

Topic: fellowship tanning and filled experience on nutrition and health



Submitted To

Dr. Md. Bellal Hossain

Professor & Head

Department of Nutrition & Food Engineering

Faculty of Allied Health Sciences (FAHS)

Daffodil International University

Submitted By

Saifun naher shika

ID - 151-34-367

Department of Nutrition & Food Engineering

Daffodil International University

Date of Submission

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LETTER OF TRANSMITTAL

December 20, 2018

Dr. Md. Bellal Hossain

Professor & Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences (FAHS)

Daffodil International University

Subject: Submission of internship report.

Dear Sir,

I would like to take this opportunity to thank you for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete.

To prepare the report I collected what I believe to be most relevant information to make my report as analytical and reliable as possible. I have concentrated my best effort to achieve the objectives of the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate if you enlighten me with your thoughts and views regarding the report. In addition, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Yours Sincerely,

Saifun Naher Shika

ID:151-34-367

Daffodil International University

Declaration regarding the validity of the Internship Report.

Dear Sir, Subject

This is my truthful declaration that the “**Internship Report**” I have prepared is not a copy of any Internship Report previously made by any other students.

I also express my honest confirmation in support to the fact that the said Internship report has neither been used before to fulfill my other course related nor it will be submitted to any other person in future.

Yours Sincerely,

Saifun Naher Shika

ID: 151-34-367

Approval Certification

This is to certify that Saifun Naher Shika ID-151-34-340, Program B.Sc. in Nutrition & Food Engineering is a regular student department of Nutrition & food Engineering Faculty Allied health Science Daffodil international University. She has successfully completed her Internship program of two weeks in icddr,b Mohakhali, Dhaka-1206, on Fellowship Training and Field Experience on Nutrition and Health and completed this report on November 18, 2018 under my direct report is a worth of fulfilling the partial requirements of NFE program.

Dr Tahmeed Ahmed

Senior Director,
Nutrition and Clinical Services,
icddr,b
Mohakhali, Dhaka-1206.

Acknowledgement

I would like to express my sincere gratitude and appreciation to fouzia akter, internship supervision, for providing me with the wonderful guidelines to work in the research area of icddr,b. Again my wishes for her expert guidance and mentorship, patience, understanding, support and encouragement at all levels to complete internship works through the dissertation for under graduation program.

My special thanks to Dr.Tahmeed ahmed, Dr.Iqbal Hossain, Dr. sayda hoque and Anuwara parvin also sajeda parvin mam for providing me with the wonderful guidelines to work in the research area of icddr,b. without her help, support and supervision it would not be possible to complete my internship.

In addition, my sincere thanks to icddr,b diet unit, clinical unit also breastfeeding unit for giving me the opportunity to complete my internship.

Lastly, I would like to extend my sincere thanks of this dissertation to my parents for unlimited love support, their encouragement during the bad times and their enthusiasm during the good times gave me constant inspirations in future life.

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1. Introduction

icddr,b (formerly known as the **International Centre for Diarrheal Disease Research, Bangladesh**) is an international health research organization located in Dhaka, Bangladesh. Dedicated to saving lives through research and treatment, icddr,b addresses some of the most critical health concerns facing the world today. It mainly works on diarrheal disease, this organization invented the home-made saline. icddr,b was established in Dhaka in the 1960s. Bangladesh, Canada, Sweden, and the UK are the core donors of icddr,b.

I work on the Topics and method:

- What is nutrition and food?
- Suitable foods for the treatment of diarrheal diseases and under nutrition.
- Assessment of nutritional status: anthropometric techniques, Z scores and their interpretation.
- Management of acute malnutrition in under-5 children.
- Preparation of therapeutic diets (F-75, F-100, ReSoMal, Low-lactose containing infant formula, Milk suji, Rice Suji, CC, Khichuri and Halwa) for acute malnutrition and diarrheal diseases.
- Nutritional rehabilitation of severely malnourished children.
- Ward round and observation of case management with particular interest in feeding and dietary intervention.
- Observation and taking part in the health and nutrition education sessions in the wards and nutrition rehabilitation unit.
- Breast feeding counselling.
- Re-lactation technique.
- Discussion on different types of research methods.
- Discussion on preliminary statistical methods.

2. Definition

Nutrition

Nutrition is the science that interprets the interaction of **nutrients** and other substances in **food**. Nutrition helps to maintain metabolic and physiological responses of the body to diet. Essential **nutrients** include protein, carbohydrate, fat, vitamins, minerals and electrolytes.

Due to lack of nutrition human beings suffer lots of problems. Such as night blindness, anemia, protein energy malnutrition etc.

FOOD

We need food to live, to grow, it gives us energy to work, walk, play, etc. There are 5 major types of food such as **protein, carbohydrate, fat, vitamins, and minerals**.

Diarrhea

More than three times loose motion call diarrhea. They are three types are diarrhea.

