



IDCF TOOLKIT

INTENSIFIED DIARRHOEA CONTROL FORTNIGHT Tool Kit

Contains Training material & FAQs related to IDCF 2014

IDCF to be observed from 28th July to 8th August 2014

Contents

1. Orientation module cum FAQs (Frequently Asked Questions) on Diarrhoea management
2. Orientation module cum FAQs (Frequently Asked Questions) on Infant & Young Child Feeding Practices

(IDCF toolkit is a separate document provided with IDCF guidelines)



INTENSIFIED DIARRHOEA CONTROL FORTNIGHT (IDCF) Tool Kit

FAQ cum Training material on

Diarrhoea Control

For State/District/Block/frontline workers

***IDCF to be observed Nationwide from 28th July to 8th
August 2014***

1. Frequently Asked Questions (FAQ) cum Training module on Diarrhoea Treatment Guidelines

Zinc supplements are a new treatment for diarrhoea to be given always in addition to ORS. Both healthcare workers and caregivers may have questions regarding this treatment. Below are a series of questions that has arisen in the field experience of promoting this new treatment to date.

1. Can I give Zinc and ORS at the same time?

Yes, Zinc and ORS can be given at the same time while your child has diarrhoea. Zinc is given once a day and can be given along with ORS. **ORS should be continued as long as diarrhoea lasts.** Give the Zinc at a time of day that is easy for you to remember and repeat every day until all Zinc tablets are consumed. ORS needs to be given throughout the day while your child after each loose stools.

2. Can Zinc be added directly to the ORS? Will this work as well?

It is better to give Zinc dissolved in mothers milk especially for breastfed children. For other children it can be given in any fluid including plain water and ORS. The Zinc tablet will not be harmed by the ORS and can easily be dispersed in a small amount of ORS after it has been prepared.. Zinc should not be added to a large amount of ORS because it is then uncertain if the child will be able to finish the desired quantity to get the full Zinc dose per day.

3. Should I give less ORS since I am giving Zinc?

No, you should continue to give plenty of ORS, as recommended, even though you are giving Zinc. ORS will help to replace fluids lost during diarrhoea. Zinc will speed up recovery, and will help the child fight off new episodes of diarrhoea in the 2-3 months following treatment. Zinc will also improve appetite and growth.

4. Can Zinc be promoted instead of ORS?

Zinc should never be used instead of ORS for the treatment of diarrhoea. Zinc supplementation is an addition to the diarrhoea treatment guidelines, not a replacement for ORS. ORS is vital to prevent and treat dehydration. Zinc helps to decrease the duration and severity of the diarrhoea, but does not prevent or treat dehydration. The combination of ORS and Zinc supplementation in conjunction with continued feeding can prevent and treat dehydration, shorten the duration of the episode, and prevent diarrhoea induced malnutrition.

5. Why are Zinc tablets recommended after the diarrhoea episode has stopped?

Zinc supplements are recommended for the complete dosing regimen, 14 days, because Zinc not only treats the diarrhoea episode at hand, it also helps to repair the depleted gut mucosa and enhances overall immune function. The recommendation of 14 days has been made to ensure that recovery from the diarrhoea episode is complete and to improve the health of the child in the following 2-3 months. When counseling mothers the healthcare worker should emphasize the importance of giving the full 14 day dose

by telling the mother both the short and long term benefits of Zinc including: decreases the number of days of diarrhoea, decreases the severity of the diarrhoea, helps the child fight off new episodes of diarrhoea and pneumonia in the 2-3 months following the full treatment and in that time may help your child grow better and improve appetite.

7. If my child vomits the Zinc should I give another one?

Yes, try to give the child one more tablet, if child vomits within half an hour. Wait until he/she is calm again and vomiting stops. Make sure your child is taking ORS. When he/she takes ORS with no problems, give the next Zinc tablet. If he/she vomits after the second tablet, do not give any more on that day; wait to give the next tablet until the next day. Give Zinc again the next day and daily until there are no more tablets in the pack.

8. If my child is vomiting other food and liquids, like ORS, should I try to give the child Zinc?

No, if your child is vomiting ORS and all food and other liquids you should bring him/her to the health center.

9. What are the side effects of Zinc supplementation?

The only reported side effect of Zinc supplementation is vomiting. Zinc at the low recommended dose of 10-20 mg usually does not induce vomiting. Good manufactured supplements mask the metallic taste of Zinc and the standard Zinc supplements are well tolerated and rarely cause vomiting. Vomiting is not reported often and when reported is typically very minimal. Children with diarrhoea often experience vomiting with or without receiving a Zinc supplement.

10. I think tablets are bad for babies, what do I do?

Zinc is not given to the babies as a tablet as such. It is a disposable tablet and should be dissolved in breastmilk, ORS, or clean water. When you do that, you will make a liquid solution syrup to give it to your baby. Babies like this very much, especially in breastmilk.

11. What if my child takes more than one tablet?

You should keep the tablets away from children in a safe place in your house to prevent this situation. If your child takes too many tablets she will probably vomit them up. Your child should take one tablet per day. One or two extra taken by mistake will likely not hurt your child, but you should come to the clinic and discuss what happened with a healthcare worker for seeking his/her advice.

12. I give a multivitamin to my child; can I give zinc on top of that?

Zinc is a safe drug. Yes, your child is losing a lot of zinc in stools if her / she is having diarrhoea, so giving more than usual zinc is good while he/she is sick. After the diarrhoea is over it will help replace lost nutrients. You can continue to give the multivitamin and give the Zinc as diarrhoea treatment for the full 14 days. This will not harm your child.

13. If a child is already eating zinc fortified food as a regular part of his/her diet, is there a risk of a Zinc overdose with 10-20 mg of zinc as a supplement for 14 days?

Zinc fortified foods are becoming more and more available around the world. Although zinc fortified foods may enhance the overall Zinc content of the diet, it is rare that Zinc fortification would provide more than the Recommended Daily Allowance (RDA) of Zinc. In addition, during diarrhoea Zinc is lost at much higher rates than normal in the excess stools, thus more Zinc is needed during a diarrhoea episode. The recommended Zinc dose of 10-20 mg per day is two times the RDA and is meant to be a treatment dose for a short period of time. Because of the increased loss during diarrhoea and the short 14 day dose, the risk of overdosing because of fortified foods and an added Zinc supplement is very small. Zinc supplementation should be recommended to all children with diarrhoea even if the child is consuming Zinc-fortified foods.

14. Is Zinc supplementation safe in populations where children may be infected with HIV?

Available data indicate that Zinc supplementation is safe for persons with HIV. Although there have been only a few small studies of Zinc supplementation in HIV positive persons, none have reported adverse effects and in fact, some benefits were noted including improved weight gain and resistance to opportunistic infections. There are no reasons to believe that 14 days of Zinc therapy for the treatment of diarrhoea in children who are HIV positive could cause any adverse effects. All children with diarrhoea, regardless of HIV status, should be given Zinc supplements for 14 days.

15. Can Zinc be given with other medicines?

Yes, you can give Zinc with other medicines. Only give your child medicines that are prescribed at the clinic or by a healthcare worker like ANM or doctor.

16. Should I get an antibiotic for the diarrhoea?

The only specific clinical indications for use of antimicrobial agents are:

- Cholera
- Bloody diarrhea
- Associated non-gastrointestinal infections e.g. pneumonia, septicemia, meningitis, urinary tract infection, etc.

