RAMA UNIVERSITY

www.ramauniversity.ac.in

FACULTY OF NURSING

Mrs.Minu.S.R

Asst.Professor

Pediatric nursing department

ARTIFICIAL FEEDING

Definition:

Artificial feeding of a baby with food other than mother's milk. It includes use of cow's milk, buffalo's milk or commercially available dried whole milk.

Indications of artificial feeding:

- Death or absence of mother
- Prolonged maternal illness
- Failure of breastmilk production
- Mothers who have active TB and HIV mothers
- Working mothers
- The baby is adopted and the mother has adopted the baby for lactating.

Comparison of human milk with cow's & buffalo's milk(values per 100g)

Nutrient	Human milk	Cow's milk	Buffalo's milk
Water(g)	88	87.5	81
Energy (kcal)	65	67	117
Protein! g>	1.1	3.2	4.3
Carbohydrate(g)	7.4	4.4	5
Fat(g)	3.4	4.1	6.5
Calcium (mg)	28	120	210
Phosphorus! mg)	11	90	130
Iron(mg)	-	0.2	0.2
Carotene (meg)	137	174	160
Thiamine(meg)	0.02	0.05	0.04
Riboflavin(meg)	0.02	0.19	0.1
Vitamin C(mg)	3	2	1
Caseinngcn/ Lactalbumin ratl° Soiirr#»: *National Instil*	1:2 *ute of Nutrition*	3:1 *ICMR, Hyderi*	*thad_*

1. Cup and Spoon/paladai Feeding:

Aim:

- Provide an alternative feeding method to newborns that are unable to directly breastfeed Alternative feeding methods can assist breastfed infants
  from experiencing the negative effects of using artificial nipples/ teats and encourage positive breastfeeding establishment.
- Additional nutritive fluids are provided to the breastfed baby utilizing a method that supports Baby Friendly Health Initiative implementation standards.
- Alternative feeding methods are used to decrease the use of artificial teats in breastfed newborns, which can interfere with the establishment of breastfeeding.

Patient

- Postnatal woman and infant

Staff

- Nursing and midwifery staff
- Student midwives under supervision of a registered midwife

Equipment

- Well washed and dried plastic spoon
- Well washed and dried medicine cup
- Expressed breast milk
- Infant formula (if required)

Indication:

To provide breast milk to low birth weight babies who are able to swallow but cannot suck effectively.

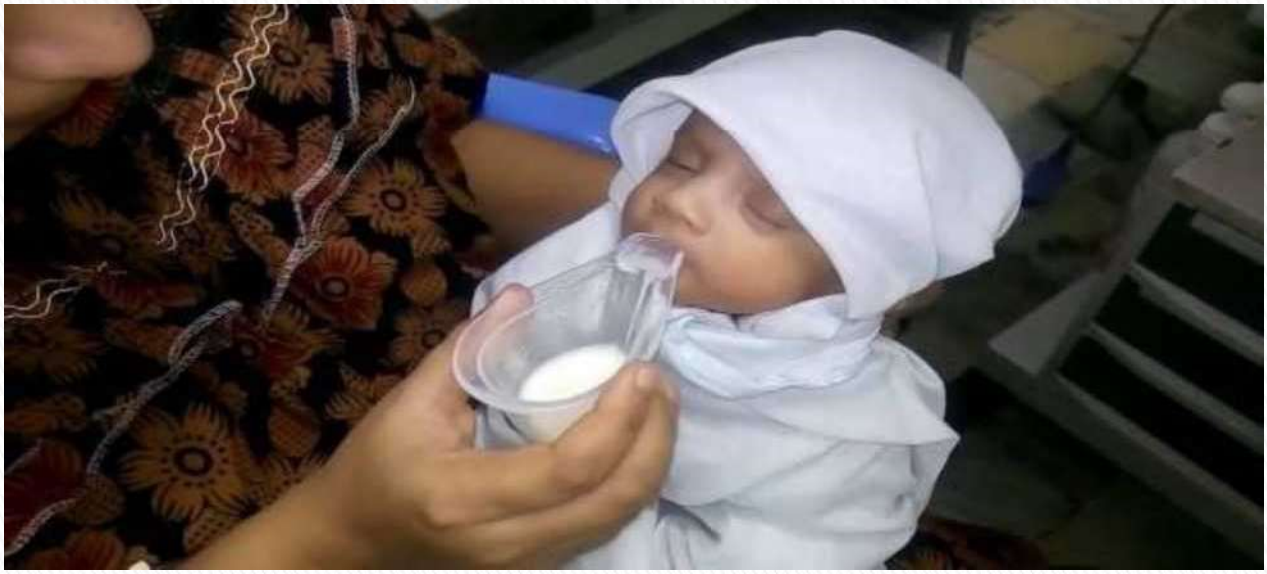
Equipment:

- Cup
- Spoon

- Paladai
- any traditional infant feeding vessel

Procedure:

- Ensure that the cup and spoon or paladai or any other feeding vessel to be used have been sterilised by boiling in a closed clean pan for 20 minutes (after the water has started boiling). Allow the contents to cool.
- Ensure that the mother/nurse/relative washes her hand before feeding.
- Mother expressed/requested to express the breast milk into the cup.
- Hold the baby comfortably in the lap with the head held slightly high.
- Take small amounts of milk into spoon and pour directly over the tongue. If the paladai or any other traditional vessel is used, pour the milk through the angle of the mouth in small amounts at a time.



