PREGNANCY CARE

(Extracted from Guidelings for Pregnacy Care, Maternal Health Division, Department of Family Welfare, Ministry of Health & Family Welfare, Government of India 2005)

CARE DURING PREGNANCY - ANTENATAL CARE

Early registration

The first visit or registration of a pregnant woman for ANC should take place as soon as the pregnancy is suspected. Ideally, the first visit should take place in the first trimester, before or at the 12th week of pregnancy.

Record-keeping

Complete the antenatal card for every woman registered/examined by you. Instruct her to bring the card with her for all subsequent check-ups/visits. Record this information in the PHC/CHC antenatal register.

ANTENATAL CHECK-UP

Number and timing of visits

Ensure that every pregnant woman makes at least 4 visits for ANC, including the first visit/registration and any home visits by the ANM/lady health visitor (LHV). The first visit is recommended as soon as the pregnancy is suspected; the second visit should be scheduled between the 4-6 months (around 26 weeks). The third one should be planned in the 8th month (around 32 weeks), and the fourth one in the 9th month (36-40 weeks).

History-taking

During the antenatal visits, take a detailed history of the woman:

(i) To diagnose the pregnancy (first visit only, if required).

(ii) To identify any complications during previous pregnancies which may have a bearing on the present one.

(iii) To identify any medical or obstetric condition(s) that may complicate the present pregnancy (first and subsequent visits).

The LMP is used to calculate the gestational age at the time of check-up and the EDD. If the period of the menstrual cycle is more than 30 days, add the additional number of days in the cycle (beyond 28 days) to the EDD as calculated below.

EDD = LMP + 9 months + 7 days (+ additional days, if any)

Ask for age of woman, order of pregnancy and birth interval and any symptoms.

Previous pregnancies

It is essential to ask a woman about her previous obstetric history, this is important as some complications may recur during the present pregnancy.

History of any systemic illness

Rule out any personal history of systemic illnesses.

Family history of systemic illness

Ask for a family history of hypertension, diabetes tuberculosis, thalassaemia, delivery of twins and/or the delivery of an infant with congenital malformation.

History of drug intake or allergies

Ask for history of drug intake during pregnancy, allergy to any drug, or drug taken for infertility.

History of intake of habit-forming or harmful substances

Ask the woman if she takes tobacco, alcohol. If yes, she needs to be counseled to discontinue.

Physical examination

This activity will be nearly the same during all the visits. Initial readings may be taken as a baseline and compared with the later readings.

General examination

Specifically examine and record weight, blood pressure, pallor, respiratory rate, generalized oedema and also carry out breast examination.

Vaginal examination

Vaginal examination is required, especially during the first visit, to confirm the pregnancy and to measure the gestational age.

A per speculum (P/S) examination may be done especially if the woman complains of discharge P/V.

Abdominal examination

Examine the abdomen to monitor the progress of the pregnancy and foetal growth, and to check the foetal lie and presentation.

Assessment of the pelvis

Examination of the pelvis is required to assess if it is adequate for delivering the baby vaginally and is done during the last ANC visit (at about 36 weeks of gestation) to rule out any cephalopelvic disproportion (CPD).

Table 1: Common symptoms and signs that may be encountered in a pregnant woman, probable diagnosis and action required to be taken at the PHC level

Symptoms	Signs/ investigations	Most probable diagnosis	Action(s) to be taken
Excessive vomiting, especially after the first trimester; inability to retain anything taken orally	The woman may be dehydrated	Hyperemesis gravidarum	Admit her for a few days at the PHC and manage as a case of Hyperemesis gravidarum.
Palpitations, easy fatiguability, breathlessness at rest	• Conjunctival and/or palmar pallor present • Hb level <7 g/dl	Severe anaemia	• Start the woman on a double dose of IFA tablets. • Give her albendazole(second trimester onwards only). • Monitor the Hb level after one month. • Advise her for delivery at the FRU.
Puffiness of the face, generalized body oedema	• BP >140/90 mmHg • Proteinuria absent • BP >140/90 mmHg • Proteinuria present	• Hypertensive disorder of pregnancy • Pre-eclampsia	• If the BP is <160/110 mmHg, advise home management with rest and regular follow up. • If the BP is >160/110 mmHg, start on Nifedipine. • Start the woman on antihypertensive medication. • Refer to an FRU for further management. • Advise her on the danger signs of imminent eclampsia and eclampsia and refer to an FRU.
Heartburn and nausea	Reflux	Hypertensive disorder of pregnancy	• Advise the woman to avoid spicy and rich foods. • Ask her to take cold milk during attacks. • If severe, antacids may be prescribed.
• Increased frequency of urination up to 10-12 weeks of pregnancy • Increased frequency of urination after 12 weeks, or persistent symptoms, or burning on urination	Tenderness may be present at the sides of the abdomen and back. The body temperature may be raised	• May be physiological due to pressure of the gravid uterus on the urinary bladder • Urinary tract infection	• Reassure her that it will be relieved on its own • Manage as given under the management of "UTI"