If your child has not been given any at this time, your child does not need one. If you start to see blood in your child's stool, bring him/her to a health centre for further treatment.

17. What do I do if my child does not get better? Could this be because of the Zinc?

Even if your child does not improve, continue to give Zinc. If your child does not get better that is not because of the Zinc, but for some other reason. If he/she does not improve in 3-5 days, come back to the health centre. Also, come to the health centre at any time should he/she show any danger sign.

18. Can I give Zinc if my child has blood in the stools?

Yes, Zinc can be given if your child has bloody stools. If your child develops bloody stools, you should come back to the health centre for more medicine. Your child will need an antibiotic in addition to ORS and Zinc.

19. Should I feed my child as usual?

Yes, continue to feed your child and offer an extra meal each day. If your child will eat more than usual, allow him/her to do that. Increased foods will help him / her. Do not restrict eating.

20. Should I give breast milk?

Yes, allow your baby to breastfeed as much as he/she wants. This might be more than usual and that is good. Allow him/her to eat as many times as he / she wants for as long as the wants.

21. Does breast milk cause diarrhoea?

No, breast milk is not the cause of diarrhoea. Keep breastfeeding your child. Exclusive breastfeeding can even prevent diarrhoea. Babies under 6 months of age should get only breast milk to prevent diarrhoea.

22. Can I still give my child milk?

Yes, if your child already drinks animal milk, you can keep giving this to him/her. Be sure to also give plenty of ORS and plain clean water as well.

Training as per IMNCI on Diarrhoea Management:

ASSESS AND CLASSIFY DIARRHOEA

What is diarrhea?

- For infants < 2 months: caregiver's report of change in consistency and /or frequency of stool.
- For children \geq 2 months to \leq 5 years; caregivers report of \geq 3 loose or watery stools in a 24 hours period.

What is not diarrhea?

- Frequent passing of normal stools is not diarrhea
- Exclusively breastfed babies often pass soft stools, that is not diarrhea
- Young infants may pass stool after each feed which is due to gastrocolic reflex that is not diarrhea.

Ask for how long the child has had diarrhoea. If the **diarrhoea is of 14 days or more** duration, the child has **severe persistent diarrhoea**. This child should be referred to hospital .

Ask if there is blood in the stools. The child who is passing blood in the stools has **dysentery**. The child should be treated with cotrimoxazole at home and the mother should be advised home care.

Does the child have diarrhoea?

	<p>If Yes, Ask:</p> <ul style="list-style-type: none"> • For how long ? • Is there any blood in the stool? 	<p>Look And Feel:</p> <ul style="list-style-type: none"> • Look at the child's general condition. <p>Is the child:</p> <ul style="list-style-type: none"> • Lethargic or unconscious? <p>Restless and irritable?</p> <ul style="list-style-type: none"> • Look for sunken eyes. • Offer the child fluid. <p>Is the child:</p> <ul style="list-style-type: none"> • Not able to drink or drinking poorly? • Drinking eagerly, thirsty?
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Assess every child with diarrhoea for **dehydration**. **Look for the following:**

LOOK and **FEEL** for the following signs:

LOOK at the child's general condition. Is the child lethargic or unconscious? restless and irritable?

LOOK for sunken eyes.

OFFER the child fluid to drink. Is the child not able to drink or drinking poorly? drinking eagerly, thirsty?

Ask the mother to offer the child some water in a cup or spoon. Watch the child drink.

A child is **not able to drink** if he is not able to suck or swallow when offered a drink. A child may not be able to drink because he is lethargic or unconscious.

A child is **drinking poorly** if the child is weak and cannot drink without help. He may be able to swallow only if fluid is put in his mouth.

A child has the sign **drinking eagerly, thirsty** if it is clear that the child wants to drink.

Look to see if the child reaches out for the cup or spoon when you offer him water.

When the water is taken away, see if the child is unhappy because he wants to drink more.



Drinks eagerly

If the child takes a drink only with encouragement and does not want to drink more, he does not have the sign "drinking eagerly, thirsty."

PINCH the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds)? Slowly?

CLASSIFY DIARRHOEA

Here is the classification table for diarrhoea

<p>Two of the following signs:</p> <ul style="list-style-type: none"> • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin pinch goes back very slowly. 	<p>SEVERE DEHYDRATION</p>	<ul style="list-style-type: none"> • Refer URGENTLY to hospital with mother giving frequent sips of ORS on the way.
<p>Two of the following signs:</p> <ul style="list-style-type: none"> • Restless, irritable • Sunken eyes • Drinks eagerly, thirsty • Skin pinch goes back slowly. 	<p>SOME DEHYDRATION</p>	<ul style="list-style-type: none"> • Give fluid, zinc supplements and food for some dehydration (Plan B). • Follow-up in 2 days if not improving
<p>Not enough signs to classify as some or severe dehydration.</p>	<p>NO DEHYDRATION</p>	<ul style="list-style-type: none"> • Give fluid, zinc supplements and food to treat diarrhoea at home (Plan A). • Follow-up in 2 days if not improving.

<ul style="list-style-type: none"> • Diarrhoea for 14 days or more 	<p>SEVERE PERSISTENT DIARRHOEA</p>	<ul style="list-style-type: none"> • Refer to hospital
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<ul style="list-style-type: none"> • Blood in the stool. 	DYSENTERY	<ul style="list-style-type: none"> ☑ Give drugs for dysentery ☑ Follow-up in 2 days.
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Remember:

- **Classify all cases of diarrhoea for dehydration. In addition also classify as severe persistent diarrhoea if duration is 14 days or more and dysentery if there is blood in stool.**
- *Children with signs of severe dehydration should be referred to hospital.*
- *Children with severe persistent diarrhoea should be referred to hospital.*
- *Children with dysentery should be treated with medicine at home*
- *Children with some dehydration should be rehydrated with ORS.*

Children who are not dehydrated and have diarrhoea of less than 14 days duration should be managed at home and also given zinc tablets

Give zinc tablets

Dose of zinc

½ tablet per day (10 mg) for children 2 Months up to 6 months: to be dissolved in breast milk
 1 tablet per day (20 mg) for children ≥6 months: to be dissolved in breast milk or plain water.
 Older child can chew it directly

Duration of use

Start as soon as the diarrhea begins i.e. from the first day and give for 14 days irrespective of when the child recovers.

Why should zinc be given for 14 days

If given for 14 days it will replenish the zinc lost through stools
 Improves appetite and weight gain
 Prevents diarrhea and pneumonia over the next 2 months
 Acts as a tonic after recovery from diarrhea

Preparation of zinc

- Take a clean spoon, place 1 tablet (child ≥ 6 months) on the spoon.
- Pour water carefully on the tablet taking care that the water does not reach the brim. Never dip the spoon with tablet into the water container.
- If the child is < 6 months and breastfed, tell mother to express milk first in the spoon and then add $\frac{1}{2}$ tablet, discard the other $\frac{1}{2}$. Be careful, while breaking the tablet into half, put pressure with your thumb on the groove in the tablet. If two halves are not equal, break off the extra bit from the larger half. Discard the remaining half.
- Shake the spoon slowly till the tablet dissolves completely. Take care that the solution does not overflow. Do not use fingertip or any other material to dissolve the tablet. Tell the mother to hold the child comfortably and ask her to feed the solution to the child.
- If there is any powder remaining in the spoon, let the child lick it or add little more water or breast milk to dissolve it and then ask the mother to give it again.

