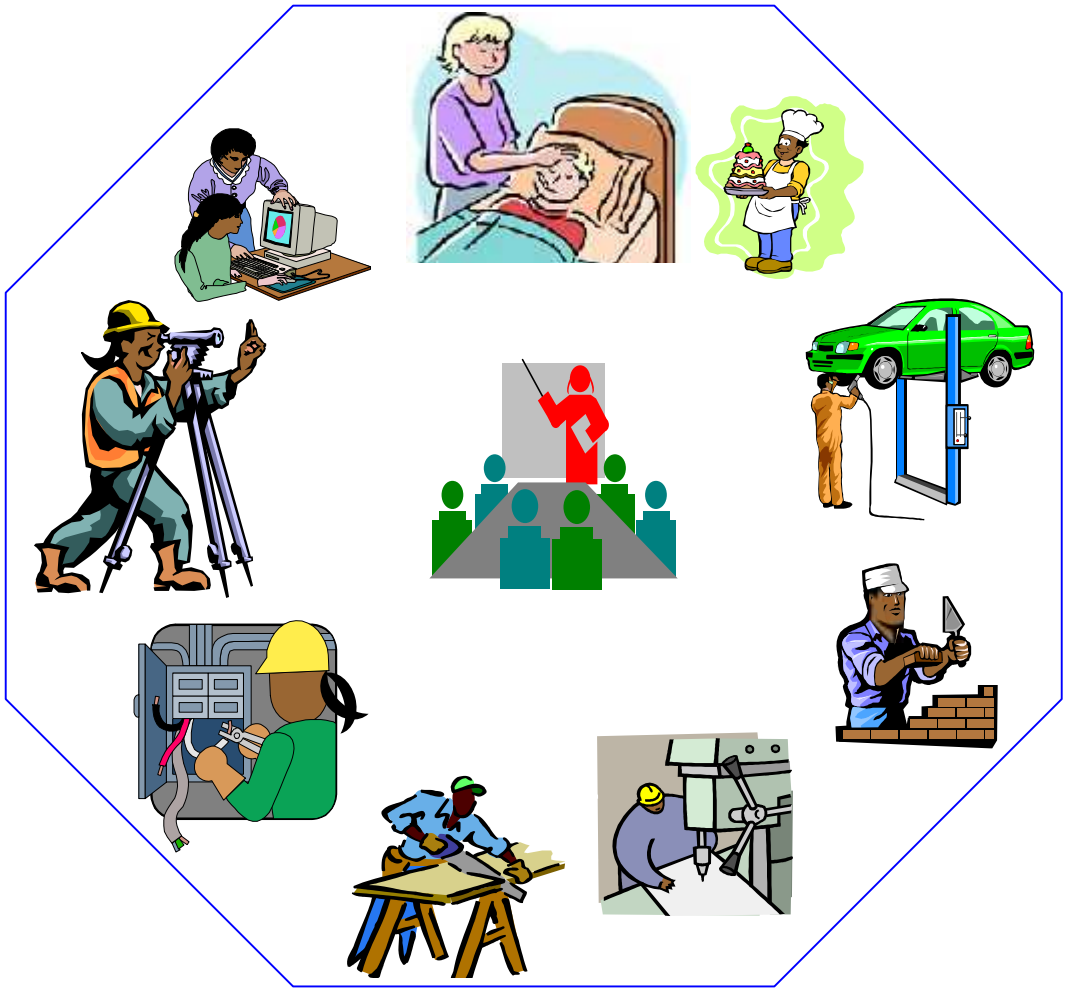
HEALTH EXTENSION SERVICE LEVEL IV

Manage Post-Natal Care



Module Title: Managing Post-Natal Care

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Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Post natal care at the health post and in the community
  - ✓ Definition of terms
  - ✓ When do most mothers and new born die during the post natal period?
  - ✓ Causes of maternal and newborn deaths during the postnatal period
  - ✓ Community mobilization for post natal care

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

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Information sheet 1**- Postnatal care the health post and in the community**

1.1. INTRODUCTION

Postnatal care (PNC) is the care given to the mother and her newborn baby immediately after the birth and for the first six weeks of life (Figure 1.1).

This period marks the establishment of a new phase of family life for women and their partners and the beginning of the lifelong health record for newborn babies (or neonates a term often used by doctors, nurses and midwives).

Although for most women and babies, the postnatal period is uncomplicated, effective postnatal care (PNC) is also about recognizing any deviation from expected recovery after birth, and evaluating and intervening appropriately in a timely fashion.

It is of major concern that less than 6% of women in Ethiopia give birth in health facilities and not more than 10% receive any postnatal care within two days of delivery. Your role as a Health Extension

Practitioner is therefore vitally important in improving this situation, identifying danger signs and reducing the adverse outcomes for mothers and newborns.

1.1. **Definition of terms**

In Ethiopia, as in all countries, the postnatal period is often marked by specific cultural practices. Understanding the beliefs and cultural practices in your community is fundamental in ensuring appropriate postnatal care. In this first study session, you will learn why care in the postnatal period is so important, and about the need for community participation and involvement for optimum PNC. We briefly summaries some methods of community mobilization and how to establish partnerships with the key gatekeepers who can help you look after new mothers and their babies.

1.1.1. When do most mothers and new born die during the post natal period?

Mothers and their newborn babies are at highest risk of dying during the early neonatal period, especially in the first 24 hours following birth and over the first seven days after delivery (see Table 1.1). As you can see from the table 45-50% of the mothers and newborns who die do so in the first 24 hours after birth, and 65-75% of the maternal and neonatal deaths occur within one week of birth.

This is compelling evidence to provide optimum and integrated maternal and newborn care during the first few days after delivery.

Table 1.1 Global estimates of maternal and newborn mortality in the first seven days after the birth.

Deaths after delivery	First 24 hours (%)	First seven days (%)
Deaths after delivery	45	65
Neonatal mortality	50	75

For some life-threatening maternal and newborn conditions, effective postnatal care is either given in the first few hours and days, or it will happen too late.
The earlier these clinical conditions are detected, the more effectively they can be managed; the quicker they are referred for specialized treatment, the better

1.1.2. Causes of maternal and newborn deaths during the postnatal period

What do mothers and newborns in the postnatal period die from?

The main purpose of providing optimal postnatal care is to avert both maternal and neonatal death, as well as long-term complications.

To be effective you therefore need to know the major causes of death in the postnatal period, so that you can provide quality and timely postnatal care at the domestic and Health Post level.

Knowing what mothers and newborns are dying from is important in order to identify the high impact interventions that address all the major causes of death during the postnatal period.

Table 1.2 shows the percentage of maternal deaths from the major causes for women in Africa.

Causes of maternal death	**Percentage (%)**
Postpartum hemorrhage	34
Localized infection or disseminated infection (sepsis)	16
Hypertensive disorders of pregnancy (pre-eclampsia, eclampsia)	9
HIV/AIDS	6.2
Obstructed labor	4
Abortion	4
Anemia	4
All other causes of death	30

Table 1.3 shows the causes of newborn deaths in Ethiopia. You will learn about special care for preterm and low birth weight babies in Study Session 8 of this Module.

Table 1.3 Causes of newborn deaths in Ethiopia.

Causes of newborn deaths	**Percentage (%)**
Infection:	47
Diarrhea	3
Tetanus	7
Other infections, including neonatal infection (sepsis)	37
Birth asphyxia	25
Prematurity and low birth weight	17
Congenital defects (deformities present at birth)	4
All other causes	7

Why is it really important for you to understand the main factors causing mothers and babies to die in the postnatal period?

You probably thought of many reasons, but the most obvious one is the huge difference that the delivery of appropriate and prompt postnatal care could have on Ethiopia's neonatal mortality rate: a reduction of between 10-27% or up to 60,000 newborn lives saved every year.

The most critical period for complications in the postnatal mother arising from bleeding (post-partum hemorrhage) is in the first 4-6 hours after delivery, due to excessive blood loss from the site where the placenta was attached to the mother's uterus, or from rupture of the uterus during labor and delivery. Hemorrhage can also threaten the baby's life if it occurs before delivery and the baby is starved of oxygen and nutrients.

Physiological changes in the postnatal mother

During labor and delivery, there is inevitably some loss of blood and other body fluids (for example, from vomiting and sweating), which is tolerable by the majority of women. Some degree of this is normal. Additionally, most women in labor remain for long hours without taking food or sufficient fluids, which can leave them dehydrated. Unless they are rehydrated quickly after the birth, physiological complications become more likely.

During pregnancy, activity in almost all the mother's body systems changes, including the heart, lungs, blood volume and blood contents, reproductive system, breasts, immune system and hormones. In the postnatal period, all these dynamic body systems have to adjust from the pregnant state back to the pre-pregnant state, and there is a potential risk of complications as these adjustments occurs. Common examples are breast infections and deep vein thrombosis (blood clots in the veins of the legs), which are described in Study

Additionally, labor is a painful experience for most women, particularly for those giving birth for the first time. There is also tension and anxiety about the outcome of labour and

delivery. Having a baby is a joy (Figure 1.1), but it can also be a source of worry. Women in the postnatal period are often copy in with stressful conditions and thus they need sustained psychological support.

1.1.3. Community mobilization for post natal care

Complications in the newborn

Risk of infection

While in the uterus, the baby was well protected by the fetal membranes and the antibacterial action of the amniotic fluid in which it was bathed, and by maternal antibodies that cross the placenta and defend it against infections that the mother has already encountered. After birth, antibodies in the colostrums (first milk) and true breast milk, and natural barriers like the baby's skin, give the newborn most of the protection from infection that it has when newly born.

Its own immune system will take several months to develop adequately.

Risk of asphyxia

The newborn baby's blood circulation system undergoes major adjustments when it takes its first breath outside the uterus. While the baby is in the uterus, very little blood goes to the lungs because the baby isn't breathing air.

The fetal lungs cannot perform the gas exchange (absorbing oxygen and releasing waste carbon dioxide), which occurs from the moment of birth onwards.

- Where does fetal gas exchange occur during the baby's life in the uterus?
- Oxygen is absorbed into the fetal blood from the mother's blood as they come close together in the placenta; carbon dioxide from the fetus passes into the mother's blood and is expelled from her body in her breath.

Immediately at birth, the blood vessels that bypass the lungs are opened and all the blood in the baby's circulation is then able to pass through the lungs, where it undergoes gas exchange. It is a critical moment for the newborn when the lungs start to function. Failure to breathe is a common reason for birth asphyxia. Also, preterm newborns often have difficulty in getting enough oxygen after birth because their lungs are not fully matured, so gas exchange does not occur effectively.

Self-Check -1	**Written Test**

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define the term postnatal care?
2. What are the components of postnatal care?
3. What are the things that evaluate on the mother in the first hour after delivery
4. List the danger signs that you evaluate on the newborn during the first hour after delivery

Note: **Satisfactory rating - 3 points** **Unsatisfactory - below 3 points**

Score = _____

Rating: _____

Name: _____ Date: _____

LG #37	LO2. Provide postnatal care for mothers and neonates

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Provide neonatal care
  - ✓ Providing Essential new born care
  - ✓ Assessing Neonates for danger signs
  - ✓ Providing the necessary vaccination services for the newborn
  - ✓ Appropriate measures when danger signs are identified
  - ✓ Normal puerperium
  - ✓ Changes in the reproductive organs during puerperium
- The abnormal puerperium and its management
  - ✓ Postpartum hemorrhage
  - ✓ Puerperal sepsis and fever
  - ✓ Postpartum hypertension
  - ✓ Deep vein thrombosis
  - ✓ Psychiatric disorder in the postnatal period
- Maternal assessment for danger signs during postnatal period
- Providing information and support to mothers during postnatal period
  - ✓ Self-care and wellbeing
  - ✓ Routine care of the newborn
  - ✓ Exclusive breast-feeding
  - ✓ Proper nutrition, exercise, rest, sleep, and domestic tasks
  - ✓ Family planning options, immunization practices and personal hygiene
- Providing advice and management for minor post-natal problems of mother and Newborn

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Information Sheet-1-Provide neonatal care

2.1.1. Providing Essential new born care

Managing the new born baby

Immediate care at birth for the new born

Initial care (routine care)

Warm (immediate change the socked linen and cover dry linen for the baby and put in warm area)

- Clear air way
- stimulate the baby for breath
- cord cutting
- APGAR score
- Identification tag
- Weight
- Vit –k
- TTC eye ointment
- Head circumference and length
- physical examination

● provide warmth

The baby should be placed in a warm area and away from draft; this may be skin to skin on mother's chest, if the baby is active and breathe However. ,

If resuscitation is required the baby should be placed on warm blanket under a heat lamp

- **Clear air way**

The baby's head is born wipe the mucus or secretion gently from the mouth and nose and continue suctioning if the baby is not breath.

Use suction extractor or valve syringe to remove any secretion or encomium from the mouth and nose.

If the baby is immediate breath or carrying no need suctioning.

But the baby is not breath still continue resuscitation procedure.

The mouth is suctioning before the nose to ensure that there is nothing for the new born to aspirate if she or he is gasp when the nose is suctioned.

During suctioning use the suction tube, be careful not to suction deeply.

Because stimulation of the back of throat during the first few minutes after birth can produce a vigil response ,causing the heart rate to slow down or breathing to stop.

Cutting the cord

The infant separation from the placenta is achieved by dividing the umbilical cord b/n two clamps which be applied approximately 8-10 cm from the umbilicus and application of gauze swabs during the cord cutting to prevent splash of blood. The cord tying and cutting delay for 3-4 minutes, if the baby is active well breathing.

APGAR score

A—Appearance (color of the baby's skin)

P—Pulse (heart beat)

G—Grimace (reflex response)

A—Activities (muscle tone)

R—Respiratory effort (Respiration)

Assessment of the baby condition

The assessment of the baby's condition starts at one minute and repeat at five minutes after delivery of the baby.

The factors assessed are

- Heart rate
- Respiratory effort
- Muscle tone
- Reflex reopens and stimulus
- Color

The APGAR score is recognized of five signs and score of 0, 1, 2 system

The APGAR score is assessed at 1 and 5minutes after birth

Signs	0	1	2
Appearance	Blue or pink	Body pink, extremity blue	Completely pink
Pulse rate	Absent	Less than 100 b/m	More than 100beat /m
Grimace	NO	Minimal grimace	Cough or sneeze
Activities	None	Some flexion	Active
Respiratory effort	Absent	Gasping/granting	Strong cry

A normal infant in good condition at birth will achieve an Apgar score of 7-10, a score below 7 indicates that the baby requires some form of resuscitation.

Physical examination of the baby at birth

The baby is examined carefully by the midwife to ascertain that extremely at least the baby is normal. If any detect are identified medical assistance can be sought early examination of the baby, whenever possible should be performed beside the parents. Her hands should be warm to prevent chilling of the infant .

During the examination the baby should be marked in a warm drought free environment.

Color and respiration

During quit breathing the baby breaths though his nose. If one nostril is blocked occlusion of the other results in cyanosis and unsuccessful attempts to breath though the mouth.

Head, face, and neck

After a general impression of the head and face has been gained, the eye and mouth of the infant are examined first. Each eye should be visualized to confirm that it is present and that the lenis is clear. Check the eye for any edema or bruising.

The mouth can be opened easily by pressing against the angle of the jaw. This allows visual inspection of the tongue and palate .a normal baby will respond by sucking the finger and check for cleft palate and cleft lip.

The ear are inspected noting their position, the upper notch of the pinna should be level with the cantus of the eye.

The fetal skull check the vault of the skull the midwife can determine the degree of molding by the amount of over lapping of the bone at the suture and fontanels. The bone should feel hard in a full term infant.

A wide anterior fontanels and sutures may indicate hydrocephalus or immaturity.

As edematous or swelling caput succedaneum may be indicated over lying the part that was presenting this is a result of pressure from the cervical os and will disappear

Chest and abdomen

Observation on respiratory moment and breathing and check spacing of the nipple should be noted If the nipple is edematous, it is the chromosomal abnormality.

Observation of umbilical artery and check the two arteries and one vein.

Genital and anus

The genital should be examined carefully in the sex is uncertain the pediatrician will initiate investigations.

Limbs and digitals

The digitals are count and separated to ensure and abnormality, the maxilla, elbows, groin and politely spaces should be examined normal flexion and rotation of the wrist and joints should be confirmed.

Spine the baby lying prom the midwife should inspect and palpate the baby‘s back any swelling, dimples and spinal defect.

Hip it is essential that all babies undergo specific examination to detect developmental dysplasia of the hips.

Measurement

The baby’s head circumference length and weight are measured to provide parameters against which future growth can be monitored

The head circumference is measured encircling it at the occipital protuberance and the supra orbital ridges with a measuring tape molding may reduce this measurement.

The normal baby's head circumference in 34—35cm occipital-frontal

Length measurement- when fully extended measurement from the crown of his head to his heels is –50cm.

A normal full term infant weights approximately—3.5 kg

Assessing Neonates for danger signs

2.2.1. Assessing Neonates for danger signs

- History of difficulty sucking or feeding or unable to feed now
- History of convulsion, or convulsing now, ask the mother has fit
- New born seems lethargic or unconscious
- Movement only when stimulated.
- Fast breathing
- Sever lower chest in drawing
- Fever
- Hypothermia [baby is cold to touch]
- Baby developed yellowish discoloration before 24 hours of age. Jaundiced observed on the palms of the hands and soles of feet
- Preterm baby

Hypoglycemia

Definition: - A blood glucose level of the neonate < 40mg/dl after initial 2-3 hour of life.

- Glucose is important for the cerebral energy metabolism so it is usually preferred substrate nearly for all 02 consumption in the brain.
- Hypoglycemia is prevented by integration of autonomic Ns & by hormones that act to ↑es glucose production through enzymatic modulation of glycol sis &glyconeogenesis.
- Brain growth rapidly 1st year of life. larger proportion of glucose is utilized for brain metabolism.

- Sustained & repetitive hypoglycemia infant & children has a major impact on retarding brain development & function
- Brain glucose is a source of membrane protein & lipids synthesis that is structural protein & myelination that are important for normal brain maturation.
- Hypoxia ischemia potentiates the role of hypoglycemia causing brain damage.
- The major long term consequence of severe prolonged hypoglycemia are:
  - ✓ Neurological damage results mental retardation
  - ✓ Recurrent seizure
-

Classification of Hypoglycemia & possible factors associated

1. Neonatal-Transient hypoglycemia
   - Associated with inadequate substrate or enzyme function:- Prematurity
   - Associated with hyper insulinemia
     - ✓ Infant of diabetic mother
     - ✓ Infant with erythroblast sis fatalist

2. Neonatal-Infantile or child hood persistent hypoglycemia: - This may due to
   - Hyper insulinemic statues
   - Hormone deficiencies
   - Limited substrate
   - Glycogen storage disease
   - Disorder of gluconeogenesis
   - Poisoning
   - Quinine
   - Liver disease hepatitis, cirrhosis, hepatoma
   - Systemic disorders like-Sepsis
   - Malnutrition
   - Mal absorption
   - Renal failure
   - Diarrhea

- Burns

Hypo thermia

3 most important associated risk groups are

- Prematurity
- IUGR
- Infant of diabetic mother

Infant of diabetic mother, in the utero fetus is exposed to maternal

Hyperglycemia caused fetal hyperglycemia & fetal hyperinsulinemia. Separation of placenta at birth suddenly interrupts glucose infusion into the neonate without proportional effect hyper insulinemia, resulting in hypoglycemia& attenuated biolysis during 1sthrs after birth

C.M

- Jitteriness or tremor
- Cyanosis
- Convulsion
- Apnea, tachypnea
- Hypothermia
- Weak cry
- Lethargy

Anticipation & monitoring of hypoglycemia

The following are a t risk of hypoglycemia, should be monitored by dextrose routinely.

- Infant born from diabetic mother
- SGA
- Preterm
- Hypothermia
- Septicemia

Prevention

- Early feeding

- Ensure adequate BF
- Baby on IV, Check its continuation of drip

Mgt

- Treat associated problems
- Give IV bolus 2ml/kg over minute follow infusion of 10% dextrose at a rate of 6 mg/kg/min
- Check blood glucose level every 15 minutes if still low increase by 2mg/kg.min

N.B:- **When we increase glucose infusion care of fluid over load.**

Congenital abnormalities of new born baby

Spinal bifida

- It is a mal formation of the spine in which the posterior portion of the lamonae of the vertebrae fails to close
- It may occur in almost in any area of the spine but it is most common in the lumbosacral region
- It is the most common developmental detect of the central nervous system.
- There are 3 types
- Spinal bifida occult-in which the spinal cord and meninges are normal, and the detect being only of the vertebrae

1. **M**eningocete, in which the meninges protrude through the opening in the spinal cord
2. Meningomylocete-In which both the spinal cord and the meninges protrude through the detect in the bony rings of the spinal cord. it is the most serious form

- Spine bifida occult:- Have no symptoms some may have a dimple in the skin or growth of hair over the malformed vertebra, No need of treatment
- Meningocele- There is no evidence of weakness of the legs the prognosis excellent if surgical correction is done on this detect.