Symptoms	Signs/ investigations	Most probable diagnosis	Action(s) to be taken
Constipation		Physiological	• Advise the woman to take more fluids, leafy vegetables and a fibre rich diet. • If not relieved, prescribe Isabgol, 2 tablespoonful to be taken at bedtime, with water or with milk. • Do NOT prescribe strong laxatives as they may initiate uterine contractions.
• Bleeding P/V, before 20 weeks of gestation ·	• Check the pulse and BP to assess for shock • Ask for history of violence	• Threatened abortion/ spontaneous abortion/ hydatidiform mole/ectopic pregnancy • Spontaneous abortion due to violence	• Carry out an MVA to evacuate the retained products of conception. • Ask the ANM to put the woman in touch with local support groups. • Do NOT carry out a vaginal examination • Refer to an FRU.
• Bleeding P/V, after 20 weeks of gestation	• Check the pulse and BP to assess for shock	• Antepartum haemorrhage	
Fever	• The body temperature is raised • Blood peripheral smear is positive for malarial parasite	• Site of infection somewhere, including possible sepsis • Malaria	• Try to ascertain the cause of fever. Start the woman on antibiotics. • Manage according to the NAMP guidelines for malaria in pregnancy. Treat the malarial fever.
Decreased or absent foetal movements (NOTE: Foetal movements are felt only after about 4 months of gestation)	• FHS heard, and within the normal range of 120-160 beats/minute • FHS heard, but the rate is <120 beats/minute, or >160 beats/minute • FHS not heard	• Baby is normal • Foetal distress • Intrauterine foetal death	• Reassure the woman. • Re-check the FHS after 15 minutes. • If the FHS is still out of the normal range, manage as given under the management of "foetal distress." • Inform the woman and her family that the baby might not be well. • If labour pains are present, conduct the delivery in the usual manner. • If there are no labour pains, refer to an FRU for induction of labour to terminate the pregnancy.
Vaginal discharge, with or without abdominal pain		RTI/STI	Start treatment as per the GoI Guidelines for RTI/STI.
Leaking of watery fluids P/V	Wet pads/clothes	Premature or prelabour rupture of membranes	Manage as given under the management of "PROM".

Laboratory investigations

The following laboratory investigations are recommended at the primary health care provider level to be carried out as a part of ANC.

- Haemoglobin estimation
- Blood grouping
- Testing the urine for the presence of sugar
- Testing the urine for bacteriuria

Interventions

Iron-folic acid supplementation:

- All pregnant women need to be given one tablet of IFA (100 mg elemental iron and 0.5 mg folic acid) every day for at least 100 days. This is the prophylactic dose of IFA. If a woman is anaemic (Hb <11 g/dl or she has pallor), give her two tablets of IFA per day for three months.
- This means a woman with anaemia in pregnancy needs to take at least 200 tablets of IFA. This is the therapeutic dose of IFA.

- A woman with severe anaemia (Hb <7 g/dl, or those who have breathlessness and tachycardia due to anaemia) should be started on the therapeutic dose of IFA and also be investigated to detect the cause of anaemia. She may require injectable iron preparations.

Injection tetanus toxoid (Inj. TT) administration

Inj. TT is to be given as 0.5 ml per dose, deep intramuscular (IM) in the upper arm, administration of two doses of Inj. TT to an unimmunised pregnant woman. The first dose of TT should be given just after the first trimester, the second dose is to be given one month after the first dose, but preferably at least one month before the EDD.

If the woman has received Inj. TT during a previous pregnancy, a single dose of injection is sufficient.

Malaria prophylaxis

You are advised to follow the guidelines of the National Anti-Malaria Programme (NAMP) for malaria prophylaxis.

Counseling

Counsel the mother for birth preparedness and complication readiness. The woman and her family/caretakers should be informed about potential danger signs during pregnancy, delivery and the postpartum period. She must be told that if she has any of the following she should immediately visit an FRU or the PHC, WITHOUT WAITING, be it day or night.

Danger signs: Visit an FRU

- Any bleeding P/V during pregnancy, and heavy (>500 ml) vaginal bleeding during and following delivery
- Severe headache with blurred vision
- Convulsions or loss of consciousness
- Labour lasting for more than 12 hours
- Failure of delivery of the placenta within 30 minutes of delivery
- Preterm labour (onset of labour before 34 weeks of gestation)
- Cases with leaking P/V (PROM)
- Continuous severe abdominal pain
- All cases of medical illnesses associated with pregnancy, such as diabetes mellitus, heart disease, asthma, etc. at the onset of labour pains

Danger signs: Visit a 24-hour PHC

- High fever with or without abdominal pain, and the woman is too weak to get out of bed (indicating infection/sepsis)
- Fast or difficult breathing (dyspnoea)
- Decreased or absent foetal movements
- Excessive vomiting, wherein the woman is unable to take anything orally, leading to a decreased urinary output

Diet and rest

The woman should be advised to eat more than her normal diet throughout her pregnancy as she needs about **300 extra kcal per day** compared to her usual diet.

- If a woman has PIH, she should be encouraged to eat a normal diet with no restrictions on fluid, calorie and/or salt intake; such restrictions do not prevent PIH from converting into pre-eclampsia, and may be harmful to the foetus.
- The woman should be advised to refrain from taking alcohol or smoking during pregnancy.

- The woman should be advised NOT to take any medication unless prescribed by a qualified health practitioner.
- The woman should be advised to for 8 hours at night and for another 2 hours during the day. She should be advised to refrain from doing heavy work.
- All pregnant women should be told to avoid the supine position and should sleep in left lateral position.

- It is safe to have sex throughout the pregnancy, as long as the pregnancy is "normal".
- Sex should be avoided during pregnancy if there is a risk of abortion (h/o previous recurrent spontaneous abortions), or a risk of a preterm delivery (h/o previous preterm labour).

Pregnancy is the ideal time to counsel the mother regarding the benefits of breastfeeding.

- Counsel the mother that breastfeeding should ideally be initiated within half an hour of a normal delivery or within two hours of a caesarean section.
- Colostrum not to be thrown away.
- Exclusive breastfeeding for 6 months.
- Demand feeding: This refers to the practice of breastfeeding the child whenever he/she "demands" it.
- Rooming in: This refers to the practice of keeping the mother and baby in the same room should be encouraged.