Acceptability

The acceptability of these tablets is high; it has been tested in over 100,000 children

Safety

Zinc is totally safe beyond the neonatal period.

No side effects are expected based on the multiple studies done by WHO and ICMR and published literature.

ROLE OF ZINC IN ACUTE DIARRHEA

What is zinc?	What are the benefits of giving zinc in acute diarrhea
Zinc is a micronutrient It helps in cellular growth and in the function of immune system When given in zinc deficient population it prevents childhood morbidity and mortality	Earlier recovery from diarrhea Less watery stools Less frequency of stools 50% less children have diarrhea lasting for more than 5 days Acts as a tonic after recovery from diarrhea If given with ORS, promotes use and hence prevents serious and potentially lethal outcomes Zinc will also benefit other associated illnesses like pneumonia and septicemia Reduce misuse and overuse of antibiotics, which leads to antibiotic resistance Reduction in child mortality and hospitalizations. <i>If used for 14 days, prevents diarrhea and pneumonia over the next 2 months</i>

Treat diarrhoea with dehydration with Oral Rehydration Salt (ORS) Solution (Plan B)

The child with diarrhoea of less than 14 days duration who has signs of some dehydration should be treated under your supervision with ORS for 4 hours. For this, keep the mother and child under observation, either at the health centre or at the home of the child.

Composition of the new Reduced Osmolarity ORS

	Old ORS	New ORS
Sodium	90 m Osmol/L	75 m Osmol/L
Glucose	110 m Osmol/L	75 m Osmol/L
Potassium	20 m Osmol/L	20 m Osmol/L
Osmolarity	311 m Osmol/L	245 m Osmol/L

New ORS has less glucose and sodium

Advantages:

- Less Vomiting
- Less no of stools
- Less amount of water in stools
- Less need for i/v infusion

Teach the mother how to prepare ORS.

Teach the mother how to prepare ORS

1. Wash your hands thoroughly with soap and water.
2. Pour all the ORS powder from a packet into a clean container.
3. Measure one litre of clean drinking water and pour it in to the container in which you poured ORS. (If you have ORS packets for 1/2 litre of water then take 1/2 litre water.)
4. Stir until all the powder in the container has been mixed with water and none remain at the bottom of the container.
5. Taste ORS solution before giving it to the child. It should taste like tears - neither too sweet nor too salty. If it tastes too sweet or too salty then throw away the solution and prepare ORS solution again.

Wash hands

Pour all ORS powder from the packet

Pour 1 litre clean drinking water





Mix until all ORS powder is fully dissolved

Taste ORS

Ask the mother to give one teaspoon of the solution to the child. This should be repeated every 1-2 minutes (An older child who can drink it in sips should be given one sip every 1-2 minutes).

If the child vomits the ORS tell the mother to wait for 10 minutes and resume giving the ORS but this time more slowly than before. Breast fed babies should be continued to be given breast milk in between ORS. Any ORS which is left over after 24 hours should be thrown away.

Use the table below to determine the amount of ORS that should be given to the child in 4 hours.

ORS	AGE			
	Up to 4 months	4 months up to 12 months	12 months up to 2 years	2 years up to 5 years
Cups	2 	3 	5 	7 

After about 4 hours of giving ORS, reassess the child for dehydration. If the child is no longer dehydrated, tell the mother to give home available fluids the same way as she gave ORS. Details of what home available fluids to give are given in the next section. Begin feeding the child even if dehydration persists, continue ORS. If the child is still dehydrated, refer. On the way mother should continue to give ORS to the child.

Home care for the child with diarrhoea and no dehydration (Plan A)

Home care for treatment of diarrhoea and no dehydration includes the following:

- The child should be given extra fluids to drink.**

Advise the mother to give home available fluids. Some examples of useful and harmful home available fluids are given in the table below:

Useful	Harmful
1. Breast Milk	Soft drinks
2. Yoghurt drink	Fruit juices (sweetened)
3. Lemon drink	Coffee
4. Rice, Water	
5. 'Dal' (lentil)	
6. Vegetable soup	
7. Fresh Fruit Juice (unsweetened)	
8. Plain clean water	
9.	
10.	

HOW MUCH EXTRA TO GIVE

Age		
Up to 2 months	2 months up to 2 years	2 years and more
5 SPOONS	1/4 - 1/2 cup	1/2 - 1 cup
Give more if the child wants.		

2. Give zinc tablets

Every child with diarrhea is given Zinc tablets for 14 days.

3. Continue feeding.

The child should continue to be fed as much as the child would take. If the child is reluctant to eat then feed more often than before smaller amounts of food. As soon as the child recovers the child's appetite would return and the mother should feed extra foods to make up for the excessive losses during the disease.

4. Advise the mother when to return.

The signs that she must look for are:

- Child becomes sicker;
- Not able to drink or breast feed,
- Blood in stool;
- Drinking poorly.
- Develops a fever

Note: Don't teach blood in stool or fever, if child already have these signs.

If child has severe dehydration, refer for I/V Therapy.

USE OF DRUGS DURING DIARRHEA

- **Antibiotics are not effective in treating most diarrhea**
- They rarely help and make some children sicker
- Unnecessary use of antibiotics may increase the resistance of some pathogens.
- They are costly
- Antibiotics should be given only in
 - dysentery
 - diarrhea cases with severe dehydration with cholera
 - diarrhea in very low birth weight and severely malnourished children
 - diarrhea along with other systemic infections like pneumonia
 - diarrhea with danger signs
- **Never give antidiarrheal drugs to children**
 - The dangerous drugs are codeine, tincture of opium, diphenoxylate, loperamide.

Feeding Advice during Diarrhoea

Upto 6 months of age	6 months upto 12 months of age	12 months upto 2 years of age	>2 years
<p>Breastfeed exclusively Breastfeed as often as the child wants, day and night, at least 8 times in 24 hours Do not give other foods or fluids Continue breastfeeding even if the child is ill</p>	<p>Breastfeed as often as the child wants</p> <p>Give each time at least 1 katori of :</p> <ul style="list-style-type: none"> • Undiluted sweetened milk with mashed roti/rice/biscuit/bread • Thick dal with added oil with mashed roti/rice/bread or khichri with added oil; add vegetables to the meal • Sevian or dalia or halwa or kheer prepared in milk or other milk based preparations • Mashed boiled or fried potatoes or potato subzi without spices • Banana or biscuits or cheeku or mango or papaya as snacks <p>Feed 3 times a day if breastfed or 5 times per day if not breastfed</p>	<p>Breastfeed as often as the child wants.</p> <p>Give each time at least 1½ katori of:</p> <ul style="list-style-type: none"> • Thick dal with added oil with mashed roti/rice/bread or khichri with added oil; add vegetables to the meal • Undiluted sweetened milk with mashed roti/rice/biscuit/bread • Sevian or dalia or halwa or kheer prepared in milk or other milk based preparations • Mashed or fried potatoes or potato subzi without spices • Banana or biscuits or cheeku or mango or papaya as snacks <p>Feed 5 times per day</p>	<p>Feed family foods or snacks.</p> <p>Feed 5times a day</p>
<p>Note</p> <ul style="list-style-type: none"> • Continue breastfeeding and feeding all foods in the recommended amounts even if the child is ill • Make the child (6-11 months) sit in your lap and feed the child yourself; and help the older child eat and finish all food • Wash your and child’s hands with soap before a meal 			