- Hydrocephalus may be an associated finding or may be aggravated after operation for a meningocele.
- Mining my locale:- There may be a minimal weakness to a complete flaccid paralysis of the legs and absence of sensation in the feet. Rx is surgical
- Prompt surgical closure of the skin detect preferably with in 24 to 48 hours after birth is done to prevent meningeal irritation.
- Open defects can be suspected prenatally when an increases AFP level is found maternal serum.
- Ultrasonography
- The commonest form is easily recognized at birth by the presence of a reddish mass in the sacro lumbar region

Oesophageal atresia

- This occurs where there is incomplete canalization of the oesophagus in early intra uterine development
- It is commonly associated what a tracheo-oesophageal fistula which connects the trachea to the upper or lower oesophagus
- The commonest type of abnormality is where the upper oesophadus connects to the trachea.
- This abnormality should be suspected in the presence of maternal polyhydramnios.
- At birth the baby has copious amounts of mucus coming from the mouth.

Orogastric **tube** must be passed but it will travel < 10-12 cm

- Radiography will be used to confirm the diagnosis.

Rx Surgical correction

Rectal Artesia& imperforated anus

Imperforated anus – is a closed anal orifice (canal) & a it is diagnosed at birth on examination of the baby Rectal Artesia is incomplete canalization of the rectal canal it might not become apparent until difficulty is encountered when inserting a rectal thermometer.

A recto urethral fistula (in boys) or a recto vaginal fistula (in girls) may complicate the situation may complicate or cause abdominal distention

Mgt – **surgery will be used to restore patency of the bowel and to close any fistula**

Neonatal Jaundice

Jaundice is a yellow discoloration of the skin, sclera and mucus membranes caused by high serum billirubin.

Billirubin is the main pigment formed in humans during the catabolism of the RBC Either excessive production or defective elimination of billirubin caused jaundice Jaundice is a symptom not a disease

Normal regulation of billirubin

Break down of RBC→protein globin + haem in spleen

Iron Bilirubin

Protein globin & iron are used but the bilirubin is waste product

Bilirubin is released in to blood stream & transported to the liver by binding with albumin.

To be eliminated the unconjugated fat soluble bilirubin should be changed be to conjugated water soluble bilirubin in the liver.

Bilirubin bound to + Glucuronic acid In the presence of glucuronytransferase enzyme Bilirubin glucuronide

Serum albumin (H_2o soluble)

(Flat soluble)

- Bilirubin glucuronid is transported to gut & acted up on by the normal flora of the gut and becomes uroblin.
- Some uriblinchnages to stereobilinogen& excreted with stool and gives the color of the stool
- Other uriblin absorbed from the gut & becomes urobilinogen which is excerted in the urine.
- O2 and glucose are both necessary for conjugation process
- Un conjugated bilirubin cannot be eliminated b/se it is fat soluble for any reason if conjugation does not takes place the bilirubin is deposited in fatty and Nervous tissue (basal gangelia).
- Irreversible damage will be occur of bilirubin deposited at the basal ganglia. this is called kernicterus and this is characterized by:

✓ Hyper tonicity of limbs

✓ Neck retraction

✓ Mental retardation

Jaundice → Physiologic

→ Pathologic

Physiologic jaundice

- It never appears before 24 hours of age
- Serum billirubin is usually under 12 mg/dl in term infants and < 15mg/dl in premature babies.
- It resolves spontaneously by the end of 1stwk in term infants and by the end of the seconds wk in premature infants.

Cause

- Red cell break down
- Liver immaturity

- Reabsorption of bilirubin from the gut-b/se perstalsis is slow until feeding is established and the new born gut is not yet colonized with the normal bacteria.

Mgt

- Successful feeding appears to be an important factor in reducing the physiologic jaundice
- If jaundice persists & bilirubin raised phototherapy is usually treatment choice.
- Pathologic Jaundice
- Jaundice within 24 hours of birth
- Serum billirubin over 12mg/dl
- Jaundice be yond the 2ndwk of life

Causes

- ABO/RH incompatibility
- Red cell membrane defects
- RBC enzyme defects
- Drugs like diazepam &sulphonamides
- Polycythemia
- Infection (rubella, syphilis, CMV, toxoplasmosis)
- Metabolic disorder (Glucose 6 phosphate dehydrogenase deficiency)

Management of pathologic jaundice

- Enhancing conjugation by induction of glucurony transferase with phenobarbitone.
- Changing insoluble billirubin to a water soluble form by photo therapy.
- Removing excess billirubin by exchange transfusion
- Encouraging BF

Complication of phototherapy

- Dehydration
- Trauma to the eyes
- Disturbed temperature control

- Polycythaemia
- Interruption of feeds-slower weight gain.

Hypocalcaemia

- calcium concentration in the serum is 9-11 mg/ 100ml with normal level or averaging 10mg/de
- body calcium (99% of body calcium is found in bone)
- alkalosis decreases & acidosis increases proportion ionized Ca2+
- ionized Ca2+ is of greatest physiologic importance
- calcium ion plays a major role in many biologic processes
- bone formation
- cell division & growth
- electrical stimulus – response coupling in muscle contraction &neuro-transmitters release
- coagulation

Over all regulation of Ca homeostasis is provided complex system

- intestinal absorption
- renal excretion
- hormonal regulation (most important hormone in regulating renal Cais PTH)

Body calcium content is regulated primarily through intestinal tract absorption of Ca

Patho physiology

- symptomatic hypocalcaemia may be caused by low concentration of ionized Ca2+ resulting from vit. D deficiency

Caused by

- **nutritional deficiency**
- Mal absorption
- Abnormal metabolism of vit D

H**ypocalcaemia may be a result of hyperparathyroidism also by hyperphosphatemia, magnesium deficiency & pancreatitis.**

- C/MCTetany – state of hyper excitability of CNS & PNS
- Usually manifest at Ca2+ concentration <2.5 mg/dl
- The classic signs of peripheral hyper excitability of wrist & ankle (i.ecarpopedal spasm) & the vocal cords (laryngo spasm)
- laryngo spasm causes inspiratory obstruction
- Numbness & tingling of hand & feet
- Convulsion
- Trousseau signs (carpal & pedal spasm)
- chvostek signs (twitching of facial muscles)

- a decreased Ca^{2+} result cardiac dilation with result in dysarythemia& potential cardiac arrest

Hypocalcaemia tetany

- it is disorder of parathyroid function
- it is the most common transient physiologic hypo parathyroidism disorders in new born in- faints sometimes it is called neonatal hypocalcaemia clinically these infants divided in 2 groups

Hypocalcaemia in the 1st 72 hrs of life before achieving significant oral intake of milk

1. hypocalcaemia results from high phosphate load develops after taking cow's milk for several days

- serum calcium level correlates directly with gestational age less mature infants have greater chance

Type of hypocalcaemia

1. early hypocalcemeia

- risk infants are IUGR, LBW, infants of diabetic mother and infants subjected to prolonged difficult deliveries
- high in premature infants, particularly in those with respiratory distress
- we can suspect it is possible cause of convulsion but only diagnosed by serum concentrations of Ca2+ ions

- asymptomatic hypocalcaemia in premature infants usually resolves spontaneously

Rx. clinical manifestation require

10% solution calcium glaciate 2ml/kg (18 mg ca/kg) give slowly with cardiac rate monitoring for bradycardia repeat 6-8 hrs intervals until ca homeostasis becomes stable

2. late hypocalcaemia

- after high intake of high phosphate milk tetany occur in full term, premature infants & those with clinical Hx

C/M – most common manifestation in infants is convulsion which is generalized short &with out loss of consciousness

- carp pedal spasm is not usually seen
- chvostek sign is common in new born infants
- laryngospasm with cyanosis & apnea
- Irritability muscular twitching, jitteriness, tremors are common.
- non specific symptoms poor feeding, vomiting & lethargy

Rx 10% calcium gluconate (2ml/kg) IV

NSgmgt: - Monitor adequate renal functions

If cardio respiratory failure-prepare artificial air way equipment & ECG monitoring for bradycardia.

B. NEONATAL SEPSIS: - (Sepsis neonatrum septicemia of the new born or sick baby with + ve blood culture)

Defn: - as bacterimia with systemic manifestation in the absence of other primary systemic problems during the 1st 28 days of life

- In a systemic bacterial infection prevent by blood culture in the month of life

Incidence

- 1-8/1000 live birth
- Early onset < 3 days (72 hrs), late on set> days

Mode of transmission

- Tran placental (TUC)
- Trepormapalidum
- Listeria during delivery

Intra partum (during delivery)

- Aspiration
- Procedures
- Nursery-uncleal ward

A. Etiology

- Common etiology agentis STREPTOCOCCUS, E.coli

- Staph, aureus

Uncommon ethologic agent

- Fungal-candia
- Chlamydiae
- Urea plasma

Predisposing factors

A. Maternal infection

↓

Choriomamatis

B. Intrapartum

- o Unclean repeated vaginal examination
- o Foul smelling of liquor

Prolonged PROM (> 180 hrs)

Prolonged labor (>21hrs)

C. Neonatal

- Prematurity (<37wk of G.A)

- Low birth weight (<2.5 kg)

Clinical features of neonatal sepsis

- Alteration in behavior/feeding pattern in a child who sucking well

- Maternal concern that her infant is un well

Respiratory distress

Dyspnea

Apnea

Flaring of analysis

Grunting

Gastrointestinal

Blood contained of stool

Vomiting

Abdominal distention and hepatomegally

Neurologic

Seizure, abnormal tone, lethargy

Others

Hypothermia/ fever

Scelerma hard skin & edema

Jaundice

Crying on micturation

Early on set	Late on set
- vertical transmission	- nursery /community acqurired
- intera partum complication	
- common	- un common
- menighitis is less common (4/100)	- Meningitis (35%)

- cause fatality (30%)	- 10% of cause factors
- organism in maternal gentalia	- organism for hospital or community

Usually it may means of pneumonia, septicemia or meningitis.

Bacterial meningitis [NEONATAL MENINGITIS]

1/3 of those with sepsis cause fatality is 20-%

evidence of meningial irritations are absent

Clinical evidence of sepsis fever, hypothermia, convulsion, staring look

abnormal/moro reflex high pitched excessive cry

Complications active- vantriculitis, cerebritis, abscess _chronic hearing loss, abnormal behavior, developmental delay, seizure hydrocephalous (fuild in ventricles)

Neonatal pheumonia on set at birth or on the house of life non specific early symptoms poor feeding: lethargy, irritability cough-non specific signs of respiratory distress change in breathing of sounds (difficult to appreciate)

DX

HX

P/E

IX

CBC (complete blood count)

ESR (erythro sedimentation rate)

Blood culture

MX:-

1st line- Ampicillin- 100mg/kg or crystalline penicillin 1000,000 Iu/kg for 24hrs

gentamycine 5-7 mg/kg TID for 14 days or ceftriaxone 50mg/kg+ AMP 50mg/kg

Rx if in shock with IV fluid

Look for signs of per formation from GIT

Meningitis doses may be doubled

Duration of treatment

sepsis ⇨10-14days

Meningitis A – G (+ve) ⇨14 days

B – G (-ve) ⇨21 days

- Arthritis/ onsteomylitis⇨4-6 weeks

Prevention of neonatal sepsis

Hand washing ⇨ cross infection

Nursing attire

Health personnel

Fever

Respiratory infection

Gastro enteritis

Active viral infection

Patient placement 4-6 feet

General maintenance of neonatal unit

Equipments

Skin & cord care

E Hypothermia (cold injury)

- This can & does happen in tropical countries, especially:-

Low birth weight babies

Babies requiring resuscitations

Babies with infections

S/S

does not suck well & is lethargic

Face may be quite pink

Hypoglycemia

Hemorrhage from lung

Death

RX

Warm up gradually

Feed by NFT

Give antibiotics if infection suspected (hypothermia is one of the sign of infection)

Prevention

do not allow baby to become cold after birth

Keep warm by drying & wrapping & cover the head b/c head is relatively large area & much body heat can be lost from it.

At night especially in the cold of the wet season wrap up well. Remember mother is a wonderful source of warmth.

Do not expose bathing soon after birth

Use low reading thermometer to spot early hypothermia

Self-Check 1	Written Test

Instruction: give short answer for the following questions

1. What are the components of immediate new care?
2. Define neonatal asphyxia?
3. What are the prevention measures for hypothermia?
4. What is neonatal jaundice?
5. What is the spinal bifida?

Score = _____
Rating: _____

Answer Sheet

NAME: _____ID.NO_____ DATE: _____

1._____

_____

_____

2._____

_____

_____

3._____

_____

_____

4._____

_____

5._____

_____

Operation Sheet -1	Assessment of new born

CHECKLIST FOR ASSESSMENT OF THE NEWBORN	CASES	
GETTING READY		
1. Prepare the necessary equipment.	Yes	No
2. Tell the mother what you are going to do, encourage her to ask questions, and listen to what she has to say.		
HISTORY (Ask the following questions if the information is not available on the mother's/baby's record.)		
Personal Information (First Visit)		
1. What is your name, address, and phone number?		
2. What is the name and sex of your baby?		
3. When was your baby born?		
4. Do you have access to reliable transportation?		
5. What sources of income/financial support do you/your family has?		
6. How many times have you been pregnant and how many children have you had?		
7. Is your baby having a particular problem at present? If Yes, find out what the problem is and ask the following additional questions:		
8. Has your baby received care from another caregiver? If Yes, ask the following additional questions:		
The Birth (First Visit)		
9. Where was your baby born and who attended the birth?		
10. Did you have an infection (in the uterus) or fever during labor or birth?		

CHECKLIST FOR ASSESSMENT OF THE NEWBORN	CASES	
11. Did your bag of water break more than 18 hours before the birth?		
12. Were there any complications during the birth that may have caused injury to the baby (e.g.shoulder dystocia, breech birth, large baby, vacuum extraction, or forceps)?		
13. Did the baby need resuscitation (help to breathe) at birth?		
14. How much did the baby weigh at birth?		
Medical History (First Visit)		
15. Do you have diabetes?		
16. Have you had any infectious diseases such as hepatitis B, HIV, syphilis, or TB?		
17. Does the baby have a congenital malformation (a deformity at birth)?		
18. Has the baby received newborn immunizations such as for polio, TB, and hepatitis B?		
Newborn Period (Every Visit)		
19. Do you feel good about your baby and your ability to take care of her/him?		
20. Is your family adjusting to the baby?		
21. Do you feel that breastfeeding is going well?		
22. How often does the baby feed?		
23. Does the baby seem satisfied after feeding?		
24. How often does the baby urinate?		
25. Has the baby passed the first stool?		
26. When was the last time the baby passed stool? What was the color/consistency?		
Interim History (Return Visits)		

CHECKLIST FOR ASSESSMENT OF THE NEWBORN	CASES	
27. Is your baby having a problem at present? Has he/she had any problem since the last visit?		
28. Has your baby received care from another caregiver since the last visit?		
29. Have there been any changes in your address or phone number since the last visit?		
30. Have there been any changes in the baby's habits or behaviors since the last visit?		
31. Have you been able to care for the baby as discussed at the last visit?		
32. Has the baby had any reactions or side effects from immunizations, drugs/medications, or any care provided since the last visit?		
EXAMINING THE NEWBORN		
Assessment of Overall Appearance/Well-Being (Every Visit)		
1. Tell the mother what you are going to do, encourage her to ask questions, and listen to what she has to say.		
2. Wash hands thoroughly with soap and water and dry with a clean dry cloth or air dry.		
3. Wear clean examination gloves if the baby has not been bathed since birth, if the cord is touched, or if there is blood, urine, and/or stool present.		
4. Place the baby on a clean, warm surface or examine her/him in the mother's arms.		
5. Weigh the baby.		
6. Count the respiratory rate for one full minute and observe whether there is grunting or chest indrawing.		

CHECKLIST FOR ASSESSMENT OF THE NEWBORN	CASES	
7. Measure the temperature		
8. Observe color, noting any central cyanosis, jaundice, or pallor.		
9. Observe movements and posture, noting any asymmetrical movements, convulsions, spasms, or opisthotonos.		
10. Observe level of alertness and muscle tone, noting response to stimuli, arousal from sleep, floppiness or lethargy, and irritability.		
11. Observe skin, noting any bruises, cuts, and abrasions.		
Head, Face and Mouth, Eyes		
12. Examine head, noting size and shape.		
13. Examine face, noting facial features and movements.		
14. Examine mouth, noting intactness of tongue, gums, and palate: • Use the little finger to feel the palate for any subcutaneous cleft.		
15. Examine eyes, noting any swelling, redness, or pus draining from them.		
Chest, Abdomen and Cord, and External Genitalia		
16. Examine chest, noting regularity and symmetry of movements.		
17. Examine abdomen and cord, noting shape of abdomen and whether blood is oozing from cord or whether there is any redness or hardened skin around the umbilicus, or an offensive odor.		
18. Examine genitals and anus (the urethral opening is at the end of the penis in term baby boys; term baby girls may have a mucoid or bloody vaginal discharge; genitals in both sexes may be swollen after birth; and patency of anus is confirmed when meconium is passed).		
Back and Limbs		
19. Examine back, noting any swelling, lesions, dimples, or hairy patches.		

CHECKLIST FOR ASSESSMENT OF THE NEWBORN	CASES	
20. Examine limbs, noting position and appearance, symmetrical movements, swelling over bone, or crying when arm, shoulder, or leg is touched.		
21. Immerse both gloved hands in 0.5% chlorine solution:		
22. Wash hands thoroughly with soap and water and dry them with a clean, dry cloth or allow them to air dry.		
Breastfeeding (Every Visit)		
23. Help the woman feel relaxed and confident throughout the observation.		
24. Look for signs of good positioning.		
25. Look for signs of good attachment.		
26. Look for signs of effective suckling.		
27. Look for signs of finishing breastfeed.		
Mother-Baby Bonding (Every Visit)		
28. Look for the following signs of bonding • Mother appears to enjoy physical contact with baby; • Mother caresses, talks to, and makes eye contact with baby; • Mother responds with active concern to baby's crying or need for attention.		

2.2.2. Providing the necessary vaccination services for the newborn

Immunization—the baby receives a second dose of OPV and the first dose of the diphtheria/Peruses/tetanus (DPT) vaccine.

- Assess baby's general condition
- Weigh and assess baby's weight gain
- Advice and counseling (see above)

Emphasize the importance of hygiene and hand washing to prevent infection:

- Wash hands before handling baby
- Wash hands before feeding baby
- Wash perineum daily
- Wash hands after fecal excretion
- Wash hands before preparing food
- Change pads every 4-6 hours
- Wash the body daily

2.2.3. Appropriate measures when danger signs are identified

2.2.4. Normal puerperium

In this study session you will learn about the normal postnatal changes that occur to women during the six weeks after childbirth. The postnatal period is also known by doctors, nurses and midwives as the puerperium. It includes the normal processes of physical and psychological adjustments during this period. Do you remember the physiological changes in pregnancy from the

Antenatal Care Module, Study Session 3? Here we focus in detail on the normal adjustments during the puerperium, in particular the changes that occur in the reproductive system and in other body systems.

Some women in your postnatal care may not understand all of the normal changes which they experience after childbirth. They may become alarmed about changes that are perfectly normal, or ignore symptoms that are really danger signs. Some women find mothering a new baby very easy and natural; for others the mothering role may be difficult. As a Health Extension

Practitioner working in the community, you have a unique opportunity to assist mothers and their families to cope with the adjustments during the postnatal period.

2.2.5. Changes in the reproductive organs during puerperium

The important physiological events that occur during the puerperium include, among others, the return of the reproductive organs and the levels of the female hormones to approximately their pre-pregnant state. We will briefly describe these changes in turn, always focusing on what can be expected in a normal postnatal woman.

