

[Newborn Care Manual: Contents](#)

19-1 WHAT ARE THE NUTRITIONAL NEEDS OF A NORMAL INFANT?

Like the adult, the infant needs the following nutrients to grow and develop normally:

1. WATER.
2. CARBOHYDRATES such as lactose (milk sugar) and glucose (dextrose).
3. PROTEINS (made up of amino acids).
4. FATS.
5. VITAMINS.
6. MINERALS (such as sodium, potassium, chloride, calcium, magnesium, phosphate).
7. TRACE ELEMENTS (such as iron).

The carbohydrates, proteins and fats provide the infant with 420 kilojoules per kg per day (100 kilocalories/kg/day) to grow normally.

19-2 WHAT MILK CAN BE GIVEN TO A NORMAL INFANT?

1. BREAST MILK. Human breast milk meets all the nutritional needs of a healthy term infant.
2. FORMULA FEEDS. These feeds are made from cow's milk or soya bean and are modified to have similar constituents to breast milk.

WHENEVER POSSIBLE MOTHERS SHOULD BREAST FEED THEIR INFANTS

19-3 WHAT ARE THE BENEFITS OF BREAST FEEDING?

Breast feeding provides many benefits to both the infant and mother. The main benefits are:

1. BENEFITS TO THE INFANT:
 - (i) Breast milk is the ideal feed for term infants as it provides all the nutrients in the correct amount and proportion for normal growth and development until the age of six months.
 - (ii) Breast milk is easily digested and absorbed.

**** The protein in breast milk (lactalbumin) does not form a curd and, therefore, is easily digested. Most fatty acids in breast milk are unsaturated and, therefore, easily absorbed. The main sugar in breast milk is lactose.*

- (iii) Breast milk is clean and warm, and avoids the dangers of a contaminated water supply, inadequately sterilized bottles and teats, and lack of refrigeration facilities.
- (iv) Breast milk avoids the danger of diluted or concentrated formula.
- (v) Breast milk contains many anti-infective factors, such as antibodies, living cells (lymphocytes and macrophages) and complement. Breast milk also encourages the growth of beneficial bacteria in the infant's bowel. These properties of breast milk prevent gastroenteritis, the major cause of death of infants in poor communities.
- (vi) Breast milk decreases the risk of allergy in the infant, especially if there is a strong family history of allergy.

BREAST FEEDING DECREASES THE INCIDENCE OF GASTROENTERITIS AND LOWERS THE INFANT MORTALITY RATE IN POOR COMMUNITIES

The option of exclusive breast feeding in infants born to HIV positive mothers has to be carefully considered. The risk of HIV transmission has to be balanced with the many benefits of breast feeding, especially in poor communities.

The choice of feeding options in HIV positive women is fully discussed in Unit 34 of the Perinatal HIV/AIDS manual of the Perinatal Education Programme.

2. BENEFITS TO THE MOTHER:

- (i) Breast feeding is much cheaper than buying formula feeds.
- (ii) Breast milk is instantly available at all times. No sterilising of bottles and teats, and preparation of formula is needed.
- (iii) It is emotionally satisfying for the mother to successfully breast feed her infant and helps to form a strong bond between mother and infant.
- (iv) Breast feeding helps the involution of the uterus and reduces the amount of bleeding during the puerperium.
- (v) Breast feeding helps the mother to lose excessive weight gained during pregnancy. Pregnancy, not breast feeding, alters the shape of a woman's breasts.
- (vi) Exclusive breast feeding reduces the risk of the mother falling pregnant again.

BREAST FEEDING IS CHEAP AND ENSURES AN ADEQUATE, SAFE SUPPLY OF FOOD. IT, THEREFORE, DECREASES THE INCIDENCE OF MALNUTRITION

Prolonged breast feeding is one of the most successful ways of reducing infant mortality in poor communities.

19-4 WHY DO SOME MOTHERS NOT BREAST FEED SUCCESSFULLY?

Breast feeding is not always easy as the "natural art of breast feeding" has to be learned.

Some mothers do not breast feed or fail to breast feed successfully because:

- 1. They do not know the advantages of breast feeding.
- 2. They believe that they do not have enough milk because it is not understood that it takes a number of days before the supply of milk increases.
- 3. They think that their milk is too thin, or their breasts too large or too small.
- 4. They develop cracked nipples or engorged breasts due to an incorrect method of feeding.
- 5. They want to return to work and do not realize that many working mothers can continue to breast feed successfully.
- 6. They are afraid of breast feeding.
- 7. They have flat or inverted nipples.
- 8. Traditional beliefs may result in unsuccessful breast feeding, e.g. incorrect beliefs that colostrum is not good for the infant, intercourse spoils the milk, and delayed feeding causes the milk to become sour in the breast.
- 9. Poor sleeping or excessive crying by the infant is blamed on the quality or supply of the breast milk.

