



**Internship report on
Fellowship Training and Field Experience on Nutrition and Health**

Submitted to:

Dr. Md. Bellal Hossain

Professor & Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

Submitted by:

Nahida Parvin

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Department of Nutrition & Food Engineering

Daffodil International University

Date of Submission: 20/12/2018

LETTER OF TRANSMITTAL

Date: 20/12/2018

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 this opportunity to thank you for the guidance and support you have provide 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 requested you to excuse 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 reading the report. In addition if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Sincerely Yours,

Nahida Parvin

ID: 151-34-350

Department of NFE

Daffodil International University

Letter of Authorization

20th December 2018

Dr. Md. Bellal Hossain
Professor & Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Sciences
Daffodil International University

Subject: Declaration regarding the validity of the Internship Report.

Dear Sir,

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,

Nahida parvin

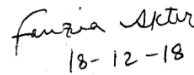
ID: 151-34-350

Approval Certification

On the behalf of the university, this is to certify that **Nahida parvin** bearing ID: **151-34-350**, Program B.Sc. in Nutrition & Food Engineering is a regular student, department of Nutrition & food Engineering, Faculty of Allied health Sciences, Daffodil International University. He has successfully completed his Internship program of two weeks in ICDDR, B Mohakhali, Dhaka-1206, on Fellowship Training and Field Experience on Nutrition and Health. Then he completed this report on November 18, 2018 under my direction. We aware that **Nahida parvin** completed his internship report by observing our teacher. In addition, I ensure that his report is a worth of fulfilling the partial requirements of NFE program.



Dr. Md. Bellal Hossain
Professor & Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Sciences
Daffodil International University
Dhaka



Fouzia Akter
Senior lecturer
Supervisor
Department of Nutrition Food Engineering
Faculty of Allied Health Sciences
Dhaka

Approval Certification

This is to certify that **Nahida parvin**, ID-151-34-350, Program B.Sc. in Nutrition & Food Engineering is a regular student department of Nutrition & food Engineering, Faculty Allied health Science Daffodil international University. He has successfully completed his 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. We are aware that **Nahida parvin** had completed his Internship by observing our Administering and Employee.

Dr Tahmeed Ahmed
Senior Director,
Nutrition and Clinical Services,
ICDDR, B
Mohakhali, Dhaka-1206.

ACKNOWLEDGEMENT

All praises and gratitude to almighty, the most beneficent and the merciful who manages each and everything soundly and enables me to complete in this training.

I would like to thank and acknowledge rendered by *Dr Tahmeed Ahmed*, Senior Director Nutrition and Clinical Services, ICDDR, B. I would like to thanks my honorable teacher *Prof. Dr. Md Bellal Hossain*, **Head of the Department of Nutrition and Food Engineering**, and *Ms. Fouzia Akter* Senior lecturer **Department of Nutrition and Food Engineering, Faculty of Allied Health Sciences**, who had given me the opportunity to attend this training program. This program will help me to build my bright future carrier. It is great pleasure to express my great full thanks to *Dr. Md Iqbal Hossain*, **Head Child Malnutrition Unit**, *Dr. Sayeeda Huqe*, **Clinical Lead, Nutrition Unit**, *Ms Anowara Haider*, **Senior Dietician**, *Ms. Sajeda Perveen*, **Breast-feeding Counsellor**.

My feelings during this training was great and I enjoyed it very much. This could only be possible for generous contribution of all ICDDR, B people. My achievement during this training will definitely help me in my professional field. Thanks to all employee of ICDDR, B for their friendly co-operation and Helping me during my training period.

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Introduction:

In Bangladesh most of the children are affected in diarrhea and malnutrition. Diarrhea remains one of the major causes of death in Bangladesh. People and children are affected diarrhea who are living unhygienic house, using non-sanitary toilets and eating unhygienic food. A study of 2015 shows that the death rate of diarrhea affected children in Bangladesh is 6% of 0.119 million. Rates of malnutrition in Bangladesh are among the highest in the world. Six million children estimated to be chronically undernourished. Many countries have improved nutrition through social project. It was a 10 days training program. I learned a lot from this institute. Different types of diarrhea and malnutrition patients were seen. I knew about these patients management. I also observed what kind of diet they are given the patient of diarrhea and malnutrition and how they were assessment them. Most of the patient are come from rural area. Icdrr,b, mothers are trained to make different types of nutritious food. Such as F-75, F-100, milk suji, halwa, kichuri. These foods can fulfill the nutritional needs of the babies and the mother can prepare these foods very low cost at home. In this way, if the demand for nutrition increases, the child mortality rate is decreases day by day. The lack of awareness and inadequate knowledge of mother and other family members caused the child's to become more ill. Recently senior scientist Dr. Jobayer Chisti was invented bubble CPAP the cost effective innovative device made with a simple bottle to facilitate severe pneumonia.