Uterus

The full term uterus has grown at least ten times bigger than it was before pregnancy. On its own it weighs approximately 1kg (not including the baby, placenta, amniotic fluid, etc), whereas it's pre-pregnant weight was only

50-100 gm. immediately after the baby is born, the uterus can be palpated at or near the woman's umbilicus (belly button), as it contracts to expel the placenta and fetal membranes. It normally shrinks to its non-pregnant size during the first six weeks after delivery, but most of the reduction in size and weight occurs in the first two weeks. At around this time, the uterus should have shrunk enough to be located in the woman's pelvis, below her umbilicus.

Cervix

Immediately after the delivery, the muscular walls of the cervix are relaxed, thin and stretched. The cervix may also appear swollen and bruised from the delivery, and it may have small breaks where the tissue was torn as the baby passed through. But within the

first day the cervix has usually narrowed and regained its normal muscular consistency. On vaginal examination with a gloved hand, you should find the cervical opening about two fingers in diameter by 24 hours after the delivery, and by the end of the first postnatal week the opening narrows to one finger width.

2.2. The abnormal puerperium and its management

In this study session you will learn about the normal postnatal changes that occur to women during the six weeks after childbirth. The postnatal period is also known by doctors, nurses and midwives as the puerperium. It includes the normal processes of physical and psychological adjustments during this period. Do you remember the physiological changes in pregnancy from the

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Vagina and vulvae

The vagina, which was stretched widely to allow the passage of the baby, gradually shrinks to its non-pregnant size and state over a period of about three weeks after the birth. By this date, the increased blood flow and swelling of the vagina and vulva, which was visible immediately after delivery, should have disappeared. Sexual intercourse may resume when the lochia ceases, the vagina and vulva are healed, and the woman is physically comfortable and emotionally ready. Physical readiness usually takes about three to five weeks, but the woman may not feel ready for sexual intercourse for a longer period and she should not be forced to accept it. Your role is to speak gently to her partner to ensure he understands and respects her feelings. In most communities

there is a norm for when sexual intercourse starts, which is often after the puerperium ends, at around six weeks from the birth.

Perineum

The perineum is the part of the body between the vaginal opening and the anal opening. It has been stretched and traumatized, and sometimes torn, during the process of birth. Or it may have been cut intentionally with sterilized scissors by a skilled birth attendant to widen the opening and help the baby out. Most of the muscle tone (strength) of the perineum is regained by six weeks after the birth, with more improvement over the following few months. You can help the mother to regain the muscle tone by encouraging her to contract and relax the muscles of the perineum ten times as soon as it is comfortable to do so, and to repeat this exercise several times every day. Strengthening the perineum is important because it forms the 'pelvic floor' which supports her uterus, vagina and bladder.

Abdominal wall

The abdominal wall remains soft and relatively poorly toned for many weeks after the birth, but it gradually becomes stronger over time. The extent of return to the muscular tone of the pre-pregnant abdomen depends greatly on the amount of exercise the woman takes as she returns to full fitness. For rural women, who work in the fields as well as in and around the home, the problem can be putting too much strain on their abdominal muscles (for example to lift heavy weights) too soon after the birth.

Ovaries

The resumption of normal function by the ovaries is highly variable and is greatly influenced by breastfeeding the infant. The woman who exclusively breastfeeds her baby has a longer period of amenorrhea (absence of monthly bleeding) and delayed first ovulation after the birth, compared with the mother who chooses to bottle-feed. A woman who does not breastfeed may ovulate as early as four weeks after delivery, and most have a menstrual period by twelve weeks; the average time to the first menstruation for a woman who is not breastfeeding is seven to nine weeks after the birth.

In the breastfeeding woman, the resumption of menstruation is highly variable and depends on a number of factors, including how much and how often the baby is fed, and whether the baby's feed is supplemented with formula milk. Ovulation is suppressed in the breastfeeding woman by a hormone released

2.2.1. Postpartum hemorrhage

The Labor and Delivery Care Module explained that a life-threatening postpartum hemorrhage (PPH) involves losing at East 500 ml of blood from the uterus or vagina. The most critical period to develop a PPH is during the third and fourth stages of labour.

What are the third and fourth stages of labour?

The third stage is delivery of the placenta and fetal membranes; the fourth stage is the next four hours.

About 90% of deaths due to PPH take place within four hours of delivery.

During the first four to six hours, you should make sure that the uterus remains well contracted (Figure 3.1) and that there is no heavy loss of blood.

However, a woman can develop a haemorrhage at any time during the puerperium, generally in the first week after delivery, but even up to six

Figure 3.1 The uterus should be well contracted 4-6 hours after the birth.

Weeks postpartum. This type of bleeding is referred to as secondary (late) postpartum hemorrhage. The presence of anemia or a heart condition can be life-threatening for the

mother even if the loss of blood is less than 500 ml. A woman who is malnourished is also usually less able to cope with blood loss than a woman who is well nourished.

Causes of late postpartum hemorrhage

The bleeding is usually as a result of poor contraction of the uterus after the birth, which fails to close off the torn blood capillaries where the placenta has pulled away. If the uterus is unable to reduce in size as it should do normally, it may be because of infection, or retention of a piece of the placenta, which later tears loose from the wall of the uterus and causes a hemorrhage.

Pre-referral management of PPH

You should remember that any amount of active (fresh or bright red) vaginal bleeding after 24 hours may be due to one of the causes listed in Box 3.1, or others not mentioned. Therefore, you should refer these women to a hospital regardless of the amount of bleeding. You should also remember that if the bleeding is severe, only a blood transfusion can save the life of the mother.

The more detailed management of PPH was taught in Study Session 11 of the Labour and Delivery Care Module and described in Study Session 22 of the Antenatal Care Module, as well as in your practical skills training.

What did these study sessions tell you to do before referring a women with PPH?

□ Put up an intravenous (IV) line, and start the woman on intravenous fluid therapy with Ringer's Lactate or Normal Saline, using a 1,000 ml (1 litre) bag and a flow rate set to run as fast as possible.

As a pre-referral treatment, you should also give her a second dose of misoprostol (400 micrograms orally or rectally), or oxytocin 10 IU (International Units) by intramuscular injection (Figure 3.2).

Figure 3.2 Inject 10 IU of oxytocin (or give 400 micrograms misoprostol) before referring a woman with PPH.

2.2.2. Puerperal sepsis and fever

Puerperal sepsis refers to any widespread bacterial infection of the reproductive tract in a woman following childbirth. Some women are more vulnerable to puerperal sepsis, for example those who are anaemic and/or malnourished. Fever (raised body temperature) in a mother during the postnatal period is a general danger sign. She suddenly feels chills with shivering, followed by feeling hot and sweating. Fever in the postpartum period may be due to puerperal sepsis, but it can also be caused by:

- . Urinary tract infection
- . Wound infection
- . Mastitis or breast abscess
- . Infections not related to the pregnancy or delivery, such as HIV, malaria, typhoid, tetanus, meningitis, pneumonia, etc.

In the majority of cases, postnatal maternal infection is preventable either by conducting a clean and safe delivery, by immunizing all pregnant women against tetanus, and by providing timely treatment of pre-existing infections.

In malaria endemic areas, do not forget to give long lasting insecticide-treated bed nets (ITNs, Figure 3.3) during your home visit, if they were not given before, and advise mothers on how to regularly and continuously use them.

Make sure the mother and newborn are sleeping under a net every night

Figure 3.3 This mother has been given a new insecticide-treated net for her and her baby to sleep under. (Photo: UNICEF Ethiopia/Indrias Getachew)

Endometritis

Endometritis is an infectious process involving the inner wall of the uterus (the endometrial).

It is commonly caused by bacteria ascending from the vagina, or bacteria transferred to the reproductive tract from the rectum and anus. Commonly known and avoidable risk factors contributing to the risk of endometritis include:

Long labour: This risk can be managed by timely referral of women in prolonged labour.

. Prolonged and premature rupture of fetal membranes (PROM): The risk of infection is greatest if PROM has occurred long before the baby is delivered. You can reduce the risk by early referral.

. Repeated vaginal examinations: You can avoid this risk by not doing unnecessary internal examinations.

. Poor standard of hygiene and cleanliness during delivery: For example, insertion of an unclean hand into the vagina, or use of non-sterile instruments, can transmit infection.

. Pre-existing infection: Colonisation of the vagina and uterus from untreated sexually transmitted infections (STIs) or urinary tract infections (UTIs).

. Retained placenta or fetal membranes: The dead cells in these tisues favour the multiplication of bacteria.

. Manual removal of the placenta: If the umbilical cord tears (breaks) when you apply controlled cord traction to help delivery of the placenta, it may be retained and the woman may start to bleed profusely. In these circumstances, you will be forced to remove the placenta manually by inserting your fingers into the endometrial cavity, locating the placenta and removing it in pieces or in totality. In addition to the risk to the mother from the haemorrhage, there is also a risk of endometrial infection. Anaemia: Whether it is due to blood loss during pregnancy, labour and delivery, or due to nutritional deficiency, anaemia is a well known risk factor for endometritis and other types of puerperal infection.

. Traumatic delivery: (e.g. assisted by forceps, or by Caesarean section)

Postpartum haemorrhage.

Signs of endometritis

A woman with endometritis typically has a fever of 38°C or higher, a rapid pulse and pain (tenderness) when you palpate the abdomen (Figure 3.4). Some women may also develop a yellowish, curd-like vaginal discharge which has a bad odour, whereas others have a little odourless discharge. In short, to assess the mother for uterine infection, ask if she has:

. History of fever or if she feels hot. Measure her temperature and she has a fever if it is equal to or greater than 38°C.

. Lower abdominal pain.

. Foul-smelling, curd-like discharge from her vagina.

If you suspect a woman in the puerperium may have endometritis when you do your early postnatal visits, it is important that you refer her quickly for further treatment. If she has low blood pressure (diastolic less than 60 mmHg), you may begin an IV infusion of Normal Saline. Keep her lying flat with her legs lifted up by putting pillows underneath her knees (shock position), before transporting her to a health facility.

Figure 3.4 Pain in the abdomen may be a sign of endometritis.

2.2.3. Postpartum hypertension

The hallmark of pregnancy-induced hypertension is high blood pressure, usually a diastolic blood pressure more than 90 mmHg. You learned how to take the mother's blood pressure in

Here we are concerned about hypertension that begins or returns in the puerperium. In order to screen for this you should ask the mother about the following symptoms:

. Severe headache, with or without visual disturbances (blurring of vision), and sometimes with nausea and vomiting. Convulsions/fits in the most severe cases (eclampsia). Make sure that you know the local terminology for a convulsion. It can be explained as an abnormal and uncontrollable rhythmic movement of the arms and legs, with or without losing consciousness.

. Swelling (oedema) of hands and feet, or especially the face.

. Severe pain in the upper part of the abdomen.

You should do a dipstick urine test (as you learned in Study Session 9 of the Antenatal Care Module). When urine is tested with a dipstick for the presence of protein, a woman with hypertension is likely to test positive. The positive values on the dipstick are graded from +1 up to +3 and more. If any one of the above findings is present, suspect pregnancy-induced hypertension and refer the woman urgently to the nearest health facility. Remember that

2.2.4. Deep vein thrombosis

Deep vein thrombosis (DVT) — a blood clot, almost always in one of the deep veins in the legs — is a rare complication during the puerperium.

However, when it occurs it can be rapidly fatal if the clot breaks away from the vein in the leg and travels to the heart, lungs or brain, blocking vital blood vessels.

The chance of developing a DVT is more common during pregnancy than in the non-pregnant state, and the risk increases during the puerperium. Why deep veins in the legs develop clots (thrombosis) is not exactly known.

However, the risk is much higher when the postnatal woman spends most of the time in bed and doesn't walk about much for several days after the birth.

In most parts of Ethiopia, the local custom is for postnatal women to remain in bed, with no activity except a short walk to use the latrine. So it is important for you to identify the clinical features of DVT, make a diagnosis and refer her to a hospital as early as possible. Box 3.2 shows the common clinical features of DVT.

Clinical features of deep vein thrombosis (DVT)

- . Pain in one leg only: usually sudden onset, persistent and aching type of pain.
- Tenderness: the area is painful when you touch it.
- Swelling: the affected leg is swollen with greater than 2 cm difference in circumference compared to the other (healthy) leg. The swelling may be in the calf or the thigh.
- . Palpable cord: you may feel a cord-like structure deep in the swollen leg.
- Change in limb colour: the affected leg appears a little bit red.
- Calf pain: she will feel pain when you try to do extreme extension at the ankle joint.

2.2.5. Psychiatric disorder in the postnatal period

Psychiatric disorders are relatively common after childbirth and may include postpartum 'blues', postpartum depression (PPD), and postpartum psychosis.

Postpartum 'blues' and postpartum depression

Hormone changes are thought to be the cause of postpartum blues, a mild, transient, self-limiting disorder (it resolves on its own), which commonly arises during the first few days after delivery, and lasts up to two weeks. It is characterized by bouts of sadness, crying, anxiety, irritation, restlessness, mood swings, headache, confusion,

forgetfulness, and insomnia. It rarely has much effect on the woman's ability to function, or care for her baby.

Providing loving support, care and education has been shown to have a positive effect on recovery (Figure 3.7).

Figure 3.7 Loving support can help women to recover from postpartum 'blues'

But if a woman develops a serious postpartum depression (persistent sadness, low mood, difficulty in finding motivation to do anything), it will greatly affect her ability to complete the normal activities associated with daily living. Cases of depression need attention from trained mental health professionals for supportive care and reassurance, so refer the woman as soon as you can. The role of the patient's family is also very important in the course of treatment. Women with high levels of depression are less likely to initiate breastfeeding soon after the birth, and their babies are more likely to have episodes of illness such as diarrhea.

- Can you suggest why the baby might be affected in this way?
- If breastfeeding is not commenced successfully the woman may bottlefeed the baby with formula milk, which carries a greater risk of infection to the baby from unclean bottles. A depressed mother may also not take notice of health education messages about preventing infection in her newborn.

If two or more of the following symptoms occur during the first two weeks of the puerperium, refer the mother:

- . Inappropriate guilt or negative feelings towards herself
- . Cries easily
- . Decreased interest or pleasure
- . Feels tired and agitated all the time
- . Disturbed sleep, sleeping too much or sleeping too little
- . Diminished ability to think or concentrate
- . Marked loss of appetite.

There may also be episodes of postpartum psychosis, marked by delusions or hallucinations – seeing or believing things that are not real. We return to this more serious problem in Study Session 5. You will learn a lot more about mental health issues, including postnatal depression and psychosis, in the

Self check -2	Written test

Information sheet 3- Maternal assessment for danger signs during postnatal period

2.3. Maternal assessment for danger signs during postnatal period

Mother

- -Excessive vaginal bleeding
- -Infection
- -Shock
- -foul smelling vaginal discharge
- -Anemia
- -High grade fever

Self check -3	Written test

Information Sheet-4- Providing information and support to mothers during postnatal period

2.4. Providing information and support to mothers during postnatal period

To standardize the counseling of mothers during home visits for PNC, you should use the counseling cards issued by your Regional Health Bureau.

When counseling mothers, it is always important to use the following skills:

- . Ask and listen: Find out what the mother is already doing for her child and herself by asking thoughtful questions and listening carefully to her answers. Then you will know what she is doing well, and what practices need to be changed.
- . Praise: Praise the mother for something helpful she has done. It is likely that she is doing something helpful for herself and the newborn; for example, she may be eating a good diet, breastfeeding the baby exclusively, and keeping herself and her baby clean. Be sure that the praise is genuine, and only praise actions that are indeed good for her health and that of her baby.
- . Advise: Limit your advice to what is relevant to the mother at this particular time. Too much advice, or advice given at the wrong time, can be overwhelming and the mother may ignore it. Use language that the mother will understand. If possible, use pictures, screening cards, or real objects to help explain clearly what you want her to do, know or understand.
- . Check understanding: When you explain something to the mother, ask questions to find out what she understands and what needs further explanation (Figure 4.4). Avoid asking leading questions (that is, questions which suggest the

right answer to her even if she does not understand); also avoid questions that can be answered with a simple yes or no, because they do not help you to check exactly what the mother has understood.

Figure 4.4 Check carefully that the mother has understood your health messages.

Health issues to counsel the mother on

- . Identification of general danger signs

- . Emotional support
- . Support for maternal nutrition
- . Establishing optimum breastfeeding
- . Hygiene and infection prevention
- . Support for family planning
- . Special care for HIV-infected mothers
- . Early care seeking for the mother and the newborn baby if problems arise

2.2.1. Self-care and wellbeing

Assessing Neonates for danger signs

- History of difficulty sucking or feeding or unable to feed now

= History of convulsion, or convulsing now, ask the mother has fit

--New born seems lethargic or unconscious

--Movement only when stimulated.

--Fast breathing

--Sever lower chest in drawing

--Fever

--Hypothermia [baby is cold to touch]

--Baby developed yellowish discoloration before 24 hours of age. Jaundiced observed on the palms of the hands and soles of feet

--Preterm baby

2.2.2. Routine care of the newborn

The mother should be advised about the baby on

1. Exclusive breast feeding

2. Umbilical care
3. Bathing after 24hrs.
4. Appropriate clothing of the baby for ambient temperature is recommended. This means one to two layers of clothes more than adults and use of hats/caps.
5. Following hygienic practices.
6. Immunizations
7. Winning diets after six months
8. Following the recommended guide line on the treatment and follow up for the HIV positive mother and baby.

2.2.3. Exclusive breast-feeding

Breastfeeding

- Early skin to skin contact of mother and baby and immediate initiation of breast feeding
- Initiate breastfeeding within the first one hour.
- Incase breast feeding can‘t be started due to either maternal or newborn illness, feeding the baby has to be initiated if possible by milk expressed from the mother herself.
- The mother and the baby should not be separated by any means; they must room together.
- Women should be encouraged to maintain exclusive breast feeding for six months and should be educated about effective breastfeeding practices, as well as common breastfeeding
- problems, how to continue breast feeding for two years and to start complementary feeding after six months.

4.2. Counseling the mother on newborn feeding

It is always advisable to provide counseling about newborn feeding during the antenatal period and continue reinforcing it during the postnatal period. This teaching should focus on establishing and maintaining optimum breastfeeding.

As providers of PNC services, it is important to support successful breastfeeding practices. The benefits of breastfeeding can promote and protect the health of both infant and mother.

- Breastfeeding should be initiated immediately after delivery.
- Booklets and leaflets regarding breastfeeding should be distributed and explained for each mother during antenatal period and immediately postnatal

Box 4.1 Optimum breastfeeding criteria

- Initiation of breastfeeding within one hour after birth (early breastfeeding).
- Nothing is given to the baby other than breast milk for the first six months (exclusive breastfeeding).
- Colostrum is not thrown away, it is rich in protein and antibodies and is useful to the newborn; you should tell the mother to feed it to her newborn, because it is the first 'immunization' that her baby will get.
- The mother is sitting in a good position while breastfeeding.
- The baby has good attachment to the breast while breastfeeding.
- There is effective suckling.

4.2.1. Four signs of good positioning

To begin with, the mother should sit comfortably maintaining the four signs of good positioning:

- With the newborn's head and body straight
- Facing her breast, with baby's nose opposite her nipple

- With the newborn‘s body close to her body
- Supporting the baby‘s whole body, not just the neck and shoulders.

Fig 4.1. The recommended positions of breast feeding

If the mother has had a caesarean delivery, or her abdomen is sore for some other reason, she may be more comfortable supporting the baby as shown in Figure 4.1(b). It keeps the baby‘s weight off her abdomen. She can feed twins this way too, with one on each breast. At night, or if she is tired and needs to rest, she can feed the baby while lying down (Figure4.1c), but only if she stays awake.

4.2.2. Four signs of good attachment

Once good positioning is established, show the mother how to help the newborn to attach to the nipple. She should:

- Touch her newborn‘s lips with her nipple
- Wait until her newborns mouth is opening wide.
- Move her newborn quickly onto her breast, aiming the newborn‘s lower lip well below the nipple. Then check for signs of good attachment

Advise the mother to empty one breast before switching to the other, so that the newborn gets the nutrient-rich hind milk (last milk), which is produced when the breast is almost empty.

The four signs of good attachment are:

- Mouth widely opened
- Lower lip turned upward
- Chin touching the breast
- More of the areola (the dark ring around the nipple) is seen above the baby's mouth than below it.