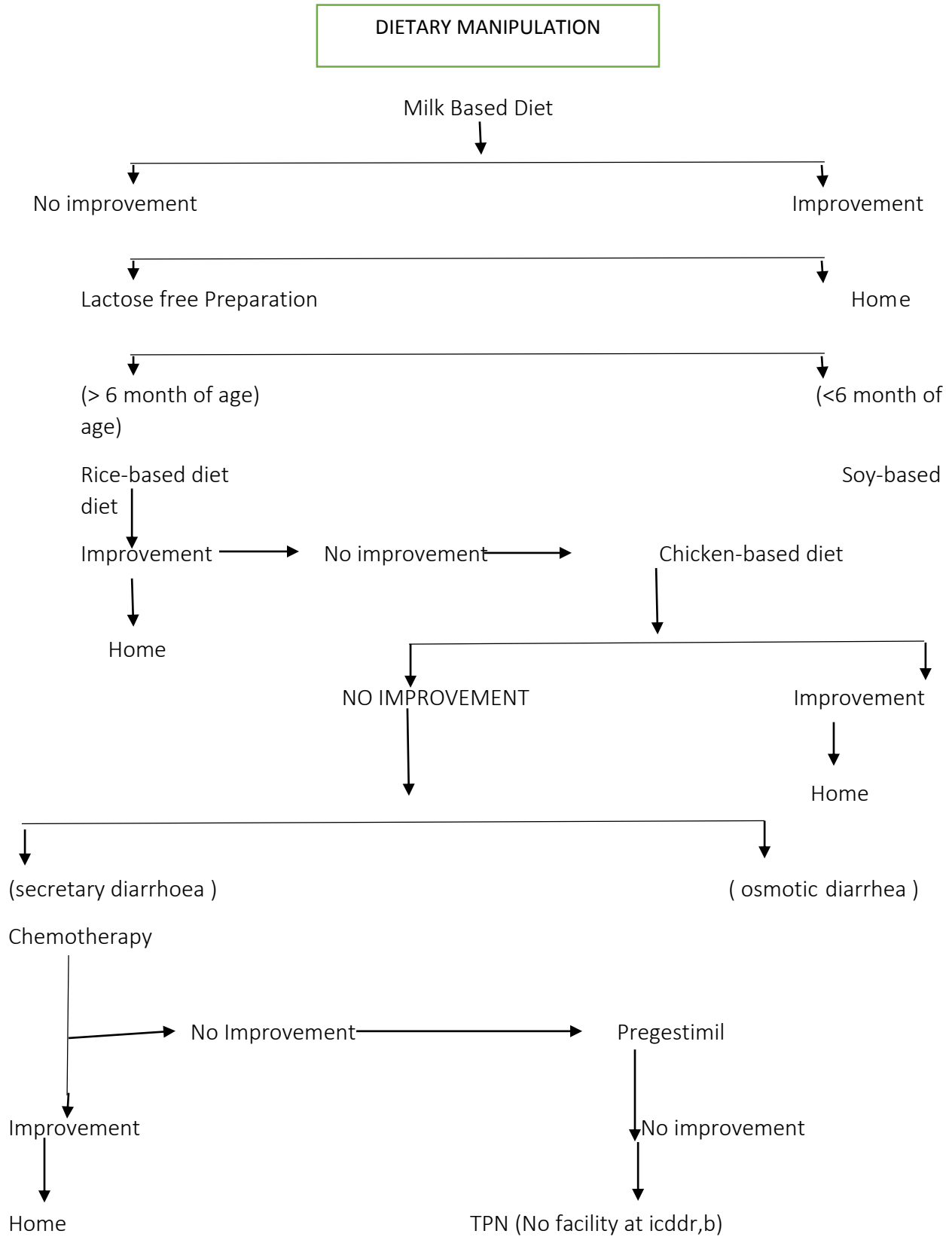
Acute Watery diarrhea. (Sudden start several hours or three or four days)

- Persistent diarrhoea. (loose motion more than 14 days)
- Dysentery (loose motion blood)

3.Suitable foods for the treatment of diarrheal

First of all patient give oral saline, then according to the body condition of the patient first off all give therapeutic diet f-75 and f-100. F-75 is the starter of diarrheal patient ,according to the WHO standard icddr,b use milk suji,modified infant formula, alternate or f-75 .milk suji use for the >6 month age to adult patient ,and modified infant formula, use for < 6 month age baby. Alternate of f-100 use milk suji- 100, its call the catch –up diet, when the patient condition is batter before then milk suji provide for gain the body to normal condition, most of the time patient recover after receiving f-75 then go home ,if not then f-100 is provide.

After providing f-75,f-100 diet patient is not recover then lactose free diet provide for > 6 month age children and say-based diet for the <6 month age children, if the patient recover the go home if then provide Chicken-based diet ,if not recover then provide secretary diarrhea chemotherapy if not then pregestimil after then no improvement then finally need TPN. TPN facility is not available at icddr,b. TPN is not needed for everyone its needed for 1 people in the amount of 1000 people.



4.Suitable foods for the treatment of under nutrition

IN Bangladesh most of the people are poor. Fighting with the poverty in our society most of the child under 5 years are malnourished. icddr,b also work on under nutrition child. Under nutrition means stunting, wasting, under weight problem.

Stunting: low height for age. It's a long term malnutrition effect

Wasting: low weight for height. Short term malnutrition effect.

Under weight: low weight for age .its contain short term, long term malnutrition effect .its highly affected by long term malnutrition.

Two types of malnutrition such as:

- 1 Severe acute malnutrition (SAM)
2. Moderate acute malnutrition (MAM)

CLINICAL SIGN FOR SAM, MAM:

DUE TO acute malnutrition (SAM) AND Moderate acute malnutrition MARASMAS, KWASHIORKOR AND MARASMIC KWASHIORKOR OCCURE.

