PRACTICAL 4  FEEDING OF NEWBORN AND INFANTS

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4.0 OBJECTIVES

After going through this unit, you should be able to:
• List principles of feeding;
• Describe feeding techniques in newborn and infants;
• Enumerate the equipments required for feeding with cup and spoon and tube (gavage);
• Help the mothers to perform the correct technique of breast feeding; and
• Perform the correct technique of tube feeding.

4.1 INTRODUCTION

Nutrition is a major concern of the mankind beginning from the time of conception and extending through the entire life span of the individual. Nutrients are necessary for maintaining growth of the baby. The illness and hospitalization has impact on nutritional intake of the child. There may be restriction of food items in certain illness e.g. nephrotic syndrome. It is the responsibility of the nurse to assist the child in maintaining or improving the level of growth and development and prevent problems of severe depletion/under nutrition/malnutrition.

In this practical section, you will learn about the breast feeding, naso-gastric/oro-gastric feeding and gastrostomy feeding.

4.2 PRINCIPLES OF FEEDING

• The neonatal reflexes such as sucking reflex and rooting reflex indicates newborn’s ability and readiness to feed. Sucking and swallowing reflex is coordinated at 34 weeks of gestation.
• The tongue protrusion reflex must not be mistaken for the infant’s refusal of food.
• The number of feedings decrease as the infant grows older.
• Infants need to satisfy their sucking urge.
• The effectiveness of feeding is influenced by environment and attitude of the care giver.
• Feeding technique should foster growth and development.
• It is much simpler and more logical to feed when the baby wants rather than when mother or clock dictates.
• Do not force the feed.

4.3 BREAST FEEDING

The health status of the child also determines the ability of the child to accept and retain feed. When the child is sick, appetite is often adversely affected. Breast milk is best for all babies whether healthy or sick, premature or low birth weight. It contains all the essential nutrients for normal growth and development of a baby from the time of birth to the first six months of life. Although breast feeding is natural and physiological, if the correct position and attachment is not maintained for breastfeeding, it may lead to sore nipple, refusal to feed and the feeling that there is not enough milk. This may lead to engorged breasts. It is essential to teach the mother to feed the baby on demand schedule. The demand schedule feeding facilitates meeting physiologic requirement of the baby. In this practical session, let us focus on procedure of breast feeding.

Procedure:
• Motivate mothers to breast feed their infants.
• Assist and teach the mother about the correct technique of breast feeding.
• Ask mother to wash her hands with soap and water and breast with wet soft cloth.
• Ask mother to take any position i.e. comfortable and convenient to her and her baby. She could sit down with the back well supported or lie down.

![Fig. 4.1: Correct positions (a,b) and incorrect position (c)](image-url)
• Ensure that the mother maintains proper position of baby while breast feeding (Fig. 4.1). The correct position is as follows:
  – Supporting whole of baby’s body
  – Baby’s head, neck and back are in same plane
  – Baby’s entire body facing the mother
  – Baby’s abdomen touches mother’s abdomen

• Ensure baby’s body faces mother and baby’s abdomen touches mother’s abdomen.

• Explain the mother that she should support her breast with the other hand by
  – putting her fingers below her breast
  – using her first finger to support the breast
  – putting her thumb above the areola
  – Not keeping her fingers near the nipple

• Ask mother to express a little milk on to her nipple then touch the baby’s lips with her nipple.

• Ask mother to wait until the baby’s mouth is opening wide and the tongue is down and forward.

• Ask mother to move the baby quickly on to her breast ensuring the nipple towards the baby’s palate and his lower lip below the nipple.

• Ensure that the baby is attached nicely on mothers breast. The signs of good attachment are
  – Baby’s mouth is wide open
  – Lower lip turned outwards
  – Baby’s chin touches mother’s breast and
  – Majority of areola is inside baby’s mouth (Fig. 4.2)
• Assess whether the baby is suckling and swallowing effectively by taking several slow deep sucks followed by swallowing and then pauses.

• Mother should feed the baby on alternate breast at each feeding as this ensures baby gets fore milk and hind milk also at each feed.