The mother should be told that after 6 months of age, the baby needs supplementary food, IN ADDITION TO BREAST MILK. Advise the mother to begin with semi-solid soft food devoid of spices, supplemented with a small amount of ghee/butter/oil. The frequency of feeds and the quantity of each feed should be increased gradually.

The woman should be advised regarding birth spacing (or limiting, as the case may be).

Every pregnant woman should be advised and encoura

- Caesarean section in the previous pregnancy
- Multiple pregnancies
- Premature or prelabour rupture of membranes (PROM)
- Medical illnesses such as diabetes mellitus, heart disease, asthma, etc. during pregnancy

CARE DURING LABOUR AND DELIVERY - INTRAPARTUM CARE

Diagnosis of labour

The onset of labour can be confirmed by the following:

- Cervical effacement-progressive shortening and thinning of the cervix during labour
- Cervical dilatation

Stages of labour

- The **first stage** of labour starts with the onset of labour pains to full dilatation of the cervix. This stage takes about 12 hours in primigravidas and half that time for subsequent deliveries.
- The **second stage** starts from full dilatation of the cervix to the delivery of the baby. This stage takes about 2 hours for primigravidas and only about half an hour for subsequent deliveries.
- The **third stage** starts after the delivery of the baby and ends with the delivery of the placenta. This stage takes about 15 minutes to half an hour, irrespective of whether the woman is a primigravida or multigravida.
- Frequent monitoring for one hour immediately after delivery is critical to detect PPH. This period is sometimes referred to as the **fourth stage** of labour.

Assessment of the progress of labour

The progress of labour is assessed by:

- Assessing the changes in cervical effacement and dilatation (by conducting a P/V examination)
- Assessing the progress in foetal descent (by conducting an abdominal and/or a P/V examination)

Abdominal examination to assess the descent of the presenting part: If the head is above the symphysis pubis it is fully palpable and mobile. If the head is entirely below the symphysis pubis it is not palpable abdominally.

Vaginal examination to assess the stage and progress of labour: Carry out the vaginal examination under strict aseptic conditions, and determine the following:

- Cervical effacement
- Cervical dilatation in cm
- The presenting part
- The position or the station of the presenting part
- Feel for the membranes. Are they intact?
- If the membranes have ruptured, check whether the colour of the amniotic fluid is clear or meconium-stained.
- Feel for the umbilical cord. If it is felt, it is a case of prolapsed cord. If the cord pulsations are felt, it is a case of prolapsed cord. If the cord pulsations are felt, refer the woman to an FRU immediately.

Supportive care to the woman during labour

- Explain all the procedures; keep the woman informed about the progress of labour.
- Praise the woman, encourage her and reassure her that things are going well.
- Encourage the woman to bathe or wash herself and her genitals at the onset of labour.

- Always wash your hands with soap and water before examining the woman.
- Ensure cleanliness of the birthing area.
- Enema should be given only when needed.
- Encourage the woman to empty her bladder frequently. Remind her every 2 hours or so.
- Non-pharmacological methods of relieving pain during labour include:
  - Calm and gentle voice of the birth attendant
  - Offering the woman encouragement, reassurance and praise
  - Relaxation techniques performed by the woman such as deep breathing exercises and massage
  - Placing a cool cloth on the woman's forehead
  - Assisting the woman in voiding urine and in changing her position
- Women who are not at risk of requiring general anaesthesia can have light, easily digested, low-fat food during labour, if they wish.

Normal delivery

Management of the first stage of labour

Not in active labour

The cervix is dilated 0-3 cm and contractions are weak, less than 2 in 10 minutes.

- **Monitor** the following every hour:
  - Frequency (once in how many minutes), intensity (how strong), and duration (for how many seconds does it last) of contractions.
  - FHR
  - The presence of any sign that denotes an emergency (such as difficulty in breathing, shock, vaginal bleeding, convulsions or unconsciousness).
- **Monitor** the following every 4 hours:
  - Cervical dilatation (in cm), Temperature, Pulse, BP
- Record the time of rupture of the membranes and the colour of the amniotic fluid.
- Never leave the woman alone.
- If after 8 hours, the contractions are stronger and more frequent, but there is no progress in cervical dilatation with or without rupture of the membranes, this is a case of **non-progress of labour.** Refer the woman immediately to an FRU.
- On the other hand, if after 8 hours, there is no increase in the intensity/frequency/duration of contractions, and the membranes have not ruptured and there is no progress in cervical dilatation, ask the woman to relax. Advise her to send for you again when the pain/discomfort increases, and/or there is vaginal bleeding, and/or the membranes rupture.
- If the membranes were already ruptured on admission, but even after 8 hours there is no increase in the frequency/intensity of contractions, refer the woman to an FRU (prolonged latent phase) for induction of labour.

In active labour

The cervix is dilated 3 cm or more:

- Monitor the following every 30 minutes:
  - Frequency, intensity and duration of the contractions

- FHR
- Presence of any emergency sign

- Monitor the following every 4 hours:
  - Cervical dilatation (in cm)
  - Temperature, Pulse, BP
- Again, do not leave the woman alone.
- Start maintaining a partograph once the woman is in active labour.

Simplified partograph

The partograph is a graphic recording of the progress of labour and salient features of the mother and foetus. It involves recording of FHR every half-an-hour, cervical dilatation (in cm) when the woman first reports in labour and then every four hours, maternal pulse and systolic and the diastolic BP every half-an-hour, food items and liquids consumed by the woman during that period.