F-75 is the “starter” formula used during initial management of malnutrition, beginning as soon as possible and continuing for 2-7 days until the child stabilize .severe malnourished children cannot tolerate normal amount of protein and sodium or high amounts of fat. They may die if given too much protein or sodium.F-75 has is specially mixed to meet the child needs without overwhelming the body's systems in the initial stage of treatment.F-75 contains 75 kcal and 0.9 g protein per 100 ml.

As soon as the child is stabilized on f-75,F-100 use a “catch up” formula to rebuild wasted tissue .F-100 contains more calories and protein .100 kcal and 2.9g protein per 100 ml .

After that if the gradient of the child agree to stay nutrition rehabilitation unite after admitted NRU > 6 age children given khichuri which contains 1442 kcal and 29.6 g protein. Also provide HAWLA contains 2404 kcal and 50.5g protein. There is also provide Electrolyte –mineral solution.



For physiological stimulation of child, trained the mother for prepare different types of toy.when the child recover a certain stage then then they allow to go home and there mother tech about prepare khichuri and halwa.

5.Preparation of therapeutic diets (F-75, F-100, ReSoMal, Low-lactose containing infant formula, Milk suji, Rice Suji, CC, Khichuri and Halwa) for acute malnutrition and diarrheal I diseases

Therapeutic diets F-75

According to the economic status and availability of food in Bangladesh icddr,b use Milk suji that contains ---

Milk powder-35 g

Rice powder: 35g

Suger-70g

Soybean oil-20g

Mgcl-.5g

Kcl-1g

Cacl-2g

Water-1000 ml up to.

Then all the elements mixed homogenously. Then cook .it stroge 6-8 hours in room temperature and 24 hours in refregarators

For cooking

1. all the elements mixed homogenously in 1 litter measuring jar
2. slowly add cooled boiled water up to 1000ml
3. Transfer of cooking pot and whisk the mixture vigorously
4. Boil gently for 4 minute, steering continuously .maize-flour based recipe should be boil for longer period.
5. Some water will be evaporate while cooking .so transfer the mixture to the measuring jar after cooking and add enough boiled water to make 1000mi.whisk again

Dose not need cooking

Milk powder-35 g

Suger-100g

Soybean oil-20g

Mgcl-.5g

Kcl-1g

Cacl-2g

Water-1000 ml up to

For pre-pack F-75 preparation need the following step:

- 1 .add one packet of F-75 two litter of water
2. Where very few children are being treated, smaller volume can be mixed using the red scoop (20 ml water for F- 75 powder)
3. Close the F-75 sachet appropriately by rolling down the top.

For the children under 6 month give low lactose diet .its contain 68 kcal per 100 ml,1.5 protein per 100 g protein energy ratio9%.and fat energy ratio47%.

Milk powder-60 g

Suger-50g

Oil edible-20g

Magnesium chloride-.5g

Potassium chloride-1g

Calcium carbonate -2g

Water-up to 1000 ml

Use same preparation method as milk suji for cooking .It storage 6-8 hours in room temperature and 24 hours in refrigerators. Its provide for under 6 month children 10 ml per kg per 2 hour.

Therapeutic diets F-100

According to the WHO standard F-100 contains the below compositions:

MILK –110 gm.

SUGER—50 mg

OIL—30ml

WARM WATETR—200 ml

Kcl—1 gm.

Mgcl—0.5 gm

WATER—1000 INCLUDE WARM WATER

AND that does not need cook.

For pre-pack F-100 use same preparing method as f-75.

It storage 6-8 hours in room temperature and 24 hours in refrigerators.

According to the economic status and availability of food in bangladesh icddr,b use Milk suji - 100 that contains ---

Milk powder-80g

Rice powder-50g

Suger-50g

Oil edible-25g

Magnesium chloride-.5g

Potassium chloride-1g

Calcium carbonate -2g

Water-up to 1000 ml

Milk suji need to cook.It stroge 6-8 hours in room temperature and 24 hours in refregarators.

Preparation of therapeutic diets ReSoMal

ReSoMal contains below ingredient:

Water(boild and cooled)—850 ml

WHO –ORS--one 500 ml-packet

Suger--20 mg

Mineral solution—16.5 ml

Preparation of therapeutic diets Rice Suji

Rice powder—gm

Egg –100gm

Glucose –35gm

Magnesium chloride-.5g

Potassium chloride-1g

Calcium carbonate -2g

Nacl—1gm

Water—after cook volume 1000 ml

6.Preparation of therapeutic diet communitied chicken

Two types of communitied chicken

1. 3/ 4 strength comminuted chicken
2. Full strength comminuted chicken

3/4 strength comminuted chicken contains:

chicken --150gm

oil edible –20gm

glucose – 30gm

onion—10gm

salt—1gm

Magnesium chloride-.5g

Potassium chloride-1g

Calcium carbonate -2g

After cook volume 1000ml

Its contain 46 kcal per 100 ml and 3.8 gm protein per 100 ml

Full strength comminuted chicken contains:

chicken --180gm

oil edible –30gm

glucose – 35gm

onion—10gm

salt—1gm

Magnesium chloride-.5g

Potassium chloride-1g

Calcium carbonate -2g

After cook volume 1000ml

Its contain 60 kcal per 100 ml and 4.7 gm protein per 100 ml

7.Composition & Preparation of Khichuri



Composition of Khichuri

Rice -120gm

Lentil-60 gm

Oil-70ml

Pumkin-100gm

Potato-100gm

Leafy vegetable-80gm

Onion—50gm

Spice-50 gm

water-1000ml

total water of Khichuri 100gm

its contains 145 kcal and 3 gm protein per 100 gm

preparation of Khichur:

- 1.all the element wash properly
- 2.peal and chopped the all vegetable and onion
- 3.add oil in the cooking pan and pour all the element in the pan
- 4.add spice
- 4.then add water and cook for half an hour

Preparation of therapeutic diets halwa



Wheat flour-200 gm

Lentil-100 gm

Oil-100ml

Molasses(brown sugar)-125gm

water-600ml(to make a thick paste)

total weight of halwa 100g

halwa contain 240kcal and 5gm per 100 gm

for cook of halwa

1.all the elements mixed homogenously

2. Slowly add cooled water

3. Transfer of cooking pot and whisk the mixture vigorously

4. Boil gently for 10 minute, stirring continuously.

4. Some water will be evaporate while cooking .so transfer the mixture to the measuring jar after cooking and add enough boiled water to make 1000ml.whisk again

8.Anthropometry

'ANTHROPOS' means man, 'metrics' is measurement

Measurement of body weight and dimensions, and the subsequent interpretation of the measurements in relation to appropriate reference data.

- **Building blocks of anthropometry**

1) SEX

2) AGE

3) WEIGHT

4) LENGTH or HEIGHT

Indices used for infants & children

Weight-for-age (WA)

- Low WA indicates underweight
- Unable to distinguish chronic or acute undernutrition Weight-for-age (HA or LA)
- Low HA indicates stunting (reduced linear growth)
- Chronic/ long term undernutrition
- LA: for <2 yrs or unable to stand
- HA: for > 2 yrs
- Weight-for-height (WH or WL)
- Low WH indicates wasting , a deficit in wt compared to the expected wt for the same length/ht of a person with same sex
- Acute / recent undernutrition
- Useful when exact age is difficult to determine
- WL for < 2 yrs
- WH for > 2 yrs
- Appropriate for examining short-term effects

Anthropometry tools

We use below tools for measurement:

1. Salter scale (use for infants and young children)



Can measure up to 25 kg,

Accuracy 100 g

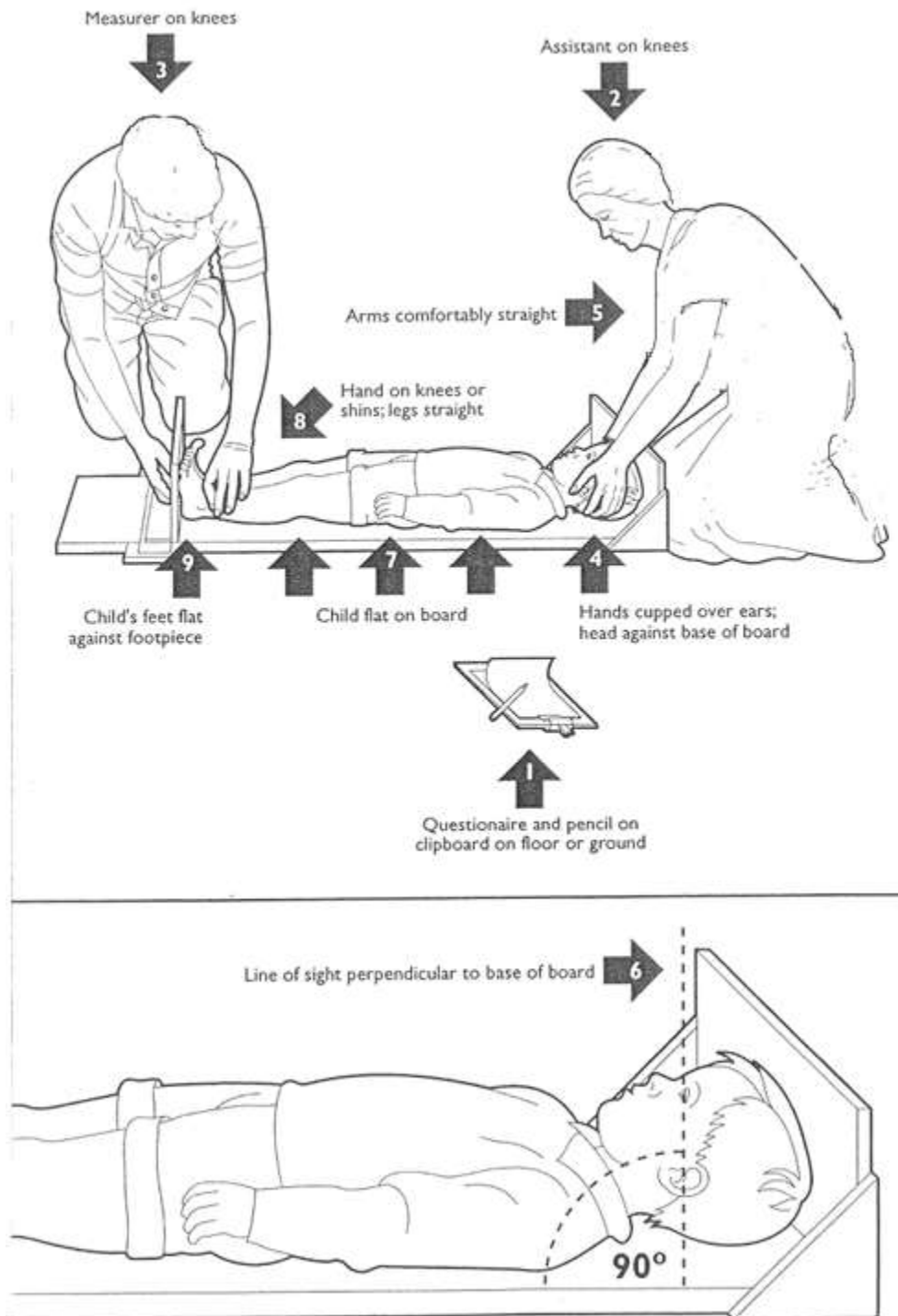
2. Weight measurement by floor type weighing scale