REFERRING CHILDREN

Refer children urgently to the Hospital if they have the following:

- Age <2 months
- Child passing blood in stools
- Severe dehydration
- Not able to drink or breastfeed
- Vomits everything
- Convulsions
- Lethargic or unconscious
- Cough or difficult breathing and fast breathing or 'pneumonia' or 'paslichalna'
- Other associated illness
- Severe malnutrition
- If diarrhea more than 14 days

COMMON LOCAL MISCONCEPTIONS

- ORS and glucose are the same
- ORS should not to be given in winter even when the child has diarrhea
- ORS should be given in summer even when the child does not have diarrhea. In such cases, if you feel that due to heat child needs extra fluid, give shikanji, lassi and other fluids at home.
- Some foods should be reduced in diarrhea
- Feeding during diarrhea will worsen the case.
- Breastfeeding should be reduced in diarrhea
- Diarrhea due to extremes of weather, evil spirits (uprihawa) or indigestion does not need any treatment



INTENSIFIED DIARRHOEA CONTROL FORTNIGHT (IDCF) Tool Kit

**FAQ cum Training material on
Infant & Young Child Feeding**

For State/District/Block/frontline workers

***To be observed Nationwide from 28th July to 8th August
2014***

2. FAQ (Frequently Asked Questions) Cum Training Module for Week 2 on IYCF

Part I:

1. Why is it recommended that baby should be given only mother's milk and not any other milk?

Mother's milk is a natural complete food for the baby. Mother's milk is for the baby while cow's milk is for the calf. Breastfeeding offers many advantages to mother-infant pair. These are listed below. Baby and mother will not get these benefits if cow, buffalo or formula milk is used for feeding.

Advantages offered by Breastmilk and Breastfeeding

For the baby:

1. All the nutrients are in proper proportion for optimal growth and development
2. Easily digestible
3. Germ free as it is transferred directly from the mother to the baby
4. Provides immune factors which provide protection against infections e.g. pneumonia, diarrhoea etc.
5. At right temperature
6. Makes child more intelligent
7. Protection against asthma and allergies
8. Protection against obesity, hypertension, heart disease and diabetes in later life
9. Decreased risk of some cancers
10. Stronger Mother - Infant bonding

For the mother:

1. Looses fat through breastmilk. Helps her to get back in shape (to be complemented with exercises and avoidance of excessive fat intake)
2. Decreased risk of breast, ovarian and uterine cancers
3. Helps to delay next pregnancy; but the mother should not depend on this as the sole method of contraception. (To consult doctor six weeks post-delivery)
4. Early expulsion of placenta
5. Uterus contracts faster to pre-pregnancy state
6. Decreased post-delivery bleeding
7. Convenient and requires no preparation
8. Protects from post-menopausal osteoporosis.
9. Free of cost. Breastfed babies fall less sick. Hence family saves on medical expenses.
10. Declining breastfeeding rates would increase the need for animal milk. This can damage the environment. Hence breastfeeding is environment friendly

Note: Breastfeeding is advantageous not only for the mother and baby but also for the overall development of the society and the nation.

2. How should mother prepare for breastfeeding during pregnancy? Should she take some special care of breasts and nipples?

Baby needs to be exclusively breastfed till the end of 6 months. Both mother and family need to get psychologically geared up for this task. The family routine changes after child's birth. Extra effort and extra hands are required to meet the increased workload. All family members should provide encouragement, adequate time and supportive environment for breastfeeding.

Everybody should get to know scientifically correct information on advantages of breastfeeding, IYCN recommendations, positions, attachment and commonly encountered problems.

A pregnant mother can immensely benefit by observing another mother breastfeed and sharing experiences.

Breasts and nipples undergo natural changes as the pregnancy advances. The nipples which initially appear smaller become optimally fit for feeding by the time of delivery. The mother should not worry about the size of the breasts because milk production does not depend on it. The breast size varies due to differences in amount of fat. Amount of milk producing glandular tissue is almost same in all the mothers.

Proper clothes that facilitate breastfeeding need to be kept ready. Sari-Blouse, shirt or gown (full front opening) is best suited for this purpose.

3. When should breastfeeding begin after delivery and how?

Soon after delivery the baby should be shown to the mother. Mother should be promoted to kiss and cuddle the baby and hold the baby in close skin to skin contact (in about 5 min.) in Breast Crawl Position. This helps the baby to initiate breastfeeding in one hour. The Breast Crawl Video will guide you to implement this recommendation. Breast Crawl CD and Insert is enclosed inside the last cover page. After caesarean delivery, the mother should start breastfeeding as soon as she regains consciousness (maximum four hours).

Following are the benefits of early initiation.

1. Baby is very alert and eager to breastfeed in the first hour after delivery.
2. The child remains warm being in close touch with the mother
3. Risk of infections is reduced
4. Ensures short term and long term breastfeeding success (Total Duration)
5. Post-delivery bleeding (Post-partum hemorrhage) decreases
6. A strong emotional bond begins to develop between the mother and the baby.

Note: The first skin-to-skin contact should continue till completion of the first breastfeed.

4. Mother does not produce milk for first few days after delivery. What should be fed to quench baby's thirst and hunger during this period?

Even though the mother does not produce milk during the first two or three days post delivery, she produces a yellow fluid known as colostrum. Though less in quantity, it is sufficient enough to meet baby's needs. Following are the benefits of colostrum:

1. Rich in antibodies (immunity) and protects the baby against infections. Hence it is the first vaccine for the baby.
2. Helps the baby to pass her first stool (meconium). This helps to reduce the severity of physiological (normal) jaundice.
3. Helps to complete maturation of the intestines
4. Rich in vitamins A and K

The relatives and health care providers should motivate the mother to give frequent skin to skin contact and breastfeed as soon as the baby shows the desire to do so. This ensures that the baby gets good quantities of colostrum. Some children cry little more during this period. But one should avoid the temptation of giving any milk or fluids (water, glucose, honey etc.) because this increases the risk of infection. Instead, the mother should focus on frequent skin to skin contact and breastfeeding (at least 8-10 times in 24 hours).

5) Is it appropriate to follow the tradition of giving honey, sugar water, etc. to the baby before the first breastfeed (Pre-Lacteal feeds)?

Traditionally, sometimes the baby is fed some fluid before the first breastfeed or during first three to five days of life (before the mother starts producing mature milk). This is known as 'Pre-lacteal feed'. This custom is inappropriate, because it increases the risk of infection. This pre-lacteal feed may decrease the baby's eagerness to suckle at the breast. Thus the first and the subsequent breastfeeds may get delayed. This may lead to breastfeeding failure.

6) Where should the child be kept after delivery?

The child should be kept close to the mother (bedding in). It is not advisable to keep the baby in a cradle or on a separate bed. In some maternity homes, all newborn babies are kept together in a separate room. This is a wrong practice. The word 'rooming in' means that the mother and the baby are kept in the same room. The benefits of 'bedding in' are as follows:

1. It promotes demand feeding
2. The baby remains warm
3. Risk of infection is reduced
4. Helps let-down of milk
5. Helps to develop a stronger emotional bond between the mother and the baby.