• Ask the mother to nurse infant for 5 – 10 minutes on each breast and then increase nursing time to 15 minutes. A feeding time of 15 – 20 minutes is usually enough for baby.

• Help the mother to break the suction by asking her to put a finger into the corner of infant’s mouth.

• Instruct the mother to burp infant by putting gently on the back or hold infant in upright position (Fig.4.3).

![Some different ways to hold a baby after breastfeeding](image)

**Fig. 4.3: Burping the baby**

• Help the mother to place infant on right side-lying position after feeding.

• Instruct the mother to observe for abdominal distention and regurgitation.

• Instruct the mother to continue breast feeding during diarrhoea as well as other illness. It helps the baby to get optimal nutrition and recover from the illness faster.

Remember

Correct positioning and attachment will ensure effective suckling and prevent sore nipples and breast engorgement.
4.4 FEEDING EXPRESSED BREAST MILK (E.B.M)

Ask the mother to empty her breasts with her hands by expressing breast milk, when the infant is unable to suck the breasts.

4.4.1 Indications

- To feed a low birth weight/ sick baby who cannot breast feed
- To feed a baby who has difficulty in coordinating suckling
- To relieve engorgement / blocked ducts / leaking breasts
- To feed a baby while he/she learns to suckle from inverted nipple
- To maintain the supply of breast milk when the baby or mother is ill
- To store breast milk for a baby when the mother goes out to work.

4.4.2 Procedure of Expression of Breast Milk

- Advise the mother to take warm milk before expressing breast milk.
- Ask mother to wash her hands thoroughly.
- Expression of breast milk can be done by hands or hand pump or electrical pump.
- Provide quiet place and ensure privacy.
- Make her sit comfortably and hold the container near her breasts.
- Warm the breast with wet warm towel and wrap it around the breast for 1 minute.
- Ask the mother to massage the breast gently towards the nipple and stroking the nipple and areola gently with two finger tips or gently rolling a closed fist over the breast.
- Ask her to put one thumb on her breast above the nipple and areola and her first finger on the breast below the nipple and areola, opposite the thumb.
- Ask her to support the breast with her remaining fingers.
- Ask her to press her thumb and first finger slightly inwards towards the chest wall.
- Ask her to press her breast behind the nipple and areola between her finger and thumb.
- Ask her to press and release repeatedly.
- Ask her to press the areola in the same way from the sides, to make sure that milk is expressed from all segments of the breast.
- Instruct her not to rub or squeeze the nipple
- Instruct her to express one breast for at least 3 – 5 minutes until the flow slows and then express the other side, and then repeat both sides.
- Explain to her that to express adequate breast milk 20 – 30 minutes may be needed. Fluid intake, having the baby close before expression of breast milk may help her to have a good let down reflex.
4.4.3 Preparation of Container for Expressing Breast Milk

- Ask mother to choose a cup with wide mouth and a cover.
- Wash the cup with soap and water.
- Pour boiling water into the cup and leave it for few minutes so that the germs are killed.
- When ready to express milk, pour the water out of the cup.

4.4.4 Storage of Expressed Breast Milk

Expressed breast milk can be collected in a clean container and stored for 6 – 8 hours at room temperature and up to 24 hours in the fridge. Stored milk should not be boiled or directly warmed before feeding as it will reduce the protective properties.

4.4.5 Feeding with Cup and Spoon/Paladi

Expressed breast milk can be given either by cup and spoon/paladi feeding or through nasogastric/orogastric/gastrostomy tube depending on the weight of the baby at birth and gestation of the baby.

Let us first see how to give expressed breast milk by cup and spoon/paladi.

Cup and Spoon/ paladi Feeding

This mode of feeding serves as an intermediate step between breast feeding and tube (gavage) feeding.