- The initial recording is placed to the left of the **alert line.** Normally the line should continue to remain to the left of the alert line. Write the time accordingly in the row for time.
- If the alert line is crossed (the graph moves to the right of the alert line), it indicates prolonged labour, start preparing for referral to an FRU.
- Crossing of the **action line** (the graph moves to the right of the action line) indicates the need for intervention and referral. There is a difference of 4 hours between the alert and the action line

Management of the second stage of labour

- If the cervix is fully dilated or the perineum is thin and bulging with the anus gaping and the head of the baby visible at the vaginal introitus, it is the second stage of labour.
- **Monitor** every 5 minutes: Frequency, duration and intensity of contractions, FHR, perineal thinning and bulging, Visible descent of the foetal head during contractions, Presence of any sign indicates an emergency.
- The woman should be allowed to push down. **Bearing down** efforts are required after the cervix is fully dilated, and even more so when the head is distending the perineum.
- Asking the woman to hold her breath and bear down in the second stage of labour should NOT be done.
- Giving the woman oxytocics to shorten the second stage of labour is NOT advisable.
- Avoid ironing the perineum (or using the "Sweep and stretch" technique) to hasten delivery.
- **Episiotomy:** There is no evidence that routine episiotomy decreases perineal damage, future vaginal prolapse or urinary incontinence. Remember, whenever an episiotomy is required, a right paramedian episiotomy is preferred.

Indications for conducting an episiotomy :

- Complicated vaginal delivery (refer to a higher health facility in case of a malpresentation)
- H/o third- or fourth-degree perineal tears
- Foetal distress
- Instrumental/assisted delivery
- Ensure a controlled delivery of the head by taking the following precautions:
  - Encourage the woman to push only during pains (a contraction).
  - Keep one hand gently on the head as it advances with the contractions.

- Support the perineum with the other hand during delivery and cover the anus with a pad held in position by the side of the hand.
- Leave the perineum visible (between the thumb and the index finger).
- Ask the mother to breathe steadily and to not push during delivery of the head.
- Encourage rapid breathing with the mouth open.
- Do NOT apply fundal pressure to hasten delivery of the head.

Feel gently around the baby's neck for the presence of the umbilical **cord around** the neck. If the cord is present around the neck:

- And if it is loose, deliver the baby through the loop of the cord, or slip the cord over the baby's head.
- If the cord is tight, clamp it and cut the cord, and then unwind it from around the neck.
- Wait for spontaneous rotation and delivery of the shoulders. This usually happens within 1-2 minutes.
- Perineal tears can be prevented by delivering one shoulder at a time. If there is difficulty in delivering the shoulder, suspect shoulder dystocia. Ask the woman to take a position with extreme flexion at the knees and hips with the knees wide apart. The shoulder may be released from behind the symphysis pubis and may deliver. If not, then refer the woman immediately to an FRU.

In case of shoulder dystocia:

- Apply gentle pressure downwards to deliver the anterior shoulder.
- Then lift the baby up, towards the mother's abdomen, to deliver the lower (posterior) shoulder.
- The rest of the baby's body smoothly follows out.
- Place the baby on the mother's abdomen or in the baby tray.

Note the time of delivery.

Cutting the cord:

- Tie and cut the cord after 2-3 minutes of delivery, during which time the cord will normally stop pulsating.
- Put ties tightly around the cord at 2 cm and 5 cm from the baby's abdomen.
- Cut between the ties with a sterile blade.
- Look for oozing of blood from the stump. If there is oozing, place a second tie between the baby's skin and the first tie.

- Give immediate newborn care.
- Rule out the presence of another baby by palpating the abdomen and trying to feel for foetal parts.
- It is recommended that the umbilical cord stump be left dry, and only routine daily care be given with clean safe water. Do not apply any substance to the stump.

Care of the newborn: The newborn needs to be taken care of. The elements of essential newborn care are given below:

- Elements of essential newborn care :
  - Maintain the body temperature and prevent hypothermia
  - Maintain the airway and breathing
  - Breastfeed the newborn
  - Take care of the cord
  - Take care of the eyes

- Leave the baby on the mother's chest for skin-to-skin contact.
- Cover the baby to prevent loss of body heat. If the room is cool, use additional blankets to cover the mother and the baby.
- Encourage the mother to initiate breastfeeding.

Active management of the third stage of labour

The active management of the third stage of labour consists of the following three activities.

Uterotonic drug

Giving a uterotonic drug has been shown to be effective in preventing PPH.

Although Inj. Oxytocin (in a dose of 10 U IM) is the drug of choice for preventing PPH, due to administrative difficulties, Misoprostol can now be used for the same purpose. Three tablets of 200 mcg each of Misoprostol (a total dose of 600 mcg) should be given immediately after delivery of the baby. It should be given either sublingually or orally.

Before giving Misoprostol, ensure that there is no additional baby(ies). This can be done by palpating the abdomen and ruling out the presence of foetal parts.

Controlled Cord Traction (CCT)

This is a technique to assist the expulsion of the placenta and helps to reduce the chances of a retained placenta and subsequent PPH. Do NOT exert excessive traction on the cord while performing CCT.

Uterine massage

This technique helps in contraction of the uterus and thus prevents PPH. Immediately after delivery of the baby; massage the uterus by placing your hand on the woman's abdomen until it is well contracted. Repeat the massage every 15 minutes for the first 2 hours. Ensure that the uterus does not become relaxed (soft) after the massage is stopped. If the placenta is not delivered within 30 minutes of giving Misoprostol, and the woman is not bleeding, try and remove the placenta again by CCT. Empty the bladder, and encourage the woman to breastfeed. If the placenta cannot be delivered after another 20 minutes, and the woman is not bleeding, empty the bladder, initiate breastfeeding and repeat CCT. The placenta may separate. If it does not separate and the woman is still not bleeding, refer her to an FRU.

