) What do you mean by shock?</td>
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<td>ii) List the signs and symptoms of shock.</td>
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<td>iii) Explain the ABC management of shock?</td>
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4.13 REFERRAL

The referral system is an essential component of any health system which is particularly important in pregnancy and child birth for providing access to essential obstetric care. They are associated risks and complications, which may lead to maternal and foetal mortality if they are not taken care of in time. Timely referral and intervention of high risk and complicated obstetric cases can reduce maternal morbidity and avoid maternal death.

**Definition:** A referral can be defined as a process in which a health worker at one level of health system having insufficient resources (Drugs, Equipment’s, skills) to manage a clinical condition and seeks assistance of a better or differently resourced facility at the same or higher level to assist in or take over the management of a client case.
An effective referral system ensures a close relationship between all levels of the health system and helps to ensure client receives the best possible care closest at home. A good referral system ensures that

- Client receives optimal care at appropriate level and less costly.
- Hospital facilities are used optimally and cost effectively.
- Client who needs specialist services can assess them in a timely way.
- Health services are well utilised and their reputation is enhanced.

**Steps to be followed during referral of a woman**

Keep the following points in mind while referring the woman to a higher centre.

- After appropriate management of the emergency, discuss the decision to refer with the woman and her relatives, especially those who are decision-makers in the family.
- Quickly organise transport and possible financial aid. Inform the referral centre by phone, if possible.
- Accompany the woman, if possible; otherwise send another health worker/ASHA.
- Send relatives who can donate blood, should the need arise.
- Carry drugs and supplies such as an intravenous drip and set, antibiotics, Oxytocin injection and Magsulph injection (provided in your delivery kit) (see Annexure VII) in the vehicle in which the woman is being transported.
- If the referral is being made after the delivery, send the baby with the mother, if possible.
- Write a referral note (see Annexure III) to the health personnel at the referral centre.

The note should contain the salient points about the following:

- History
- Main clinical findings
- Medication given (dose, route and time of administration)
- Other interventions done, if any

- During the journey:
  - Watch the intravenous infusion.
  - Give appropriate treatment on the way, if the journey is long.

Keep a record of all the intravenous fluids and medications given, including the time of administration, and of the condition of the woman from time to time.

**Referral Letter:** The referral letter includes:

- Type of shock
- Medication given
- Referral note – main points about history, clinical findings, medication with dose time and route.
Information to family members

Relations who can donate blood

Arrangement for transport

The referral letter should include:

- Name of patient
- Name of doctor, ANM or Health Visitor
- LMP
- EDD
- Past obstetric history
- Present problem
- Labour management carried out
- Reasons for referral
- Date of referral
- Time of referral
- Emergency management if any
- P/V examination findings
- Vitals
- Blood Group

4.14 LET US SUM UP

You have seen that pregnancy and labour can be complicated as a result of medical and obstetrical conditions that could affect the mother, baby or both. These complicated cases require a specialist to manage and ensure the best outcome for the mother and her baby. You must have knowledge and experience to note the earliest signs of complications and refer early with appropriate measures. The incidence of maternal and prenatal mortality and morbidity resulting from these complications is declining due to timely assessment of antenatal cases, early identification and effective treatment.

4.15 MODEL ANSWERS

Check Your Progress 1

i) PPH is defined as vaginal bleeding after delivery that exceeds 500 ml or that is less than 500 ml and cause symptoms. Severe PPH is vaginal bleeding > 1000 ml.

ii) Immediate Postpartum Haemorrhage (PPH)

When Postpartum Haemorrhage (PPH) occurs during delivery till 24 hours postpartum haemorrhage

- Tone causes (Atonic PPH most common cause 80–90%)
- Tears in the lower vagina, cervix or perineum
- Retained or incomplete placenta or placental fragments
- Inverted or ruptured uterus
- Thromboembolic-Coagulopathy
Delayed/Secondary Postpartum Haemorrhages

Delayed PPH refers to bleeding which occurs 24 hours after delivery up to six weeks postpartum. It could be due to retained clots or placental fragments, or due to an infection in the uterus.

iii) Placenta is set to be retained when it is not expelled from the uterus even 30 min after the delivery of the baby

Check Your Progress 2

i) Signs of eclampsia

- Headache.
- Hypertension (BP above 160/110 mm Hg).
- Oedema (Pitting oedema over the ankles and rapidly gain in weight of more than 1 LB in a week).
- Visual disturbances.
- Protein urea (Presence of protein in 24 hrs. urine of more than 1 gram per liter).
- Fits.
- Abdominal pain.
- Decreased urine output.
- Signs of foetal distress.

ii) Stages of eclamptic fit

It consists of four stages.

- Premonitory Stage:
  - Patient becomes unconscious.
  - There is twitching of muscles of face, tongue and limbs.
  - Eye balls are turned to one side and become fixed.
  - This stage lasts for 30 seconds.

- Tonic Stage:
  - Whole body goes into a spasm.
  - Limbs are flexed, hands clenched.
  - Respiration ceases, tongue protrudes between the teeth.
  - Cyanosis appears.
  - Eye balls becomes fixed.
  - This stage lasts for about 30 seconds.