Can be measure up to 150g

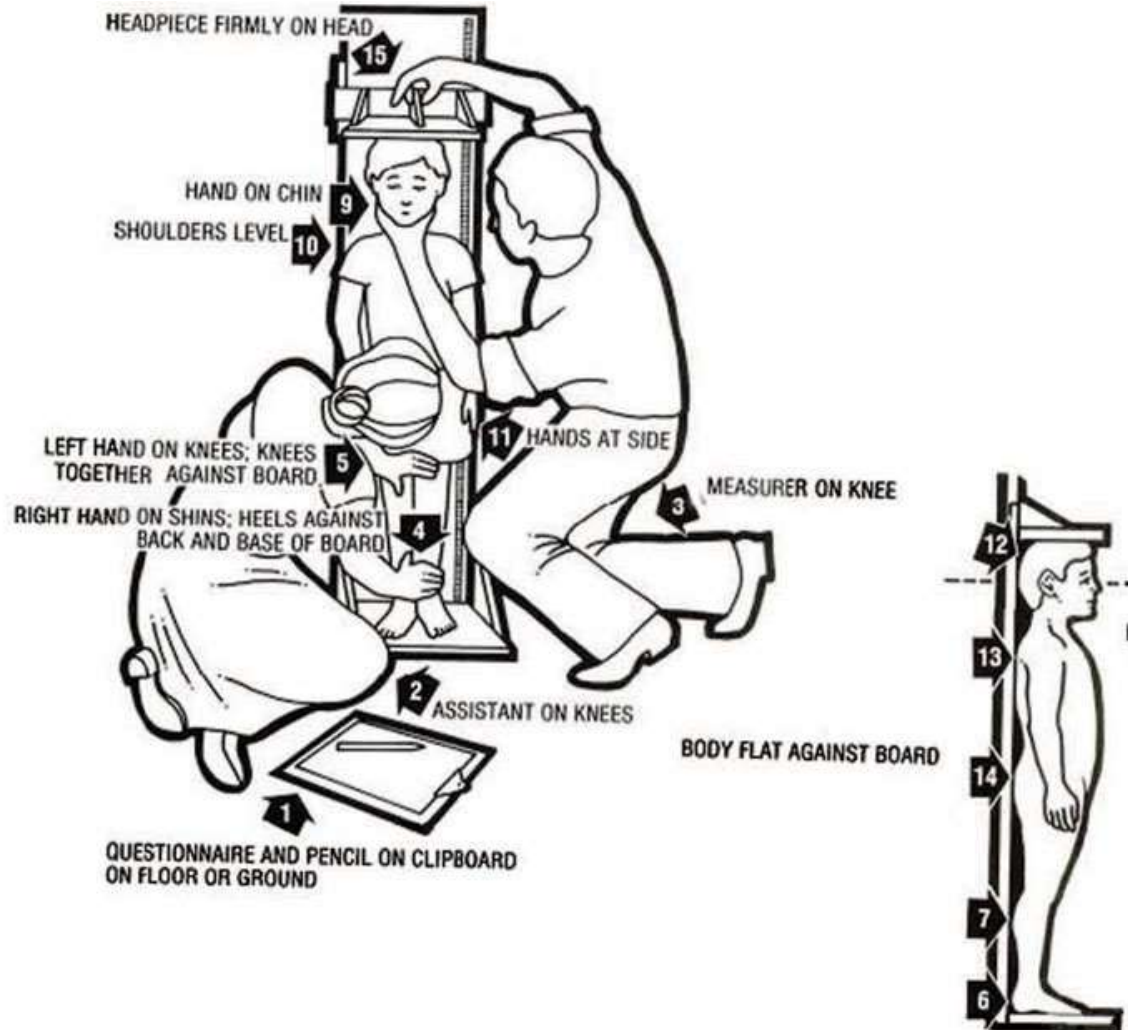
Accuracy 100g

3. Measuring length using length board. (Children less than 2 years)

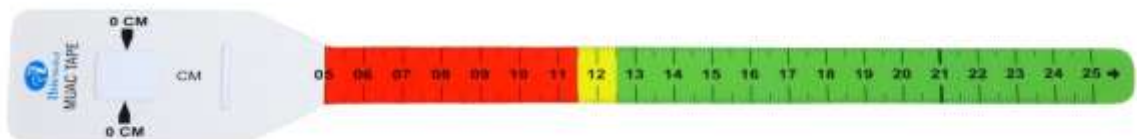


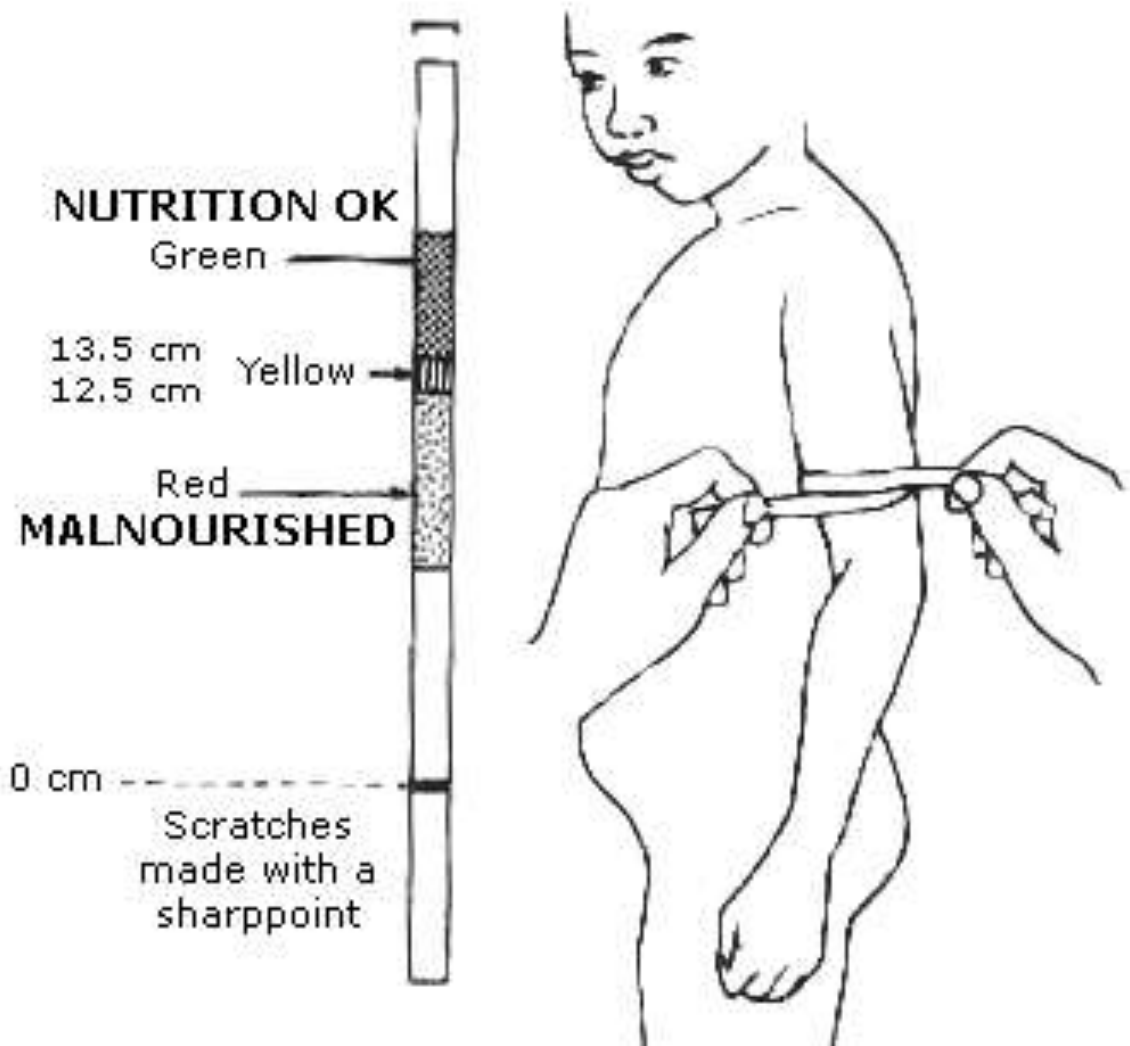
Accuracy 0.1cm,

4. Measuring height and weight of children and old adult using a single machine



5. Measuring mid-upper arm circumference use three colour measuring taps .use for 6 month to5 years.





Severe acute malnutrition (SAM)--- <11.5 CM

Moderate acute malnutrition (MAM)----11.5 to 12.5CM

OBSERVED VALUE - REFERENCE VALUE

Z SCORE=

STANDARD DEVIATION OF REFERENCE POPULATION

9. Management of acute malnutrition in under-5 children

Malnutrition: it is a disease created by relative or absolute deficiency or excess of one or more nutrient.

Two types of malnutrition

1. under Nutrition



2. over nutrition



icddr, b work on .under nutrition children , most of the child face protein energy malnutrition .

when child admit in the hospital with diarrhea with the treatment of this child also be treated for malnutrition .during treated time according to the age and body condition give the patent therapeutic diets F-75, F-100, ReSoMal, Low-lactose containing infant formula, Milk suji, Rice Suji, comminuted chicken for acute malnutrition and diarrheal I diseases .after recover from diarrhea according to the gradient preferences malnourished child sift to nutrition rehabilitation unit from longer stay unit.



Then first off all give halwa as attest diet, if they eat 2/3 of this halwa its prove that their appetite is better than before .every child give halwa 10 gm per body weight per day. Malnourished child should not provide any salt because that is harmful for their health .then give them Khichuri as a diet. Unfortunately if any child suffer diarrhea again sift them to the longer stay unite. child $WA < -4z$ or $WL/WH < -3$ Z score of WHO standard they admitted in the nutrition rehabilitation unit of icddr,b and they stay minimum 7 days in NRW . When they weight gain minimum 15% to 20 %,no edema and $W/L < -2$ Z then the discharge from NRW . IN that 7 days they are treated according to their body problem and give proper diet for prevention problem .when the back home every mother or caregiver teach about the diet making in house .called them for next followup.



Mothers at icddr,b's Nutrition Rehabilitation Unit learn preparing therapeutic foods from local ingredients.