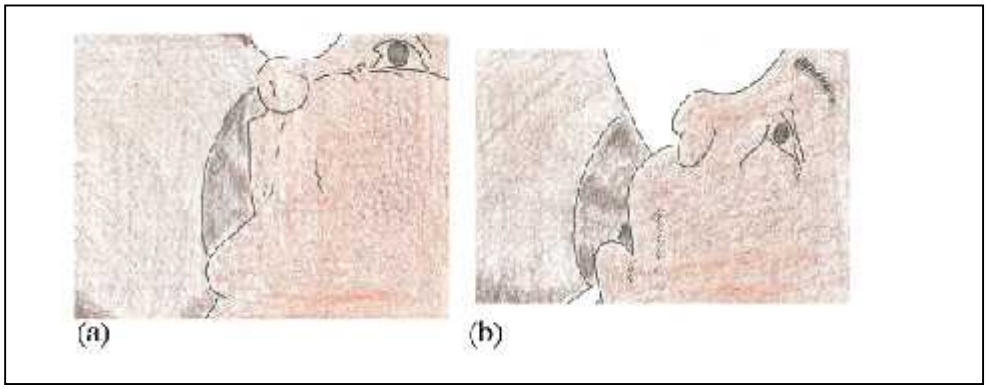

Figure 4.2 (a) This baby has a good mouthful of breast; (b) This baby does not have enough breast in its mouth

4.2.3. Effective suckling

Good signs of effective suckling are if the newborn takes slow, regular and deep sucks, sometimes pausing. The mother should tell you that she is comfortable and pain free.

If you observe that the attachment and suckling are inadequate, ask the mother to try again and reassess how well the baby is feeding. If they still cannot establish optimum breastfeeding, then you should assume that the newborn has a feeding problem and/or the mother has breast problems that make attachment difficult. If so refer the baby and the mother to a health facility for further advice and care.

1.2.4. Signs of finishing breastfeed

The newborn is successfully finish breastfeed if:-

- The newborn release breast her/himself
- The Length of feeding may last for 4 to 40 minutes per breast
- The breast feels softer at the end of feeding

4.3. Importance of breast feeding

1. Nutritional

- Meets infant nutritional requirements
- Changes in composition to meet infant‘s changing needs
- Easily digested and effectively used
- Species specific.

2. Infant’s health

- Protects against illness
- Reduces allergies
- Protects against infections
- Provides long-term protection against diabetes and cancer

3. Mother’s health

- Reduces bleeding after delivery
- Promotes involution of the uterus following delivery
- Reduces risks of pre-menopausal ovarian and breast cancers and osteoporosis
- Delays ovulation
- Protects against anemia and pregnancy

4. Psychological

- Fosters mother-infant bonding
- Provides emotional and psychological wellbeing for both mother and infant.

5. Economic

- Saves families the cost of purchasing breast milk substitutes
- Reduces health care costs
- Saves time

4.4. Signs that infant may not be getting enough breast milk

Reliable signs

- Poor weight gain: less than 500 g per month for the first 6 months
- Small amount of concentrated urine: infant urinates fewer than 6–8 times per 24 hours

Possible signs

- Infant dissatisfied after breastfeeds
- Frequent crying (look for other reasons why infant is crying)
- Very frequent breastfeeds
- Very long breastfeeds
- Infant‘s refusal to breastfeed
- Hard, dry, or green stool in infant
- No milk when mother tries to express
- No breast enlargement during pregnancy
- No milk —coming inll after delivery

4.4.1. Reasons why infant may not get enough breast milk

I. Breastfeeding factors

- Delayed start
- Infrequent feeds
- No night feeds
- Short feeds

- Poor attachment
- Use of bottles or pacifier
- Complementary feeds

II. Psychological factors in mother

- Lack of confidence
- Worry or stress
- Dislike of breastfeeding
- Rejection of infant
- Tiredness

III. Mother‘s physical condition

- Combined oral contraceptives in the first 6 months post-partum
- Severe malnutrition
- Smoking and alcohol
- Retained piece of placenta (rare)
- Poor breast development (very rare)

IV. Infant’s condition

- Illness
- Abnormality

4.4.2. Management of “not enough milk”

- Withdraw any supplement, water, formulas, or tea.
- Feed infant on demand, day and night.
- Increase frequency of feeds.
- Make sure infant latches on to the breast correctly.
- Correctly position infant.
- Wake the infant up if he/she sleeps throughout the night.
- Reassure mother that she is able to produce sufficient milk.

4.4.3. Kinds of refusal to breastfeed

- Infant may attach to breast but not suckle or swallow or suckle very weakly.
- Infant may cry and fight at the breast when mother tries to breastfeed.
- Infant may suckle for a minute and then come off the breast choking or crying (may do this several times during a single feed).
- Infant may take one breast but refuse the other.

4.4.4. Reasons why an infant may refuse to breastfeed

Infant

- Illness
- Pain
- Blocked nose or sore mouth
- Sedation

4.4.5. Poor breastfeeding technique: possible causes

- Feeding from a bottle or suckling on a pacifier
- Not getting enough milk because of poor attachment
- Mother holding and shaking the breast interferes with attachment
- Restricting breastfeeding (e.g., breastfeeding only at certain times)
- Too much milk coming too fast because of oversupply
- Early difficulties in coordinating suckling (some infants take longer than others to learn how to suckle effectively)
- Infant refusing one breast but not the other.

A change may have upset the infant

- Infants are very sensitive and may refuse to breastfeed if upset.

- Infant 3–12 months old may not cry, but simply refuse to suckle

Possible causes of upset

- Separation from mother (e.g., when she starts to work away from home)
- New caregiver
- Change in family routine
- Illness of mother or breast infection
- Change in mother‘s smell (e.g., from different soap or different food)
- Family stress

4.4.6. Management of refusal to breastfeed

- Reassure mother and build her confidence for breastfeeding to continue.
- Help mother identify the cause and refer accordingly.

2.2.4. Proper nutrition, exercise, rest, sleep, and domestic tasks

Care in the immediate postnatal period

Immediate care should occur within 24 hours of delivery, preferably within the first six hours, at place of birth.

Nutrition:

Most mothers are ready to eat soon after the birth, and it is good for them to eat any kind of nutritious food they want. If a new mother is not hungry, she should at least have something to drink. Fruit juice or admit tea is good because it gives energy.

Many women want something warm to drink, like tea. Some juices, like orange juice, also have vitamin C, which can help healing. (But she should avoid soda pop like Coke, which is full of sugar and chemicals but has no nutrition.)

After delivery, women's routine food intake should be increased to cover the energy cost of breastfeeding and for her to recover her normal energy and health. She should eat about 10% more than before she was pregnant if she is not moving around much or doing her usual work, and about 20% more if she is physically active. In practical terms, she is advised to take at least one or two additional meals every day.

A regular diet should be offered as soon as the woman requests food and is conscious.

- Intake should be increased by 10% (not physically active) to 20% (moderately or very active) to cover energy cost of lactation.
- Women should be advised to eat a diet that is rich in proteins and fluids.
- Eating more of staple food (cereal or tuber) Greater consumption of non-saturated fats
- Encourage foods rich in iron (e.g., liver, dark green leafy vegetables, etc.)
- Avoid all dietary restrictions
-

I. Exercise

- Normal activities may be resumed as soon as the woman feels ready.
- When to start routine exercise depends on the woman; its safety depends on whether complications or disorders are present. Usually, exercises to strengthen abdominal muscles can be started once the discomfort of delivery (vaginal or cesarean) has subsided, typically within one day for women who deliver vaginally and later for those who deliver by cesarean section.

- Sit-ups or curl-ups, (rising from supine to semi-setting position), done in bed with the hips and knees flexed, tighten only abdominal muscles, usually without causing backache.

Postpartum education and counseling includes: -

- Correct positioning of the baby at the breast.
- Glucose, or sugar water.
- Exclusive breast feeding only and do not give the baby other fluids like herbs, Encouraging breast feeding on demand.
- If there is a medical contraindication to breastfeeding, firm support of the breasts can suppress lactation. For many women, tight binding of the breasts, cold packs, and analgesics followed by firm support effectively control temporary symptoms while lactation is being suppressed.

II. Emotional support

- **Transient depression (baby blues)**: - the mother may become depressed for the time being. It is common during the first week after delivery. Symptoms are typically mild and usually subside by 7 to 10 days. The treatment is supportive care and reassurance.
- **Persistent depression**: - (this is a long standing depressive disorder).lack of interest in the baby, idea of self killing or others, hallucination (created imagination in the absence of stimulus), delusions, or psychotic behavior may require intensive counseling and antidepressants or antipsychotic drugs, so **referral** is mandatory.
- Women with a preexisting mental disorder are at high risk of recurrence or exacerbation during the puerepurium and should be monitored closely.
-

III. Sexual activity

Intercourse may be resumed after cessation of bleeding and discharge, and as soon as desired and comfortable to the woman. However, a delay in sexual activity should be considered for women who need to heal from lacerations or episiotomy repairs.

- Sexual activity after childbirth may be affected due to decreased sexual desire (due to fatigue and disturbed sleep patterns, genital lacerations/episiotomy).

IV. Bladder care

- Avoid distention & encourage urination: voiding must be encouraged and monitored to prevent asymptomatic ladder overfilling.
- Do not routinely catheterize unless retention necessitates catheterization (e.g. retention of urine due to pain from peri urethral laceration at vaginal delivery)
- Rapid diuresis may occur, especially when oxytocin is stopped.

V. Rest

- Encourage the mother to take rest and encourage other family members to help her with the household tasks including preparing food, cleaning the house, and caring for the other children. A well-rested mother is a better mother and spouse

VI. Pain management

- Common causes: after-pain and episiotomy
- Episiotomy pain: immediately after delivery, ice packs may help reduce pain and edema at the site of an episiotomy or repaired laceration; later, warm sitz baths several times a day can be used. Analgesics are used if not relieved.
- Contractions of the involution uterus, if painful (after-pains), may require analgesics. Refer the mother to the nearest health center.

VII. Family care

It is recognized that the mother with her family may need a time of privacy after the birth. Observation of the baby may be transferred to family if this is deemed clinically appropriate.

The baby must be well, the mother alert and the family be responsible for the time specified.

Family Support:

- Attention to Mother (Allowing Partner to have a meal, a nap, a shower, personal time, or to give special attention to older children)
- Answering Partner's Questions
- Emotional Support for Partner and Siblings
- Facilitating Effective Communication + Cooperation
- Creating Plans for Sharing Care of Mother, Newborn + Siblings
- Guidance in Partner Bonding with Baby
- Navigating Emotional Hurdles with Siblings

VIII. Follow-up visit:

- You should inform the mother about home visit and make a schedule it with the time which is convenient to her.
- Tell the mother about the danger sign and to respond as soon as possible

2.2.5. Family planning options, immunization practices and personal hygiene

Contraceptive options

Postpartum family planning

- All postpartum women should receive family planning education and counseling before discharge.

- Ideally, counseling for postpartum contraception should start during the antenatal period, and should be an integral part of antenatal care.
- Women who had no antenatal care and those who did not receive counseling during the ante natal period, should be counseled for family planning in the immediate postpartum period, after their own and their baby‘s condition have stabilized.
- Women should be informed about the advantages of birth spacing for at least two years before getting pregnant again and about different family planning options.
- Women should also be given a choice of receiving a family planning Method in the health post or during home visit for follow up within the first 40 days postpartum.
- Facilitate free informed choice for all women:
- The provider should make sure that the mother is not in pain and that her other concerns have been addressed.
- Reinforce that non-hormonal methods (lactational amenorrhea, barrier methods, IUD and sterilization) are best options for lactating mothers.
- Initiate progesterone - only methods after 6 weeks postpartum to breastfeeding women, if woman chooses a hormonal method

❖ Immunization practices

- Review with the mother the recommended immunization schedule, and identify that the infant received the recommended vaccines.
- Discuss the vaccine schedule by age and number of doses with the mother
- Educate the importance of each vaccines and why the child needs them

- **Personal hygiene**

Personal hygiene and perennial care

- If delivery was uncomplicated, showering and bathing are allowed.
- Wash hands before and after going to the bathroom
- Vaginal douching is avoided in early puerepurium, till after bleeding stops completely and all wounds are healed.
- The vulva should be cleaned from front to back.
- Maintaining good bowel function can prevent or help relieve existing hemorrhoids, which can be treated with warm sitz baths.
- Change perineal pads every time you go to the bathroom for passing urine or stool and at least

Information Sheet-4 Providing advice and management for minor post-natal problems of mother and Newborn

2.3. Providing advice and management for minor post-natal problems of mother and Newborn

Managing minor disorders during puerperium

- Perinea problems
- Tear
- Episiotomy
- Laceration
- -Edematous

Cause

- **-**prolong labor
- **-**Instrumental delivery
- -Rigid perineum
- -Big baby

Sign and symptoms

- Sever perinea pain
- Edematous perineum

Management

- For episiotomy and Perineal tear immediate suturing the site
- Perineal care and sitz bath..
- Analgesics –parcetamol 500mg po Prn or Dclofenac 75mg po Prn.
- Antibiotics—Amoxicillin 500mg po Tid for 7days or
- Ampicillin 500mg po Qid for 7days.

4.2 Head ache

Head ache - seen in postpartum period and check the severity of duration and frequency of head ache

Cause

- Severe psychological stress.
- Dehydration
- General body weakness.
- History of severe problem such as hypertension

Management

Managing according to their problem. If the vital sign are stable treated by analgesics and psychological support.

Back ache

Many women experience pain or discomfort from back ache in pregnancy as a result of separation or diastases of the abdominal muscles or rectus abdominals diastases.

When back ache is causing pain that affects the woman's activities and resolve in some weeks during puerperium.

Management

- Analgesics
- Rest
- -f sever referral

Urinary tract infection

The urinary tract infection causes during pregnancy is mostly by stasis of urine. But during puerperal the causes are

-**Trauma during labor**

-In adequate vulvae hygiene—leading to an ascending infection predisposes to its recurrence during the puerperium.

The early recognition is very important, if delay can leads to chronic pyelonephritis and permanent damage in kidney.

Sign and symptoms

- Pyrexia, malaise, head ache

- Pain during maturation
- If the infection is severing –it leads to acute cystitis or pyelonephritis which causes pyrexia, pain over the kidney and haematuria.\
- If the midwife suspect the woman may develop a urinary tract infection, a doctor must be informed immediately.

Investigation

- A mid stream specimen
- culture specimen

Treatment

- High fluid intake
- An appropriate antibiotics
- The most common causative organisms is Escherichia coli
- proper perineal care

Voiding problems

- Urinary retention
- Incontinence
- Venice vaginal fistula

Retention of urine- means that urine is kept in the bladder.

Causes

- The bladder is stretched too much.
- Bruised urethra due to prolonged labor.
- Weak abdominal muscles.
- Lying down all the time take passing urine more difficult.

Management

- -stimulate the bladder by warm bath or sound water.
- Catheterization
- Enema
- High fluid intake

Constipation

Constipation is when the feces dry and hard and the pt difficulty opening in bowel.

Causes –

- Weak abdominal muscles

- Loss of muscle tone of the anus which may have been pressed by the pressure of the baby's head.

Management

-plenty of fluid

-Vegetables and roughage food

-Mild laxatives

-Enema or glycerin

4.7 Hemorrhoids

Hemorrhoids are swollen. And inflamed veins around the anus or in the lower rectum. The rectum is the last part of the large intestine leading to the anus. The anus is the opening at the end of the digestive tract where bowel contents leave the body.

Hemorrhoids are two types

1, External hemorrhoid

2, internal hemorrhoid

External hemorrhoids are located under the skin around the anus.

Internal hemorrhoids develop in the lower rectum, and may protrude or prolapse through the anus.

Causes

-Chronic constipation or diarrhea

-Straining during bowel movement.

Sitting on the toilet for long periods of time

Pregnancy can causes hemorrhoids by increasing pressure in the abdomen which enlarges the vein in the lower rectum and anus.

lack of fiber in the diet.

Sign and Symptoms

-Swelling

-Pain in anal area

-Bleeding

-Itching and brining sensation

Rectum examination (PR)

Check by a digital examination with a gloved lubricated finger.

Treatment

*Eating high fiber diet can make stool softer and easier to pass stool and reduce the pressure.

*High fluid intake

*Sitting in a tab of warm water

*Exercising to prevent constipation

*Anisole suppository

*Perineal care

4.8 After pain

After pain is a sharp, painful uterine contraction which may occur during the first 48 hours of the puerperium woman themselves how ever described the pain as equal to the severity of moderate labour pain. After pain is common in multiparty women.

Management

-Appropriate analgesics- where possibly taken prior to breast feeding as it is the production of the Oxytocin in the uterus and causes pain.

-It is helpful to explain the causes of after pain to the women.

LG #38	LO3.Organizefollow up of maternal and newborn health services

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:P

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Registering mothers and newborns under postnatal care
- Preparation for postpartum care
- ✓ Home visit: The best to opportunity to provide postnatal care
- ✓ Schedule for postnatal home visit
- ✓ Counseling during the postnatal period
- ✓ Routine care and follow up of postnatal care for the mother and new born
- ✓ Nutrition after childbirth
- ✓ Emotional support
- ✓ Encouraging care seeking behavior
- ✓ Keeping and using records of antenatal care and birth outcomes to follow maternal health programs
- Routine Screening for newborns life-threatening conditions
- ✓ Screening for danger signs of the newborn
- ✓ Neonatal assessment check list for critical conditions
- Breastfeeding: The warm chain principle and counseling HIV positive mother
- ✓ Counseling the mother on newborn exclusive breast feeding
- ✓ Benefits of breastfeeding
- ✓ Providing care for lactating mother
- ✓ Counseling HIV positive mother about feeding her baby
- ✓ Keeping the baby warm
- Special care for preterm, low birth weight and babies with congenital anomalies

- ✓ Why do preterm and low birth weight babies need special care?
- ✓ Classification of preterm and low birth weight babies
- ✓ Counseling on how to feed preterm, low birth weight and babies with congenital anomalies
- ✓ Kangaroo mother care
- Making are feral for postnatal care
- ✓ Effective referral
- ✓ The referral link: two way street
- ✓ What prevent effective referral
- ✓ Effective referral
- ✓ Maintaining referral and communication networks with medical staff, midwives, allied health staff, HDAs and female community elders

Learning Instructions:

19. Read the specific objectives of this Learning Guide.

20. Follow the instructions described below.

21. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

22. Accomplish the "Self-checks" which are placed following all information sheets.

23. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).

24. If you earned a satisfactory evaluation proceed to "Operation sheets

25. Perform "the Learning activity performance test" which is placed following "Operation sheets" ,

26. If your performance is satisfactory proceed to the next learning guide,

27. If your performance is unsatisfactory, see your trainer for further instructions or go back to "Operation sheets".

Learning Instructions:

28. Read the specific objectives of this Learning Guide.

29. Follow the instructions described below.

30. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.

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Information Sheet-1	Registration of women receiving postnatal care

3.1. Postnatal care registration

The majority of countries do not have a postnatal register, so even if a HEW has a check-up with new mothers, she rarely records her efforts.

To deal with this problem, the Ministry of Health in Ethiopia has designed and instigated a register for postnatal care.

Postnatal care registration is important to calculate indicators such as early postnatal care coverage and postnatal care coverage.

While registering women with postnatal care the following information has to be included in the registration form

- Mother's name, age
- Infant's date of birth in the form of (DD/MM/YY), sex of the baby
- Post natal visit (Visit number (1^{st}, 2^{nd}, 3^{rd}, …))
- Maternal Assessment
- Date of visit
- General condition (Normal, complicated)
- Any preventive measures given (counseling, ITN, Vitamin A, etc)
- Weight
- Breastfeeding practice
- Problem identified at birth
    - Prematurity, sepsis, anemia…
- Any measurement taken (referral)

Self-Check 1	**Written Test**

Instruction: give short answer for the following questions

1. What are the components of immediate new care?
2. Define neonatal asphyxia?
3. What are the prevention measures for hypothermia?
4. What is neonatal jaundice?
5. What is the spinal bifida?

Score = _____
Rating: _____

Answer Sheet

NAME: _____ID.NO_____ DATE: _____

1._____

_____

_____

2._____

_____

_____

3._____

_____

_____

4._____

information sheet 2 Preparation for postpartum care

- Preparation for postpartum care

In the majority of pregnancies prior to delivery, you will have already started communicating and discussing postnatal care with the mother and other family members. It is during these antenatal visits that you will be able to collect information about the mother, the family and their social conditions, and you will also be able to give them your address and tell them how they can contact you whenever they need your assistance. During the pregnancy you will also have encouraged all mothers to deliver their baby in the Health Post or higher health facility if possible, but in rural Ethiopia over 94% of women will deliver at home. In those cases, you will have advised the family members to call you immediately when labor starts.

