



Daffodil
International
University

Internship report on
Fellowship Training and Field Experience on
Nutrition and Health
at ICDDR,B
Mohakhali, Dhaka, Bangladesh.

Submitted To

Dr. Md. Bellal Hossain

Professor & Head

Department of Nutrition & Food Engineering

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Submitted By

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Date of submission

December 12, 2018

LETTER OF TRANSMITTAL

22 December, 2018,

Dr. Md. Bellal Hossain,

Professor & Head,

Department of Nutrition and Food Engineering,

Daffodil International University.

Subject: Submission of the internship report.

Dear Sir,

I would like to take an opportunity to say Thank you for your guiding and supporting me during the course of this report. Without your help, this report would not be complete.

For preparing this report I collected that I believe to be most relevant information to make my report as more analytical s possible by me. I would like to concentrate my best effort to achieve the best report. The practical experience during report preparation will immeasurably help in my professional experiences. I request you to excuse me just because of may occur in the report desired of my effort.

I would really appreciate if you enlighten me with your thoughts. I would gladly answer you're your question.

Your Sincerely,

Zarin Rafa,

ID: 151-34-352,

LATTER OF AUTHORIZATION

22December, 2018,

Ms. Fouzia Akter,

Senior Lecture,

Daffodil International University,

Subject: Declaration regarding the validity of the Internship Report.

Dear Ma'am,

This is my accepted truth that the “Internship Report” I had prepared isn't copy of any Internship Report in the past made by any other students of DIU or other place.

I also express my honest confirmation in support to the fact that the said Internship report has not been used before. And it will not be submitted to any other student in future.

Your sincerely,

Zarin Raza,

Id: 151-34-352,

Daffodil International University.

Approval Certification

This is to certify that Zarin Rafa ID: 151-34-352, Program of B. Sc in Nutrition and Food Engineering is a regular student of NFE Faculty Allied Health Science Daffodil International University. She has successfully completed her Internship program of two weeks in icddr,b at Mohakhali, Dhaka 1206, on Fellowship training and field Experience on Nutrition and health and completed this report on November 20, 2018 under my direct report is a worth of fulfilling the partial requirements of NFE program.

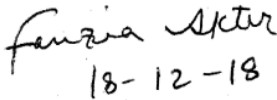


Dr. Md. Bellal Hossain

Professor & Head,

Department of Nutrition and Food Engineering

Daffodil International University



18-12-18

Fouzia Akter

Senior Lecturer

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CONTENTS

Sl. No	Topics	Page no
1.	Letter of Transmittal	ii
2.	Latter of authorization	iii
3.	Approval Certification	iv
4.	Introduction	1
5.	What is Food	2
6.	Phase of ICDDR,B-OPD, Short Stay Unit, Longer or Acute phase, Acute phase treatment, Dietary therapy, NRU, Training of mother, Nutritional follow up	4-16
7.	Relactation	17-18
8.	Breast feeding canceling	19-22
9.	Oral Rehydration Solution	23-26
10.	Dietary manipulation	27
11.	conclusion	28

International Centre for Diarrheal Disease Research, Bangladesh (ICDDR,B)

The International Centre for Diarrheal Disease Research, Bangladesh (icddr,b) is an international health research organization located in Dhaka, Bangladesh. Which is born in **1951**.Dedicated to saving lives through research and treatment, icddr,b addresses some of the most critical health concerns facing the world today, ranging from improving neonatal survival to HIV/AIDS.In collaboration with academic and research institutions over the world, icddr,b conducts research, training and extension activities, as well as program-based activities, to develop and share knowledge for global lifesaving solutions. icddr,b is one of the leading research institutes in Bangladesh, releasing, according to the Thomson Reuters Web of Science, 18 percent of the country's publications.



Figure: ICDDR,B



What is food?

Any kind of nutritious elements that consumer means human or animal consumed or eat or drink and that elements absorb for the maintain life and growth of human. It is a substance that consumed to providing nutritional support for an organism. The main food are counting from animal or plant edible organs and containing nutrient like Carbohydrates, protein, fat, vitamins and minerals which are most important for human health. By consuming food we make sure that our body can work, grow, repaired by itself. Getting to know which food can be help to understanding something of relation among food, body and nutrients.