Indications

- To provide expressed breast milk to low birth weight babies with limited/sluggish sucking and swallowing coordination
- Babies with gestation age 31 – 32 weeks who are not accepting direct breast feeds adequately
- Babies above 34 weeks or term babies in conditions where mother is unable to breast feed

Equipments

- Cup and spoon/paladai (a small bowl with a long pointed tip)
- Cotton napkin or towel

Procedure of Cup and Spoon Feeding

- Sterilize the cup and spoon or paladai by boiling in a closed clean pan for 20 minutes. After the water starts boiling, let the contents cool.
- Keep the cup and spoon or paladai ready for feeding.
- Instruct the mother to wash her hands and breasts before expressing breast milk.
- Help the mother to express the breast milk into the cup.
- Place the baby comfortably in the lap with the head slightly elevated.
- Place the cotton napkin around the neck to mop up the spillage.
- Take small amount of milk into spoon and pour directly into the side of the mouth.
- In case of paladai, place it at the lower lip of the baby in the corner of the mouth and let the milk flow into the baby’s mouth slowly.
- Wait till the baby swallows the milk before the milk is poured into the mouth again. When the baby has had enough, he will close his mouth and will not take any more.
- Give feeds two hourly. Start with a small quantity and increase by 1 – 2 ml till the desired volume is reached.
- Do not force feed the baby.
- Burp the baby.
- To estimate the intake, subtract the milk left in the cup from the original amount. The spilled milk should also be taken in to account.
- After use, wash the utensils thoroughly with soap and water and boil the utensils for 10 minutes and keep it in a covered container ready for next use.

**Advantages**
- Simple and effective method to feed babies who are not able to suck directly at the breast.
- Easy to practice and hygienic.
- Does not cause nipple confusion when the baby is ready to suck directly from the breast feeding.

**Precautions**
- Do not attempt to feed when the infant is crying.
- Low birth weight babies may take time to swallow. Never hurry such babies as they may aspirate the milk.
- If the baby is sluggish, do not insist on this method but switch over to gavage feeding.

### 4.4.6  Feeding with Tube (Gavage)

It is the administration of liquid nourishment through a tube that has passed via the nares/mouth, pharynx, oesophagus into the stomach or through an opening made on the abdominal wall.

**Purposes**
- To introduce liquid food into the stomach in order to meet nutritional needs
- To give the required amount of fluids safely
- To prevent the dangers of parentral feeding
- To avoid overloading of stomach
- To provide nutrition when sucking and swallowing reflexes are weak or absent
Indications

- Premature infant who is unable to suck or swallow
- Small for date infants who become fatigued
- Congenital anomalies e.g. cleft palate
- Respiratory distress
- Severe malnutrition
- Altered sensorium/level of consciousness
- Unable to retain feed e.g. vomiting

Contraindications

- Gastric surgery
- Tracheo oesophageal fistula
- Paralytic fistula

Types of Tube Feeding

Based on the route of insertion and method of administration, it is divided as follows:

**Naso-gastric tube feeding:** A tube is passed through the nose, pharynx and oesophagus into the stomach. It is also called as nasal feeding.

**Oro-gastric feeding:** A tube is passed through the mouth and oesophagus. So the food reaches the stomach.

**Gastrostomy tube feeding:** Giving a liquid through a tube which is introduced into the stomach through the abdominal wall is called gastrostomy feeding.

Methods of Administration

- **Continuous feeding method:** The gravity flow of fluid by an infusion pump.
- **Intermittent feeding method:** feeding given periodically.
- **Bolus feeding method:** prescribed amount of fluid is poured slowly into the barrel of a syringe attached to the end of the tube. The fluid flows by gravity into the stomach.

Equipments

- Naso-gastric tube (size 5 – 6 Fr for babies less than 2000gm and 8Fr for more than 2000gm)
- Clamp
- Sterile water
- Appropriate size syringes
- Clean closed container
- Tape and scissors
Procedure for insertion of feeding tube