19-5 HOW CAN BREAST FEEDING BE PROMOTED?

Breast feeding should be promoted as the normal, natural method of feeding an infant. This can be achieved by:

- 1. Encouraging a positive attitude towards breast feeding in the home during childhood and adolescence by seeing other infants being breast fed.
- 2. Teaching the advantages of breast feeding in schools.
- 3. Promoting breast feeding in the media (radio, TV, books).
- 4. Teaching the advantages and method of breast feeding in all antenatal clinics.
- 5. Starting breast feeding groups run by mothers who have themselves breast fed. An experienced mother is the best teacher of breast feeding.
- 6. Encouraging breast feeding in hospitals and clinics.
- 7. Discouraging bottle feeding in hospital by using cups instead.
- 8. Teaching mothers how to express their milk.

Further information on breast feeding can be obtained from a local breast feeding support group or local branches of the Breastfeeding Association of South Africa, La Leche League, and National Childbirth Education and Parenting Association.

BREAST IS BEST**19-6 HOW CAN BREAST FEEDING BE ENCOURAGED IN HOSPITALS AND CLINICS?**

Staff should be convinced that breast feeding has many benefits for the mother and infant, they should feel comfortable and not embarrassed when speaking to patients about breast feeding, and they must have the knowledge and skills to teach mothers how to breast feed. Breast feeding must be promoted during visits to antenatal clinics.

Infants should be put to the breast immediately after birth, facilities for rooming-in must be provided, and the mother allowed unlimited access to her infant to demand feed. Mothers must be helped individually with kindness and patience.

19-7 WHAT IS THE VALUE OF A LOCAL BREAST FEEDING SUPPORT GROUP?

Often the best person to advise and help a breast feeding mother is someone who has herself breast fed an infant. A number of mothers who have breast fed and are interested in helping others to breast feed can form a local support group. With help and training by midwives and doctors they can provide a very helpful service.

19-8 WHAT PREPARATION DOES A MOTHER NEED FOR BREAST FEEDING?

1. The decision to breast feed should be taken before her infant is born. If she is undecided at delivery, she should be encouraged to breast feed.
2. No routine preparation of breasts and nipples before delivery is necessary. However, exposure of the nipples to the sun for 5 minutes a day may toughen the skin and help prevent cracked nipples during feeding. Flat or inverted nipples must be identified during pregnancy.
3. A good, supportive bra should be worn. Breast size is no indication of a woman's ability to breast feed.

ROUTINE BREAST PREPERATION DURING PREGNANCY IS NOT NEEDED**19-9 HOW CAN YOU TREAT FLAT OR INVERTED NIPPLES?**

If a woman's nipples appear flat or inverted during pregnancy, she may need additional help with breast feeding. Hoffman's exercises can be tried during pregnancy but they probably do not make a lot of difference:

Place a forefinger and thumb on either side of the nipple. Gently pull away from the nipple across the areola. This should be repeated several times a day in both the vertical and horizontal directions. These exercises should be started at 32 weeks of pregnancy and be continued until delivery.

Nipple shields, which can also be worn inside a firm fitting bra. However they can be painful, are expensive, are no longer believed to help correct flat or inverted nipples. Many flat or inverted nipples will correct once breast feeding starts.

19-10 SHOULD THE INFANT BE PUT TO THE BREAST IMMEDIATELY AFTER DELIVERY?

Yes. The mother should breastfeed her infant as soon as possible after delivery as the infant's sucking drive is usually strongest in the first hour after birth. Early suckling promotes bonding between the mother and infant. It also stimulates milk production and encourages successful breast feeding. The small amount of colostrum satisfies the infant and is very rich in antibodies. It is very important not to give a few formula feeds on the first day to infants with a strong family history of allergy (asthma and hay fever) as this may sensitize the infant to the protein in cow's milk.

Practicing kangaroo mother care (skin-to-skin care) is a very powerful way of promoting successful breast feeding. Most mothers can be given their infant within minutes of birth, before the placenta is delivered.