POST PARTUM CARE

Immediate postpartum care

- After delivery of the placenta, check that the uterus is well contracted, i.e. it is hard and round, and there is no heavy bleeding. Repeat the checking every 5 minutes. If the uterus is not well contracted, massage the uterus and expel the clots.
- Examine the perineum, lower vagina and vulva for tears. If present, manage the tears by suturing.
- Estimate and record the amount of blood lost throughout the third stage and immediately afterwards. If the loss is around 250 ml, but the bleeding has stopped, observe the woman for the next 24 hours.
- Monitor the following every 10 minutes for the first 30 minutes, then every 15 minutes for the next 30 minutes, and then every 30 minutes for the next three hours: BP, pulse, temperature, vaginal bleeding, uterus to make sure that it is well contracted.
- Clean the woman and the area beneath her. Put a sanitary pad or a folded cloth under her buttocks to collect blood. This will also help in estimating the amount of blood lost, by counting the number of pads/cloths soaked. Help her change her clothes, if necessary.
- Dispose of the **placenta** in the correct, safe and culturally appropriate manner. Use gloves while handling the placenta. Put the placenta into a leak-proof bag. Incinerate the placenta or bury it at least 10 m away from a water source, in a 2 m deep pit.
- Keep the mother and the baby together; do not separate them. Encourage early breastfeeding.

- Encourage the woman to eat and drink, and rest.
- Encourage the woman to pass **urine.** If the woman has difficulty in passing urine, or the bladder is full (as evidenced by a swelling over the lower abdomen) and she is uncomfortable, help her pass urine by gently pouring water over her vulva.
- Weigh the baby.
- Ask the birth companion to stay with the mother. Do not leave the mother and the newborn alone. Ask the companion to watch the woman and **call for help** if any of the following occurs:
    - The bleeding increases.
    - The woman feels dizzy.
    - The woman has severe headache.
    - The woman has visual disturbance.
    - The woman has epigastric distress.
    - The woman complains of breathlessness.
    - The woman complains of increased abdominal or perineal pain.
- Enter the following information in the labour register:
    - Name of the woman
    - Age of the woman
    - Parity
    - ANC received (or not): mention the number of ANC visits received
    - Mode of delivery (normal or assisted)
    - Birth weight of the baby
    - Apgar score of the baby at 1 minute and 5 minutes after delivery
- Do not discharge the woman before 24 hours after delivery. This is a crucial period for the occurrence and management of PPH. The woman must be kept under observation during this time.

Counselling

Counsel the woman regarding the aspects discussed below :

Postpartum care and hygiene

Advise and explain to the woman:

- To always have someone near her for the first 24 hours after delivery to respond to any change in her condition.
- Not to insert anything into the vagina.
- To wash the perineum daily and after passing stools. Wash in an anteroposterior direction from the vulva to the anus.
- To change the perineal pads every 4-6 hours, or more frequently, if there is heavy lochia.
- To wash cloth pads, if used, with plenty of soap and water and dry them in the sun.
- To bathe daily.
- To have enough rest and sleep. For the first 6 weeks postpartum, advise the woman to not do anything except look after herself and her baby.
- To avoid sexual intercourse for the first six weeks or until the perineal wound heals, whichever is later.

- To wash her hands before handling the baby.

Nutrition

- Advise the woman to eat a greater amount and variety of healthy foods. Give her examples of the types of food and how much to eat.

Contraception

Advise the woman regarding birth spacing or limiting as the case may be.

Breastfeeding

As discussed above.

Registration of birth

Emphasize to the woman that she must get the birth of the baby registered with the local Panchayat, or any other appropriate registering authority.

Postpartum visit

- Inform the woman about the next routine postpartum visit.
- As the woman is kept under observation for the first 24 hours after delivery, the first postpartum visit is taken care of during her stay at the PHC/health facility.
- The second postpartum visit should be planned within 7-10 days after delivery. Either ask the ANM of that area to pay a visit to the woman and her baby, or ask the woman to return to the PHC for a postpartum check-up.
- If the woman misses her postpartum visits, inform her regarding the danger signs and when to return.

Danger signs

For the following symptoms and signs in the mother, advise the woman and her family to go to an FRU immediately, day or night, WITHOUT WAITING.

- Excessive vaginal bleeding, i.e. soaking more than 2 or 3 pads in 20-30 minutes after delivery, or bleeding increases rather than decreases after the delivery.
- Convulsions
- Fast or difficult breathing
- Fever and weakness; inability to get out of bed
- Severe abdominal pain

Advise the woman that she should visit you at the PHC as soon as possible, in case she suffers from any of the following symptoms:

- Fever
- Abdominal pain
- The woman feels ill
- Swollen, red or tender breasts, or sore nipples
- Dribbling of urine or painful micturition
- Pain in the perineum, or pus draining from the perineal area
- Foul-smelling lochia

Research has shown that more than 50% of maternal deaths take place during the postpartum period. Conventionally, the first 42 days (6 weeks) after delivery are taken as the postpartum period. Of this, it is the first 48 hours, followed by the first one week, which are the most crucial periods for the health and survival of both

the mother and her newborn, as most of the fatal and near-fatal maternal and neonatal complications arise during this period.

Postnatal check-ups

The number and timing of PNC visits

- The **first 48 hours** following delivery are the most and immediate postpartum care is described under. However, if you have not been involved in conducting the delivery and the woman visits you for postpartum care, take a history and do a quick examination, as described later to find out possible complications that could have arisen.
- The next most critical period is the **first week** following delivery. Ask the mother to pay another visit on day 3rd and day 7th, or ask the ANM in charge of that area to pay a home visit during this period.

The first postpartum visit

As explained earlier, the first postpartum visit should take place within the first 24 hours after delivery.

History-taking

The following questions should be asked:

- Where did the delivery take place?
- Who conducted the delivery?