Example of Food: Rice, Meets, Bread, Fish, Cereals etc.

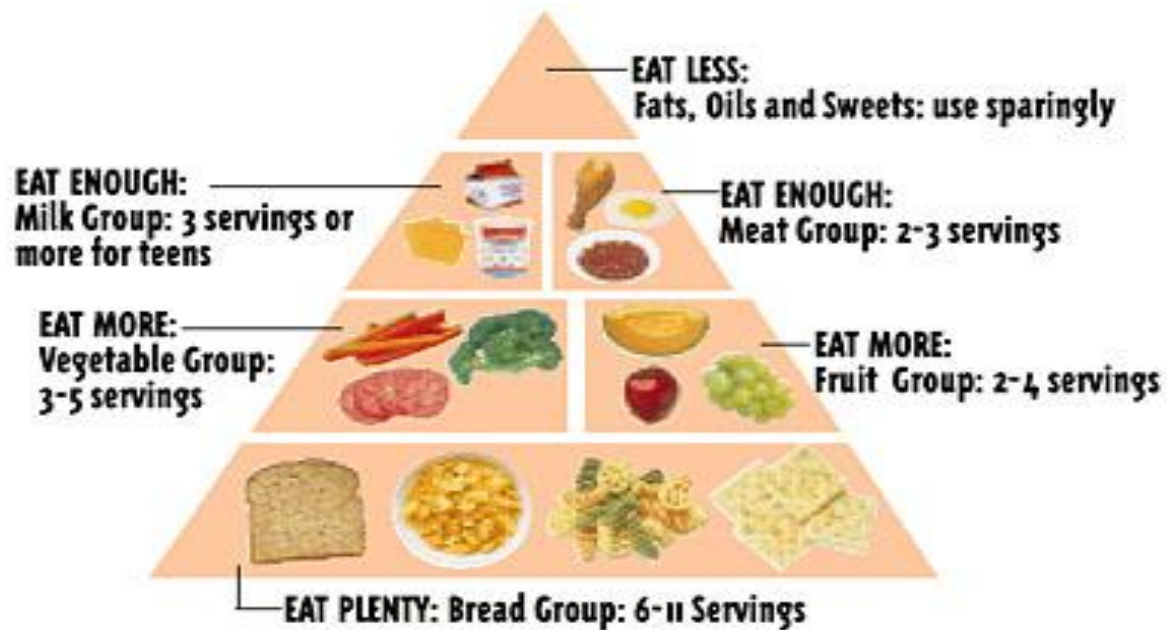


Figure: Food Group

There are six group of food which are showing on above.

Different types of foods are for different body work, body growth, overall for proper maintaining of body.



In ICDDEB there are 5 phases of management. The management of children with severe malnutrition.

1. OPD
2. Short Stay unit
3. Longer or acute phase
4. Nutritional rehabilitation unit(NRU)
5. Follow up unit

OPD (Out Patients Department)

Out Patient Department of a hospital. It is the section of the hospital where patients are provided medical consultations and other allied services.

In ICDDR,B OPD is worked for the patient who are suffering from diarrhea or cholera or like that's types of diseases. In OPD they give some primary treatment and that's are given below:

- At the first stage patient entry their name and address
- Then take entry his/ her medical history in the medical record book for their treatment.
- After that health worker's take them to the nurse for the measuring of the Blood pressure, and checkup the sings and symptom
- The him/her observed for 6 hours
- In the meantime he/she got oral saline with normal diet
- After 6 hour if he got recover then he got the relief with some oral saline and some medicine if he needed.
- Then health worker are take a class which is based on the patient diet especially for the children and that class called "Khichuri Class". Here they said how to make Khichuri in their home. The ingredients and the measurement of ingredients.
- On the other hand if the patient can't recover then their referred to the Short Stay Unit (SSU)

Short Stay Unit

History is taken when a new patients come in the OPD. In their observed patients physical conditions and then checked up patients BP (blood pressure), nerve pulse. And then measuring the Anthropometries measurement.

If the physical condition is so much bad and he/she is suffering from dehydration then she/he was pushed to the saline.

In the severe case of dehydration patient was pushed saline by the IV methods.