**** If a patient cannot breast feed her infant soon after delivery because she has had a caesarean section under general anaesthesia, then she should express some colostrum before the caesarean section. This can be used for the first few feeds.*

The infant should not be put to the breast immediately after delivery if:

1. Polyhydramnios was present. A nasogastric tube must be passed first to exclude an oesophageal atresia.
2. The infant had low Apgar scores and required resuscitation.
3. Severe maternal distress or illness is present.
4. The infant is to be adopted.

Some stable preterm infants with an assessed gestational age of less than 35 weeks can be given kangaroo mother care after delivery even if they are too immature to breast feed.

19-11 WHY ARE CLEAR FEEDS NOT NECESSARY?

It is not necessary to give clear feeds of sterile water or dextrose water before starting breast or formula feeds on day 1. A breast fed infant does not need additional clear feeds. If the mother wants to breast feed, no bottle feeds should be given to the infant as a teat can confuse the infant and cause it to reject the nipple. If breast fed infants need extra fluids, this should be given by cup.

ROUTINE CLEAR FEEDS ARE NOT NEEDED ON DAY 1

**** Unlike a bottle fed infant that sucks the milk out of the teat, a breast fed infant holds the nipple against the hard palate and compresses the milk ducts under the areola with the gums. The breast fed infant, therefore, makes a chewing movement while feeding (suckling).*

19-12 WHAT IS THE BEST POSITION TO HOLD AN INFANT WHILE FEEDING?

The correct position of the infant while feeding is important. The mother should be warm, relaxed and comfortable. Usually she sits up and holds her infant across her body in front of her. The infant is held in one arm, and should lie on its side with its mouth facing the nipple. The breast is held in the other hand to offer the nipple to the infant.

Mothers should be encouraged to try different feeding positions in order to find which is most comfortable. Some mothers prefer to lie down while they feed. Other mothers prefer to tuck the infant under an arm like a rugby ball.

19-13 HOW SHOULD AN INFANT FIX AT THE BREAST?

One of the commonest mistakes made when breast feeding is that the infant is not held and fixed correctly at the breast. The infant must take the whole nipple and most of the pigmented areola into the mouth. Sucking or chewing on the nipple causes the mother pain and damages the nipple. The mother should let her nipple touch the infant's cheek, so that the infant will turn towards the breast with an open mouth to take the nipple. Make sure that the infant's nose is not covered by the breast.

THE INFANT MUST TAKE THE WHOLE NIPPLE AND MOST OF THE AREOLA INTO THE MOUTH WHEN FIXING AT THE MOTHER'S BREAST

19-14 SHOULD INFANTS BE DEMAND FED?

Yes. Whenever possible infants should be demand fed. This means that the infant is put to the breast whenever hungry. A normal breast fed infant will usually feed every 2 to 4 hours during the day for the first few weeks. Demand feeding helps to prevent engorged breasts.

19-15 WHAT IS THE LET DOWN REFLEX?

When an infant is put to the breast, the pituitary gland in the brain responds by producing the hormones prolactin and oxytocin. Prolactin stimulates the breast to secrete milk while oxytocin produces the "let down reflex". This reflex produces a tingling feeling in the breast, and results in milk being pumped into the infant's mouth by the contraction of muscle cells that surround the milk ducts in the areola. At the same time, oxytocin causes the uterus to contract. Milk may leak from the other nipple. The release of oxytocin helps the uterus to involute but may produce abdominal pain during feeding for the first few days after delivery. Tension, anxiety and a lack of sleep may inhibit the let down reflex.

19-16 HOW DO YOU MANAGE LEAKING BREASTS?

Milk leaking from the breasts is common in the first few weeks of feeding. Leaking of the opposite breast during feeding can be stopped by pressing on that nipple. Cotton handkerchiefs or pads can be used for leaking between feeds. They should be changed frequently as dampness may cause sore nipples.

19-17 CAN A MOTHER'S MILK BE TOO STRONG OR TOO WEAK?

No, but the appearance of breast milk varies. There are 3 different types of breast milk:

1. COLOSTRUM. This is a milky fluid produced in small quantities for the first few days after delivery. However, it contains a lot of protein and provides all the infant's nutritional needs. After 3 to 5 days the milk supply suddenly increases ("comes in") and the breasts feel full. This is due to the production of mature milk, which consists of foremilk and hind milk.
2. FOREMILK. This is produced at the start of each feed. It appears very "weak" and "thin" as it consists mainly of water with little fat. On a hot day a thirsty infant will take frequent, small feeds of foremilk.
3. HINDMILK. This is only produced towards the end of a feed. It looks thick and rich, and contains a lot of fat. A hungry infant will empty the breast to obtain the hind milk

It is best to empty one breast first before putting the infant to the opposite breast. This ensures that the infant gets the rich hind milk. Start each feed on alternate breasts.