- Wait till the baby swallows the milk before the milk is poured into the mouth again.
- Give feeds 2 hourly. Start with a small quantity and increase by 1-2 ml till
  the desired volume is reached.

Advantages

- Simple to teach mothers, easy to practice and hygienic.
- Does not cause nipple confusion when the baby is ready to directly breast feed (in contrast to bottle feeding).

Precautions

- Do not attempt to feed when the infant is crying.
- Do not attempt to feed sick newborns using this technique.
- Low birth weight babies may take time to swallow and consume a lot of time for feeding. Never hurry feeding such babies as they may aspirate the milk.

1. Nasogastric or Oro-gastric Feeding

Indication

- To provide breast milk to low birth weight babies or other babies who are unable to suck or swallow.

Equipment

- Feeding can be done by nasogastric tube or orogastric tube. The equipment includes nasogastric tube (size 5-6), sterile water, syringes, clean closed container, tape and scissors.

Procedure

- Wash hands thoroughly
- Insert the tube accurately by following the steps listed below:
- Select the tube (size 5 for the babies below 2000 gm and size 6 for over 2000 gm).
- Estimate the length of the tube that has to be inserted as follows:
- Nasogastric route: Measure the distance between the bridge of the nose to tragus of the ear and then to the xiphisternum.

Oro-gastric route:

- Measure the distance between the angle of the mouth to the tragus of the
ear and to xiphisternum.

- Add I cm to the estimated length of the tube that has to be inserted and mark it on the tube. d) Insert the tube in the stomach and check whether the position is correct by aspirating the stomach contents using a clean syringe. Once confirmed, secure the indwelling tube by adhesive tape across the cheek.

- Ensure that the tube is in the correct position before each feed by checking
the position of the tube by noting the 'mark' on the tube.

- Check for residual content before giving the feed.

- If gastric residue is more than 20% of previous feed, withhold the feed.

Administer the feed following the steps listed below:

In case of subsequent feeds, check the residual gastric contents and take

- Check the position of the feeding tube.

- Remove the plunger from the barrel (in case of subsequent feeds, the plunger is already out if the same syringe is re-used).
- Attach the barrel of the syringe to allow the milk to flow down by gravity.
- Pour 1 ml of sterile water/boiled and cooled water.
- Detach the plunger and rinse both the syringe and plunger in boiled and cooled water and leave it in a covered clean container for re-use. Change the syringe every day if re-used.

Precautions:

- Do not force the milk down with the plunger.
- Check the position of the tube before each feed.
- Check residual gastric contents before feed in case of subsequent feeds.
- If syringes are re-used, change them after 24 hours.
- Use a separate syringe for each baby.

2. Bottle feeding:

The practice of feeding an infant a substitute for breast milk. Pediatricians generally advise exclusively breastfeeding (that is, breastfeeding with no supplementary formula) for all full-term, healthy infants for the first 6 months of life. However, many infants are bottle-fed today. For infants to achieve normal growth and maintain normal health, infant formulas must include proper amounts of water, carbohydrate, protein, fat, vitamins, and minerals**.**

Principles of bottle feeding:

1. After washing the bottle, boil the bottle for 10 minutes.
2. Hands should be washed before touching the bottle and preparing feed.
3. The hole of teat should be that drip rate is one drop/second.

Transporting and storing bottles

- Label all bottles taken to the service with the child's full name, the contents of the bottle, the date the breastmilk was expressed.
- Store expressed breastmilk/infant formula in sterilized bottles or containers. Use smaller (120mls) bottles for expressed breastmilk to reduce
  wastage.
- Cool all expressed breastmilk/infant formula in the refrigerator before transporting.
- Transport frozen breastmilk, and cooled breastmilk/infant formula, in an insulated container with frozen "cooler bricks" (e.g. an esky with a freezer brick).
- Put all breastmilk/infant formula bottles in the refrigerator (or freezer) immediately on arrival at the service.

Storage and use

- Expressed breastmilk may be frozen.
- Any frozen breastmilk that has thawed (wholly or partially) during transport to the service should be immediately stored in the refrigerator and used within 24 hours. Do not re-freeze it.
- Store all bottles in the back of the refrigerator where it is coldest. Do not store bottles inside the refrigerator door.
- Store the breastmilk/infant formula in the refrigerator for the day and throw out all leftovers at the end of the day.
- At home, frozen breastmilk can be stored for up to two weeks in a freezer compartment inside the refrigerator (-15°C), or for up to 3 months in a freezer section of the refrigerator that has a separate door for the freezer (-18°C).