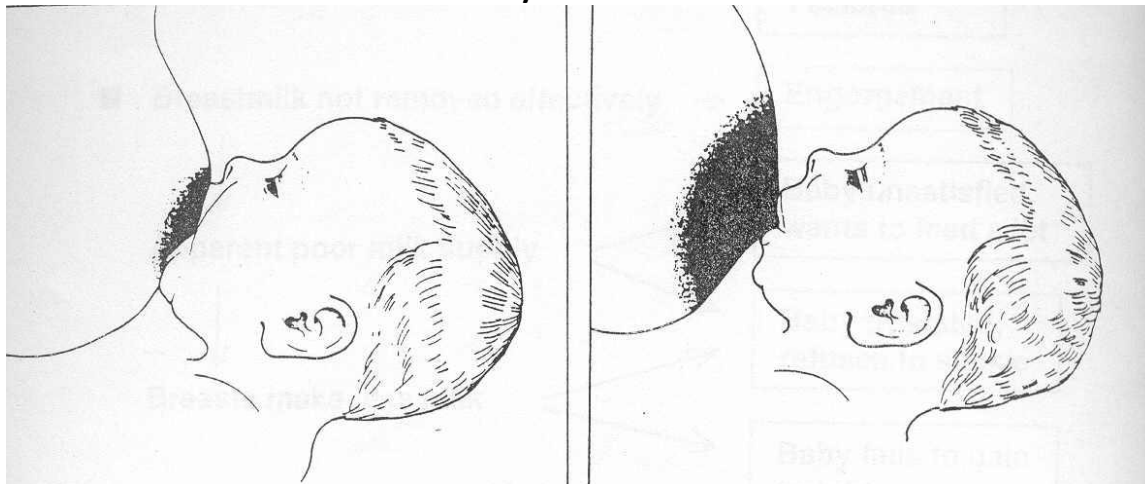
7) How frequently and how long should the child be breastfed?

It is necessary to feed the baby more frequently during the first seven days (atleast 8-10 times in 24 hours). In this period baby should be promoted to breastfeed every 1.5 - 2 hrs by giving close skin-to-skin contact and recognizing the early feeding cues. Only after child starts urinating frequently (more than 6 times in 24 hrs.) and starts gaining weight that the baby can be fed on demand i.e. whenever the baby wants and as long as she wants. Very few babies demand feeds with a regularity of 2-3 hours. Some sleep during the day and keep their mothers awake at night. Some have exactly opposite schedule. Some children do not follow any definite timetable. Some babies sleep for a long time and then after waking up feed very frequently for many hours and also urinate frequently. All these patterns should be considered as normal. The mothers should adjust her daily routine to suit baby's needs.

Some babies are fast feeders (finishing their breastfeed in 5 to 10 min.), while slow feeders may continue to suckle for as long as 30 to 45 min. Mother should feed on one side as long as possible because the milk which comes initially is rich in water & sugar (foremilk), while the milk which comes in the later part of the breastfeed is rich in fats (hind milk). It is necessary to feed the child frequently at night and there are no ill-effects associated with this. In fact, the mother produces more milk during the quiet hours of night. It is not mandatory for the mother to breastfeed in sitting position; she can also feed while lying down. She may find it more comfortable.

8) How should the mother hold the child while breastfeeding?

How baby suckles from the breast



Correct Attachment

Incorrect Attachment

Baby's Attachment (Refer to diagram above)

1. Max possible areola in baby's mouth (Lower portion more).

2. Mouth wide open.
3. Lower lip turned outward.
4. Chin touches the breast.

Baby's Position

1. Turned towards the mother.
2. Good skin to skin contact.
3. Head & body in one line.
4. Neck, back & buttocks well supported.

Mother's Position

1. Sitting comfortably with good back support
2. Holding breast in big 'C' grip of hand
3. Touches nipple to upper lip by bringing nipple in front of nose & gives mouthful of breast as soon as the baby opens the mouth widely
4. Interacting with baby while feeding

The instructor should demonstrate the different ways in which the mother can hold the baby.

Note: If child is more than one month old and it is certain that the baby is getting enough milk, it may not be wise to instruct the mother regarding attachment and positioning.

9. What is the cause of cracked / sore nipples? What is the remedy?

If the baby's attachment to the breast is not as described above (Answer 8) then it causes cracked/sore nipples. The prevention / remedy is learning correct attachment after this the mother should apply hind-milk to the cracked/sore nipple and leave it open to the air for some time. Frequent washing of nipple and areola with soap and water can cause drying and cracks by removing the natural oily substance which normally covers this area. Routine once a day cleaning of the breasts during bath is sufficient. Nipple may get cracked at the base if the child is taken away abruptly from the breast while feeding. Hence if the baby has to be removed from the breast, the mother should insert her little finger in baby's mouth and detach the baby slowly.

Note: To avoid cracked/sore nipples mother should learn the proper technique of attachment right from the first breastfeed. Ensuring that mother does not feel pain while feeding confirms good attachment.

10. What should a mother do if breasts get hard and lumpy (engorgement)? What causes this?

The mother starts producing milk (i.e. mature milk) from three to five days after the delivery. Excessive production of milk or incomplete emptying of breast (Infrequent suckling or poor attachment) will cause heaviness, hardening and pain (engorgement). Engorgement restricted to a part of the breast will give a lumpy feel. Engorgement of the breast tissue which is

normally present in the armpit will produce a lump there. Engorgement may sometimes be caused if the child has overslept and not fed.

Breasts become full and little heavy just prior to a breastfeed (Full Breasts). Breasts will start getting engorged if not emptied for some more time (Engorgement). Engorgement can be prevented by timely expression of milk (Appendix. 8) . Hence it is essential that every mother knows this technique of expression (The instructor should use the extensor aspect of a flexed elbow to explain the technique). Unattended engorgement can lead to increasing pain, redness over a part of the breast and fever (Mastitis). If neglected, this may progress to pus formation (Breast Abscess).

11. How long should the baby be breastfed? When should water, gripe water, balkadu etc be given to the baby?

The baby should be given only mother's milk (Exclusive Breastfeeding) for the first six months of life. Even water is not necessary during this period. Breastmilk contains enough water to take care of baby's needs even in summer.

It is unnecessary to feed the baby with traditional items like balguti, gripe water, balkadu multivitamin/mineral preparations etc. Feeding these items may cause frequent infections.. These substances may make the child less eager to breastfeed either due to partial satisfaction of hunger or due to presence of sedating chemicals. Proper complementary foods should be started at the end of six months. However breastfeeding should continue along with complementary foods at least till second birthday. Breastfeeding can be continued to some extent till the child is five years old because child's immunity matures only by this age. Continued breastfeeding till this age reduces the risk of various infections.

12. How to know that the baby is getting enough breastmilk?

There are two gold standards to know if the baby is getting enough breastmilk; of this, one can be easily observed at home. If an exclusively breastfed baby is **urinating at least 6-7 times in a day, i.e. in any 24 hour period**, it implies that she is getting enough. One can draw the same conclusion if the child **gains at least half a kilo, i.e. 500 grams every month**. These two tests cannot be used for about a week or two after birth when breastfeeding is getting established. During the first 3-5 days the baby passes urine infrequently and **a full term newborn loses 7-8 % weight**. Increasing urine output and weight after 3-5 days of birth indicate that the mature milk has come in and baby is getting it in good quantities. Baby regaining birth weight by 15th day of life has similar implications. Baby doubles her birth weight in about 5 months and triples in one year.