Maternal symptoms:

- H/o heavy bleeding P/V
- H/o convulsions or loss of consciousness
- H/o abdominal pain
- H/o fever

Examination

- Check the pulse, BP, temperature, pallor.
- Examine the abdomen to see if the uterus is well contracted.
- Examine the vulva and the perineum for the presence of any foul-smelling lochia, tear, swelling or pus discharge and also the pad for bleeding and any purulent discharge.

Neonatal symptoms

Check for signs of possible serious bacterial Infection and take appropriate action

• Convulsions • Not able to feed • Fast breathing • Severe chest indrawing • Nasal flaring • Grunting • Feels hot or unusually cold • Lethargic or unconscious • Blood in stool	**If any one sign is present, Refer the child** • Explain the need for referral • Calm her fears and discuss possible solutions for any difficulty in referral • Advise the mother to continue to breast feed the baby and keep the sick young infant warm • Write a referral slip • Give first dose of cotrimoxazole if able to take orally (½ Pediatric tablet for an infant upto 1 month and 1 tablet for an infant 1-2months)

Care of Skin and umbilical cord

• Umbilical redness or umbilicus draining pus OR • Skin pustules (Less than 10 skin pustules)	• Give oral co-trimoxazole (or amoxicillin) for 5 days • Teach the mother to apply GV paint twice daily for skin pustules and umbilical infection • Advise mother to give home care for the young infant

Check for feeding problem

Not able to feed: If a mother says that the infant is not able to feed, watch her try to feed the infant to confirm if infant is able to feed. or • No attachment at all or • Not suckling at all to touch	Warm the young infant by Skin to Skin contact if feels cold **Refer URGENTLY** to hospital
• Not well attached to breast or not suckling effectively or and attachment	If not well attached or not suckling effectively, teach correct positioning
• Less than 8 breastfeeds in 24 hours	* If breast feeding less than 8 times in 24 hours, advise to increase frequency of feeding. * If receiving other foods or drinks, counsel mother about breastfeeding more, reducing other foods or drinks, and using a cup and spoon.
• Receives other foods or drinks or	* If not breastfeeding at all, advise mother about giving locally appropriate animal milk and teach the mother to feed with a cup and spoon.
• Thrush (ulcers or white patches in mouth) problems	*If thrush, teach the mother to apply 0.25% Gentian Violet paint twice daily
• Breast or nipple problems	* If breast or nipple problem, teach the mother to treat breast or nipple problems. * Advise mother to give home care (Breastfeed infant exclusively, keep infant warm, apply nothing to cord, ask mother to wash hands and explain danger signs in the infant) * Follow-up in 2 days.
• No other signs of inadequate feeding	* Advise mother home care * Praise the mother for feeding the infant well.

The schedule of subsequent visits is based on birth weight. The recommended schedule for home visits is outlined below:

All babies	3, 7 days
Low birth weight babies (weight less than 2.5 kg)	3, 7, 14, 21 and 28 days

Advise the Mother and the Family on Home Care

- To breastfeed the infant frequently.
- To ensure that the infant is kept warm at all times by placing the baby in skin to-skin contact with the mother.

- Advise the mother not to apply anything on the cord and keep the cord and umbilicus dry.
- Also teach the mother to return immediately, if the young infant has any of these signs:
  - Breastfeeding or drinking poorly
  - Becomes sicker
  - Develops a fever or feels cold to touch
  - Fast breathing
  - Difficult breathing
  - Blood in stool

The second and third postpartum visits

This is similar to the history taking and examination conducted during the first visit

Counselling

Diet and rest

- Inform the woman that during lactation she needs approximately 550 kcal extra in a day during the first 6 months, and then 400 kcal extra during the next 6 months, compared to her pre-pregnancy diet.
- The woman needs sufficient rest during the postpartum period to be able to regain her strength.

Resumption of sex

The couple should be advised to abstain from having sex during the first 6 weeks following delivery.

Contraception

- This issue must be emphasized again

Infant and young child feeding

The issues that need to be discussed and the woman counselled about have been detailed above.

Infant care

You must talk to the mother about:

- Child development and milestones
- Maintaining the hygiene of the baby
- Feeding the baby
- When and where to seek help in case of illness. Explain the danger signs
- How to interact with the child, etc

Essential newborn care

Preparing for birth

Make sure that the following materials/conditions are available for the newborn:

- Two clean and warm towels for thermal protection of the baby; one for drying and wrapping the baby initially, the other for covering the newborn to prevent heat loss.
- A draught-free delivery room with a temperature of at least 25 °C.
- Soap, water, clean gloves, cotton, gauze and a clean labour table for delivery to ensure the six "cleans" (i.e. clean hands, clean surface, clean cord cut, clean cord tie, clean cord stump and clean perineum) during delivery.
- A clean delivery kit for cord care.

- Self-inflating bags (two, of a size appropriate for a newborn) and masks (sizes zero and one) for resuscitation
- A suction device (mucus extractor)
- A radiant heater
- A blanket
- A clock/watch to note the time of delivery.

Routine care at birth

Over 90% of newborns do not require any active resuscitation at birth. Efforts are directed to maintain asepsis, prevent infection and hypothermia, and to keep the airway patent.

Asepsis

Deliver the newborn under aseptic conditions.

Clamping of the cord :

- Clamp the umbilical cord 2-3 minutes after the neonate is delivered completely.

Care of the cord :

- Inspect the cord for bleeding 2 hours after ligation.
- Do NOT apply anything on the stump; keep the cord clean and dry.
- Inspect for discharge or infection till healing occurs.

