

Alternative methods of feeding for small or sick neonates

Slide AF -1,2 **Introduction**

Most newborn babies can breastfeed without difficulty after birth. However, some infants may not be able to accept breast feeding in the initial few days of life. In such situations when breastfeeding is temporarily or permanently not possible, other ways to feed the breast milk to the baby have to be found.

Slide AF -3,4 **Indications**

The following conditions may prevent a baby or a mother from breastfeeding after birth:

Baby: The baby is

- Preterm
- Ill or has a malformation such as cleft palate
- Referred to another hospital

Mother: The mother is

- Ill
- In a different hospital
- Referred to another ward/hospital (for her medical condition)
- Has sore/cracked nipples, engorged breasts, mastitis or an abscess
- Is HIV positive and decides not to breastfeed

In a preterm or ill baby, the best way to determine the correct method of feeding in a given baby is by observing him/her during breastfeeding. Depending upon the ability and behavior of the baby while breastfeeding, one can decide the need for alternative method of feeding.

This 'step-down' approach for deciding the feeding method is especially important in Indian settings where majority of low birth weight babies are likely to be term growth restricted rather than being born premature. These infants, irrespective of their birth weight, can accept direct breastfeeding. However, such small babies need monitoring and supervision while put on the breast. If they are not able to feed well from the breast, alternative methods of feeding should be provided to them.

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Options for alternative methods

At least three alternative methods can be used to feed a baby if breastfeeding is not possible. These include:

- Cup
- *Paladai*
- Spoon

All these methods are simple, practical, and easy to administer even in a small baby.

It should be noted that whatever is the method of feeding, babies should be given only breast milk. This can be ensured by manually expressing the mother's milk and then giving it to her baby.

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Expression of breast milk

Expression of breast milk is indicated for women whose infants cannot breastfeed effectively but are able to accept oral feeds by alternative feeding methods or Intra-gastric tube feeding.

Breast milk can be expressed by hand or by pump (manual or electric – operated). Hand expression is the most useful method because it can be done anywhere and at any time. More over, hand expressed breast milk has a lower risk of bacterial contamination when compared to mechanical or electric pumps.

Expression of milk should ideally be started within 6 hours of delivery so that the infant gets the benefits of feeding colostrum. There after, expression should be done every 3 hours, including at night (at least 8 times in 24 hours). This would ensure not only that the infant is fed breast milk exclusively but also ensures that the mothers have continuous and adequate supply of milk.

Procedure of expression of milk

A mother should express her own milk. The breasts can easily be hurt if expressed by another person. The steps of expression of milk (using hands) are given below:

1. Wash her hands thoroughly with soap every time before she expresses*.
2. Make herself comfortable.
3. Hold a wide necked container under her nipple and areola.
4. Ask her to gently massage the breast for 5-10 minutes before expressing the milk (using the pulp of two fingers or with knuckles of the fist in a circular motion towards the nipple as if kneading dough). Massage should not hurt her.
5. Place her thumb on top of the breast at least 4 cm from the tip of the nipple, and the first finger on the under side of the breast opposite the thumb.
6. Compress and release the breast tissue between her fingers and thumb a few times.
7. If the milk does not appear she should re-position her thumb and finger closer to the nipple and compress and release the breast as before#.
8. Compress and release all the way around the breast, keeping her fingers the same distance from the nipple.
9. Express one breast until the flow of milk slows and milk only drips out, and then express the other breast until the milk only drips.
10. Alternate between breasts 5 or 6 times, for at least 20 to 30 minutes.
11. Stop expressing when the milk no longer flows but drips from the start

In case the mother feels her milk output is less, she should be explained that in the first 24-48 hours only a few drops of milk (colostrum) are secreted which would usually be sufficient for the baby. If the mother continues to have less milk output upon expression, involving her in the routine care of the baby (like changing the nappies, applying oil, etc.) would help to improve the lactation. Back massages are also helpful in this regard. The steps of back massage are given below:

1. Mother sits down, leans forward, folds her arms on a table in front of her, rests her head on her arms
2. Her breasts hang loose and unclothed
3. The helper works down both sides of the spine at the same time from the neck to just below the shoulder blades
4. She uses her closed fist with her thumbs pointing forwards

5. She presses firmly making small slow circular movements with her thumbs and continues for 2-3 min

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Storage of expressed breast milk

If EBM cannot be given to the infant soon after expression, it has to be stored and used when necessary. The expressed milk can be stored in one of the following ways:

At room temperature

EBM can be kept at room temperature for up to 6 hours without significant risk of bacterial growth. It should be kept in a covered container. Any milk not fed to the infant within 6 hours of expression should be discarded.