Many mothers complaining about less breastmilk would in fact report that the baby has frequent urination and a good weight gain. Mother of such a baby may feel that her milk is inadequate due to following reasons:

1. If a child cries excessively it is always taken to mean that the mother is not getting enough milk. A baby may cry for many reasons other than hunger. A baby can express any discomfort only by crying out.
2. Milk comes in between 3-5 days after delivery. This can sometimes cause heaviness and mild engorgement of the breasts. However after a few days this heaviness passes off and breasts again become soft. Hence mother may feel that she is not getting enough milk.
3. The child often sucks at fingers (mouthing); but this is quite common and does not necessarily imply that the baby is hungry.
4. After breastfeeding is established in about a week, spontaneous dribbling of milk may occur for a few weeks from the other breast while the mother breastfeeds. This stops later on.
5. Babies grow faster during some periods (Growth spurts). Babies feed frequently for longer periods during growth spurts.

Note: Frequent suckling (with correct attachment) makes more milk.

13. Should breastfeeding be stopped during mother's illnesses?

It is not necessary for a mother to stop breastfeeding even if she is suffering from fever/cold/cough/vomiting/diarrhoea/and many other common illnesses and infections. Since the mother and the child live in the same environment and are in close contact, the child is usually infected by the time mother shows the symptoms. The child may have a shorter illness because it gets the antibodies (immunity) produced in the mother's body through breastmilk.

14. Is it correct to enforce dietary restrictions on mother with the fear that some food substances can affect baby's health?

Breastmilk is produced from blood. Composition of blood remains unchanged irrespective of what mother eats and so does composition of breastmilk. However it is necessary that the mother takes a balanced diet and also eats some extra food to support lactation. Routine tradition of giving ghee enriched sweet preparations to a breastfeeding mother would stand to reason only if she is undernourished, or else this would only contribute to making mother more obese. The mother should avoid eating outside food due to the risk of contracting an infection.

15. Is it all right to use a bottle for giving water or milk to a child?

It is always unsafe to use the bottle. The risk of vomiting and loose motions (acute gastroenteritis) and other infectious diseases is much higher in bottle fed babies. Since it is

easier to feed from a bottle, the child may subsequently refuse to breastfeed (nipple confusion). While bottle feeding, child can accidentally aspirate milk (suck milk into lungs). This may endanger her life. It is always safe to use cup, wati-spoon or a glass to feed the baby.

16. How should a working woman combine work with breastfeeding?

Mother should try to take maximum possible maternity leave, major chunk of which should be enjoyed after delivery. Expressed breastmilk remains fresh for six hours at room temperature and for twenty four hours if kept in refrigerator (chiller compartment). The cold milk from the refrigerator should not be directly warmed over a flame. In summer, it should be allowed to come to room temperature or else it may be placed in a pot containing hot water. The working women should make use of this information. They can store the extra milk after each feed while at home or express and store milk at workplace if facilities permit (If these facilities are not available then mothers should periodically express milk and discard it to prevent engorgement and reduced milk supply). This stored milk can then be transported back home to be used next day. This stored milk can be fed to the child with cup (wati) and spoon when mother is at work. If feasible, the mother should try to come home to breastfeed the child in between working hours or mother can carry the baby to workplace if crèche facilities are available. She should try to get transfer or a new job nearer to her house. If a mother breastfeeds her baby more frequently at night, the child will demand less during the day.

Part 2: Family and Community Support

Though mother is the one who breastfeeds, it is often the paternal and/or maternal grandmothers who have a major role to play in infant feeding decisions. Hence it is necessary to give appropriate counselling to the family members and correct the wrong notions.

It is generally not appreciated that a mother's workload significantly increases after the baby's arrival. Hence no provision is made to share or take care of her responsibilities. If the baby cries excessively it is commonly interpreted that the breastmilk is inadequate and the mother is often forced to feed animal milk/formula. Hence for successful breastfeeding every mother must get help, encouragement, support and a favourable environment from her family members. Traditionally the would-be mother is sent to her mother's house for the first delivery. This custom is favourable for successful breastfeeding and should be encouraged. Ideally the period of this stay should be at least 4 months. Many communities believe that breastmilk in the first 3 days after delivery (Colostrum) being stale should be discarded. It is necessary to clear this myth. The strategy to counter the incorrect customs and practices prevalent in the community should be discussed during the training. This information should be used while designing the action plan. Following are additional points for discussion.

- What would be the reactions of the bystanders if a mother breastfeeds in a public place? Would the mother feel inhibited to breastfeed?
- How would the community react if a mother continues to breastfeed beyond one year?
- Is breastfeeding mother discriminated at the workplace? What facilities are available for expression and storage of breast milk?

Experienced mothers should give proper information/help and encouragement to the new mothers. This is called mother-to-mother support.

* * *

Part 3: Baby Caring Practices

General Hygiene

- It is necessary to clean one's hands and legs properly before handling the child after coming back from outside or before bathing the baby.
- It is necessary to keep a clean cloth on one's legs while bathing the child.
- Mother should not wash the breast before every feed. Washing the breast while bathing is all that is required.

Nails

- It is imperative that everybody handling the child should maintain proper nail hygiene
- Baby's overgrown nails should be pared taking due precautions. This can be best done with a pair of small scissors or a small nail cutter when the child is asleep.

Scalp

Heavy massage or patting with oil on scalp does not hasten the process of closure of fontanel (a diamond shaped soft space at the top of the head). This space closes by itself by 18 months of age.

Nose and ear

Do not put oil into child's nose / ears. The former may cause oil pneumonia / nose block and the latter can damage the ear. Earwax should not be routinely removed in infants.

Mouth

Do not clean a child's tongue / mouth with glycerine or by any other method. Some whiteness on the tongue is natural and does not interfere with feeding. Spotty / patchy white deposits on the tongue and all over the mouth are because of fungal infection (thrush). This needs treatment.

Breast and Vagina

Due to mother's hormones baby's breast tissue may get little enlarged and may start secreting milk in girls as well as boys. This milk should not be expressed. Expression causes further

enlargement and may lead to pus formation. Subsequently infection can spread in the blood. Similar hormonal effects in a female child can produce vaginal bleeding lasting 1-2 days. This should not worry the parents.

Bath

It is advantageous not to bathe the baby soon after birth. Bathing soon after delivery can lower the child's body temperature. It may also lead to skin infections. It delays the first contact with the mother as also the first breastfeed. Bathing can be entirely done away with in maternity homes. At home do not apply turmeric, gram flour and milk cream on baby's skin before bath as it causes skin infections, prickly heat and body rash. Do not try to remove hair from baby's body. These tiny hairs fall off later on. Use any mild soap and warm water for bath.

Umbilical cord and Umbilicus

Clean the child's umbilicus/umbilical cord with soap and water while bathing and dry it well after bath. Do not apply boric powder or any other medicinal powder/cream routinely and do not cover it with cotton or bandage. Do not tie the abdomen with a cloth. Some babies may have intermittent balloon like swelling of umbilicus, especially when child strains and disappears when the child sleeps. This is called 'umbilical hernia' and in a majority of children this will disappear by the second birthday. Do not tie a coin or any other object over the hernia. A persistently wet umbilicus many days after falling of the umbilical cord requires medical opinion.