If you are present at the delivery, you already know that you should stay with the mother for at least the first six hours after the birth. However if she gave birth without you, visit her as soon as possible, ideally within a few hours and no later than the first day. Before you go to the mother for the first postnatal visit, prepare the equipment and drugs that are essential to provide effective postnatal care. In this study session, you will learn about the equipment, the schedule and aims of the postnatal visits, the detailed steps of necessary preparation before you go, and what you should do when you reach the new

- ✓ Home visit: The best opportunity to provide postnatal care

The ideal way to provide maternal and child health services is through health care delivered by skilled personnel in a health facility. However in Ethiopia there are many challenges to achieving this goal, such as shortage of trained health workers and facilities, and difficulties of access for rural populations to facility-based health care – including postnatal care.

It may take many years to solve all these challenges. Therefore, while working hard to strengthen the health system and improve access to facility based care in rural communities, your current role as a Health Extension

Practitioner is to focus on home visits for the delivery of postnatal care.

Barriers to facility-based postnatal care

Before you introduce a postnatal care (PNC) service in your community, you should first know about the barriers and fully understand why home visits remain the optimum PNC service delivery method in rural communities. The most important barriers hindering facility-based postnatal care are:

. Social and cultural barriers: The tradition of keeping mothers and newborn babies indoors for a few days after the birth in a period of seclusion, and certain community rituals during this period, hinders mothers from going to health facilities for PNC. You should gradually explore these barriers in your locality and work together with the community leaders to change these practices.

. Geographic barriers: Walking across mountains, crossing rivers without bridges during the rainy season, and lack of roads, are some of the geographical barriers that hinder mothers from accessing health facilities

Figure 4.1 **Distance is a major barrier to women being able to access facility-based health** care.

Social and cultural barriers: The tradition of keeping mothers and newborn babies indoors for a few days after the birth in a period of seclusion, and certain community rituals during this period, hinders mothers from going to health facilities for PNC. You should gradually explore these barriers in your locality and work together with the community leaders to change these practices.

. Geographic barriers: Walking across mountains, crossing rivers without bridges during the rainy season, and lack of roads, are some of the geographical barriers that hinder mothers from accessing health facilities for PNC (Figure 4.1).

. Physical access: Even though some mothers would prefer to go to a health facility, the nearest health centre or hospital is not within a reachable distance on foot or with available transport.

. Financial barriers: In Ethiopia, health services for labour and delivery and postnatal health services are considered to be free of charge, but in reality families have to pay for transport for the woman to the health facility, and for consumables including drugs and surgical gloves. These extra costs remain a major barrier to facility-based care.

. Quality barriers: After reaching the health facility, the mother and newborn may not get the expected quality of PNC service because of lack of adequately trained health workers, or shortages of equipment or drugs.

Poor quality services reduce confidence in other mothers in the community, who are less likely to make the effort of going to the health facility.

- an important secondary target for your PNC visits is to explore some of the social and cultural barriers mentioned above and work with community leaders to try to change these. Study Session 1 of this Module described a number of ways in which you might do this. Thinking back to that, now write a short action list of things you would try to do.
- There are many things you might have included. Go back to Study

Evidence that home visits improve the effectiveness of PNC

Unfortunately, there is not much evidence from research on home PNC visits in Ethiopia to serve as a model of best practice that can be replicated in every region of the country. However, there are experiences and evidence from

South Asia that show significant results in improving PNC coverage and reducing the maternal and neonatal mortality rate within a short period of time, using a home-based approach. Of course, there will be cultural differences between countries, but the results

are encouraging. For example, studies conducted in India, Bangladesh and Pakistan have shown that home visits can reduce deaths of newborns by 30-61% in developing countries where there is high mortality. In particular, home visits improved coverage of the key high-impact and cost-effective neonatal interventions such as:

- . Early initiation of breastfeeding
- . Skin-to-skin contact between newborns and their mothers (Figure 4.2).
- . Delayed bathing of the newborn until at least 24 hours after the birth
- . Attention to hygiene, such as hand washing with soap and water
- . Hygienic care of the baby's umbilical cord stump.

Figure 4.2 Skin-to-skin contacts between mother and newborn supports bonding and helps to regulate the baby's temperature.

We will refer to each of these interventions later in this study session, or later in this Module. For now, you should simply note that although we do not have comparable Ethiopian research, these South Asian findings provide sufficient evidence of the key elements needed for effective home-based postnatal care in Ethiopia.

✓ Schedule for postnatal home visit

Currently, there is enough evidence and full consensus on key elements of essential postnatal care to improve the health and survival of newborns and mothers. However, it is still difficult to find evidence-based recommendations that can be taken as a standard for the optimal timing and frequency of postnatal care contacts. Different South Asian countries have evaluated different timings, but almost all of them have visited mothers at least two to three times in the first week after the birth. In all cases the first visit was within 24 hours after the delivery of the baby.

As you already know from Study Session 1 of this Module, the first 24 hours and the first seven days are the crucial times when most mothers and newborns die. Based on the available information from the experiences of other countries, and the feasibility of applying each option in Ethiopia, the

World Health Organization has recommended a schedule of visits for postnatal care. For all normal deliveries with an outcome of a full term and normal birth weight baby, the recommended frequency of home visits should be as follows:

The first visit should take place within 24 hours of the birth; whenever feasible do the visit as early as possible.

2 The second visit is on the third day after the birth.

3 The third visit is on the seventh day after the birth.

4 The fourth visit is during the sixth week after the birth.

Additional visits are needed on the fifth and tenth day after the birth in special circumstances, for example in:

. Preterm babies, i.e. those delivered before 37 weeks of gestation

. Low birth weight babies, i.e. those weighing less than 2.5 kg

. All sick mothers and newborn babies

. HIV-positive mothers.

Family members should also send for you to come immediately if a mother or the baby has a problem at any time during the postnatal period. Some families may be reluctant to bother you, so it is important that you always reassure each family that contacting you is the right thing to do if they become worried about the health of the mother or the baby

✓ Counseling during the postnatal period

Before you attend for a home visit, make sure you have taken care of your own personal hygiene with particular emphasis to your hair, nails and clothes.

This instruction may seem very basic and simple, but a poor appearance and lack of hygiene can have a negative effect on your relationship with the community and families and can also easily affect the credibility of your work. Always wear simple but very clean clothes when you go for a home visit to provide PNC (Figure 4.3)

Why else is it important to emphasize hygiene?

Think back to what you learned in some of the earlier study sessions in this Module.

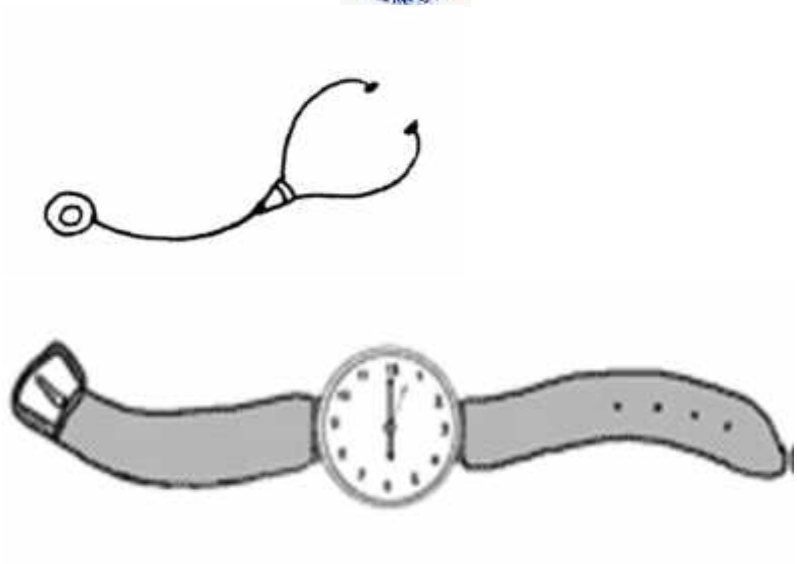
- scrupulous attention to cleanliness and hygiene during birth and postnatal visits helps to prevent postpartum infections. If you stress your own personal hygiene it will be easier to persuade the mother and her family of the importance of cleanliness if her next baby is a home birth.

Equipment

- Put the items listed in Box 4.1 into your bag, which should be specially
- prepared to carry supplies during home visits.

Equipment for a postnatal home visit

- . Salter scale to weigh the baby
- . Blood pressure measuring apparatus
- . Stethoscope
- . Thermometer
- . Wrist watch or timer, to help you count the mother's pulse and the baby's respiration rate
- . Soap for washing your hands
- . A clean towel to dry your hands
- . Vitamin A capsules
- . Iron and folate tablets
- . Tetracycline eye ointment
- . Counseling card and screening card for PNC.
- . Record book, referral form and pen.



You will be given the counseling and screening cards and referral forms for your area. There may be variations in the exact wording and appearance in different regions, but they all cover essentially the same points.

Key steps to follow while conducting a home visit

To creating a caring environment and to develop confidence in your ability among the family members, you should apply the following practices:

- . Know and show that you respect the local beliefs, culture and norms during communication.
- . Greet everyone using the local terms.
- . Explain the reasons for the visit to the mother and family members, using simple words in local language.
- . Allow enough time for general conversation and confidence building.
- . Act with confidence, and speak confidently with a gentle tone and voice.
- . Be respectful to every member of the family.

Ask about the well being of the mother and the baby and discover whether either of them have any health problems, or if there is any difficulty in making the adjustments to having a new baby in the family. Use the standard screening approach: ask, check, classify and take action. The most critical task is to use the screening cards to help you to identify any life-threatening conditions or general danger signs in postpartum mothers and newborns. .

Using the counseling cards, counsel the mother about her own health and the baby's health and condition. Always check her understanding after counseling (see Section 4.5 below).

Complete the postnatal home visit form and make an appointment for the next visit. Thank everyone for making you welcome in their home.

- ✓ **Routine care and follow up of postnatal care for the mother and new born**

The routine care provided to the mother during the postnatal period is mainly preventive measures targeted towards the early detection of the common causes of maternal morbidity and mortality in rural communities. During every postnatal visit, you should do the following routine activity, even when the mother does not complain of anything.

Check the mother's vital signs

Check the mother's vital signs, i.e. her temperature, pulse rate, and blood pressure, and make sure they are within the normal range.

Straight after the birth, check her pulse and blood pressure at least once every hour, and her temperature at least once in the first six hours.

What should the normal vital signs be if the mother is recovering well from the birth?

- Her temperature should be close to 37oC; her pulse rate should be between 60 to 80 beats per minute when she is resting quietly; her systolic blood pressure

(the top number, which measures the pressure when her heart contracts) should be 90-135 mmHg, while her diastolic blood pressure (the bottom number, which measures the pressure when her heart relaxes) should be 60 to 85 mmHg.

If her blood pressure is too low and falling, and her pulse rate is too fast and rising, she is going into shock. The most likely cause is a life-threatening hemorrhage.

If there are no signs of bleeding from the vagina, she may be losing blood internally.

Check if her uterus is contracting normally

Palpate (feel) her abdomen to check contraction of the uterus to make sure it is firm. Immediately after the birth, you should be able to feel it contracting near the mother's umbilicus (belly button), and it gradually moves lower in her pelvis over the next two weeks. Check her uterus every 15 minutes for the first two hours after birth and every 30 minutes for the third hour. If possible, check every hour for the following three hours.

If the uterus is hard, leave it alone between checks. If it feels soft, rub the abdomen at the top of the uterus to help it to contract. Teach the mother to do this for herself (Figure 5.1).

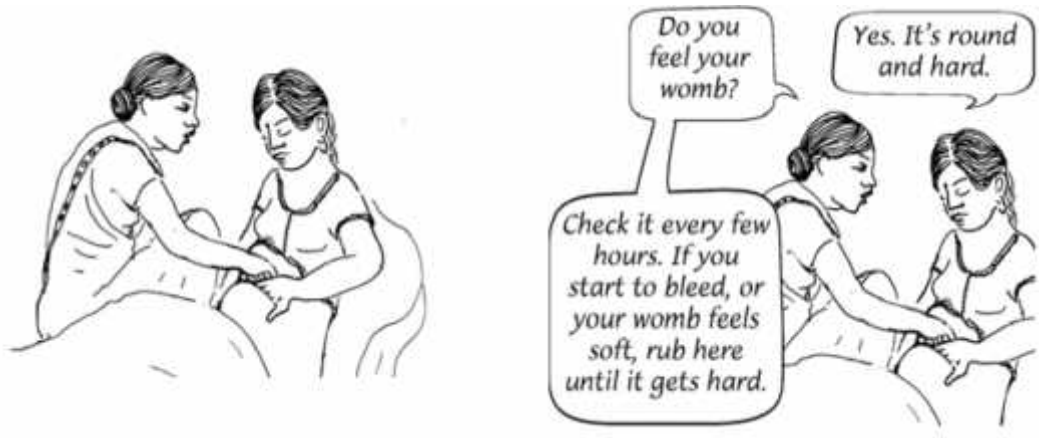


Figure 5.1 the uterus can be encouraged to contract after the birth by rubbing the abdomen.

The drugs you gave the mother to help expel the placenta and prevent bleeding (e.g. misoprostol or oxytocin) will also help the uterus to contract.

So will breastfeeding her baby. The mother may also need to urinate if her bladder is full, because this can prevent the uterus from contracting properly.

Check the contraction of her uterus at every postnatal visit.

Clean the mother's belly, genitals and legs

Help the mother clean herself after the birth. Change any dirty bedding and wash blood off her body. Always wash your own hands first and put on surgical gloves before you touch the mother's genitals, just as you did before the birth.
This will protect her from any bacteria that may be on your hands.
Clean the mother's genitals very gently, using soap and very clean water and a clean cloth (Figure 5.2). Do not use alcohol or any other disinfectant that might irritate her delicate tissues.
Wash downward, away from the vagina. Be careful not to bring anything up from the anus toward the vagina. Even a piece of stool that is too small to see can cause infection.

Figure 5.2 washing the mother's genital area is part of core postnatal care at the first visit.

Check for heavy bleeding (hemorrhage)

After the birth, it is normal for a woman to bleed the same amount as a heavy monthly period. The blood should also look like monthly blood — old and dark, or pinkish. At first, the blood comes out in little spurts or gushes when the uterus contracts, or when the mother coughs, moves, or stands up, but the flow should reduce over the next two to three days and become the more watery reddish discharge known as Very heavy bleeding is dangerous. To check for heavy bleeding in the first six hours after birth check the mother's pads often — 500 ml (about two cups) of blood loss is too much.

If she soaks one pad per hour, it is considered heavy bleeding. If the mother is bleeding heavily, and you cannot stop it, take her to the hospital. Watch for signs of shock. Remember that postpartum hemorrhage is a major cause of maternal mortality and it can happen at any time in the postnatal period – though it is most common in the first seven days.

Check the mother's genitals for tears and other problems

Use a gloved hand to gently examine the mother's genitals (Figure 5.3) for tears, blood clots, or a hematoma (bleeding under the skin). If the woman has a tear that needs to be sewn, apply pressure on it for 10 minutes with a clean cloth or pad and refer her to the health centre.

If the tear is small, it can probably heal without being sewn, as long as it is kept very clean to prevent wound infection.

Ask her to rest as much as possible and tell her she should not climb up or down steps or steep hills. Someone else should do the cooking and cleaning for the family for a few days. To speed healing, she should also eat plenty of healthy food, keep the genital area clean (washing it with water after using the latrine) and cover it with a clean cloth or pad.

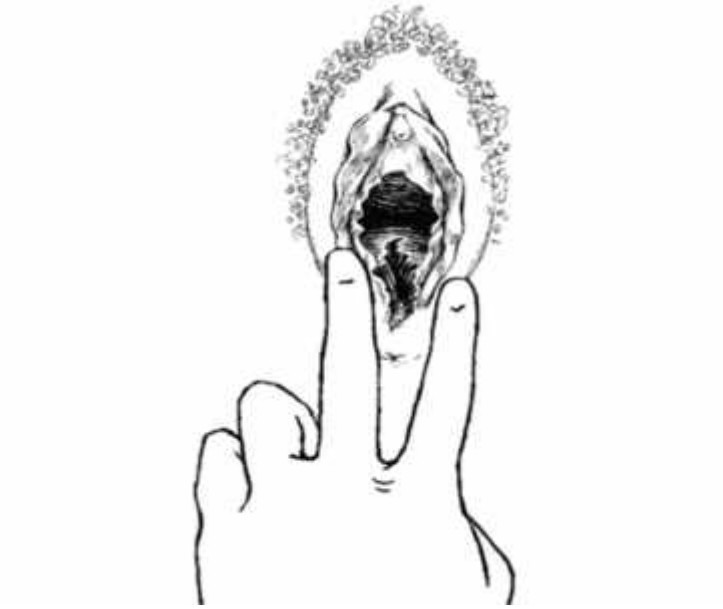


Figure 5.3 gently open the vulva to examine the genitals for signs ofinjury

Bleeding under the skin (hematoma) or pain in the vagina

Sometimes the uterus gets tight and hard and there does not seem to be much Bleeding, yet the mother still feels dizzy and weak. If this happens, she may have bleeding under the skin in her vagina called a hematoma (Figure 5.4). The skin in this area is often swollen, dark in color, tender and soft.

Figure 5.4 Hematoma is a painful collection of blood under the skin in the genital area.

Although a hematoma is painful, it is usually not serious unless it gets very large. If the hematoma is growing, press on the area with sterile gauze for 30 minutes or until it stops growing. If the mother has signs of shock, treat her for shock and take her to the nearest health facility so that the hematoma can be opened and the trapped blood can be let out.

Prolapsed cervix

Check to see if the cervix has prolapsed (dropped down to the vaginal opening; Figure 5.5).

This problem is not dangerous, and the cervix will usually go back up inside the mother in a few days.

Help the mother to raise her hips so that they are higher than her head.

Ask her to do squeezing exercises with the muscles of her vagina and pelvic floor at least four times a day.

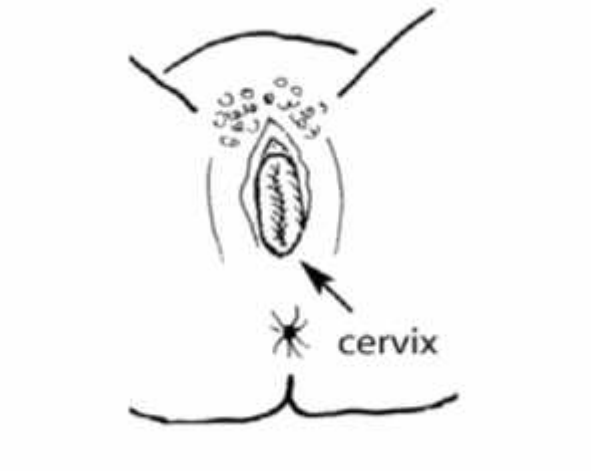


Figure 5.5 the prolapsed cervix can be seen at the opening of the vagina.

If the cervix stays at the vaginal opening for more than two weeks, the mother should be referred.

A cervix that stays prolapsed can cause problems if the woman has another child.

Help the mother to urinate

A full bladder can cause bleeding and other problems.

A mother's bladder will probably be full after the birth, but she may not feel the need to urinate. Ask her to urinate within the first two to three hours.

If she is too tired to get up and walk, she can squat over a bowl on the bed or on the floor (Figure 5.6).

She can also urinate into a towel or thick cloth while lying down. If she cannot urinate, it may help to pour clean, warm water over her genitals while she tries.

Figure 5.6 the mother can squat over a bowl to urinate if this is easier for her to manage.

If the mother cannot urinate after four hours, and her bladder is not full, she may be dehydrated. Help her to drink fluids.

If her bladder is full and she still cannot urinate, she needs to have a catheter inserted to drain her bladder.

If you have been trained to do this, catheterise her as shown in Study Session 22 of the Antenatal Care Module and your practical skills training. Then refer her to the nearest health centre or hospital.

- What is the single most important thing you should always do before examining a woman who has just given birth?

- Always wash your hands thoroughly to minimize the chance of transferring any bacteria that may be on them. If you are examining her genital area, then after washing your hands put on surgical gloves.