10.Ward round and observation of case management with particular interest in feeding and dietary intervention

In icddr,b we round at short stay unit ,long stay unit ,ant NRU observe the patient.

In short stay unit most of patient stay for several hour and back home. In there all patient are admitted with a very short time loose motion or diarrhea .all of the patient give sline as a diet ,and all the caregiver give sline after every time loose motion and if needed give some medicine .when they back home every mother or caregiver teach about the home made method of sline processing and the rule of consume.

In longer stay unit: in there three types of sub unite

1. nutrition ward
2. gastrointestinal ward

3. ARI Word

nutrition word:

in this word all patient have nutritional problem with diarrheal disease problem. nutritional problem means under nutrition (marasmus, kwashiorkor, marasmic kwashiorkor) if the patient is less than 6 months than provided F-75 diet as an infant formula. if the patient is greater than 6 months than provided F-75 diet as a milk suji. Marasmic / marasmic kwashiorkor children provide 10 ml /kg/ feed in 1st day, after every 2 hours frequently. And 2nd day provide 12 ml /kg/ feed in 2 hours frequently. Kwashiorkor children provide 9 ml /kg/ feed, after 2 hours frequently.



Marasmus child



kwashiorkor child

Gasteointestational word :

if any diarrheal patients remain GI(gastrointestinal tract) problem stay in GI word.with the GI medicine all patient provide same diet as nutrition word.

Ari word :

with diarrheal disease which patient have other problem they have sift in ari word . all patient provide same diet as nutrition word with other disease medicine and dite.

Observation and taking part in the health and nutrition education sessions in the wards and nutrition rehabilitation unit

10. Follow Up Unite:

Last of all we visit the nutritional follow up unite. In there all discharge patient came after 7 days to follow up, than again weight and height measurement if the patient weight is below or less than before then they again sift to NRU for further treatment. Or weight is better than before than mother show again how they make khichuri and halwa at home.

11. Breast milk

Breast milk is the milk which is produced by the human female mammary glands to feed a child. Milk is a primary source of nutrients and first food of human child.

Types of breast milk :

Colostrum milk : is the first stage of breast milk.

Transitional milk : after birth of the newborn baby which milk is produced at the day of 2-5 & continues 10-14 days that's called transitional milk.

Mature milk: which milk is thinner and more watery than colostrum and transitional milk that is mature milk. It is produced after 15 days of baby birth and continues several times.

Composition of breast milk: Colostrum milk contains

Lactose: 5.3 gm

Protein: 3.7 gm

Fat: 2.9 gm

Energy : 58 kcal

Transitional milk contains less lactose, protein, fat, mineral, and energy than colostrum milk.

Mature human milk contains: 3%--5% fat, 0.8%--0.9% protein, 6.9%--7.2% carbohydrate calculated as lactose, and 0.2% mineral constituents expressed as ash. Its energy content is 60--75 kcal/100 ml

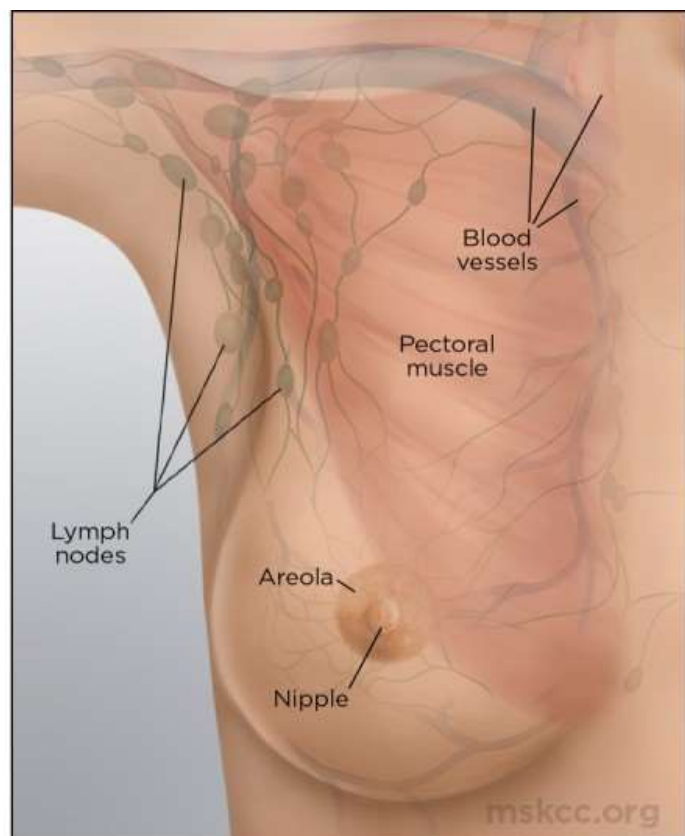
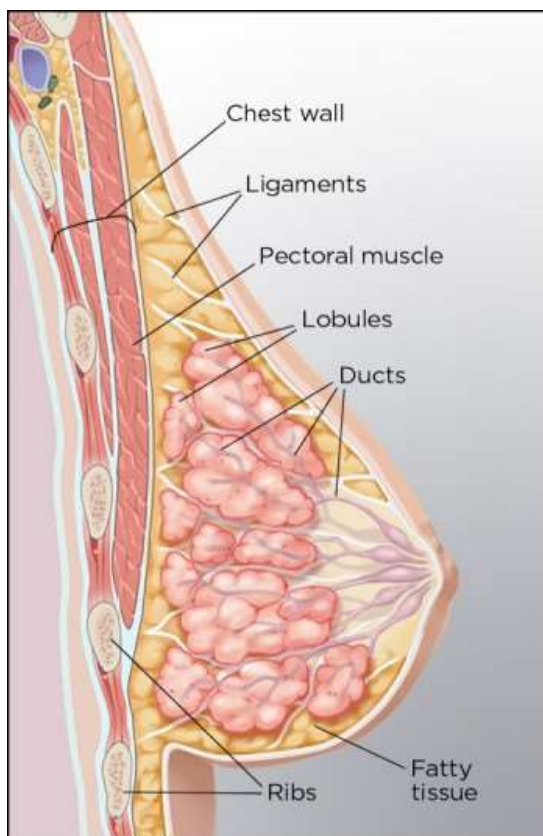
Fat: 3%--5%