Disinfectants

There is no need to add any disinfectant to child's bathing water or for washing child's clothes.

Powder and Oil

The use of talcum powder and oil is not necessary. While applying talcum powder, care should be taken that it does not enter into child's nose/ears/eyes as this can cause cough, allergy and nasal discharge. Talcum powder should be used with discretely. Ordinary coconut oil is good enough for massage. However oil massage can cause skin rash (especially in warm climates). Hence oil massage should be stopped if rash appears.

Eyes

The use of kajal (kohl) is dangerous. Some products may contain lead and can cause lead poisoning. The kajal particles may cause blockage of the duct connecting the eyes and nose, causing persistent watering of eyes. Do not use eye drops routinely. If there is discharge or watering from the eye, consult your doctor.

Smoke

Do not burn coal / wood or any other smoke producing substance to give heat fomentation to the child or the mother. The baby may suffer from cough and cold due to smoke. Mother can use non leaking hot water bags / electric devices which are readily available.

Hands and legs

The child is unable to straighten its limbs till 3-4 months of age. Therefore do not try to stretch the hands and legs forcibly while wrapping the baby or otherwise.

Thread

Do not tie a thread around the child's neck, waist or wrist. If desired, arms or ankles are better suited for this purpose.

Clothes

A baby should be clothed in simple cotton material. Baby should neither be overwrapped, nor under clothed. Former may cause fever and latter can cause hypothermia.

Nappies and nappy rash

Nappies can be prepared at home from a cotton cloth (Contact our trainers to learn this technique). These are cheap and as good as readymade nappies available in the market. Changing a nappy as soon as it gets wet will prevent nappy rash.

* * *

Part 4: Complementary Feeding and Nutrition

1. Definition and Logistics

Definition: Food that is offered to complement breastmilk in order to meet baby's growing nutrient needs is called complementary food (Target age: 6-24 months).

Recommendations state that breastmilk is sufficient for optimal growth till the end of six months (180 days). Complementary food is required beyond this period. It was earlier recommended to start complementary food at the end of 4 months. However this was till the end of six months because it was scientifically proved that giving exclusive breastfeeding till the end of six months is more advantageous than starting early complementary feeding.

These advantages and disadvantages are as follows:

- **Exclusive breastfeeding till the end of six months: Why?**
 - Advantages for the baby
 - Sufficient for optimal growth
 - All nutritional needs are met

- Protects from diarrhoea
- Enhances motor development (turning over, reaching out for objects)

Advantages to the mother

- Delays resumption of menses (Prolongs Lactation Amenorrhoea)
- Helps mother to lose extra weight gained during pregnancy.
- **Why not introduce complementary foods before end of six months?**
 - No growth advantage over exclusive breastfeeding
 - Increased risk of diarrhoea and weight loss
 - Displaces breastmilk and can affect total duration of breastfeeding
 - Intestine not fully mature to digest food

Breast milk should be continued along with complementary foods at least till second birthday. It would be ideal to continue breastfeeding in small quantities till end of five years. This would reduce the risk of infections because child's immunity is fully matured by then.

Why breastfeed in the second year of life

- 35-40% calories are derived from breastmilk.
- Breastmilk has larger fat content as compared to complementary food. Hence breastmilk is a richer source of fats and energy. Higher fat content helps better absorption of Vitamin A.
- During illnesses children prefer breastfeeding much more over food. This ensures that baby continues to get fluids and nutrients to some extent. Resistance power (antibodies) in breastmilk helps faster recovery.

2. General Instructions

Practice Responsive Feeding: Guidelines



- Baby needs to be completely assisted in feeding till 1 year of age beyond which lesser and lesser assistance should be given in order to make the child gradually independent.

- Feed the child slowly and with encouragement according to the skills developed but never force feed.
- Offer variety of foods to suit child's likes and dislikes.
- Avoid obstacles (e.g. television, gossiping with others) while feeding
- Promote child to eat by singing nursery rhymes and story telling.
- Success depends not only on what is fed but how, when and by whom

Eating with family during mealtimes encourages child to eat more than eating alone.

3. Care and recommendations while preparing complementary food

- Those who prepare, cook, feed the baby should wash hands thoroughly with soap and water (including baby's hands).
- Serve food fresh. Cover leftover food and serve it as soon as possible
- Bottle feeding to be avoided since it is difficult to keep bottles clean and it increases risk of infection.
- It is essential to maintain good hygiene and cleanliness in and around the house. This requires ample supply of clean water and good sanitation. Lack of these facilities increases risk of infections especially diarrhoea after six months of age.

It has been observed that following all above instructions and guidelines (2 and 3) enhances appetite, growth and development.

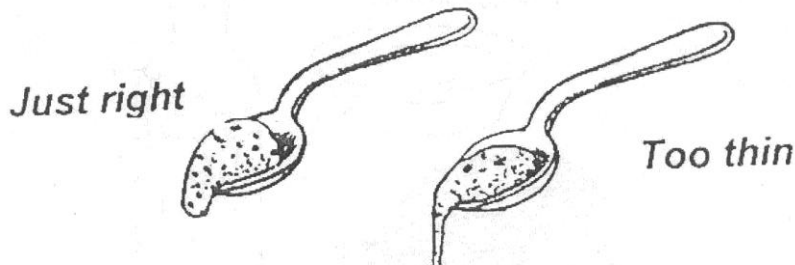
4. Quantity of complementary food:

With increasing age the proportion of complementary foods should be gradually increased with corresponding decrease in breastfeeding frequency.

Age in months	Calories from Breastfeeding %	Calories from Complementary Foods %	Suggested frequency for offering complementary foods	Quantity
6-9	70	30	2-3 times; gradually with breakfast, lunch, dinner	Start with 2-3 spoonful and increase to ½ wati per feed
9-12	50	50	3-4 times: As above and once in between meals: more than half of caloric intake	¾ wati to full wati
12-24	30	70	5 times or more: as above and twice in between meals	More than 1 wati as per child's needs

- Snacks: Food items which are convenient and easy to prepare, offered in between two meals and usually self-fed e.g. fruits, laddus, porridge, chiwda etc.

5. Appropriate Food Consistency: Initially should be like ghee



How to increase food consistency and type is explained in table below:

Age in Months	Food Type	Neuro-Muscular development
6 - 8	mashed	-----
8 -10	finger foods (avoid items like nuts, grapes and raw carrot pieces which can choke the child)	can open and close jaw (munching) and bite food to pieces by using front teeth (incisors)
10 – 12	home food	Can bite as well as chew (crush)

Wrong Practices:

- Feeding watery items as they are easy to swallow for the baby and save caretaker’s time.
- By ten months of age child should be eating family foods or else there is a risk of feeding difficulties later on (‘critical window’ for introducing ‘lumpy’ solid foods)

Hence slowly increase the consistency of complementary food for optimal growth of the baby

6. Menu

- Home food is best
- Avoid tinned and ready to eat food
- Avoid making separate food preparations for the baby unless routine family food is excessively spicy
- Avoid watery dal, rice water, soups, juices which only have water and no calories
- Snacks should be used in between meals or if food is not ready
- Freshly cut and softened fruits. A spoon can be used to scrape the pulp. Fruits should be properly washed before cutting or peeling
- Curd with sugar and salt
- 3 parts rice and 1 part of dal washed, dried and ground to a coarse powder. This can be stored in a tin for 7-10 days. When necessary this powder can be roasted with ghee and can be cooked with water and/or milk (with sugar or salt) to make a porridge (kheer).
- Kheer: Prepared from rava, wheat and nachani flour
- Cereals, pulses, vegetables, fruits together constitute a balanced diet. Sprouts and fermented food have better nutritive value and give protection against infection.
- Some children like sweet dishes while some may like spicy food. Children should be fed to their liking. 'Feeding sweet dishes and sweets lead to worm infestation' is a myth.
- Non-vegetarian food can be introduced after 9 months
- Foods like biscuits, noodles, wafers, chocolates, aerated cold drinks, cakes, pastries and sauce should be avoided.
- Animal milk or formula cannot be a part of complementary feeding. It can be used to prepare curd or kheer or can be given with rice or roti. If necessary, after second birthday animal milk can be given in a limited quantity. However do not use bottle to feed milk. Children should not be forced to drink animal milk.