Icddr,b at a glance:

International center for Diarrhoeal Disease Research, Bangladesh (icddr,b) is an international health research organization that is located in Dhaka, Bangladesh. This organization center aim is to saving lives through research and treatment. This organizations also addresses some of the most critical health concern that worldwide people are facing the problem today. In collaboration with academic and research institutions over the world, icddr,b conducts research, training and extension activities, as well as community based program activities to develop and sharp knowledge for global lifesaving solutions. Icddr,b is supported by about 55 donor countries and organizations, including UK, Canada, Sweden, Bangladesh, UN specialized agencies, research sector organizations, private sector organizations. These countries and organizations are also share the centers concern for the health problems of developing countries and who value its proven experience in helping solve those problems. Icddr,b has its roots in the SEATO cholera research laboratory which in formed in 1960. When Bangladesh became independent in 1971, organizations activities are scales down because of scarce funds flow. In 1978 there were number of research accomplishments such as ORS, Rotavirus, Patho-Physiology of shigellosis and family planning program etc. In 1978 proposal by an international group of scientists was put forward to elevate the organization ta an international research center. The center has played a major role in the discovery and implementation of oral rehydration therapy. Oral rehydration therapy is thought to have saved over 50 million people worldwide. In 1978, the center has trained more than 27000 health professionals from over 78 countries. Courses provide practical training in hospital management of diarrheal diseases, epidemiology, biostatistics, family planning and child survival strategies.



What is nutrition?

Nutrition is the process of providing or obtaining the food necessary for health and growth. Nutrition is a process by which to help in body formation and energy generation as a result of digestion, metabolism and absorption of food consumed.

What is malnutrition?

Malnutrition is lack of proper nutrition that is caused by not having enough to eat food. Malnutrition is a condition in which an individual has insufficient energy to maintain their body's essential functions including growth, maintenance and movement.

What is food?

Any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth.

Diarrhea:

Diarrhea is loose, watery stools three or more times in a day. Diarrhea is a common problem. Which is occurred by Rota virus.

Types of diarrhea:

Acute diarrhea: acute diarrhea is a common problem that typically lasts 1 or 2 days and goes away on its own.

Persistent diarrhea: persistent diarrhea lasts longer than 2 weeks and less than 4 weeks.

Chronic diarrhea: chronic diarrhea lasts at least 4 weeks. Chronic diarrhea symptoms may be continual or may come and go.

Anthropometric measurement:

Anthropometric measurement are used to assess the size, shape and composition of human body. Such as BMI, weight for height, weight for age, MUAC and skin fold thickness.

$$BMI = \frac{Weight (kg)}{[Height(m)]^2}$$

BMI chart:

BODY MASS INDEX (BMI)	
CLASSIFICATION	BMI SCORE (kg/m ²)
Underweight	< 18.5
Normal	18.5 - 24.9
Overweight	25.0 - 29.0
Obese	30.0 - 40.0
Extreme Obese	> 40.0

Anthropometry children under 5:

Anthropometric measures are used to assess the nutritional status of individual and population groups, and such as eligibility criteria for nutrition support programs. Common anthropometric measures are

1. Height
2. Weight and
3. Mid upper arm circumference(MUAC)

Height measurement technique:

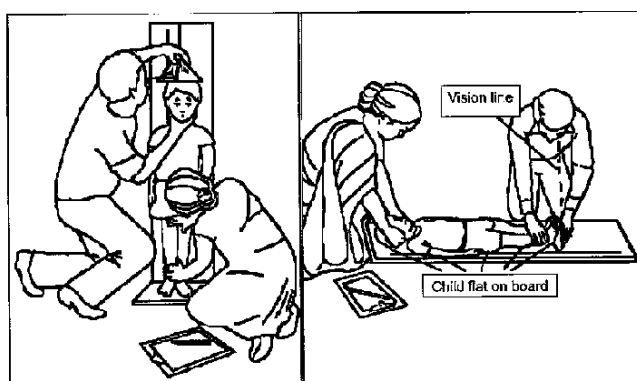


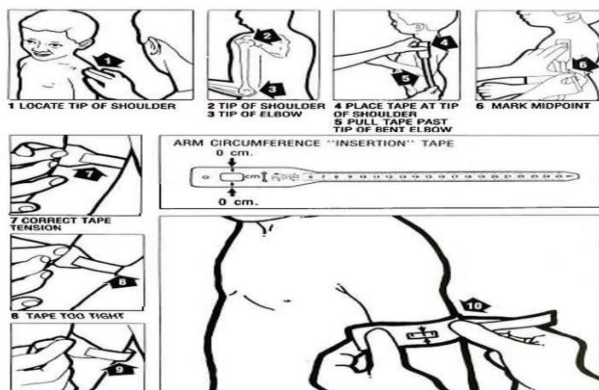
Figure 7 : Height assessment in standing position

Figure 8 : Height assessment in lying position

Weight measurement technique:



MUAC measurement technique:



Therapeutic diet:

A therapeutic diet is a meal plan that controls the intake out certain foods or nutrients. It is part of the treatment of a medical condition and are normally prescribed by a physician and planed by dietician.

Preparation of therapeutic diet:

	Milk suji 100	Milk suji	Modified infant formula
Whole milk powder (g)	80	40	60
Rice powder (g)	50	40	
Sugar (g)	50	25	50
Soya oil (g)	25	25	20
MgCl ₂ (g)	0.5	0.5	0.5
KCL (g)	1	1	1
Calcium carbonate (g)	0	2	2
After cooked volume	1000	1000	1000
Energy(kcal/100ml)	100	67	68
Protein(g/100ml)	2.6	1.4	1.5
PER%	10	8	9
FER%	40	47	47
Osmolality(mosm/L)		246	369

	Communitied chicken
Chicken minced (g)	180
Glucose (g)	35
Soya oil (g)	30
Onion (g)	20
Salt (g)	1
MgCl ₂ (g)	0.5
KCL(g)	1
Calcium carbonate(g)	2
Energy (kcal/100ml)	60
Protein(g/100ml)	4.5
PER%	32

	Rice suji
Rice powder (g)	60
Egg white (four)	100
Glucose(g)	35
Soya oil (ml)	30
MgCl ₂ (g)	0.5
KCL (g)	1
Calcium carbonate (g)	2
Energy (kcal/100ml)	70
Protein (g/100ml)	1.9
PER%	10
FER%	47

FER%	48
Osmolality (mosm/L)	272

Osmolality (mosm/L)	315
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Oral rehydration solution:

Composition (mole/L)	Reduced osmolality ORS	Standard ORS
Sodium	75	90
Potassium	20	20
Chloride	65	80
Citrate	10	10
Glucose	75	111
osmolality	245	311

Preparation of F-75 & F-100:

	Need cooking	Does not need cooking	
	F-75	F-75	F-100
Dried Whole milk(g)/ Cow's milk(ml)	35/300	35/300	110/880
Rice powder (g)	35	-	-
Sugar (g)	70	100	50
Soya oil (g)	20	20	30
Mineral mix (ml)	20	20	20
Water to make (ml)	1000	1000	1000
Energy (kcal/100 ml)	75	75	100

Composition and preparation of khichuri:

Ingredient	Amount	Energy (Kcal)	Protein (g)
Rice	120 g	415	5
Lentil	60 g	206	15.6
Oil (soya)	70 ml	630	-
Potato	100 g	97	1.6
Pumpkin	100 g	25	1.4
Leafy vegetable	80 g	22	2
Onion	50 g	25	-
Spices	50 g	22	1
Water	1000 ml	-	-
Total weight of khichuri	1000 g	-	-
Total energy & protein / kg	-	1,442	29.6



Nutritional value of khichuri:

	Khichuri/100 gm.
Energy (Kcal)	145
Protein/Energy ratio (%)	8
Fat/Energy ratio (%)	44.7
Total fat (g)	7.2
Total carbohydrate (g)	16.6
Total protein (g)	2.9

Composition and preparation of halwa:

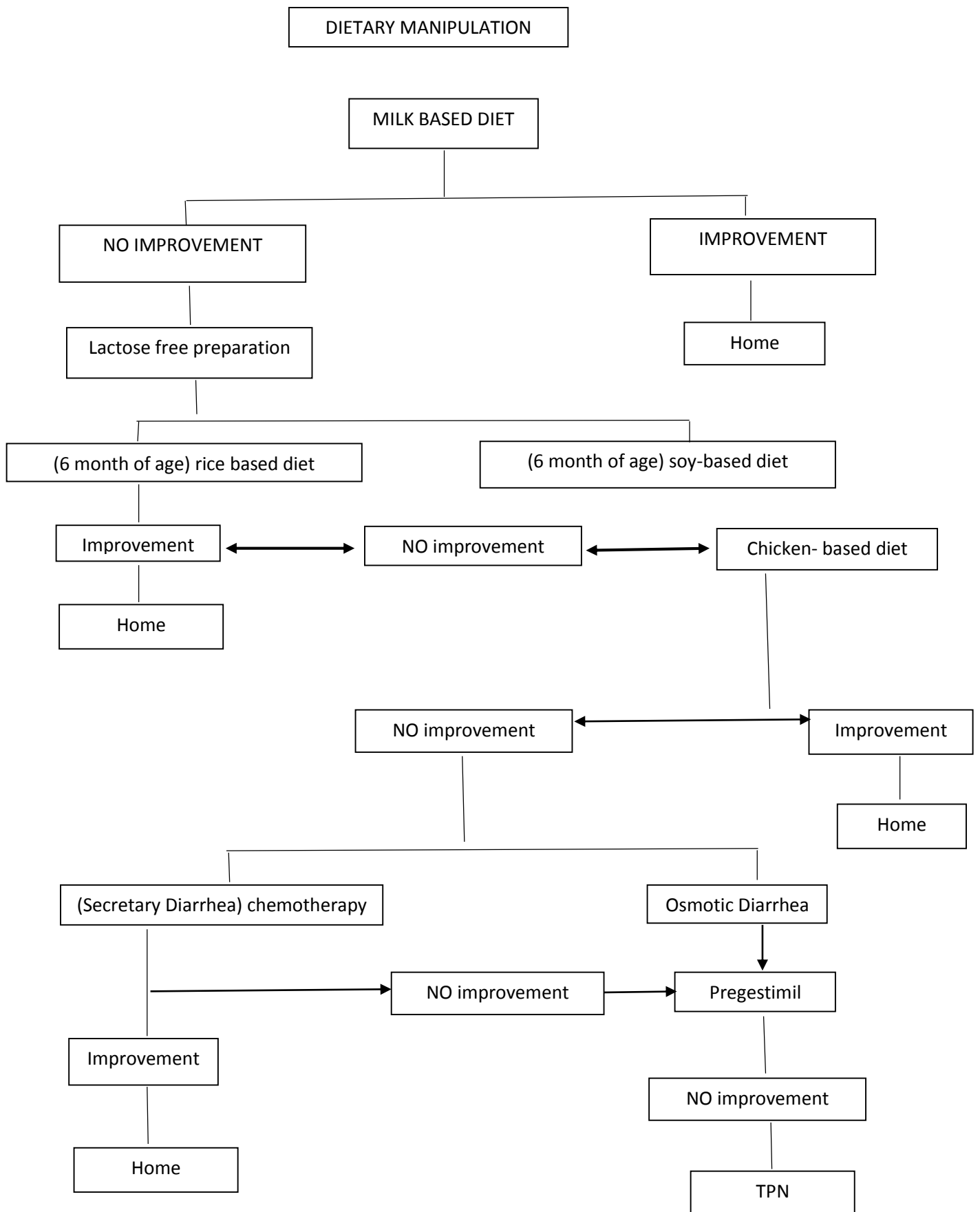
Ingredients	Amount	Energy (Kcal)	Protein (g)
Wheat flour (atta)	200 g	682	24
Lentil	100 g	343	26
Oil (soya)	100 ml	900	-
Molasses (brown sugar)	125 g	479	0.5
Water	600 ml (to make a thick paste)	-	-
Total weight of halwa	1,000 g	-	-
Total energy & protein / kg	-	2,404	50.5



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Management of acute malnutrition in under-5 children:

In icddr,b they also handled 6 phases of management for acute malnutrition in under-5 children.

1. Outdoor patient unit
2. Short stay unit
3. Longer or acute phase unit
4. Nutrition rehabilitation unit
5. Follow-up unit
6. Breast feeding counselling
7. ICU

I also observed the 1st six units.

Outdoor patient unit:

When a patient came in outdoor unit the doctor firstly given his medical history. And observed the patient physical condition and assessment them. If the patient's physical condition is good then he is sent to outdoor patient unit. Nurses observed the patient for 5-6 hours. Here patients are given to eat oral rehydration saline in the mouth. Within 5-6 hours, if the patient is recovering then he is sent to home. While going to home, the mother of the child is taught the cooking process of halwa and khichuri. Mothers are advised to cook this kind of food and feed their child in home.