If the condition is better, then he/she will be observed and suggested treatment is Oral saline.

For 48 hours a patients is observed in the short stay unit. After 48 hours observed physical condition is better than before than he/she is suggested to back in home with medicine.

But there is no change to improving the physical condition then she/he moved to the Longer Stay Unit.

Longer or acute phase:

Usually who are malnourished babies they are admitted into ICU. Including Diarrhea with malnourished baby are stay in this unit. Whether the child is suffering from diarrhea as well as malnourished, it is found that the weight for height status and MUAC measurement.

MUAC measurement <115 mm, weight for height/length $<-3z$ score they should be admitted to Longer stay unit for the measurement of SAM and diarrhea.

Generally children with severe malnutrition admitted in this phase. Criteria for severe malnourished children are-

- ❖ Weight for height (WH) $<70\%$
- ❖ Weight for age (WA) $<60\%$
- ❖ Height for age(HA) $<85\%$
- ❖ Nutritional edema



❖ MUAC is <12.5% for the children between 1-5 years old

Some data from ICDDR,B longer stay units of patients:

Name: Ritom

Age: 12 month

Weight:3.67

Needed kcal: $35 \times 12 = 420 / 3.67$

$= 114.44$

$= (114.44 \times 0.75)$

$= 85.83 \text{ kcal}$

Name: Rode

Age: 24 month

Weight: 7.80

Needed kcal: $35 \times 24 = 840 / 7.80$

$= 107.69$

$= (107.69 \times 0.67)$

$= 72.153 \text{kcal}$

In ICDDR.B at time of visiting in longer phase we saw 2 patient one was suffering from **Marasmus** and other was suffering from **Kwashiorkor**.

We saw a 9 years old girl suffering from **marasmus** when we saw her we understand that it was severe malnutrition. The sign and symptom of marasmus is.

Signs and Symptoms of Marasmus

- Severe wasting due to body fat and tissue decomposition (look like a little old man or a monkey)
- Skin is thin flaccid, dry, and wrinkled and seem to be too big for the body
- Child has good appetite though emaciated
- The child look alert and may cry at the sight of food
- The serum proteins are normal
- Child may also have diarrhea due to infection and impaired absorption.

Another patient we saw in ICDDR, B the children was suffering from **Kwashiorkor**.

Symptoms of Kwashiorkor:

- Producing belly
- Brownish hair
- Dark and scaly skin
- Stunted growth
- Under weight
- Swollen legs
- Loss of appetite
- Anemia
- Mental retardation
- Reduced resistance

We saw the patient and understood that he was suffering from kwashiorkor. Edema was seen clearly the doctor taught us how to confirm it was edema. Doctor check the symptom and said the patient have edema.

Acute phase treatment: the key point of the acute phase treatment are

- ❖ Adherence to a specific feeding schedule from the beginning of treatment
- ❖ Broad spectrum antibiotic treatment
- ❖ Vitamin and mineral supplementation
- ❖ Oral rehydration therapy
- ❖ Early recognition of complication and their proper management.



Dietary therapy

Feeding is starting right from admission or within 2 hours of starting rehydration for the children with dehydration. Mothers are advice to continue breast feeding if applicable.

Feeding are given every 2 hours according to the following schedule for the infant >5 months of age.



For the children of marasmus and marasmickwashiorakor

DAY-01	10ml/kg per feed of milk suji
DAY-02-03	12ml/kg per feed of milk suji
DAY-04	12ml/kg per feed of milk suji 100 if no diarrhea

For the children of Kwashiorkor

DAY 01-03	9ml/kg per feed of milk suji
DAY 04	9ml/kg per feed of milk suji 100 if no diarrhea

Persistent Diarrhea

It means 3 or more times stool per day which last nonstop for 14days. The diets are full strength rice suji)

The common factors of persistent diarrhea is

- Height

- Weight
- Stool color
- Stool volume
- Consistency
- Frequency

If the condition is not improved then their diet have been changed according to their diet chart.

When they are improved the three are referred to the NRU for the weight gaining.

Then 5-7 days they are follow their following diet.