19-18 DO ALL MOTHERS PRODUCE ENOUGH BREAST MILK?

Most mothers can produce enough milk for their infant if breastfeeding is managed correctly. Unfortunately many mothers stop breast feeding during the first 5 days because they are incorrectly advised that they "do not have enough milk" or because the infant is losing weight. Milk supply is normally poorest in the late afternoon and early evening.

The mother is probably not producing enough milk if:

1. Her breasts do not feel full before feeds after day 5.
2. The infant continues to lose weight after day 5.
3. The infant loses more than 10% of its birth weight.
4. The infant does not wet 6 or more nappies in 24 hours, is very restless and appears hungry.

19-19 HOW CAN YOU IMPROVE A MOTHER'S MILK SUPPLY?

1. Reassurance, support and encouragement that she will be able to breast feed. Also ensure that she is getting enough sleep and is not under too much stress, as anxiety is a major cause of poor milk production. Anxiety also inhibits the let down reflex. Many mothers are more relaxed in their own homes.
2. Make sure that she is fixing the infant correctly to the breast and that the infant is sucking correctly.
3. Put the infant to the breast frequently during the day until a good milk supply is established. If the infant is not demand feeding 3 to 4 hourly, it should be woken for feeds. The best stimulus to milk production is the infant sucking frequently and for prolonged periods.
4. The mother should rest for a while in the afternoon and drink adequate fluids.
5. Stop any formula feeds.

REASSURANCE, SUPPORT AND ENCOURAGEMENT ARE IMPORTANT FOR SUCCESSFUL BREAST FEEDING

**** If the milk supply has not improved after 5 days and the infant has not started to gain weight despite the above steps, the mother can be given metoclopramide (Maxolon) 10 mg 8 hourly or sulpiride (Eglonyl) 50 mg 8 hourly for a week to stimulate the secretion of prolactin. The dose should then be gradually reduced and stopped over a further week. Prolonged use of these drugs may be dangerous for the infant.*

19-20 HOW DO YOU KNOW THAT AN INFANT IS GETTING ENOUGH BREAST MILK?

The infant is probably getting enough milk if:

1. The infant is content at the end of a feed and falls asleep.
2. The infant starts gaining weight by day 5.
3. The mother's breasts feel full before a feed and empty after a feed.
4. The infant has 6 or more wet nappies a day.

If you are worried that an infant is not getting enough milk, then the infant can be test weighed before and after a feed. After day 5, most term infants will gain about 25 g per day. Weight gain is best determined over a few days. Many mothers a mistake and stop breast feeding simply because their infants cry a lot and they think that the infant is not getting enough milk.

INFANTS THAT GAIN WEIGHT NORMALLY ARE GETTING ENOUGH FEED
19-21 SHOULD INFANTS BE ROUTINELY TEST WEIGHED?

No, there is no need to test weigh all infants. The amount of milk an infant takes varies widely between feeds. A small feed, which is common in the afternoon or when the mother is tired, may cause maternal anxiety.

19-22 WHAT IS THE APPEARANCE OF THE STOOLS OF A BREAST FED INFANT?

The stools of a breast fed infant may be yellow or green, and may be loose or firm. The infant may have several stools a day or only pass stool every few days. The stools should not smell offensive. The number of stools a day does not indicate whether the infant is getting adequate feeds.

19-23 WHAT SHOULD YOU DO IF AN INFANT REFUSES THE BREAST?

Some infants may reject the breast and refuse to fix on the nipple. Common causes are a sore mouth due to thrush, the infant being ill or upset, or the milk flow being too fast. These problems should be looked for and treated.

Do not hold the infant's head too tightly or push the face towards the breast as the infant will turn towards your hand instead of the nipple. It may help to squeeze a little breast milk onto the nipple before placing it in the infant's mouth.

19-24 WHAT CAUSES THE INFANT TO CHOKE WHILE FEEDING?

During the first few weeks the mother may have too much milk and the milk may flow too fast causing the infant to choke or gag when feeding. As a result the infant may refuse to feed or overfeed and become restless. It may help for the mother to lie back at the start of the feed with the infant across her chest so that the milk has to flow uphill against gravity. The mother may have to express a bit before starting the feed, or feed the infant more frequently. Too much milk and milk that flows too quickly settles with time.