- Once a bottle has been given to an infant, throw out any leftover breastmilk/infant formula after each feed. Do not put back in the refrigerator, and do not leave out at room temperature for later use

Thawing frozen breastmilk

- Thaw frozen breastmilk in the refrigerator or, if necessary, by placing the bottle in warm water (shake gently if the breastmilk has separated).
- All frozen breastmilk thawed in warm water should be used immediately. Discard any left-overs as soon as the feed has finished.
- Frozen breastmilk left to thaw in the refrigerator can be kept in the fridge for that day. Once it has been taken out of the fridge for a feed, it should be
  warmed and used immediately.

Warming breastmilk and infant formula

- Feeding an infant cold breastmilk or infant formula is not harmful, but drinks warmed to room temperature flow better from the bottle, and infants seem to prefer them.
- Warm breastmilk/infant formula bottles by standing the bottle upright in warm tap water for no more than 15 minutes just before use.
- Bottle warmers can be used, but they must have a thermostat control. Bottles should only be warmed using this equipment for less than 10 minutes. Follow the manufacturer's instructions.
- Never microwave breastmilk/infant formula.
- Before feeding the infant, shake the bottle and test some of the breastmilk/infant formula on the inside of your wrist to make sure it is not too hot. Only warm the milk once and discard any warmed milk that has not been used.
- Never refreeze thawed breast milk
- Only permanent staff will prepare milk bottles for babies.
- Bottles will be rinsed after baby has finished feeding and put in the child's bag.
- The time and amount of milk consumed will be recorded on day sheets.
- Protocols for the correct identification of expressed breastmilk

- It is very important that the correct breastmilk be given to the correct infant. Giving an infant the breastmilk from a different mother is a major incident.
- Educators should be aware of and follow the correct procedures for identifying and managing expressed breastmilk:
- If more than one infant is receiving breastmilk at the service, two educators need to check that the correct name is on the bottle for the infant about to be fed. This should also be noted on the infant's feeding record.
- If an infant is given the wrong breastmilk, the service's usual incident procedures should be followed. This may include reporting the incident to a local authority.
- Educators should also advise the infant's mother to contact their general practitioner or child health nurse for advice.

Preparing Infant Formula

STEP 1: Wash hands thoroughly with soap and running warm water. Dry hands using a disposable paper towel.

STEP 2: Always prepare infant formula in a clean, hygienic area. Ensure all bottles, teats and any other equipment used to make up infant formula have been cleaned and sterilized.

STEP 3: Using freshly boiled tap water that has been allowed to cool to lukewarm, measure the required amount of water into the bottle. The water is always added before the powder.

STEP 4: Measure the required number of scoops of infant formula powder into the bottle of water. Use only the scoop that comes with that tin and read the instructions on the tin to find out how many scoops are needed for the amount of water being used. Tap each scoop lightly but do not pack down the powder. Use a clean knife to level off each scoop. Reseal the opened can of infant formula powder and store in a cool, dry place.

STEP 5: Place the teat and cap on the bottle and shake vigorously till all of the powder dissolves.

Note: There will now be more infant formula than the original amount of water measured.

STEP 6: Test the temperature of the milk with a few drops on the inside of your wrist - it should feel just warm, but cool is better than too hot. If it is too hot, cool the feed quickly by holding under a running tap or place in a container of cold or iced water.

STEP 7: If the bottle of infant formula is not required immediately, it will be kept for only 20minutes at room temperature before being tipped out if not consumed.

The Feeding Environment and Safe Positioning Suitable feeding positions

(i) Infants should be in a semi-upright or upright position when being fed.

Example:

- on your lap facing to the side or in front
- in a semi-reclined seat if requiring trunk and head support
- in a stable baby chair if able to sit independently
- in a high chair (ensure good trunk support and safety strap used through legs to avoid slipping)

(ii) Where possible, feed infants in a quiet area with less distractions.

Unsuitable feeding positions

(i) It is unsafe to 'prop' feed an infant. 'Prop feeding' is when the bottle is propped up by a cushion, towel or other support in order to keep it in the infant's mouth. This means that a person is not holding the bottle and the child is left unsupervised whilst feeding. Prop feeding is an unsafe practice, as it increases the risk of choking and possible overfeeding.

(ii) Avoid feeding in areas that have a lot of noise and distractions.

(iii) Lying infants in a cot, on the floor or on cushions is not recommended for feeding. If infant is supervised, being propped up in a sitting position on a pillow is acceptable.

(iv) Sitting to the side of the infant requires them to turn their head to the side for food. The child's trunk is less stable and they are not feeding with head in the midline position.

Problems associated with artificial feeding:

- Constipation due to undigested protein
- Underfeeding
- Overfeeding
- Aerophagy
- Low pH formula lead to acidosis
- Malnutrition
- Expensive
- Infection risk is high
- Lead to gastroenteritis, anemia, hyperphosphatemia, hypocalcemia and latent scurvy