Once acute phase are over and diarrhea is resolve the children with malnutrition is transferred to NRU



Figure: Khichuri class in NRU

Nutritional Rehabilitation Unit

According to the WHO if any child is below -3 is WA he is counting as Severe malnourished.

Severe acute malnutrition is defined by a very low weight for height (below -3z score of median WHO growth standards) by visible severe wasting or by the presence of nutritional oedema.

When recover from diarrhea in longer stay units but the Z score is below -3 then their referred to the NRU

In the first the measured the height and weight of a baby. They are target is increasing 10g weight per day according to their body weight. Suppose one baby his weight is 9kg then his weight is increased 90gm per day.

Children of WH<70%,WA<50% or with nutritional edema are transferred to NRU

A weight gain of more than 10g/kg per day should be the goal of this unit. We have a data of weight gain chart of a patient named Abir. He was admitted 27-09-2016 and his weight during admission was 5.9kg. In below we see the weight chart

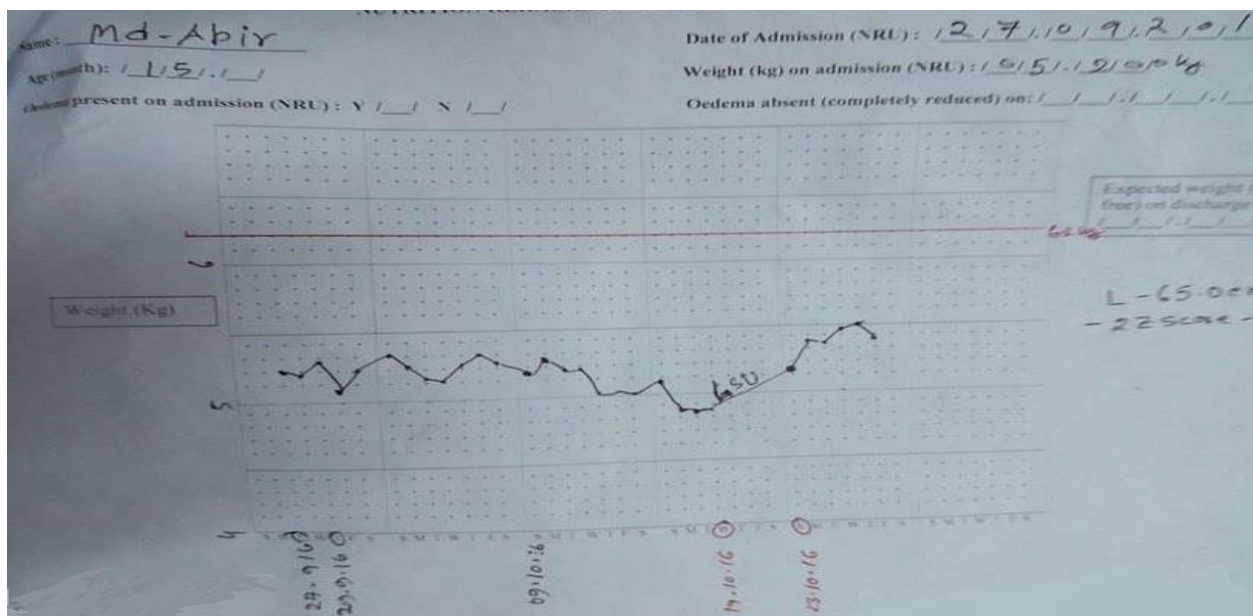


Fig: weight gain chart

Diet during nutritional rehabilitation

At the 1st day they are provide halwa which is 10gm/kg/day. 2nd day they are provided khichuri with halwa. Because of khichuri is a low lactose diet. Salt did not provided for a Malnourished baby because of the level of salt is so much increased. In here the height and weight is measured every day.

Chronic patient are referred to the NRU. Here is for 1-2 weak to observe a patient. When the desired weight is gained then he is realized and suggested to regular follow up.

During nutritional rehabilitation the average calorie and protein intake per day is 150-250kcal/kg and 4-6g/kg respectively the children of >5 months of age are given khichuri and halwa.

Khichuri is made of rice, lentils, vegetable, oil and halwa is made of wheat, flour, molasses and oil. 100g of cooked halwa contain 240 kcal

And5g protein.100g of cooked khichuri contain 145kcal and 3 g protein.