19-25 HOW SHOULD YOU MANAGE SWOLLEN OR PAINFUL BREASTS?

A normal, full breast feels tense and heavy, but is not painful and is relieved by feeding. Breasts that are swollen, tender, hard, lumpy and painful are caused by either engorgement or mastitis. Both engorgement and mastitis result from an obstruction in milk flow:

1. ENGORGED BREASTS

Both breasts are swollen, hard and painful but the mother does not feel ill. The milk does not flow freely. Engorged breasts usually occur between days 3 and 5 when the mother's milk suddenly "comes in". Engorged breast are common if the infant does not room-in and if the mother does not demand feed.

Treatment consists of emptying the breast by expressing or allowing the infant to suckle. The infant should be fed on the most painful breast first. Sponging the breasts with warm water or standing under a warm shower relieves the discomfort, while a mild analgesic like paracetamol (Panado) is helpful. Often the infant is not able to fix correctly if the breast is engorged as the nipples become flattened by the swelling. If some milk is first expressed from the breast, the infant will usually fix well. Breast engorgement should be prevented by frequent feeds.

Sometimes only a segment of one breast is engorged due to a blocked milk duct. Changing the infant's position during the feed or gently massaging the breast towards the nipple usually clears the obstruction.

2. MASTITIS (milk fever)

Mastitis is an inflammation of the breast due to infection in blocked milk ducts. It causes a swollen, painful, red area of one breast. The mother feels ill and may have a temperature.

Treat with rest, warm compresses and a mild analgesic. It is most important that the infant continues to suckle frequently on the affected breast as this will help the milk to flow. Altering the feeding position often helps to drain the affected area. This is not dangerous for the infant. If the signs and symptoms do not improve within 24 hours an antibiotic (flucloxacillin) is prescribed for 5 days. If a fluctuant mass develops then a breast abscess has formed. This should be surgically drained. Due to the pain of a breast abscess, feeding may have to be stopped on that breast for a few days. If possible, feeding should be continued however.

19-26 HOW DO YOU PREVENT PAINFUL NIPPLES?

The nipples should be kept dry between feeds. Instead of protecting the nipples with lanolin cream, petroleum jelly (Vaseline) or masse cream, it is suggested that a little colostrum or hind milk be left to dry on the nipples after each feed. The milk has anti-infective properties and the fat protects the nipples. Do not use alcohol on the nipples. Avoid vigorous washing or soap on the nipples.

It is important that the infant is correctly fixed at the breast so that the nipple is not chewed. When removing the infant from the breast, the mother should insert her little finger into the corner of the infant's mouth to break the suction.

CORRECT FIXING OF THE INFANT AT THE BREAST WILL HELP TO PREVENT PAINFUL NIPPLES

19-27 HOW SHOULD YOU TREAT PAINFUL NIPPLES?

Nipples are often painful during the first few days of breast feeding, especially if the infant is very hungry or is not fixed on the breast correctly. Do not let the infant sleep at the nipple until the nipples have toughened.

Cracked nipples are very painful and should be prevented by correctly fixing the infant to the breast and avoiding engorged breasts. Treat cracked nipples with colostrum or hind milk, sunshine and mild analgesics. Alter the position of the infant on the nipple so that it does not suck on the tender area. It may be necessary to stop feeding on that side for 24 hours and express instead. Frequent short feeds when the infant is not hungry are preferable. Reassure the mother that painful nipples heal very quickly. Mothers with painful nipples need a lot of support if they are to continue breast feeding.

19-28 DO BREAST FED INFANTS NEED COMPLEMENTARY FEEDS?

Most breast fed infants do not need complementary (additional) feeds of formula. Complementary feeds may decrease the time the infant spends on the breast and ,thereby, reduce the production of breast milk . Bottle feeds may confuse the infant. Only if an infant fails to gain weight after the above management has been tried should complementary feeds be used. Some mothers will give complementary feeds if they have to leave their infant for more than a few hours. However, expressing milk into a bottle for the missed feed would be preferable. Expressed breast milk can be safely stored up to 6 hours in a cool place or for 48 hours in a fridge. Breast milk can be safely frozen and stored for 2 weeks in a fridge freezer or 6 months in a deep freeze. Frozen milk should be thawed slowly by placing the container in warm (not hot) water. Expressed breast milk should be given by cup.