Maintaining the body temperature :

- Newborns may be hypothermic at birth. Heat loss at birth can be prevented by the following simple interventions:
- Receive the baby in a dry, warm, clean towel. Dry the baby well. While drying, make sure that the head is in a neutral position. Discard the wet towel immediately and wrap/cover the baby (except for the face and upper chest) in a fresh, clean dry towel.
- Place the baby near a source of warmth.
- Bathing the newborn soon after birth is not recommended. The mother or the birth attendant can clean the baby by wiping with a soft moist cloth. If cultural tradition demands bathing, this should not be carried out before 6 hours after birth, and preferably on the second or third day of life as long as the baby is healthy and its temperature normal and that too with lukewarm water.

Airway and breathing

If the baby is crying and the breathing is normal, resuscitation is not needed. Provide normal care and clear the upper airway by wiping the nose and mouth of the baby, and removing the secretions present therein. If the baby is not crying, assess the breathing; if the chest is rising symmetrically and the RR is >30 breaths/minute, no immediate action is needed.

Care of the skin

Clean the blood, mucus and meconium on the newborn's body.

Care of the eyes

The eyes should be cleaned at birth and once every day using sterile cotton swabs soaked in sterile water or normal saline.

Feeding

Initiate breastfeeding within one hour of a normal delivery.

Apgar score

The Apgar score indicates the newborn's well-being. It should be calculated at 1 minute and at 5 minutes after birth. Table 2 gives the criteria for calculating the Apgar score. An Apgar score of >7 is considered satisfactory.

Table 2. Criteria for calculating the Apgar score

Parameters	0	1	2
Respiratory effort	Absent	Gasping	Good cry
Heart rate	Zero	<100/minute	>100/minute
Colour (cyanosis)	Central cyanosis	Peripheral cyanosis	Pink
Muscle tone	Flaccid	Partial flexion of the extremities	Complete flexion
Reflex (response to nasal catheter)	None	Grimace	Sneeze

Essential postnatal care

- Nurse in thermal comfort (the baby should be warm to the touch at the abdomen and pink in the soles of the feet.
- Check the umbilicus, skin and eyes.
- Ensure good suckling at the breast.
- Screen for danger signs.
- Advise the family, especially the mother, on immunization.

Danger signs in a newborn

The signs mentioned below are particularly important signs to watch to **Return Immediately:**

- Breastfeeding or drinking poorly
- Becomes sicker
- Develops fever or feels cold to touch
- Fast breathing
- Difficult breathing
- Blood in stool

Basic newborn resuscitation

Effective basic resuscitation will revive more than 75% of newborns with birth asphyxia.

Birth asphyxia

It is estimated that 4%-6% of babies fail to establish breathing at birth. Birth asphyxia is the second most common cause of neonatal mortality next to septicaemia.

Defining birth asphyxia

Traditionally, birth asphyxia is defined on the basis of the Apgar score. An Apgar score of <7 at 1 minute is considered as birth asphyxia. Such a baby needs immediate resuscitation.

Initial assessment

The five questions to ask are:

- Is the amniotic fluid clear of meconium?
- Is the baby breathing or crying normally?
- Is the muscle tone good?

- Is the colour of the baby pink?
- Was the baby born at term?

If the answer to any of these questions is "NO" immediately begin the initial steps of resuscitation.

Managing birth asphyxia

If meconium is present in the amniotic fluid, apply suction to ensure that it is removed from the mouth, posterior pharynx and nose before delivery of the shoulders.

Suction apparatus: These could be either De Lee mucus traps, foot or electrically operated suction machines. While using electrical suction machines, care must be taken that the pressure does not exceed 100 mm Hg.

Tactile stimulation

If necessary, appropriate forms of tactile stimulation (gently rubbing the baby's back, flicking the soles of the feet) may be provided.

Heart rate

If the heart rate is less than 100 beats/minute, it indicates the need for assisted ventilation.

Open the airway -

Position and suction : Put the baby on its back. Position the head so that the neck is slightly extended. Clear the airway by suctioning first the mouth and then the nose. A mucus trap or a foot-operated suction machine may be used for the same.

Assisted ventilation

Assisted ventilation is indicated in any apnoeic baby who is not responding to tactile stimulation, or any baby who, though breathing, has a heart rate of <100 beats/minute. Ventilation may be provided either with a bag and mask or a bag and an endotracheal tube.

Infant resuscitation bag (Self inflating type)

Reposition the newborn-make sure that the neck is slightly extended. Place the mask on the newborn's face so that it covers the chin, mouth and nose, forming a seal between the mask and the face. Attach the bag to the mask. Squeeze the bag with two fingers only or with the whole hand, depending on the size of the bag and the manufacturer's instructions. Check the seal of the fit between the face and mask by ventilating two or three times and observing for a rise of the chest. Ventilate the newborn at a frequency of about 40 breaths/minute, the range being 30-60 breaths/minute. After effectively ventilating for about 1 minute, give a pause but do not remove the mask and bag and look for spontaneous breathing. If there is none, or it is weak, continue ventilating until spontaneous crying/breathing begins. Observe the chest for an easy rise and fall. Hold the head in the correct position to keep the airway open during ventilation and keep a tight seal between the mask and face. Continue ventilation. If oxygen is available, give oxygen @ 0.5 L/minute.

Indications to intubate baby at birth include:

a. Meconium stained baby who is not vigorous

b. Non-response to Bag and mask ventilation

c. Suspected congential Diaphragmatic hernia

Response to assisted ventilation is assessed 30 seconds after initiating ventilation. Good response to assisted ventilation (it is also an indication to discontinue assisted ventilation) is indicated by:

a. Appearance of spontaneous respiratory effort.

b. Heart rate > 100 beats/min

c. Pink colour

Once the newborn starts crying, stop ventilation but do not leave the newborn. Put the newborn in skin-to-skin contact with the mother's chest to prevent heat loss.