- Clonic Stage:
  - All voluntary muscles undergo contraction and relaxation.
  - Twitching starts in face then involve one side of extremities and body is involved in convulsion.
Maternal Health

- Biting of tongue occur.
- Breathing is stertorous and blood stained frothy secretions fill the mouth.
- Cyanosis gradually disappears.
- This stage lasts for 1 to 4 min.

- **Coma Stage:**
  - Following the fit the patient goes into coma.
  - It may last for a brief period.
  - Patient appears to be confused following the fit and fails to remember the happenings.

#### iii) Management of mother during fit
- In premonitory stage, a mouth gag is placed in between teeth to prevent tongue bite and remove after clonic stage is over.
- The air passage is to be clear off the mucous with mucous sucker.
- Patients head is turned one side, raising foot end of bed, facilitate postural drainage of the upper respiratory track.
- Oxygen given until cyanosis disappears.

**Check Your Progress 3**

i) Six months

ii) 7gm/dl

iii) A woman with severe anaemia should be referred when following signs are present
- 30 breaths or more per minute
- Easy fatigability
- Breathlessness even at rest
- A woman with severe anaemia must deliver in an institutional setting.

**Check Your Progress 4**

i) When the foetus cannot be delivered via the natural passage due to mechanical obstruction, labour is said to be ‘obstructed’. Obstructed labour is a major obstetric emergency and causes a high proportion of maternal and neonatal deaths.

Labour is said to be **prolonged** when the pregnant woman is in true labour experiences labour pains longer than 24 hours.

ii) It occurs due to Cephalopelvic disproportion (CPD), malpresstations/malpositions foetal abnormalities etc

#### iii) Maternal Complication of Obstructed labour
- Maternal Death
- Uterine rupture
- Fistulae
- Premature rapture of membranes
• Slow dilation or oedema of cervix
• Maternal fatigue
• Sepsis

Check Your Progress 5

i) A second-degree tear involves the vaginal mucosa, connective tissues and underlying muscles.

A third-degree tear involves complete transaction of the anal sphincter.

ii) If the woman is bleeding heavily because of tears and you are unable to decide the degree of the tear, put a vaginal pad into the vaginal cavity and refer the woman to the FRU.

Before referral, establish an intravenous line and infuse fluids rapidly. Raise the foot end of the stretcher and keep the woman warm during transportation.

Check Your Progress 6

i) Puerperal sepsis is one of the leading causes of maternal deaths. Puerperal sepsis is an infection of the genital tract at any time between the onset of rupture of membranes or labour and till 42 days after delivery or abortion.

ii) Signs and symptoms are
• Fever (temperature >38°C or > 100.5°F)
• Lower abdominal pain and tenderness
• Abnormal and foul-smelling lochia, may be blood-stained
• Burning micturition
• Uterus not well contracted
• Feeling of weakness
• Vaginal bleeding

Check Your Progress 7

i) Shock is defined as a state of circulatory inadequacy with poor tissue perfusion resulting in generalised cellular hypoxia.

ii) Signs and Symptoms of shock
Hypotension
Rapid weak pulse
Pallor
Sweating
Cold clammy extremities
Oliguria/anuria
Confusion

iii) ABC management of shock
A – Airway:
• Patent airway is assumed
Maternal Health

- Provide oxygen by mask six to ten liters per mt
- No oral fluids
- Keep the patient warm
- Elevate legs or place in Trendelenberg position

B – Breathing:
- Ventilation checked and supported if needed
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- Restore blood volume and reverse hypotension by use of only crystalloid fluids like ringers lactate, normal saline
- Initial request for +6 units of blood
- Specific medical and surgical management for control of haemorrhage along the general management keeping in mind the cause.

4.16 KEY WORDS

Antepartum Haemorrhage : APH is a blood loss per vagina after 20 weeks of gestation or it is as per vaginal bleeding from vaginal tract from 22 weeks of pregnancy and prior to the birth of the baby.

Postpartum Haemorrhage : Severe bleeding is the largest single cause of maternal death, causing approximately 25% of maternal deaths globally. PPH occurs in approximately 10.5% of live births. PPH addresses multiple approaches for preventing, recognising and managing to prevent long term morbidity and mortality.

Placenta Previa : It is a condition in which placenta is implanted completely or partially over the lower uterine segment? It leads to painless and causeless (No trauma) bleeding. Haemorrhage occurs when uterine contraction dilates the cervix thereby
applying forces to placental attachment in the lower uterine segment or when separation is provoked by digital vaginal examination.

**Shock**

Shock is defined as a state of circulatory inadequacy with poor tissue perfusion resulting in generalised cellular hypoxia.

**Eclampsia**

It is a life threatening complication of pregnancy? The term eclampsia is derived from a Greek word meaning “like a flash of lighting”. It may occur quite abruptly without any warning manifestation. Eclampsia is a condition that causes a pregnant women, usually previously diagnosed with pre eclampsia (High blood pressure and protein in the urine) to develop seizures or coma. Toxemia of pregnancy is a common name used to describe pre eclampsia and eclampsia. Less than 1 in 100 women with pre eclampsia will develop eclampsia or convulsions or coma. Upto 20% of all pregnancy are complicated by high blood pressure. Pre eclampsia / eclampsia accounts upto 20% of all deaths that occur in pregnant women.

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