19-29 CAN WORKING MOTHERS CONTINUE TO BREAST FEED?

Yes. Mothers can continue to breast feed for many months while working. Breast feeds can be given in the morning and again when she returns home. Feeding over the weekend should not be a problem. Breast milk can be expressed at work and this can be stored and then given to the infant during the following day. Alternatively, formula can be given while the mother is away at work. Ideally it should be possible to take the infant to work or place the infant in a creche at or near the place of work.

19-30 DO DRUGS CROSS INTO THE BREAST MILK?

Almost all drugs that the mother takes by mouth will cross into the breast milk in very small quantities but will not affect the infant. Breast feeding mothers should only take medication that is necessary.

**** Thyroxine, antithyroid preparations, Warfarin, antidepressants, anticonvulsants, mild analgesics and most antibiotics can safely be given to a lactating mother. Tetracycline and cytotoxics should not be used if the patient is breast feeding. Avoid breast feeding for 24 hours after radioactive iodine is given to treat thyrotoxicosis.*

19-31 WHEN SHOULD AN INFANT BE FORMULA FED?

1. If the mother has decided that she definitely does not want to breast feed, then the infant should be fed formula. If possible this should be given by cup rather than by bottle.
2. If a mother is unable to breast feed because she is separated from her infant, she should express her milk, manually or with a breast pump, for the infant. Only if this is not practical should the infant be formula fed.
3. If the mother has an inadequate milk supply despite advice and support, and if the infant is not gaining wait by 7 days, then complementary feeds should be started to ensure normal growth.
4. If the mother is very ill.

**** Maternal tuberculosis is not a contraindication to breast feeding unless the mother is very ill. The infant should be given prophylactic treatment for 3 months.*

19-32 WHAT FORMULA SHOULD BE USED FOR A TERM INFANT?

A number of starter formula feeds are available for term infants (e.g. NAN 1, S26 1, SMA 1). They are very similar and, therefore, the milk available at the local clinic or the cheapest milk should be bought. Unaltered cows milk, evaporated milk and skimmed milk are not suitable for infants under 6 months of age. Milk creamers must never be used to feed infants. Follow up formulas are used from 6 months (e.g. NAN 2, S26 2, Lactogen 2).

Formula fed infants should be fed on demand. If fed according to a schedule, most infants will need to be fed 5 times a day, at 06:00, 10:00, 14:00, 18:00 and 22:00. Most term infants will take about 100 ml per feed after the first week.

19-33 HOW IS FORMULA MADE UP?

Usually a level scoop of milk powder (scraped level with a knife and not packed down) is added to 25 ml water in a feeding bottle (read the instructions on the tin). The water should have been boiled beforehand and allowed to cool. Mix the formula well before feeding the infant. The bottle and teat must have been cleaned and sterilized by boiling or standing in a disinfecting agent (Milton or half diluted Jik). A feeding cup can be cleaned with soap and water.

The method of preparing formula feeds is described in skills workshop 21 of this PEP manual.

One of the great dangers of formula feeds is to make the mixture too strong or too weak. If too much milk powder is added, the infant may receive too much salt and protein which can be dangerous. If too little milk powder is added, the infant may become malnourished. Another danger is gastroenteritis caused by infected water or dirty bottles and teats. These and other problems of formula feeds can be avoided by breast feeding.

Many of the dangers of infection when using bottles and teats can be avoided if cup feeds are used instead.

Formula fed infants should be offered a few clear feeds daily if the weather is very hot. Bottle fed infants must be held while feeding. The bottle should not be propped.

19-34 WHAT ARE THE ADVANTAGES OF CUP FEEDING OVER BOTTLE FEEDING?

If an infant cannot be breast fed it is better to cup feed than to bottle feed. The greatest advantage of cup feeding is that a cup can be easily cleaned with soap and water. A cup also dries easily, especially if placed in the sun which helps to sterilize the cup. This is most important when clean or boiling water is not available for washing bottles. A cup feed usually takes less time than a bottle feed. It is also easier to wean a preterm infant from tube feeds onto cup feeds than onto bottle feeds. Infants drink the milk out of the cup. The milk should not be poured into the infant's mouth. Any small plastic cup or dish can be used to feed an infant. Breast milk can be expressed directly into the cup before a feed. Mothers who do not breast feed should be shown how to cup feed before they are discharged home after delivery.