In a refrigerator

EBM can be stored in a refrigerator at +3 to +4°C for 24 hours. The container should be placed at the back of the top shelf where the temperature is constant. It should not be put in the door because whenever the door is opened the temperature increases.

In a freezer

EBM can be stored in the freezing compartment of a refrigerator (-4 °C) for 2 weeks, or in a separate freezer at -20°C for 3 months.

The refrigerated or frozen EBM should be brought to room temperature before feeding it to the infant. This can be done by running warm water over the closed container, or by standing the closed container in a safe place in the room.

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Cup feeding

Cup feeding is an 'infant-led' method of feeding in that an infant can control his own intake and can pause whenever he wants.

An ideal cup should have the following features:

- Holds about 50 to 90 mL of milk
- Made of glass or plastic and easily washable and
- Has smooth and rounded edges

The advantages of cup feeding include:

- Easy method of feeding

- Simple equipment; easy to clean
- Baby can take what it needs in its own time
- Mother can do it herself
- Good eye contact between mother and baby

One disadvantage of cup feeding is that term infants may dribble and spill milk when they cup feed. Surprisingly, premature infants spill less milk when they cup feed.

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Steps of cup feeding

The steps of cup feeding are given below:

- Infant should be awake and held sitting semi-upright on caregiver's lap; put a small cloth on his or her front to catch drips of milk
- Put a measured amount of milk in the cup
- Touch the edge of the cup to the outer parts of the upper lip
- Tip the cup so that the milk reaches the baby's lips
- Do not pour the milk into the infant's mouth
- Allow the infant to take the milk himself (Upon smelling the breastmilk, the baby becomes alert, opens its mouth, and puts its tongue into the milk to start the feed)
- Feed the infant slowly; some milk may spill from the infant's mouth
- When the infant has had enough, he or she will close his or her mouth and will not take any more. Do not force-feed the infant.

It is essential to caution the mother about pouring the milk into the baby's mouth, as it may result in aspiration.

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Case study: measuring the correct amount

Mothers have to be taught how to measure the amount of milk given to their babies by either cup or other methods. This would ensure that the infant receives the necessary amount. If the baby does not take the required amount, (s)he will not gain weight adequately. In such cases, the mother should be advised to feed more often or for longer periods.

For example, to measure 30mL of expressed milk, ask her to

- Use a desert spoon which holds approx. 10 mL
- Take 3 spoonfuls of milk
- Put a mark on the outside of the cup to guide her how much milk is needed each time

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***Paladai* feeding**

A *paladai* is a small bowl with a long pointed lip traditionally used for feeding LBW infants in some cultures.

The advantages of this feeding method are that it is usually faster than spoon or even cup feeding and also that there is less spillage. The major disadvantage is that the caregiver has to be careful to avoid pouring large amounts of milk into the infant's mouth.

The steps of *paladai* feeding are given below:

- Infant should be awake and held sitting semi-upright on caregiver's lap; put a small cloth on his or her front to catch drips of milk
- Put a measured amount of milk in the paladai
- Hold the paladai so that the pointed tip rests lightly on the infant's lower lip
- Tilt the paladai to pour a small amount of milk into the infant's mouth
- Feed the infant slowly
- Make sure that the infant has swallowed the milk already taken before giving any more
- When the infant has had enough, he or she will close his or her mouth and will not take any more. Do not force-feed the infant.

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Spoon feeding

Feeding by spoon is appropriate for an infant who is stable and is able to coordinate sucking, breathing and swallowing.

The advantage of this feeding method is that a measured quantity of milk can be given to the infant. The disadvantages are that being a slow method of feeding, some caregivers give up before the infant has finished and also it may be awkward

for the caregiver to manage a spoon and a container of milk while holding the infant semi-upright.

Spoon feeding is, however, very useful in the first few days of life when mothers secrete only a few drops of colostrum. This small amount can easily be given to the baby by using a spoon.

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Ensuring adequacy of intake

It is the duty of health personnel to assess the adequacy of feeding by alternate methods and then reassure the mothers about it.

In general, feeding by alternate methods is considered adequate if the baby

- i. Passes urine 6-8 times in 24 hours
- ii. Goes to sleep for 2-3 hrs after the feeds
- iii. Gains weight @10-15 gm/kg/ day
- iv. Crosses birth weight by 2 weeks

It is also important to counsel the mothers regarding breastfeeding so that once the baby attains sufficient maturity or the underlying condition (illness) improves, (s)he can be put directly on the breast.