Figure: diet during nutritional rehabilitation unit

Emotional and Physical stimulation

Severely malnourished children do not only have poor growth but also delayed mental behavioral development. The unit should have specific time for emotional stimulation.eg: play time at 10-11am and 4-5pm. During this period children are given toys to play with. the room should be clean and brightly colored with hanging decoration include paper dolls and aeroplanes.

Training of mother

The NRU is an ideal place for training of mother. They take more interest when they see the children improvement. by rotation every mother prepare the diet for children in the unit under the supervision of a health worker. They should feed and take care of the children and practice in keeping the unit clean.





Figure: Khichuri Class

Nutritional follow up

After discharging from the NRU children usually remain stunted and have poor mental development. These condition are managed in the nutritional follow up which also prevent relapse of severe malnutrition. In the unit of NRU their target is increasing 15% weight and they are suggested to realize. They are also suggested that mother are must be up to the checkup. At the first one week is for one time, then after two week for one time and the after 15 days and then one month late mother will come for ckeckupping.

When the baby is come in Follow up unit at first check or measuring baby's height and weight because of to see he/she having in proper care and the weight and height is properly increased or same as the before. Keep observing over a day just because of checking. In follow up unit they providing haluw and khichuri. And observed that the stool is in form. How many time and what is the frequency is also observed. If the baby loss his weight then suggested to meet with a dietitian and again back to NRU.

Relactation

The importance of breast milk is unlimited important for children's health, nutrition, physical and mental development. According to WHO recommendation





After 6 months of birth, only breastfeeding will be given to the baby. After 6 month there will be complementary foods along with breast milk.

we noticed in ICDDR,B that was after 15 days of birth, maximum mother were started lactogen for their new born baby. There are others who do not have enough milk on their breast. Having some who are willingly don't feed the baby.

At that time ICDDR,B managed a counselling on about how much important to feeding a baby from his/her mother's breast

Breast feeding Canceling

What is breastfeeding?

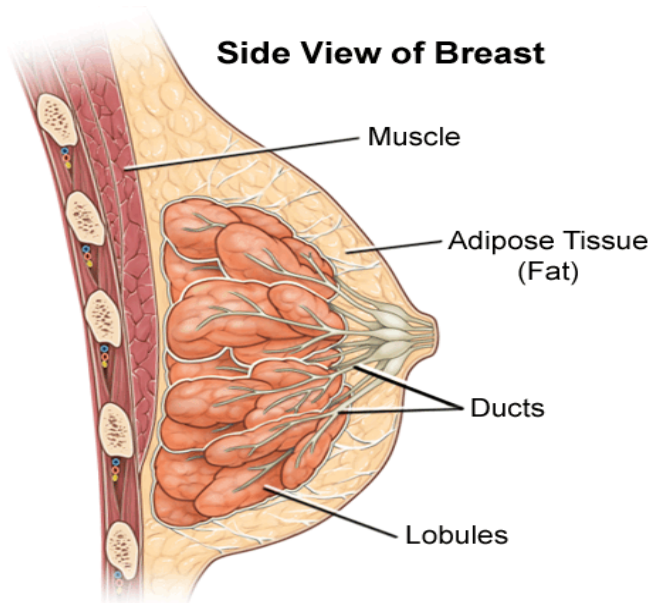
Breastfeeding is known as a nursing, is the feeding of babies, young children with milk from women's breast. Health professional recommend that breastfeeding begin within the first hour of baby's life and continue as often as much the baby wants.

It's also called optimal infant and young children feeding.



Figure: Breastfeeding

Anatomy of breast



Since 2012, under the supervision of the WHO, breast milk is working in less developed countries of developing countries.

Only 6 month of age babies should be given breast milk. In this time water or honey or any kind of liquid food is not allowed for babies.

After 6 month, ones can give complementary food its mean extra food with breast milk.

Complementary food

From WHO they said that, when breast milk is no longer enough to face the nutritional needs of the infant, complementary foods should be added to the diet of the child. Typically its covers the period from 6-24 months of the age.

Complementary feeding should be timely, meaning that all infants should start receiving food in additional food to breast milk from 6 months onwards.