In some infants bottle feeding may cause problems with breast feeding as the mechanism of sucking from a bottle is different from feeding at a breast. This is often called "nipple confusion".

The ideal feeding cup for formula can be used for measuring the correct amount of water, mixing in the powder, storing and finally giving the feed. It should also be easy to clean,

CUP FEEDING HAS MANY ADVANTAGES OVER BOTTLE FEEDING
19-35 ARE IRON AND VITAMIN SUPPLEMENTS NEEDED?

A normal term infant born to a healthy mother on a good, mixed diet and regularly exposed to sunlight does not need supplements in the first 6 months of life. Additional iron and vitamin supplements may, however, be of benefit in poor communities when iron drops 0,3 ml (or syrup 5 ml) and multivitamin drops 0,3 ml (or syrup 5 ml) can be given daily. Supplements given to well term infants are not harmful. Remember that all preterm infants need supplements.

**** In some areas with very little fluoride in the drinking water, supplementary fluoride drops can be given to reduce the risk of dental caries.*

19-36 WHEN SHOULD SOLIDS BE INTRODUCED?

Normally breast milk or formula feeds will meet all the infant's nutritional needs until 6 months of age. Thereafter milk alone is not enough and solids are usually introduced. If possible, an infant should be exclusively breast fed for at least 4 months, and preferably for 6 months. Even if the mother can only breast feed for a few weeks or months, this will be of benefit to both her and her infant. Introducing solids reduces the anti-infectious properties of breast milk.

Some mothers continue to partially breast feed up to 2 years. It is best to continue breast feeding after solids have been introduced. This practice is particularly important in poor communities as breast milk provides the infant with a good source of protein. Weaning should be done over a few weeks by dropping one feed per week. In practice solids are often introduced early, especially with formula feeding.

WHENEVER POSSIBLE INFANTS SHOULD BE EXCLUSIVELY BREAST FED FOR 6 MONTHS

19-37 HOW SHOULD LACTATION BE SUPPRESSED IF INDICATED?

Cold or warm compressors help relieve the discomfort. Breast binding is no longer used. Oral pyridoxine 200 mg three times a day for 5 days may help. Only express a little milk if the engorgement is very uncomfortable. Fluid intake should not be reduced.

Bromocriptine (Parlodel) 5 mg twice a day for 5 days will prevent or stop milk production but it is expensive with side effects. Oestrogen is contra-indicated as it increases the risk of deep vein thrombosis.

**** Cabbage leaves, especially if cold, are believed to relieve the discomfort of engorgement if placed on the breast.*

19-38 WHAT IS A BABY FRIENDLY HOSPITAL?

The idea of a "Baby Friendly Hospital" was introduced by the World Health Organization to promote the advantages of breast feeding. UNICEF is the agency which assess and registers hospitals as baby friendly. To become registered as a Baby Friendly Hospital all the "Ten steps to successful breast feeding" have to be implemented.

The Baby Friendly Hospital initiative is discussed in the Mother and Baby Friendly Care manual of the Perinatal Education Programme.

19-39 WHAT ARE THE TEN STEPS TO SUCCESSFUL BREAST FEEDING?

1. Have a written breast feeding policy that is frequently communicated to all the health care staff.
2. Train all the health care staff in the skills needed to implement successful breast feeding.
3. Inform all pregnant women about the benefits of breast feeding.
4. Help mothers to start breast feeding within 30 minutes of delivery.
5. Show mothers how to breast feed and teach them how to maintain lactation even if they are separated from their infants.
6. Do not give newborn infants formula or water feeds unless this is indicated for medical reasons.
7. Allow mothers and their infants to remain together all the time from delivery to discharge.
8. Encourage demand feeding.
9. Discourage the use of dummies, teats and nipple shields.
10. Promote the formation of breast feeding support groups and refer mothers to these groups on discharge from hospital or clinic.

CASE PROBLEMS

CASE 1

A woman who bottle fed her first infant, delivers at term and wants to breast feed this infant. However, she is concerned as she has small breasts and flat nipples. She asks the staff what are the benefits of breast feeding.

1. Should she try to breast feed this infant if she formula fed her first child?

Yes, many mother are able to breast feed successfully even if they did not breast fed their previous children. The use of kangaroo mother care helps to promote breast feeding. It is also important to allow the mother to hold her infant after delivery and not to separate mother and infant if possible. She will need a lot of support and encouragement.

2. Why are some women unable to breast feed successfully?

The commonest cause of failure to breast feed successfully is that they are not managed correctly and not fully informed about the advantages and method of breast feeding.