✓ Nutrition after childbirth

Eating and drinking in the first few hours

Most mothers are ready to eat soon after the birth, and it is good for them to eat any kind of nutritious food they want. If a new mother is not hungry, she should at least have something to drink. Fruit juice or atmit tea is good because it gives energy (Figure 5.7). Many women want something warm to drink, like tea. Some juices, like orange juice, also have vitamin C, which can help healing. (But she should avoid soda pop like Coke, which is full of sugar and chemicals but has no nutrition.)

If the mother cannot (or will not) eat or drink within two to three hours after the birth:

- .She may be ill. Check for bleeding, fever, a hypertensive disorder, or other signs of illness that may be taking away her appetite.
- She may be depressed (sad, angry, or without any feelings). Encourage her to talk about her feelings and needs. (Postpartum 'blues' were described in

Figure 5.7 encourage her to eat soon, within the first few hours, and to drink often.

Counseling on postnatal nutrition

After delivery, women's routine food intake should be increased to cover the energy cost of breastfeeding and for her to recover her normal energy and health. She should eat about 10% more than before she was pregnant if she is not moving around much or doing her usual work, and about 20% more if she is physically active. In practical terms, she is advised to take at least one or two additional meals every day.

Nutritional counseling should include:

- Advising the mother to eat a variety of high protein, high energy foods (as much as the family can afford), such as meat, milk, fish, oils, nuts, seeds, cereals, beans and cheese, to keep her healthy and strong. Your nutritional advice should depend on what is available at home and on what they eat as their staple diet. The most important thing is to tell them that she needs to eat more than usual.
- Exploring whether there are important cultural taboos about eating foods which are really nutritionally healthy. For example, in some cultures it is considered bad to eat high-protein foods, spicy foods, or cold foods after a birth.

Respectfully advise against these taboos and tell the woman that there is no nutritious food item that needs to be restricted.

- Talk to family members, particularly the partner and/or the mother-in-law, and encourage them to help ensure the woman eats enough of a wide variety of foods and avoids hard physical work.

Advise the mother to take micronutrient supplementation regularly to prevent deficiency disorders and anemia, as we describe next.

Preventing iodine deficiency

Adding iodine to salt is called iodination and using iodized salt in cooking is recommended in the postnatal period, especially in areas of the country where goiter is common as a result of too little iodine in the diet (Figure 5.8).

Iodination of salt has been shown to be a highly effective means of preventing iodine deficiency.

Giving iodized oil by mouth or injection can be used as an interim measure in endemic regions where provision of iodized salt may not be feasible. Encourage the mother to use iodised salt every day during the postnatal period, if it is available.

Otherwise, a dose of iodized oil can be given to the mother soon after delivery if goitre is common locally.

Figure 5.8 Goiter is a swelling in the front of the neck, caused by enlargement of the thyroid gland.

Preventing vitamin A deficiency

Counsel the mother on prevention of vitamin A deficiency, which not only threatens her sight, but is a major cause of childhood blindness in babies fed, by vitamin A-deficient mothers. Vitamin A in the diet increases resistance to infection and is especially important in producing nourishing breast milk.

Can you recall some foods that are rich in vitamin A? (You learned about this in the Modules on Antenatal Care and Nutrition.)

Yellow vegetables like carrots, yellow fruits like mangoes, and dark green leafy vegetables such as cabbage and spinach have a lot of vitamin A. So do liver, fish liver oil, milk, eggs and butter.

Preventing iron and foliate deficiency

Pre-existing anemia can be aggravated by the effects of maternal blood loss and is one of the major contributors to maternal mortality in the postnatal period. Encourage mothers to eat foods rich in iron (e.g. dark green leafy vegetables, beans, peas and lentils, poultry and red meat, organ meats such as liver and kidney, and whole grain

products), and foods which enhance iron absorption (fruits and vegetables rich in vitamin C). Tell her to take one tablet containing 60 mg of iron and 400 micrograms of foliate (folic acid) every day for three months after the birth, and give her a three months' supply. (In some places you may have separate iron and foliate tablets, but the dosage is the same.) Advise her to store the tablets safely where children cannot easily find them.

- Good routine postnatal care for the mother includes counselling her about her nutritional needs.

What will you advise her?

- That she needs to begin drinking and eating in the first few hours after the birth; that breastfeeding means she will need to eat more (especially high protein foods); if she is in an area where goitre is common, encouraging her to use iodized salt; explaining to her the value of vegetables and other foods which are rich in vitamin A, iron or foliate.

✓ Emotional support

When you arrive at the house, the first thing you need to ensure is that the mother and baby are not isolated from other family members for cultural reasons. You may have solved this problem during earlier conversations with the family, but during every visit make sure that the mother has all the necessary social support and that family members are visiting her regularly.

Together with the community leaders you should try to bring an end to the practice of seclusion, keeping the new mother and baby away from social relations, if it is still practiced in your community. Instead, advise and explain to the woman to always have someone near her for the first 24 hours and family members should be in regular contact every day during the first week to respond quickly to any danger signs in her condition.

Fathers and other family members can help

Encourage the partner to be around the mother at least for the first week of the postnatal period to provide emotional support and to take care of her and the baby (Figure 5.9). In the Ethiopian context, caring for the new mother is usually the responsibility of the grandmother and/or the mother-in-law. As they have already gone through all of these experiences, they are good at providing physical and emotional support to the mother and her baby. They can free her from the routine domestic chores, and this should be encouraged.

Figure 5.9 Fathers can look after the newborn baby while mothers get some rest

When the mother isn't interested in her baby

Some mothers do not feel good about their new babies (Figure 5.10). There can be many reasons for this. The mother may be very tired, or she may be ill or bleeding. She may not have wanted a baby, or may be worried that she cannot take care of one. As you learned in Study Session 3, she may be very depressed: signs of this are if the woman seems sad, quiet, and has no interest in anything.

Also watch for other signs of abnormal behavior which are different from her usual way of behaving.

Figure 5.10 A mother who rejects her baby may be suffering from postnatal depression

What to do if you are concerned about a mother's lack of interest in her baby:

- . Check her carefully for signs of blood loss or infection, or a hypertensive disorder. She may be ill, rather than depressed or anxious.
- . You might talk to the mother about her feelings, or you may feel it is better to leave her alone, and to watch and wait.
- . If you know that she was seriously depressed after a past birth, talk to the family about giving her extra attention and support in the next few weeks.

Usually this depression passes in time, but sometimes it takes a few weeks or even months, and you may need to refer her for additional assessment and treatment.

If she demonstrates any of the signs of postpartum psychosis (Box 5.1), refer her urgently.

- . Make sure someone in the family takes care of the new baby if the mother cannot or will not.

Signs of postpartum psychosis

This condition is rare (affecting about one in 1,000 women), but it is very serious and the mother should be referred urgently for specialist treatment if she is experiencing any of the following symptoms:

- . Hearing sounds or voices when no-one is there
- . Seeing things that are not real
- . Feeling as though her thoughts are not her own
- . Feeling afraid that she might harm herself or her baby
- . Rapid weight loss and refusal to eat

  Going without sleep for 48 hours or more.

✓ Encouraging care seeking behavior

Encourage the mother, her partner and other family members to seek care immediately if they notice any of the danger symptoms, either in her physical or her emotional state. Delays are a very important cause of maternal and neonatal deaths in the early postnatal period and include:

- . Delay in early recognition and decision making to seek help, due to wrong beliefs and cultural taboos. Families may also be afraid of the costs involved if they access the health system.

- . Delay in getting transportation to the Health Post or higher level health facility, or getting a health worker to visit the house.
- . Delay in receiving appropriate care once in the health facility, due to inadequate staffing or lack of equipment or supplies.

Empowering the mother and the family on early care seeking is fundamental in delivering optimum postnatal care.

You should try to develop the capacity of the community to cope with any emergency condition that may occur during the postnatal period. Particularly, attention should be given in every village to designing an emergency evacuation system for mothers and newborns with life-threatening conditions.

✓ Keeping and using records of antenatal care and birth outcomes to follow maternal health programs

Record keeping

Record-keeping is an important aspect of caring for mothers.

Good records:

- ❖ assist in continuity of care
- ❖ assist with the communication of women's requirements for care between care givers
- ❖ reduce the risk of errors in drug administration and treatment
- ❖ focus attention on early signs of complications
- ❖ place on record significant observations and conclusions.

Poor records:

- impair continuity of care

- impair communication between staff
- increase the risk of errors being made, either by duplication or omission
- fail to identify deviations occurring
- fail to place on record significant observations and conclusions.

Effective records provide:

- concise, current and accurate information regarding the condition and care of the woman being cared for;
- a record of problems and actions taken regarding her;
- evidence of care, including interventions by professionals and the woman's responses;
- evidence of factors which have affected the woman;
- information that supports standard-setting, quality of care assessments and audits of care;
- a record of baseline observations against which improvement or deterioration can be measured.

1.1.1. Record-keeping in the postnatal period

Detailed records must be kept at all times and recordings must be made as soon after the event possible. A variety of records and notes are kept during this period.

An initial assessment of the woman can lead to a systematic approach to the recording of postpartum events. This enables the care giver to identify the woman's potential and actual problems. Individualization is central to the care process, rather than applying routine procedures to all women.

Soon after the birth the mother and the care giver should meet to plan care and to set their goals for this care. The actions required to reach these goals are then determined.

At the end of the care episode the care giver evaluates whether the care given has reached the goals set. The evaluation should include the mother's perception of the

care received and whether she felt that the care was effective and acceptable to her and her family. The actions should not only conform to good professional standards but also respect the right and dignity of the woman and her family within their cultural context.

information sheet3 Routine Screening for newborns life-threatening conditions

3.1. Routine Screening for newborns life-threatening conditions

In this study session, we return to the general danger signs that the newborn may be at risk, which were already outlined briefly in Study Session 1.

This time we focus on assessment and classification of the danger signs in much more detail, and describe the actions that you need to take to prevent and treat common neonatal problems, particularly infections of the respiratory system, eyes and cord stump, and life-threatening conditions such as jaundice and tetanus. Involving the mother in this process is a key part of postnatal care.

Her vigilance and willingness to contact you if she is concerned about her baby's condition can save her baby's life.

Your first actions before assessing a newborn

Before you start assessing a newborn baby, take off any rings, bracelets or other jeweler, and wash your hands thoroughly with clean water and soap for at least two minutes.

This is one of the most important infection prevention actions you can do. Make sure you take your own soap and a clean towel to every postnatal visit, and follow the instructions in Figure 6.1.

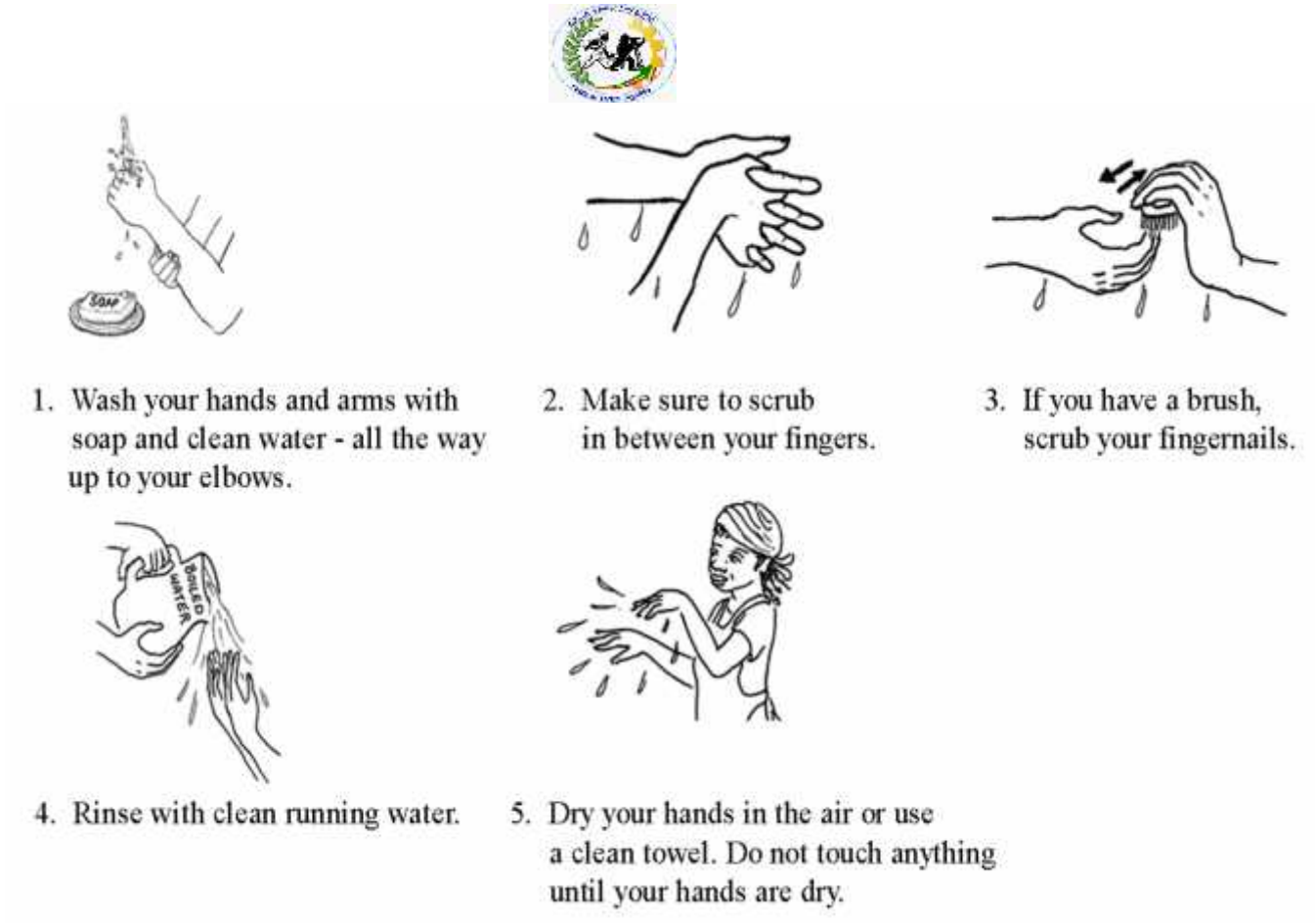


Figure 6.1 How to do a thorough hand wash before a postnatal assessment.

You should also show the mother how to wash her hands thoroughly and remind her to do it before she breastfeeds, dresses or undresses the baby, washes or bathes it, after changing its diaper and disposing of the waste, after she has changed her own pads to catch the bloody vaginal discharge, after using the latrine, and before or after preparing food.

While you are washing your hands, ask the mother to start breastfeeding. (We will teach you the details of correct breastfeeding in the next study session).

This will help you to check if there is any problem in breastfeeding and it helps to keep the baby calm during the assessment period. If the baby cries while you are assessing him or her it may give you inaccurate results for the assessment findings. Therefore, always try to keep babies calm while assessing them.

3.1.1. Screening for danger signs of the newborn

During the first home visit, the most important task is to screen all newborn babies for the presence of general danger signs in newborns (Box 6.1).

These were already briefly listed in always to be vigilant, observant and gentle while assessing and managing a newborn baby, especially during the first few days of life.

And always be alert to the potential presence of the key danger signs during the whole of the time you are with the mother and newborn.

- **General danger signs in newborns**

✓ . History of difficulty feeding, or unable to feed now; ask the mother about the baby's feeding pattern.

✓ . History of convulsion or convulsing now; asks the mother, has the baby had any fits?

✓ . Newborn seems lethargic or unconscious.

✓ . Movement only when stimulated.

✓ . Fast breathing.

✓ . Severe lower chest in-drawing.

✓ . Fever.

✓ . 'Hypothermia (baby is cold to the touch).

✓ . Baby developed yellowish discoloration before 24 hours of age; jaundice observed on the palms of the hands and soles of the feet.

✓ . There is swelling of the eyes or eye discharge.

✓ . Umbilicus is draining pus.

✓ . More than 10 pustules (spots) are found on the skin.

How can you recognize a convulsion in a newborn?

A convulsion (fit) in a newborn baby may present as:

- . Twitching of part of the body (e.g. a hand), one side of the body, or the whole body (a generalized fit).
- . Extension (spasm) of part of the body (e.g. an arm) or the whole body. Abnormal movements (e.g. mouthing movements, turning the eyes to one side or cycling movements of the legs).
- . Apnea (long periods without breathing).

It is often very difficult to recognise a convulsion in newborns because they usually do not have a generalized extension of the body and limbs, followed by jerking movements, as seen in convulsions in older children and adults.

So it is very important to be alert for any unusual signs, even if they are not very obvious at first.

Is the newborn lethargic or unconscious?

Look at the young newborn's movements. Does it move less than you would expect from a normally active baby? Does the baby only move when stimulated to do so (is it lethargic)? If the mother has had a previous baby, or if there are other experienced mothers in the house, ask them if they think this baby is lethargic.

It is a danger sign if it doesn't seem to be moving or responding to stimuli normally.

Is the baby breathing too fast?

Count the baby's breaths in one minute. Is it breathing normally or too fast?

Fast breathing is a respiration rate equal to or greater than 60 breaths per minute.

The normal breathing in a newborn is 40-60 breaths per minute, which you should check twice for one minute each time.

Look for severe chest in-drawing: this means that while the baby is breathing in, the area of its lower ribs on each side 'sucks' inwards deeply (Figure 6.2).

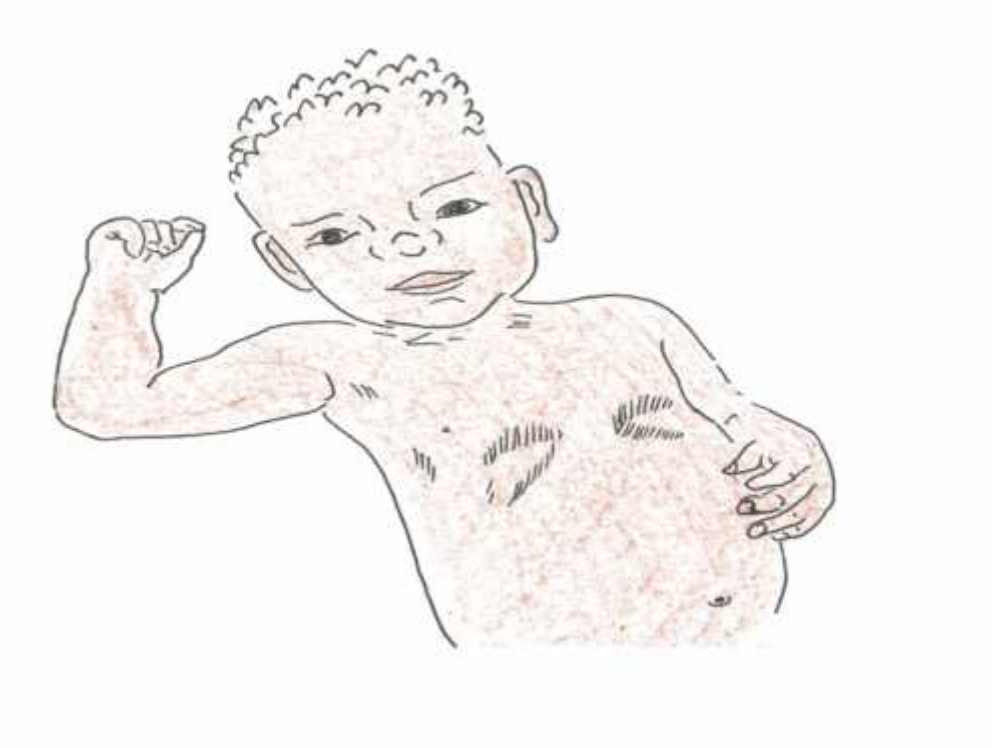


Figure 6.2 Chest in-drawing is a sign that a newborn is in respiratory distress

Is the baby's temperature normal?

Measure the baby's temperature, preferably using a rectal thermometer inserted gently into the baby's rectum through the anus, or use a normal thermometer held closely under the baby's armpit (this is called the axillaries temperature).

Remember that the thermometer must be very clean before you use it. Wash it before and after use in clean water and then swab it with alcohol or another antiseptic solution.

If you do not have a thermometer, use your hand to feel the baby's head and body for fever, or low body

Temperature, by comparing how the baby feels with the temperature of your own or the mother's skin.

Fever is defined as a temperature equal to or greater than 37.5ºC. If you suspect that the baby may be too hot because it has been kept too warm by the mother, cool the baby by un wrapping its blankets and measure the temperature again after 15 minutes. If the temperature does not return to normal quickly, or if it is above 37.5ºC, refer the baby immediately. A high temperature is a danger sign for infection, which must be treated quickly.