Short stay unit (SSU):

At first the doctor took his medical history after a patient came. And then notice his or her sign and symptom and quickly assessment her condition. Then according to her physical condition, he or she was admitted to OPD/SSU/ICU. But if the condition of the patient is worse than he is admitted after he is given the necessary treatment. When a patient is admitted, then firstly his physical condition is checked up. Such as: blood pressure, nerves pulse etc. If the patient physical condition is very bad and the patient suffer from dehydration then he or she was given saline injection. Oral rehydration saline (ORS) is given to patients suffering from some dehydration. Patients those having severe dehydration are getting ORS through IV method. After 48 hours of observation, if the patient condition is good, then they will be treated with medicine and sent to home. If the patients physical condition does not improved after 48 hours observation, then he or she is referred in the longer stay unit.

Acute phase or Longer stay unit (LSU):

Generally malnourished children are admitted to longer stay unit. Children who are suffering from diarrhea, including malnutrition are kept at this unit. The child's weight for height status is checked

to find out if the baby is suffering from diarrhea as well as being malnourished and measure the mid upper arm circumference (MUAC). That kids (MUAC<115mm, weight for height/length -3z score) should be admitted to longer stay unit for the measurement of severe acute malnutrition and diarrhea. Children are divided into three categories on the basis of their nutritional status.

1. Marasmus: < 60%
2. Kwashiorkor: > 60% and edema
3. Marasmic kwashiorkor: < 60% with edema.

According to their status they are given antibiotics, vitamin, mineral supplement and therapeutic diet. As soon as they are admitted, they are given food to them their age and their physical condition. After every 2 hours, they are given food.

10ml/kg/feed for marasmus and marasmic kwashiorkor patients.

9ml/kg/feed for kwashiorkor patients.

5-10ml ORS per kg.

The severe malnourished children are immediately offered IV method ORS. First milk based diet is given. Children who are under 6 months old are given infant formula and milk suji for children over 6 months old. If patients are improved on this diet then discharged them. If the patient does not improve on this diet then he is given lactose-free diet. For example: >6 month of patients are given rice based diet and <6 month of age patients are given soya-based or chicken based diet. If the patient are improved on this diet then discharged them. And at home, rice based diet is suggested.

Persistence diarrhea is 3 or more stools/day which last nonstop for 14 days. This type of patients are given green banana full strength rice suji diet. Children's height, weight, stool volume, stool color, stool frequency and stool consistency are measured on this unit every day. If the patient does not improve in 3 days, then diet change according to patient's condition. Then follow this diet 5-7 days. When the diarrhea becomes good, the child is shifted to the nutrition rehabilitation ward for her weight gain.

Nutrition rehabilitation unit (NRU):

Severe acute malnutrition is defined by a very low weight for height (below -3z scores of median WHO growth standards) by visible severe wasting. When a diarrhea of a child becomes better at the longer stay unit but when weight for height is below -3z scores, he or she is referred to nutrition rehabilitation unit. If there is any baby came they measured his or her weight and height firstly. Their goal is raise the weight of the children of 10 gram every day according to their age. For example, if a child weights 7 kg then his weight will increase to 70 grams every day. On the first day the child is given to eat halwa 10ml/kg/day. On the second day the child is given to eat khichuri. Khichuri is low lactose diet. Salt cannot be given to any malnutrition child's diet. Because the amount of salt in the body of malnutrition child's is high. Children who are affected diarrhea are given to zinc supplement through their diet. Zinc was given for their epithelial growth. If any child has a nutrition deficiency, then he is given them multivitamin and medicine. Mother's food are provide as well as children. Mother are served puffed rice muwa with their daily meal which is made with nuts and molasses.

And give them khichuri also. Mothers are taught halwa and khichuri cooking process every day. Here mothers make toys with unused items for kids. This toy is given to kids to play for their brain development. Children's are introduced to different pictures and taught to speak. Such training is done by how mothers behave with children. Chronic patient are brought to the nutrition rehabilitation unit. Here a child is monitored for maximum 1-2 weeks. During this period, if a child weight gain then release him and told him to come in regular follow up checkup.

Nutrition follow up unit:

When the child weight is increased by 15% in NRU then the child is released. The mother of the child is advised to bring her child in follow up to checkup. The first week is called to come 1st time, then 2nd time in second week, 15 days in 1 time and one month in 1 time in the checkup. After coming at the follow-up, the height and weight of the child are measured to find out whether he is eating properly after going home and whether its height and weight is increasing with her age. Kichuri is cooked for the baby and her mother and they were given to eat. If the baby has a good condition after checking then he is told to go home. If the baby's condition is not good then he was sent to the doctor and dietician.