3. Can women with small breasts feed their infants?

Yes. The size of a woman's breasts is determined by the amount of fat and not glandular tissue and, therefore, does not influence her ability to breast feed.

4. How should flat nipples be treated?

Usually no treatment is needed during pregnancy. However, it is important to identify women with flat or inverted nipples so that extra help can be given to get the infant to latch correctly at the breast. Hoffman's nipple exercises are sometimes still used to improve flat or inverted nipples.

5. What are some of the benefits of breast feeding?

- (i) Breast milk is easily digested and meets all the infant's nutritional needs
- (ii) The risk of infection in the infant is much less with breast feeding.
- (iii) Breast feeding is convenient and cheap.
- (iv) Breast feeding promoted bonding.

6. When should women decide whether to breast feed or not?

This decision should be made during pregnancy and definitely before the infant is delivered.

CASE 2

A mother has breast fed her infant for 3 days. The infant's birth weight was 3200 g but he now weighs only 3000 g. When she squeezes her nipple, her milk appears very watery.

1. Is the infant's weight loss normal?

Yes. Normal infants can lose up to 10% of their birth weight, which would be 320 g for this infant. The weight loss of 200 g will not cause the infant any harm.

2. When should an infant start gaining weight after birth?

Most infants start gaining weight between 3 days and 5 days after birth when the mother's milk supply suddenly increases.

3. Should the mother give complementary feeds of formula?

These are not needed. Complementary feeds will decrease the time the infant spends sucking at the breast and this may reduce the mother's milk supply.

4. How can this patient increase her milk supply?

She should put the infant to the breast frequently during the day to stimulate her milk supply. Usually there is no need for a mother to take drugs to increase her milk supply.

5. Why does her milk appear too weak?

Foremilk looks "too weak". This is normal and contrasts with the hind milk which is much richer.

6. If the weather is hot should clear feeds be given?

There is no need to give clear feeds to breast fed infants.

CASE 3

A mother who has breast fed her infant for 5 days develops painful, cracked nipples after her breasts became engorged. She feeds her infant every 5 hours and is taking flucloxacillin for an infected caesarean section wound.

1. How can cracked nipples be prevented?

With prevention of breast engorgement and careful attention to fixing the infant correctly, cracked nipples should not occur.

2. How can breast engorgement cause painful nipples?

If the infant is unable to fix correctly due to swelling of the areola and breast, the nipple can be damaged by the infant sucking incorrectly.

3. Why is it advisable for mothers to demand feed rather than schedule feed?

Demand feeding whenever the infant is hungry helps prevent both engorged breasts and cracked nipples.

4. How should you treat cracked nipples?

Colostrum or hind milk helps the nipple to heal. Protective creams are also helpful but less effective than breast milk.

5. Should the mother continue breast feeding as she is taking an antibiotic? Give reasons for your answer.

Yes, she should continue breast feeding. Like most other antibiotics, flucloxacillin will cross into the breast milk in small quantities. This should not be dangerous to the infant.

6. How can she continue to breast feed if she plans to return to work?

She can still breast feed in the morning before going to work and again when she gets home. She can also breast feed throughout the weekend and express her breast milk at work to be stored and fed by cup during the next day. Alternatively, the infant can be formula fed while she is at work. Ideally she should be able to take the infant to work with her.

CASE 4

An HIV positive woman decides to formula feed her infant. She is discharged from the clinic 6 hours after delivery without any clear instructions?

1. What milk formula should she buy?

She can buy any term formula. There is no need to buy the more expensive formulas. Fresh cows milk, evaporated milk or skimmed milk is not suitable for small infants.

2. How is formula made up?

Most formulas are made up by adding one level scoop of milk powder to 25 ml of water. The water should first be boiled and allowed to cool. The formula must be mixed well. Making the formula too strong or too weak is dangerous.

3. What is the best way to formula feed an infant?

It is better to give formula by cup than by bottle as cups are easier to clean. This is particularly important in poor communities where gastroenteritis is common.

4. How should bottles and teats be cleaned?

The bottle and teat must be cleaned and sterilized by boiling or standing in a disinfecting agent (Milton or half diluted Jik). Teats should be scrubbed both inside and outside with a brush.

5. When should solids be started?

It is preferable to only introduce solids at 6 months. However, solids are often started earlier in formula fed infants.

6. Should iron and vitamin supplements be given to healthy, term infants?

These are not routinely needed in term infants.