There is more on neonatal infections in Section 6.4 of this study session.

Hypothermia is defined as a temperature of equal to or less than 35.5ºC, but this is dangerously low for a newborn. If the baby feels chilled, don't wait for its temperature to fall lower than 36.5ºC before taking fast action to warm it.

Remove the clothes from its body and place it in skin-to-skin contact with the mother, between her breasts and inside her clothes (Figure 6.3).

Wrap them both well with blankets, place a cap or shawl to cover the top and back of the baby's head, and if the baby is not wearing socks, wrap its feet (this is called

Kangaroo Mother Care, as you will see in Study Session 8.).

If the baby's temperature does not start rising towards normal within 30 minutes, or if it is below 35.5ºC, or the baby's lips are blue, refer the baby immediately.

After assessing the newborn baby's vital signs as described above, the next step is to assess for danger signs of newborn illnesses.

Figure 6.3 Skin-to-skin contact with the mother is the best way to warm a chilled baby.

Does the baby have jaundice?

Signs of jaundice are a yellow discoloration of the skin and of the sclera (white of the eye). However the sclera is often difficult to see in newborns, so the skin colour is used to detect jaundice. First, ask the mother if she noticed any yellowish discoloration of the baby's skin before it was 24 hours of age.

Then look for yourself and also check if the palms of the baby's hands and the soles of its feet are yellow. Jaundice is caused by excess deposits of a yellow pigment called bilirubin (the condition is also called hyperbilirubinaemia, 'too much bilirubin').

It appears in the skin when too much haemoglobin (the oxygen-carrying protein) in the red blood cells is broken down, or when the liver is not functioning well and cannot deal

with the bilirubin, or when the bile excretory duct is obstructed. (Bile is a substance produced by the bile gland which helps in the breakdown of bilirubin).

In untreated cases, the excess bilirubin will have serious effects on the newborn baby's brain and can be fatal; if left untreated, it can have long-term neurological complications (complications related to abnormalities in the central nervous system, for example partial paralysis, growth retardation or learning difficulties).

Infection in the newborn

Infection is common in newborn babies and neonatal infection is one of the major causes of their deaths.

- Can you remember (e.g. from Study Session 1) why there is a higher risk of infection in newborns than in older children or adults?
- A key reason is the immaturity of the newborn's immune system, which takes several months after birth to develop sufficiently to give much protection from infection.

This means that newborns are especially vulnerable to exposure to infectious agents during pregnancy, delivery and in the home after the birth.

The most common risk factors for newborn infection are prolonged premature rupture of the fetal membranes (PROM), prolonged labor or obstructed labor, and preexisting lower genital tract infection in the mother.

We first consider eye infections in newborns.

What are the signs of eye infection in newborns?

If a mother has the bacteria in her genital tract that cause sexually transmitted infections (particularly Chlamydia or gonorrhea), the germs can get into the baby's eyes during delivery and may cause blindness. Look for swelling of the eyelids, redness of the inside part of the eye, or discharge from the eye. You can give prophylaxis (preventive

treatment) immediately the baby is born by using tetracycline or another approved eye ointment, as shown in Figure 6.4.

But if the newborn develops an eye infection in the postnatal period, you should refer him or her to the hospital or health centre for specialized assessment and treatment. Figure

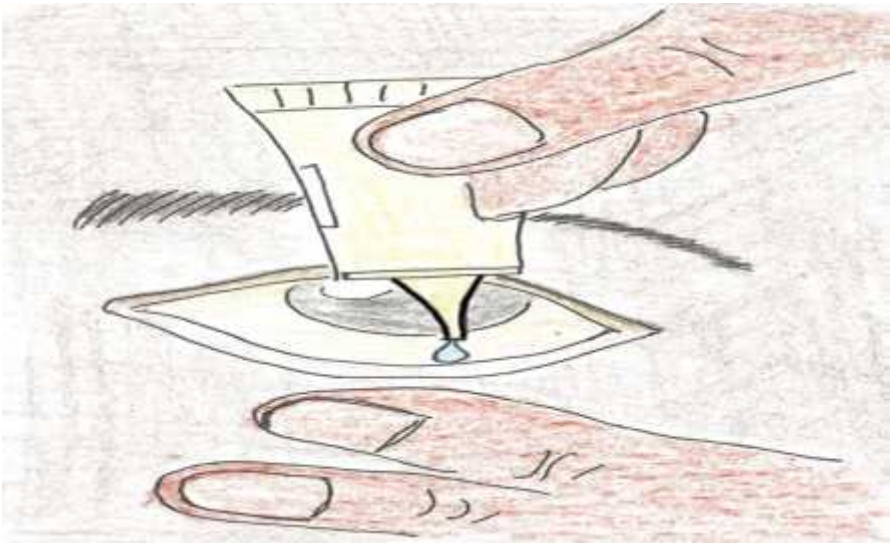


Figure 6.4 Routine eye care for newborns is to apply tetracycline ointment once immediately after the birth to prevent eye infections

What are the signs of an infected umbilical cord stump?

Look at the umbilicus: is it red or draining pus? Infection of the umbilical cord stump presents with the following danger signs:

- . An offensively smelling cord with a discharge of pus.
- . A cord that remains wet and soft and is not drying properly.
- . Redness of the skin around the base of the cord.

With good preventative cord care, infection of the umbilical cord should not occur.

Prevention consists of proper hand washing, good personal hygiene of the mother and the baby, using clean sterile thread to tie the cord and sterile instruments to cut it, and keeping the cord stump clean and dry.

What are the signs of skin infection?
The two common forms of skin infection in the newborn are:

. Impetigo caused by Staphylococcus bacteria in the skin, which presents as pus-filled blisters (pustules) usually seen around the umbilicus or in the nappy area.

Are there many pustules? More than 10 is a general danger sign.

. Monilial rash is caused by a fungus (Candida or Monilia species). This almost always occurs in the nappy area and presents as red, slightly raised spots, and is most marked in the skin creases.

In contrast, a nappy rash due to irritation of the skin by stool and urine, usually affects the exposed areas of the skin and not the creases. Improved hygiene, washing the baby often with clean warm water and allowing the skin to dry completely, is usually enough to resolve nappy rash unless it becomes infected.
A sweat rash, due to excessive sweating, may look like a skin infection, but it is not. It presents as small, clear blisters on the forehead or a fine red rash on the neck and trunk. Reassure the mother that this is not a serious problem and advise her to wash the baby with warm water and prevent overheating.
Tetanus in the newborn is caused by bacteria (Clostridium tetani) that infect dead tissues such as the umbilical cord stump. Tetanus bacteria are present in soil and animal dung, which may infect the cord or other wounds, for example during some harmful traditional practices. These bacteria produce a powerful toxin (poison) that affects the nervous system. Suspect tetanus if you observe the following signs in the newborn;

- . Increased muscle tone (spasm), especially of the jaw muscles and abdomen.
- . Generalized muscle spasms and convulsions, often precipitated by stimulation

such as handling or loud noises.

The baby may arch backwards during a spasm (Figure 6.5).

- . Most babies with tetanus will develop severe breathing difficulty and even with good medical care many will die.

3.1.1. Neonatal assessment check list for critical conditions

After asking the mother about any neonatal problems and doing the basic assessment and examination yourself, you can classify the newborn baby based on the following assessment check list (Table 6.1 on the next page).

After assessing the baby for critical conditions, remember to check again for any gross signs of congenital anomaly and/or gross signs of birth trauma (e.g. defects on the back, swelling of the head, excessive bruises), which can be a cause of acute blood loss leading to anemia.

In Study Session 7 we will describe everything that you and the new mother need to know about breastfeeding. Checking that the baby is feeding well and that the mother is managing to breastfeed adequately is part of every postnatal visit. You should also weigh the baby at every visit to make sure that it is gaining weight normally. This is particularly important for babies who were not born at term (37 to 42 weeks of gestation), or whose birth weight was below the normal range (equal to or greater than 2,500 gm).

Preterm babies (born at 32 to 36 weeks gestation), very preterm babies (less than 32 weeks of gestation), and those who are low birth weight (1,500 to under 2,500 gms) or very low birth weight (less than 1,500 gms) may have serious additional problems because coordination of swallowing and breathing is not well established, so they cannot feed properly. You will learn all about special care for these tiny babies in Study Session 8.

Neonatal assessment checklist: the ‘Assess and Classify’ chart.

Ask and check	Classify	Action taken
History of difficulty feeding or unable to feed now History of convulsion or convulsing now · Newborn is lethargic or unconscious · Movement only when stimulated · Fast breathing · Severe lower chest in-drawing · Fever · Hypothermia	If there is any one of the general danger signs, classify as: POSSIBLE SERIOUS INFECTION	Refer URGENTLY to hospital or health centre. Keep the newborn baby warm and give him or her breast milk on the way.
Baby developed yellowish discoloration before 24 hours of age · Jaundice observed on the palms and soles · There is swelling of the eyes or eye discharge · Umbilicus is draining pus · More than 10 pustules are found on the skin	If there is any one of these danger signs, classify as: POSSIBLE INFECTION OR JAUNDICE	Refer URGENTLY to hospital or health centre Keep the newborn baby warm and give him or her breast milk on the way.
None of the above	NORMAL BABY	Breastfeeding and care to prevent infection and keep the baby warm.

Information Sheet- 4 Breastfeeding: The warm chain principle and counseling HIV positive mother

3.2. Breastfeeding: The warm chain principle and counseling HIV positive mother

During the postnatal period, counseling the mother of a normal healthy newborn baby focuses on many issues, including those already covered in earlier study sessions, such as infection prevention, nutrition for the mother, and family planning. In this study session, we return in detail to two topics that have been touched on previously: how to begin and maintain optimum breastfeeding, and how to keep the baby warm using the 'warm chain principle'.

The first part of this study session is about feeding the normal weight, healthy, full-term baby. Then we will look at the special counseling that HIV-positive mothers need about feeding babies who are full term and normal weight.

Cover the special care needed to feed and maintain the body temperature of preterm or low birth weight babies.

3.2.1. Counseling the mother on newborn exclusive breast

feeding

It is always advisable to provide counseling about newborn feeding during the antenatal period and continue reinforcing it during the postnatal period.

This teaching should focus on establishing and maintaining optimum breastfeeding.

The criteria for achieving this are summarized in

- . Nothing is given to the baby other than breast milk for the first six months (exclusive breastfeeding).

Optimum breastfeeding criteria

- . Initiation of breastfeeding within one hour after birth (early breastfeeding).
- Colostrums is not thrown away. It is rich in protein and antibodies and is useful to the newborn; you should tell the mother to feed it to her newborn, because it is the first 'immunization' that her baby will get.
- The mother is sitting in a good position while breastfeeding.
- The baby has good attachment to the breast while breastfeeding.
- . There is effective suckling.

3.2.2. Benefits of breastfeeding

Breastfeeding provides many benefits to both the newborn and mother. You should encourage mothers to breastfeed exclusively for at least the first six months by explaining the benefits to them.

Benefits to the newborn of breastfeeding

Breast milk is the ideal feed for full term newborns as it provides all the nutrients in the correct amount and proportion for normal growth and development until the age of six months. It is easily digested and absorbed.

Also, breast milk is clean and warm, and avoids the dangers of feeding formula milk which comes as a powder and has to be made up with water and fed in a bottle.

- Can you suggest the sources of risk to the newborn from badly made formula milk?
- There is a risk of infection from making the milk with contaminated water, or if the bottles and teats are not properly sterilized. If the mother makes several feeds at one time, and she cannot keep them cold because she has no refrigeration facilities, bacteria may grow in the warm milk.

Also, if she puts too little or too much milk powder in each bottle, the baby will suffer from malnourishment if the formula is too weak, or it will get an excessive load on its organs from too concentrated formula.

Breast milk contains many anti-infective factors, such as antibodies, living cells and molecules that help the baby's body to fight infection. It also encourages the growth of beneficial bacteria in the newborn's bowel. These properties of breast milk help to prevent diarrhoeal diseases, the major cause of death of newborns in poor communities.

Breast milk also decreases the risk of allergy in the newborn. Allergies are adverse reactions of the body against components of the diet, pollen from plants, animals and other harmless things that touch the body or get into it through the nose, mouth or eyes. Newborns are more at risk of allergies if there is a strong family history of allergy.

Benefits to the mother of breastfeeding

Breastfeeding is (almost) free – the mother needs additional food while she is breastfeeding, but the cost is much cheaper than buying formula feeds, bottles and teats. It is instantly available at all times, so the mother does not have the trouble of sterilizing bottles and teats, and preparing formula feeds many times every day.

It is emotionally satisfying for the mother to successfully breastfeed her baby and the close contact helps to form a strong bond between mother and newborn.

The hormone (oxytocin) that triggers the milk to spurt from the breast by contracting the tiny muscles around the nipple, also makes the muscles in the uterus contract. So breastfeeding helps the uterus to return to its normal size.

3.2.3. Providing care for lactating mother

3.2.4. Counseling HIV positive mother about feeding her baby

Mothers who are HIV-positive and their babies need special care before, during and after labor and delivery. Therefore, if the mother is counseled and HIV-tested before or during pregnancy, and she knows that she is HIV positive, you should try to convince her to deliver her baby in a health facility. That way she and her baby will get special care from health professionals with special training in delivering babies from HIV-positive mothers, and preventing maternal to child transmission (PMTCT of HIV).

In the postnatal period, she may need to take antiretroviral (ARV) drugs prescribed for her by the HIV clinic, and your support is vital in helping her to keep to her drug regimen. Maintain confidentiality about her status and conduct frequent visits to this woman as she may require a lot of psychosocial support immediately after the delivery. If it is available link her with the community social support group.

Always make sure her partner is counseled and HIV-tested and also involved in the whole care process.

Breast milk or formula?

In this study session our focus is on the risk of HIV being transmitted from the mother to her newborn baby in her breast milk, and how you can support and counsel her about feeding options. If 20 HIV-positive mothers breastfeed their HIV-negative babies exclusively for the first six months, on average one to three of the babies will become infected with HIV through its mother's breast milk. So the mother has a difficult choice to make. She has to balance the risk to her baby from HIV transmission during breastfeeding, against the risk of not breastfeeding and losing all the benefits described above. Formula feeding also exposes the baby to increased risk of infection from unsterilized bottles and malnutrition from incorrectly made feeds.

Replacement feeding and the AFASS criteria

Exclusive breastfeeding is NOT recommended for the babies of HIV-positive women, since the only way to protect the baby completely from HIV transmission from its mother is to feed it on formula milk. This is known as replacement feeding. However, many families cannot afford to buy milk formula to feed the baby, and bottle feeding may be socially unacceptable in some communities. With all these issues in mind the World Health Organization (WHO) has set the following criteria (known as the AFASS criteria), which need to be met before counselling an HIV-positive mother to use formula milk:

. Acceptable: Replacement feeding for breast milk is acceptable by the mother, the family and others who are close to the family.

. Feasible: The mother has access to clean and safe water for cleaning the feeding bottles, teats, measuring cup and spoon, and diluting the formula milk if it comes as a powder.

Affordable: The family can afford to buy enough formula milk or animal milk to feed the baby adequately.

- . Sustainable: The mother is able to prepare feeds for the child as frequently as recommended and as the baby demands.
- . Safe: The formula milk should be safe and nutritious for the health of the baby.

The AFASS criteria are illustrated in Figure 7.4.
When replacement feeding fulfils the AFASS criteria, avoidance of all breastfeeding by HIV-positive mothers is recommended.

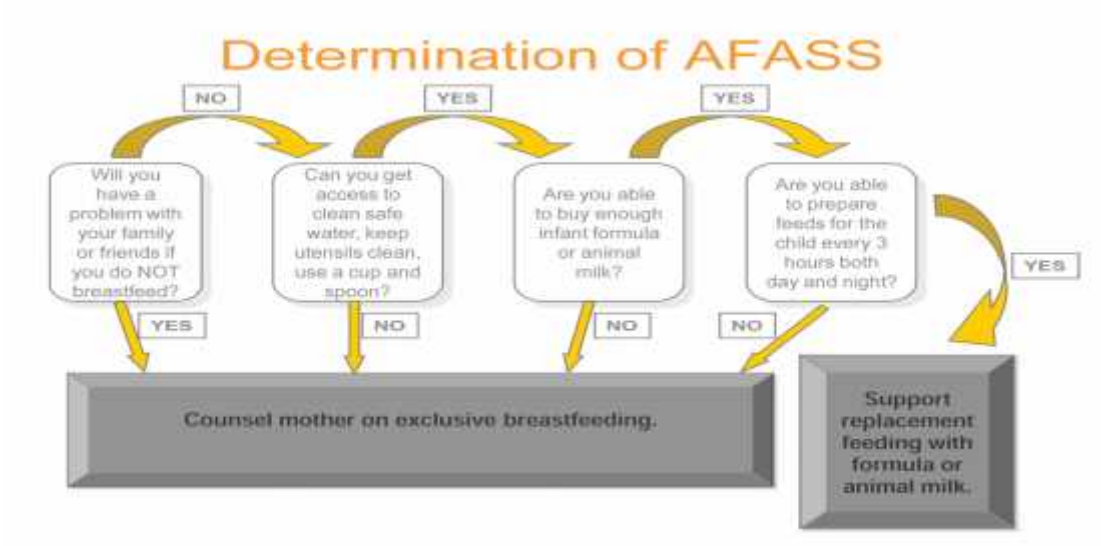


Figure 7.4 The AFASS criteria help you to counsel HIV-positive mothers about feeding options for their newborns. (Source: Ethiopian Federal Ministry of Health, based on WHO, 2010, Guidelines on HIV and Infant Feeding)

Reducing the HIV risk from breastfeeding

If replacement feeding is rejected by the HIV-positive mother, for whatever reasons, there are some things that she can do to reduce the risk of HIV transmission during breastfeeding. Counsel her to:

- . Keep the intervals between breast feeds as short as possible (no longer than three hours) to avoid accumulation of the virus in her breast milk.
- . If she develops a bacterial infection (mastitis) of the breast, or she has a cracked nipple, stop feeding from the infected breast and seek urgent treatment.
- . Check the infant's mouth for sores and seek treatment if necessary.
- . Make a transition to replacement feeding if her circumstances change and she can meet the AFASS criteria.

At six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, counsel her to continue breastfeeding, but with additional complementary foods. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.

3.2.5. Keeping the baby warm

Newborn babies cool down or heat up much quicker than older children or adults because they cannot regulate their body temperature as easily. They are particularly vulnerable to hypothermia, which means excessive cooling of the baby, so the body temperature falls below 35.5oC measured in the baby's armpit (or use a rectal thermometer). If this low temperature continues even for a short time, it will cause the baby's body systems to stop functioning properly and this is life-threatening. Hypothermia is a major cause of morbidity and mortality in a newborn baby, particularly pre-term babies (born before 36 weeks of gestation) and those with low birth weight (below 2,500 gm). Study Session 8 will teach you all about the problems and management of these early or tiny babies.

Hypothermia is usually caused more by the mother's lack of knowledge rather than lack of covers and clothes to keep the baby warm. So make sure you explain to the mother the importance of keeping the baby warm all the time to ensure that a normal body temperature of above 36.5°C and below 37.5°C can be maintained.

How to take the newborn's temperature

Place the thermometer in the newborn's armpit (or rectum if you have a rectal thermometer) for two to three minutes, then read the temperature according to the type of thermometer you have. (You learned how to use different types of thermometer in Study Session 9 of the Antenatal Care Module.)

Thermometers should be stored dry when not in use. Before and after you take anyone's temperature, the thermometer should be cleaned with antiseptic to prevent

carrying infection from one person to another. It is important to notice when the temperature is even a little bit lower than normal, before it reaches as low as 35.5oC.

When are newborns at greatest risk of hypothermia?

Newborns that have particular problems in producing enough heat in their bodies, or who lose too much heat because of poor care by the mother, are at the greatest risk.

Newborns that may not produce enough heat include those who are:

- . Preterm
- . Underweight for gestational age
- . Wasted (thin)
- . Infected
- . Hypoxic (starved of oxygen during labour and delivery).