Protein: , 0.8%--0.9%

Lactose: 6.9%--7.2%

Mineral:0.2%

energy content is 60--75 kcal/100 ml



Breast milk is produced by the female mammary glands from which it travels through milk ducts to an opening in the nipple of the breast. Colostrum milk is the first milk produced. When a baby suckles at the breast, the body releases the hormones prolactin and oxytocin. Prolactin controls milk production and oxytocin controls the release and letdown of milk through the milk ducts.

Health benefit of breast milk:

Breast milk contains essential fatty acid , such as

1. linoleic acid (it help to remain better eye health)
2. alpha- linoleic acid(help to brain development)
3. its help to better blood circulation all over the body.
4. Maintain the optimum balance of nutrient
5. Produce antibody to support the immune system
6. Reduce risk of asthma , allergies , colic, obesity , diarrhea and certain ear and lung infection , easily digest nutrient, reduce the baby risk of certain death syndrome.
7. Breast feeding is an inexpensive way to nourish a baby , and also helps to mother to excess body weight a very much good bonding between mother and baby.

Brest feeding counselling



When patient came to the hospital with diarrheal disease first off all take the history of diet if the patient is less than 6 months then the doctor asks the mother or caregiver if she has done exclusive breastfeeding? if she said yes that's ok and if she said no then the doctor asks her which type of food she gave her baby and why? if she is able to breastfeed her child but not trying then with diarrheal disease treatment try to counsel for exclusive breastfeeding.

First of all the counselor find out the cause of the non breast feeding practice of mother .

If the mother said she have not enough time to breast feed her child time to time , so she bottle feed her child .than the councilors said about importance of breast feeding and its benefits of breast milk for the baby. If the mother is employed than said her to store her breast milk in a sterile container for her baby further feeding.

If the mother said her child not get enough milk from her so she feed baby other food .then the counselor said about the attachment of mother and child.and position of the feeding practice,

Technic of breast feeding

There are four basic breast feeding position.

1. Cradle hold position



2. Cross cradle hold



3. Side line hold

Breastfeeding positions Side Lying



www.breastfeedo.com

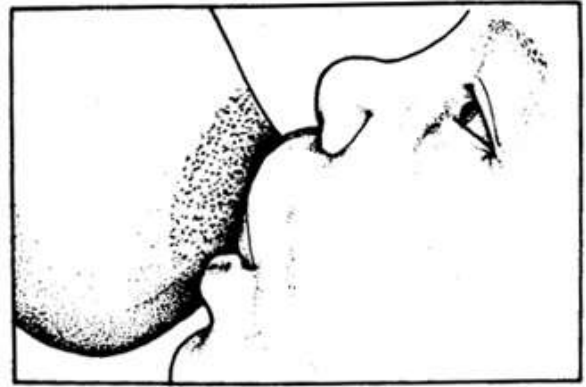
4. Football hold



Technic of breast feeding



Fig.1 a. A baby well attached to his mother's breast
(Fig.19 in Participants' Manual)



b. A baby poorly attached to his mother's breast

the newborn baby by born with the instinct to born to nipple with an open mouth and suck to triggers this instinct lightly stroke breast nipple downward under the baby's nose to the lip when the baby open his / her mouth position the breast nipple toward the roof of the mouth and pull baby close to mother breast .it may sometimes for the baby to learn to get his/ her mouth around the nipple.when properly latched baby mouth cover the nipple and most of the areola the dark area around the nipple the baby's lips will curl out and his / or nose will touch the breast.mother hear the smoth regular sucking sound along with swallowing .with this sound the baby ensure he/she get proper milk.

Re-lactation technique Breast feeding

Re-lactation is the process of resuming breast feeding after a period of not breastfeeding or any one do not initially breastfeed when baby was born.

Re-lactation technique:

1. ensure mother and baby skin attachment properly.
2. positioning the baby in a right way.
3. carefully notice baby mouth cover the dark area around the nipple lips will curl out and his / or nose will touch to the breast.
4. Press the breast towards the baby mouth.
5. never force the baby to the breast. dropping breast milk on the areola towards the nipple, that can be encourage a baby to lick the baby and latch.
6. offering one breast for one time feeding.
7. more prolactin produce at the night so mother should be feed more time at night.
8. avoid peal or same type of medicine that reduce the milk production.
9. ensure that the baby get proper milk, if the baby gain weight 500 gm per month and urinate 6 time per day than that is ensure he/she get proper amount of milk.

13.SUMMAER

After all the seasons' we know about the diarrheal disease ,management of malnourished child under 5 years, proper diet for this patient,also know about importance of breast milk for the baby,proper position of breast feeding etc.its a great lessons for us.