- Wash hands thoroughly.
- Position baby on right side or in a supine position with head elevated. Baby can also be held in a sitting position in the mother’s arms.
- Select the size of tube (size 5-6 Fr for the babies below 2000 gms and size 8 Fr for over 2000 gms).
- Estimate the length of the tube. For nasogastric route, start at the tip of the tube, measure from the bridge of the nose to the tip of the earlobe down to the tip of the xiphisternum (Fig. 4.4)
- Mark the tube with tape or maintain measurement with thumb and finger.
- For orogastric route, measure the distance between the angle of the mouth to the tragus of the ear and to xiphisternum.
- Add 1 cm to the estimated length of the tube and mark the tube with tape as this indicates the approximate distance the tube must be passed to enter the stomach.
- To insert an oro-gastric tube, hold the feeding tube 1 – 2 inches from the tip, use the natural bend of the tube to follow the natural curves of the mouth and throat.
- After lubricating with sterile water/expressed breast milk, insert the tube in the mouth and towards the back of the throat, gently pushing it down the esophagus till it reaches the pre measured mark on the tube.
- Ensure that the tube is in the correct position by connecting the syringe to other end of feeding tube and gently aspirating the content which would appear like curdled milk, if the tube is in the stomach.
- Secure the tube by adhesive tape across the cheek.
- Observe the baby for choking, gasping or cyanosis during insertion of tube. Withdraw tube immediately if baby appears to be in any distress.

Procedure for giving oro-gastric tube feeding

- Ensure that the tube is in position before each feed by checking the mark on the tube.
- Check the residual gastric contents before giving the feed.
- If gastric residue is more than 20% of previous feed, with hold the feed.
- Administer the feed after removing the plunger from the barrel.
- Attach the barrel of the syringe with the feeding tube to allow the milk to flow down by gravity (Fig.4.5).
- Do not force milk through the gastric tube by using the plunger.
- Hold the syringe 5-10 cm above the baby until the syringe is empty.
- It should take about 10-15 minutes for the milk to flow in to the infant’s stomach.
- Do not leave the baby unattended during feeding. If the baby has breathing difficulty, cyanosis, vomiting: stop the tube feeding.
- Detach the syringe and rinse both the syringe and plunger in boiled and cooled water and leave it in a covered clean container for reuse.
- Cap the end of the gastric tube between feeds.

![Fig.4.5: Gavage feeding](image)

**Precautions**
- Check the position of the tube before each feed.
- Check the residual gastric contents before each feed in case of subsequent feeds.
- Do not force the milk down with the plunger.
- Use separate syringe for each baby.
- If syringe is reused, change it after a day.
- Observe the baby before, during and after feeding for abdominal distension, vomiting or regurgitation, poor tolerance to tube feeding.

**Equipments for gastrostomy feeding**
- 20 – 50 cc syringe
- Sterile water
- Warm feeding formula
Techniques in Newborn and Infant Care

• Mackintosh and towel

**Procedure for gastrostomy feeding**

The method of gastrostomy feeding is same as tube (gavage) feeding. The other features are given below:

• The gastrostomy tube may be left opened and elevated to allow air to escape and decompress the stomach.

• Secure the tube in place and avoid excessive traction.

• Keep the area/skin around the gastrostomy clean and dry to prevent infection and irritation.

• Before feeding, place the mackintosh and towel on child’s abdomen.

• Attach tubing to 10 – 50 cc syringe.

• Hold the baby elevated.

• Elevate the syringe to 10 – 12 cms.

• Aspirate gently.

• Pour feed and allow flow with the help of gravity.

• Do not push or apply pressure.

• Feed for 20 – 30 minutes.

• At the end of each feed, irrigate with clear water.

• After feeds, the tube may be left unclamped and elevated to provide constant decompression.

• Record type, amount of feed and baby’s activity.

• After feed, keep the baby in fowler’s position or turned right.

### 4.5 ACTIVITIES AND GUIDELINES

**Activity 1**

Select a newborn in a postnatal ward and demonstrate the technique of breast feeding to mother.

**Activity 2**

Select a postnatal mother of low birth weight baby and help her to express breast milk.

**Activity 3**

Visit a nursery and practice the method of orogastric and naso gastric intubation and administer feeds as per schedule. Record the procedure.

**Activity 4**

Select a preterm baby getting gavage feeding. Insert the feeding tube and administer feeding. Record the procedure.

**Activity 5**

Observe a baby getting gastrostomy feeding, practice/perform the procedure and record.