Special instructions about nutritive values:

- Extra efforts required to meet needs of protein and iron through pure vegetarian diet
- Vitamin A rich fruits and vegetables need to be consumed daily
- Sufficient fats should be present in daily diet
- Nutrient poor drinks like tea, coffee and cold drink need to be avoided
- Avoid excessive consumption of fruit juices

7. Guidelines for a mother working in office/ farm or self employed

(Refer Part 1: Question 16: Page 15 and 16)

8: Feeding a child during and after an illness

- A sick child normally prefers to breastfeed and tends to avoid eating food. Hence breastfeeding ensures that the sick child continues to get at least a part of her caloric and fluid requirement. However child should be promoted to eat by offering soft, easily digestible and tasty foods. Offering small quantities more frequently also helps.
- During recovery child needs an extra meal per day for 15 days. This helps to regain the weight lost during an illness.

9. Depending on local availability, foods containing following nutrients should be used while preparing complementary foods

Vitamin A: Carrots, Tomatoes, Drumstick leaves / pods, Beetroot, papaya, mango, leafy vegetables, milk and milk products, egg yolk and fish are rich in vitamin A.

Vitamin B: Green leafy vegetables, milk, whole grains, cashew nuts, almond are good sources of vitamin B. The outer coat of rice grain contains good amounts of Vitamin B1. Hence rice should be lightly washed before cooking. Any attempts to whiten rice by thorough washing leads to loss of vitamin B1.

Vitamin C: All kinds of fruit-especially citrus fruits (lemons and oranges), oranges, amla, tomato, strawberry, leafy vegetables are rich sources of vitamin C. This vitamin is heat sensitive and hence gets destroyed while cooking. Hence fruits should not be pre-cooked e.g. Apple should be offered without prior steaming.

Vitamin D: After 4 months of age the baby should be kept open in sunlight. Vitamin D is formed in the skin on exposure to sunlight. All care should be taken to prevent sunburns and irritation to eyes. All exclusively breastfed babies need to be watched for signs of vitamin D deficiency. Vitamin D supplements should be given by medical advice if these signs appear. Mother's milk also contains vitamin D. Hence as long as breastfeeding continues, the mother should take calcium and Vitamin D tablets (at least 6 months to a year) and get sunlight exposure morning \ evening.

Combining cereals and pulses: A mix of cereals and pulses in a proportion of 3:1, provides first class proteins. Thus traditional dishes like rice- moong dal (), idli-sambar, dosa –sambar inadvertently provide first class proteins in this manner.

Fats: Children need more fats in diet than grown-ups. Hence children should be given extra servings of ghee and butter. If these sources are not available or affordable then, oil seeds ground-nuts, coconut, sesame, khaskhas, soyabean) should be used while preparing complementary food.

Iron: Though breastmilk contains less iron, it is more readily absorbed. Hence exclusive breastfeeding for 6 months meets the iron needs of the growing infant. Infant will not become

anaemic if she has sufficient iron stores at birth (these in turn depends on mother's body iron stores). Low Birth Weight babies (birth weight less than 2.5 kg) have deficient iron stores at birth and hence need iron supplements after 6 weeks of age.

Non-vegetarian foods, leafy vegetables, jaggery, dates, black currants are good sources of iron. Cooking food in iron utensils increases its iron content. Using lemon (vitamin C) increases the bioavailability of iron.

Zinc: Zinc deficiency predisposes to infections like diarrhoea and pneumonia.

Tonics and multivitamins: are not required by children

Water: Baby does not require water during first six months. Along with complementary food Boiled (at least for 10 minutes if possible) and cooled water should be introduced. Such water is germ free.

* * *

Part 5: Feeding and Nutrition of Low Birth Weight (LBW) and Premature Babies

Low Birth Weight (LBW) Babies: Babies weighing less than 2500 gms (2.5 kg) at birth are called LBW babies. The incidence of LBW babies is 28% in Asia and 30% in India.

Types of LBW babies:

Full Term SGA (Small for gestational age): A full term baby born with a weight of less than 2.5 kg is known as SGA baby. This can occur due to variety of reasons. These are babies who can be considered as being malnourished at birth.

Preterm: Baby born 3 weeks prior to expected date of delivery (before 37 weeks of gestation) is called a 'Premature baby' or 'Preterm baby'.

Preterm SGA: Baby born before 37 weeks of gestation with a weight which is less than expected for that gestational age is called 'Preterm SGA baby'.

Maternal malnutrition, anemia, hypertension, stress, urinary tract infection, malaria and maternal addictions (smoking and tobacco chewing) are important causes responsible for birth of LBW babies. Preventive programmes targeted at these causes will reduce the incidence of LBW babies.

Feeding babies between 2 kg- 2.5 kg: These babies do not need admission to 'Newborn Intensive Care Unit' if their condition is stable. Breastfeeding can be initiated by the same method recommended for normal babies i.e. Breast Crawl. Extra precautions are required to keep these babies warm [cap, warm clothes, wrapping up, hot water bag and Kangaroo care.

SGA babies tend to be hungrier than their normal counterparts and hence are more eager to breastfeed frequently. This helps the milk to come in earlier and in larger quantities. Preterm babies can get tired faster. Hence these babies need to be fed for longer duration (with intermittent rest) or to be woken up frequently for feeds. The trainer should demonstrate Kangaroo Mother care.

Feeding babies less than 2 kg: These are known as 'High risk LBW' babies and need to be cared for in 'Newborn Intensive care Unit'(NICU). Special precautions are necessary to keep these babies warm during transfer (as above). Thermocol box or better still transport incubators can be used to transport the baby. Baby should be given to the mother for her to hold, kiss and cuddle. Breastfeeding can be permitted for short duration if baby is breathing well. Babies with breathing difficulty and cyanosis (blueness) will need oxygen during transfer.

Breastfeeding can be initiated in NICU if the baby is stable or soon after this is achieved. LBW babies grow well on breastmilk alone. Prematurely delivered mothers produce special milk which has appropriate quantities of nutritional components to support rapid growth of their babies.

Premature babies need to rest frequently while taking their feed or need small frequent feeds. Babies born too prematurely may not be able to feed directly at the breast for many days and hence need feeding of expressed breastmilk by wati-spoon. Over a period of time these babies learn to suckle directly. In fact babies born before 32 weeks of gestation do not have coordinated suckling and swallowing and need to be fed by tube (nasogastric or orogastric).