Breast feeding counselling:

Science 2012, under the supervision of the WHO, working on breast feeding is being done by little developed or low income countries. Breastfed children have at least six times greater chance of surviving in the early months than non- breastfed babies. Until the age of 6 months, the baby will have to drink only mother breast milk. After the birth, within 1-2 hours mother also told to drink her colostrum milk to her baby. Because of the amount of protein in this milk is high. This milk increases the immunity of the child by drinking more quantity of milk. After the birth, the baby cannot given water, honey or any other food. Mothers are conscious about this matter. Mothers are advised to breastfeed at least 7-8 times per day for the child. Mother also advice to be breast feed her child with patience for a long time. Because when the baby starts sucking milk first, he drink the fore milk first. The amount of the protein in this milk is low. When a child is drinking a mother's breast milk for a long time then he first got fore milk then hind milk and mature milk. Mature milk contains more protein and other nutrients compare to fore milk. For this reason mother also advised to drink one breast to her baby for a long time and then drink to another milk. If the patient have lactose intolerance then mothers are asked to feed the mature milk through pressing out the fore milk before start feeding. Many mothers say that her baby does not get her breast milk properly. Those mother are told to notice her baby whether her baby passes urine 6-7 times in 24 hours. If the baby passes urine 6-7 times in 24 hours than understood that the baby is getting breast milk properly. Mother also told to feed complementary food to her baby as well as mother's milk after the 6 months of age. Because of after the 6 months of age additional nutrients are required for the child brain and growth development. That additional nutrient babies are not get from mother's breast milk. For this extra nutrient mother also told to give extra food to her baby as well as mothers breast milk. Those another

name is young child feeding. UNICEF has been working with complementary food for children through discussions, meetings and seminars since 2002. At present our government is working on breast feeding at national level. For this reason mothers are given 6 months of maternity leave.



Re-lactation technique:

The importance of breast milk is important for the health, nutrition, physical and mental development of the child. WHO recommends that, after the birth of the child the baby should be only breastfed until 6 months of age. I noticed on icddr,b that many mothers could not breastfeed their baby due to working outside long time. For this reason many mother started feeding the baby outside milk such as lactogen after 7-15 days of children. There are many mothers who do not come enough milk in their breast. There are many mothers who stop breastfeed her child in 6 months ago. Because of this reason, children often gets sick. Icdrr,b arranged concealing for this mother. Mothers were informed about the effect of breast milk. If the child does not get enough breast milk, its height, weight and intellect are prevented. Whenever the child takes part in a competitive work, he is lagging to others. Once child starts eating a feeder, the child would not want to eat mother milk. Mothers are advised to breastfeed their children repeatedly. Mothers are softly convince to breastfeed their child. Mothers are taught about breastfeeding technique. When the mother gives milk to her baby, at that time she eye contact with her. Hormone secretion increases in the mother's body when the mother's attachment and position are correct with the child. For this reason the mother has produced more milk at that time. Mother is taught how to feed breast milk to her baby in which position. There are some children who don't want to suck their mother's milk after eating feeder. In this situation they advised the mother that they should suck their breast milk and drop milk slowly and slowly on their

breast milk 1-2 drop and learning to the child to practice milking. In this way the child gradually learn to suck the mother's milk. Mothers who have produced less breast milk, those mother are advised to feed the baby repeatedly in night. Because prolactin hormone is more secretion at night. Because of this reason the child is getting 20% more milk at night compare to the whole day. Mothers are also concerned that the baby don't get the sufficient nutrition from cane milk such as lactogen, dano etc. To buy this packaged milk many mothers have to face financial problem. The mothers were again convinced to the re-lactation.



Conclusion:

Icddr,b basically works with diarrhea and malnutrition children. They provide free treatment and food to diarrhea and malnutrition patients. Icddr,b worked in conjunction with WHO and discovered a variety of nutritious food formula. Their main aim is to reduce child mortality rates. They find out different types of nutritious food formula at low cost. Such as milk suji, halwa, kichuri. The method of making these meals teaches mothers when mothers leave home from hospital. The main aim of icddr,b is to fulfill the nutritional needs of children by producing food at lower cost and increase their nutritional status. If the mothers are aware of the health and nutrition of the child, then the rate of child mortality will decrease day by day. All over the training program was very good. I learned a lot of important things from this institute