However, if the breathing is slow (RR is <30 breaths/minute), or if there is severe indrawing, or the heart rate is between 60 and 100 beats/minute, continue ventilation. If the heart rate increases to >100 beats/minute,

discontinue ventilation by gradually decreasing the rate and pressure of ventilation. Observe the heart rate and RR every 30 seconds. If the heart rate remains <60 beats/minute after the initial 30 seconds of assisted ventilation, initiate chest compression (cardiac massage).

Chest compression (cardiac massage)

During this process, at least two trained personnel are needed, one for assisted ventilation and the other for cardiac compression.

Procedure for chest compression :

1. Place the baby on a firm surface.
2. Identify the lower one-third of the sternum (i.e. the area between the inter-nipple line and the xiphisternum).
3. Use the index and the middle fingers for compression. Compress the sternum by one-third of the anteroposterior diameter of the chest @ 90 times/minute.
4. Ensure coordination between ventilation and cardiac massage; for every 3 chest compressions, offer one assisted ventilation, i.e. a ratio of 3:1.
5. Assess the response to cardiac massage and ventilation by counting the RR and the heart rate and check whether spontaneous respiration has been established.
6. Chest compression can be discontinued when the heart rate rises to >60 beats/minute.

Drugs for newborn resuscitation

1. Adrenaline : Adrenaline is to be prescribed whenever the heart rate remains <60 beats/minute despite chest compression and assisted ventilation. The dose of Adrenaline is 0.1 ml/kg body weight of a 1:10,000 solution. The route of administration can be intracardiac or intravenous (IV). The dose can be repeated after 3-5 minutes, if the heart rate does not increase.

2. Sodium bicarbonate : This drug is indicated in cases of metabolic acidosis. If, even after 5 minutes of assisted ventilation, cardiac compression and drugs, the newborn is apnoeic or gasping and has a heart rate <100 beats/minute, give this drug. The dose of sodium bicarbonate is 2 ml/kg, diluted with an equal amount of distilled water. It is to be given slow IV, over a period of 2-3 minutes.

3. Normal saline : It is indicated in newborns who are in shock, i.e. their pulse is weak, and peripheral cyanosis and cold extremities are present. Shock in the newborn at birth can be the result of blood loss due to cord rupture, abruptio placentae or foeto-maternal haemorrhage. It can also be due to cardiac dysfunction due to severe intrapartum asphyxia. The dose of normal saline is 10 ml/kg body weight, given IV.

Referring the newborn to an FRU

Check on the arrangement for referral. A newborn will benefit from referral to a higher centre only if it is properly ventilated and kept warm during transport. Two people are needed to escort a newborn who requires ventilation: one person will continue to ventilate the baby while the other will assist with other tasks. If possible, transfer for the mother should also be arranged alongside.

Stopping resuscitation

Despite complete and adequate resuscitation efforts, some newborns may undergo brain death if the heart rate is absent at 15 minutes. Therefore, an absent heart sound, even after 15 minutes, is an absolute indication to stop resuscitation. If there is no gasping or breathing at all even after 20 minutes of effective ventilation (and cardiac massage, if required), stop ventilation. However, if there was gasping but no spontaneous breathing, try ventilation for 30 minutes. If spontaneous breathing is not established even by then, stop ventilation. After cessation of resuscitation, explain to the mother what you did and the result of your action(s).

Resuscitation practices that are either not effective or are harmful:

- Routine aspiration (suction) of the baby's mouth and nose as soon as the head is delivered or later, when the amniotic fluid is clear;

- Routine aspiration (suction) of the baby's stomach at birth;
- Stimulation of the newborn by slapping or by flicking the soles of its feet;
- Postural drainage and slapping the back;
- Squeezing the chest to remove secretions from the airways;
- Routine administration of sodium bicarbonate to newborns who are not breathing;
- Intubation by an unskilled person.

Care after successful resuscitation

- Do not separate the mother and the newborn. Leave the newborn in skin-to-skin contact with the mother. After taking care of the mother's needs, examine the newborn. Measure the newborn's body temperature, count the rate of breathing, observe for indrawing and grunting, and look for any malformation, birth injury, etc.
- Encourage breastfeeding within half an hour of birth. The newborn who needs resuscitation is at a higher risk of developing hypoglycaemia. Observe suckling-good suckling is a sign of recovery.
- If the body temperature is <36 °C or the skin feels cold, the baby has hypothermia. Skin-to-skin contact will rewarm the newborn. For rewarming, cover the newborn with an additional cloth or blanket. The mother will need to observe the breathing and movement. Check the body temperature every hour until it becomes normal. Small babies must be observed more carefully as danger signs that indicate serious problems are more common and more subtle in them.
- If the newborn has difficulty in breathing or there are other danger signs, organize referral for special care.

Risk identification in the newborn

An important task of the attending MO in the labour room is the identification of newborns at high risk for morbidity and mortality. These newborns would need special care, either at the PHC where the delivery took place (if the facilities and trained personnel exist) or at the FRU where these babies should be referred to.

Guidelines to detect these newborns at risk are given below.

1. Birth asphyxia: Newborns who are asphyxiated at birth, especially those who do not establish spontaneous respiration by 5 minutes of birth.
2. Danger Signs: Newborn with following signs:
   - Convulsions
   - Fast breathing (60 breaths per minute or more)
   - Severe chest indrawing
   - Nasal flaring
   - Grunting
   - Bulging fontanellae
   - 10 or more skin pustules or a big boil
   - If axillary temperature 37.5oC or above (or feels hot to touch) or temperature less than 35.5oC (or feels cold to touch)
   - Lethargic or unconscious
   - Less than normal movements
   - Severe Jaundice
   - Blood in the stools
   - Not able to feed
   - No attachment at all
   - Not sucking at all
3. Major Malformations