Newborns that lose too much heat include those who are:

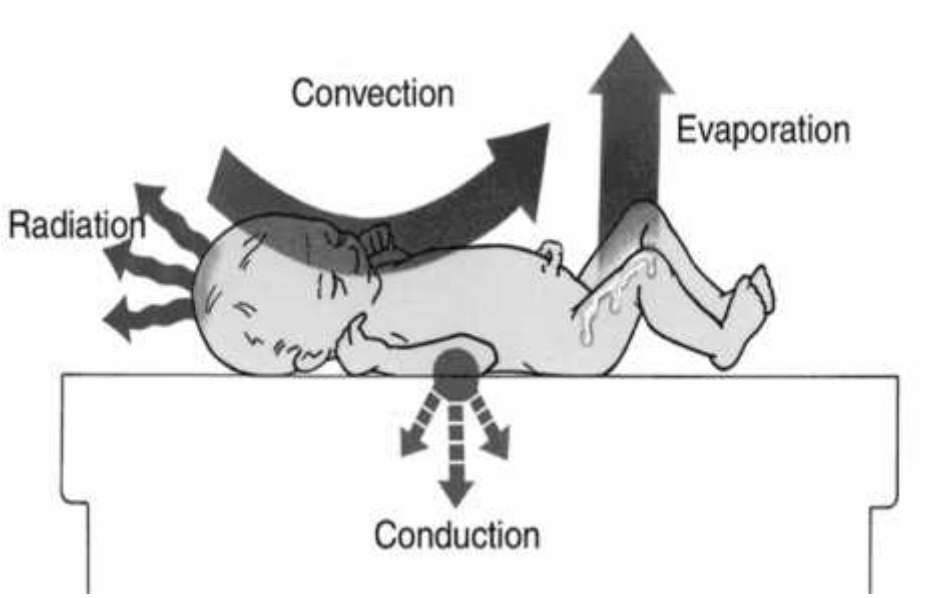
- . Wet after washing, or left in wet clothes
- . Have not been fed enough
- . Exposed to a cold environment, not enough clothes or covers, especially when they are sleeping

. Naked when they are breastfed

- . Fed close to a cold window, in a draught of cold air.

How do newborns lose heat?

The mechanisms of how the newborn loses heat are summarised in Figure 7.5, and described below.



Convection. This is the loss of heat from the newborn's skin to the surrounding air. Newborns lose a lot of heat by convection when exposed to cold air or draughts.

Conduction. This is the loss of heat when the newborn lies on a cold surface.

Newborns lose heat by conduction when placed naked on a cold table, weighing scale or are wrapped in a cold blanket or towel.

Evaporation. This is the loss of heat from a newborn's wet skin to the surrounding air. Newborns lose heat by evaporation after delivery or after a bath. Even a newborn in a wet nappy can lose heat by evaporation.

Radiation. This is the loss of heat from a newborn's skin to distant cold objects, such as a cold window or wall etc.

Finally, knowing that the newborn can lose heat by the four mechanisms described above, you should counsel the mother to avoid exposing the baby to drafts. Counsel her that before she removes the baby's clothes for a bath, close all doors and windows; cover the wet baby and dry him or her quickly.

Stop reading for a moment and think of your own experience in your community. Have you seen situations when mothers were in danger of letting their baby lose heat in any of the ways described above?

The warm chain principle in postnatal care

The mother should understand that keeping the baby warm is not a one-time job; it is rather a continuous job which means adhering to the warm chain principle. A warm chain is a system of keeping a baby warm immediately after delivery, wherever it occurs (at a health facility or the mother's home), during transportation and while feeding and caring for the baby.

Components of the warm chain

- . Drying and wrapping the baby immediately at birth.
- . Keeping the baby warm during any procedure, including resuscitation.
- . Keeping the immediate newborn in skin-to-skin contact with the mother.
- . Early initiation of breastfeeding within one hour of the birth; the warm milk and contact with the mother's body helps to keep the newborn baby warm.
- . Postponing bathing the newborn for the first 24 hours.
- . Keeping the baby warm during transportation.
- Dressing the baby in appropriate clothing and bedding at all times.

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Information Sheet- 5 Special care for preterm, low birth weight and babies with congenital

3.3. Special care for preterm, low birth weight and babies with congenital anomalies

The extra and special attention needed by preterm and low birth weight babies. We will explain the many reasons why they need special care, and how to give it, and also how to counsel mothers and other family members on looking after them. The focus is on managing the problems of feeding preterm and low birth weight babies, and of keeping them warm. In particular, you will learn about a relatively recent and highly successful method of maintaining the body heat of early or tiny babies, known as Kangaroo Mother Care.

3.3.1. Why do preterm and low birth weight babies need special care?

Preterm and low birth weight babies are at increased risk of dying from hypothermia, infection, breathing problems and immaturity of their vital organs.

As a result they may be unable to adapt to life outside the uterus. The key reasons why they need special care are summarized

Characteristics of preterm and low birth weight babies

- . Parts of their nervous system are not yet well developed.
- . They have little fat under the skin; especially their brown fat is low. Brown fat is very important to generate heat for the newborn baby; it is found mainly over the shoulders, back, kidneys, neck and armpits.
- . They lie very still so they can't generate heat by moving much.
- . They have a high ratio of surface area to body weight compared to that of a child or adult, so they lose heat quickly from their skin.
- They have immature lungs so they have breathing problems.

3.3.2. Classification of preterm and low birth weight babies

The lower the birth weight and gestational age of the newborn, the higher the risk of complications and death and the more special care he or she needs.

The special care they will need should take into account the classification of early and tiny babies, as described below.

Classification on birth weight

In relation to birth weight, most preterm babies are low birth weight or very low birth weight, as classified below:

Low birth weight: Babies born with birth weight between 1,500-2,499 gm.

These babies can usually be managed safely at home with some extra care and support.

Very low birth weight: Babies born with birth weight less than 1,500 gm. A life-threatening problem in such tiny babies is that suckling, swallowing and breathing are not well coordinated, so they require special attention in order to feed them adequately and safely. They also have great difficulty in maintaining their body temperature, so they are at increased risk of hypothermia. These babies need advanced life support and should be referred immediately to a hospital with special care facilities for very tiny babies.

However, at the present time, such facility-based care may not be accessible to rural families in some parts of Ethiopia.

Classification on gestational age

A premature baby is a baby born before 37 completed weeks of pregnancy.

Based on the gestational age, preterm babies are further classified as follows:

Preterm baby: Babies born between the gestational ages of 32-36 weeks of gestation, as calculated from the mother's last normal menstrual period (LNMP date).

These babies can usually be managed safely at home with some extra care and support, which you will learn later in this study session.

Very preterm baby: Babies born between the gestational ages of 28-31 weeks as calculated from the LNMP date. Like very low birth weight babies

3.3.3. Counseling on how to feed preterm, low birth weight and babies with congenital anomalies

The breast milk produced by the mothers of preterm babies is even more nutritious than the milk produced by mothers whose babies were born at full term.

Therefore, a preterm mother's milk is the best milk for the preterm or low birth weight baby and it should not be discarded, as no other milk can replace its benefits.

Breastfeeding and cup feeding

During the first week of the baby's life, the mother needs extra support from you and from the family to encourage her to initiate exclusive breastfeeding and maintain it until her tiny baby is able to suckle without any problem.

Babies born between 34-36 weeks of gestation can usually suckle breast milk adequately, but very preterm babies may have difficulty breastfeeding.

Breastfeeding a very preterm baby is a challenge. The frequency of feeding should be every two hours, including through the night.

If babies born before 34 weeks cannot suckle adequately, they can be fed expressed breast milk using a small very clean cup. (We describe how to do this in the next section.) Tiny or early babies who are able to suckle breast milk may also need feeding with additional expressed breast milk from a cup occasionally, to make sure they are getting enough nourishment. All babies who are on cup feeding have to be given around 60 ml/kg/day (that is 60 ml of breast milk for every kilogram of the baby's weight every day) and increase this by 20 ml/kg/day as the baby demands more feeding.

Tips to help a mother breastfeed a preterm or low birth weight baby

Express a few drops of milk on the baby's lip to help the baby start nursing.

Offer the whole breast, not just the nipple, so the baby can get a good mouthful (Figure 8.1). Give the baby short rests during a breastfeed; suckling is hard work for a preterm or tiny baby.

If the baby coughs, gags, or spits up milk when starting to breastfeed, the milk may be spurting out too fast for the little baby.

Teach the mother to take the baby off the breast if this happens. Hold the baby against her chest until the baby can breathe well again. Then put it back to the breast after the first gush of milk has passed.

If the preterm baby does not have enough energy to suck for long, or its sucking reflex is not strong enough, teach the mother how to express her breast milk by hand and then feed it to the baby from a cup.

Figure 8.1 Offer the whole breast to encourage the baby to breastfeed

Expressing breast milk

Expressing breast milk can take 20-30 minutes or longer to start with, but it gets quicker with practice. First tell the mother to wash her hands and her breasts with soap and water, and dry them with a very clean towel. Then prepare a cleaned and boiled cup or jar with a wide opening. If she is unable to boil the whole container, pour some boiling water into it and leave it there until just before she is ready to put milk into it; then pour the water away.

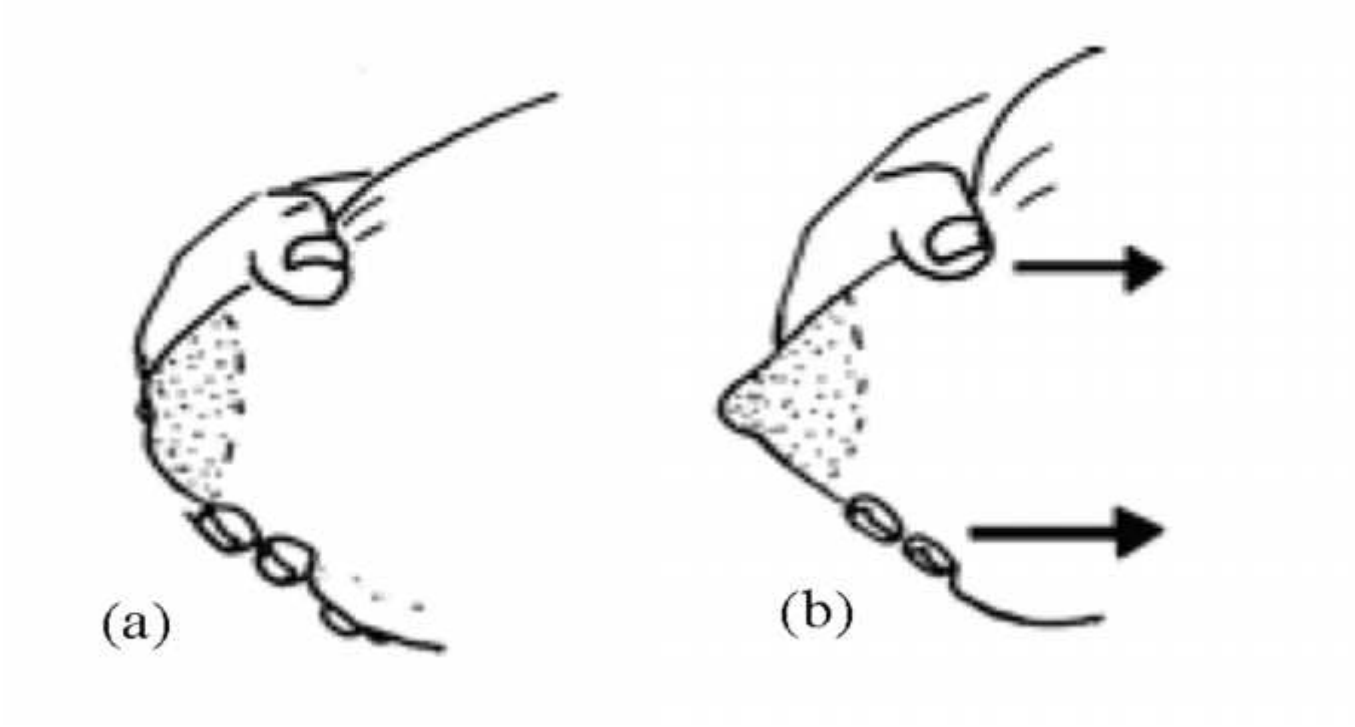
This will keep the milk safe from bacteria.

The mother should sit comfortably and lean slightly towards the container.

Show her how to hold the breast in a 'C-hold' (her hand is shaped like a big letter C; Figure 8.2a). Press the thumb and fingers back toward the chest wall

(Figure 8.1b), then role the thumb forward as if taking a thumb print, so that milk is expressed from all areas of the breast.

Express the milk from one breast for at least three to four minutes until the flow slows and then shift to the other breast. Thinking about feeding her baby while she expresses her milk may help the milk to flow out more easily.



3.3.4. Kangaroo mother care

Kangaroo Mother Care (KMC), called after the way that kangaroos look after their young, has been shown to be an extremely effective method of caring for preterm and low birth weight babies.

It involves holding a newborn in skin-to-skin contact, day and night, prone and upright on the chest of the mother, or another responsible person if the mother is unable to do it all the time.

Evidence from using KMC to support preterm and low birth weight babies shows that it results in greater stability of the baby's heart rate and breathing, lower rates of infection and better weight gain. In the mother it results in increased breast milk supply, and she is more likely to succeed in exclusive breastfeeding.

KMC procedures

After you have explained about the KMC procedures to the mother (or another KMC provider) you should follow the steps in

Preparations for Kangaroo Mother Care

- . Make sure the room is clean and warm.
- . Provide privacy to the mother so she can open her clothing at the front, exposing her breasts.
- . Request the mother to sit or recline comfortably.
- . Undress the baby gently, except for cap, nappy (diaper) and socks.
- . Place the baby lying flat, facing the mother's chest in an upright and extended posture, between the mother's breasts, in skin-to-skin contact.
- . Turn the baby's head to one side to keep the airways clear.

Keep the baby in this position for 24 hours every day except for brief breaks.

- . Cover the baby with the mother's shawl, or gown; wrap the babymother together with an added blanket, and put a cap on the baby's head.
- . Breastfeed the baby frequently, at least 8-12 times a day.

Reassure the mother that babies can receive most of the necessary daily care, including breastfeeding, while in KMC.

The baby is removed from the skin to- skin contact only for changing the diaper, general body hygiene and cord care, and to assess the baby during your postnatal visit. It is only for the first three to five days after the birth that the mother may need to lie in

bed. Once the baby's condition is stable, the mother can walk and do her routine work while the baby is in KMC, and they can sleep together in KMC at night

Figure 8.4 the mother and baby can sleep together in KMC.

Information Sheet- 6 Making are feral for postnatal care

3.1. Making are feral for postnatal care

As you reach the end of this Module, you will have to come to realize just how vital your role is in providing effective postnatal care. Health Extension
Practitioners (HEPs) like you not only promote the health of mothers and newborn babies in your community, but you save lives too. The postnatal care you provide is part of the continuum of maternal and child health care.
The continuum of care begins even before the women in your community become pregnant; it then continues through the antenatal care you give them during their pregnancy and the skill and support you bring to their labor and delivery. It merges seamlessly into your role in the postnatal period. Of course the continuum does not stop there: later you will study the Module on the
Integrated Management of Newborn and Childhood Illness, which teaches you how to preserve and protect the health of infants and older children. So you can see this continuum as an ongoing process of giving support at all stages of from birth through to childhood, including support to their mothers.

One final teaching point remains to be covered in this Module – making the referral link. Knowing how to refer mothers and newborns for specialist attention and treatment is as crucially important for the success of postnatal care as knowing when to refer. Early detection of life-threatening conditions is critical, but following up your diagnosis with a successful referral of mother and baby to a health facility for advanced treatment and life support is just as crucially important.

3.1.1. Effective referral

Whether or not a sick mother or sick newborn can reach a fully functional health facility in time can literally be the difference between life and death. It helps a great deal if:

- . You have taken care to develop and establish strong links with the health facilities that you use (and the health workers in them), so that referrals can be dealt with quickly and efficiently.
- . You have mobilized the community to be alert to the need for psychosocial, financial and practical support in cases where critically sick mothers and newborns must reach the health facility urgently.

- . You have convinced the mother and family to trust your judgement before the emergency happens, so they are ready to follow your advice if an emergency occurs.
- . You are active in following up and checking that the mother and baby get to the health facility. The traditional way of telling the mother or the caregivers to go to the health facility, or just writing a referral note and doing nothing else, is never a sufficient solution.

3.1.2. The referral link: two way street

The referral link between a higher-level health facility and you, the Health Extension Practitioner (HEP) at the Health Post is a two-way street (Figure 9.1). For this system to be fully functional, you have to know the health workers in the nearby health centre or hospital, and they should know all the HEPs at the Health Posts in their catchment area.

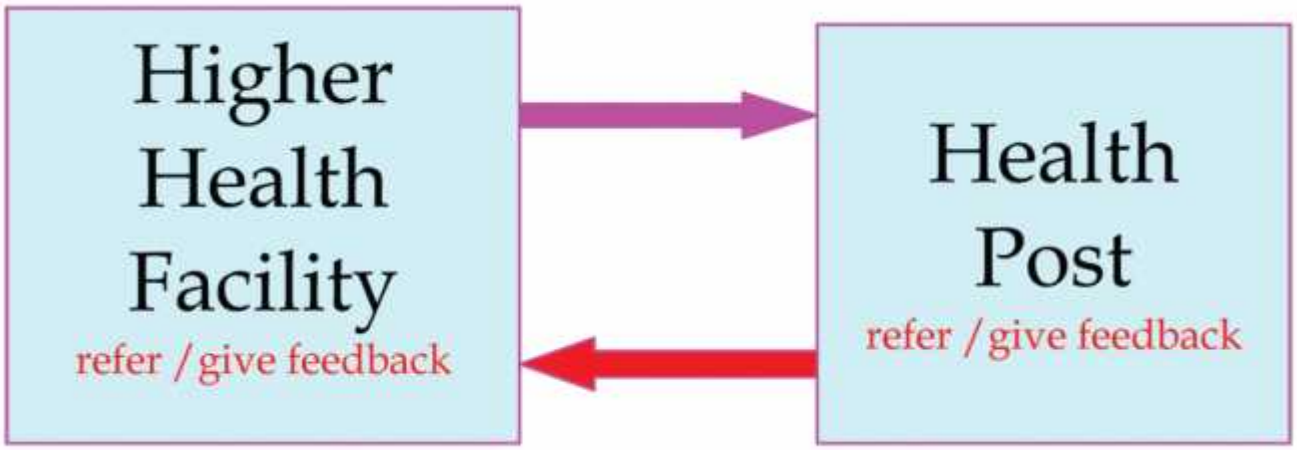


Figure 9.1 the referral link: a two-way street.

- Why do you think it is important to know the health workers at the higher-level facilities?

- one reason is that it is so much easier to write an effective referral note to people you know than to people you don't. Another reason is that if they know you, they will be more able to trust your judgment and act quickly on it when you refer a mother or baby to them.

Receiving feedback

Of course, it is not just a case of referring the mother/baby to the health facility and that is the end of it. For example, if you refer a sick mother, the facility staff should write a note to you when the mother is discharged back to the village, giving you feedback about what happened to her while she was in their care, and giving you instructions on how to manage her

3.1.3. What prevents effective referral

There are many reasons why a referral doesn't happen at all, or does not happen in time, including the following:

- . Lack of proper counseling to the mother, father and other caregivers, so they don't realize how serious the problem is.
- . Far distance and lack of means of transportation to the health facility.
- . The family has not saved the financial resources to make the journey.

. Health facilities are not attractive to some patients. Often they don't have proper supplies of essential medicines and equipment, or they lack the correctly trained person for the service required. Hence, due to the poor reputation of some health facilities, parents may be reluctant to go to them.

- Is there anything you can do to help reduce the chances of a failed referral?
- You might look back to Study Session 13 in the Antenatal Care Module and the discussion about Focused Antenatal Care (FANC). Remember that emergency

care planning is a key part of the counseling you should have conducted with every expectant mother and her family before the birth. They should have saved money for the journey and arranged transport.

In addition to the antenatal counselling you have done with pregnant mothers and families, you will also have been mobilizing community involvement to support them in the postnatal period. Study Session 1 of this Module discussed how to do this effectively. Remember that it is in the emergency situation that you can really see your work with the community bearing fruit.

3.1.4. **Effective referral**

There are many reasons why a referral doesn't happen at all, or does not happen in time, including the following:

- . Lack of proper counselling to the mother, father and other caregivers, so they don't realize how serious the problem is.
- . Far distance and lack of means of transportation to the health facility.
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3.1.5. Maintaining referral and communication networks with medical staff, midwives, allied health staff, HDAs and female community elders