Since 2015 WHO announced complementary food is must for baby who are minimum in 6 months.

In the present time our government take many step for increasing breastfeeding. They are doing a lot of work at the national level like our PM Sheikh Hasina has given 6 month maternity leave.

From the data of BDHS in 2014 show the result of breastfeeding condition is given below:

Serial no	Time	Percentage
1.	Exclusive BF(<6 month)	55%
2.	BF with in 1 hour after birth	51%
3.	Pre-lactated feed	27%

Table1: period of upto0-6 month

Serial no	Time	Percentage
1.	BF for 6-12 month	96%
2.	BF for 2 years	87%
3.	Complementary feed within 6-23 month	23%

Table2: period of up to 6-23 month

Which milk is best for Human babies?

Species	Fat (g/l)	Protein (g/l)	Lactose (g/l)
Human	11	42	70
Cow	35-45	30-36	47-50
Goat	30-34	27-37	42-48

So breast milk of human is best for human babies. It can be easily digestible. Low fat and high protein and lactose.

Why breast milk is necessary for a baby?

Breast milk gives the proper nutrition for a infants. It has a perfect mix of vitamins, proteins, fat and other food elements. Everything is need and essential to grow a baby. And it is also give in a form more easily digested than infant formula milk.

- It contains antibodies that help a baby fight off viruses and bacteria. That's why a baby can keep healthy.
- It supplies all necessary nutrients in the proper proportions.

- Breast milk can protect against diseases, like diabetes and cancer.
- It can be easily digested
- No constipation, diarrhea or upset stomach.

Some steps to successful Breastfeeding:

1. Hospital policies
2. Staff competency
3. Antenatal care
4. Care right after birth
5. Support mother with breastfeeding
6. Supplementing
7. Rooming
8. Concentration
9. Responsive feeding
10. Bottle teats and pacifiers

Listening and learning skill when feeding a baby

- Keep head level
- Pay attention
- Remove barriers
- Take time touch appropriately
- Ask open question
- Use responses and gestures which interest
- Reflect back what the mother says
- Empathies show that you understand how she feels

- Avoid words which sound judging

Building confidence & going support

- Accept what a mother thinks and feels
- Recognize and praise what a mother and a baby are doing right
- Give practical help
- Using simple language
- Showing them the positioning
- Relaxation
- Knowing about energy gap
- Poster arrangement

Oral Rehydration Solution

By the recommendation of WHO and UNICEF the formula of ORAL Saline is given below:

There are two types of oral saline. They are:

Glucose ORS/ Litter

Serial no	Ingredients	Amounts
1.	Glucose	13.5 g
2.	Sodium chloride	2.6 g
3.	Tri sodium citrate	2.9 g
4.	Potassium Chloride	1.5 g
	Total osmolality	245 mosm/ litter

Rice ORS/ Litter

Serial no	Ingredients	Amounts
1.	Rice powder	40 g
2.	Sodium chloride	2.6 g
3.	Tri sodium citrate	2.9 g
4.	Potassium chloride	1.5 g
	Total osmolality	170 mosm/litter

Packing:

1. Electrolytes in one chamber
2. Rice powder is in another chamber

Shale-life:

1. Two month in rainy season
2. Three month in dry season

Different Cereal Based ORS Studied in ICDDR,B

1. Rice ORS
2. Maize ORS
3. Millet ORS
4. Sorghum
5. Wheat ORS
6. Potato ORS
7. GN plantain

Composition of standard liquid feed

	1	2	3	4
Ingredients/ litter	Modified infant formula	Milk suji (low lactose)	Milk suji 100	Special milk
Whole milk powder (dano)	-	40 g	80 g	100 g
Rice powder	60 g	40 g	50 g	
Sugar	50 g	25 g	50 g	70 g
Oil edible	20 g	25 g	25 g	30 g
Egg white	-	-	-	25 g
Magnesium chloride	.5 g	.5 g	.5 g	25 g
Potassium chloride	1 g	1 g	1 g	.5 g
Calcium carbonate	2 g	2g		1 g
energy	68	67	100	100
Protein	1.5	1.3	2.4	3.0
PER (i)	9%	8%	10%	12%
PER(ii)	47%	48%	42%	47%

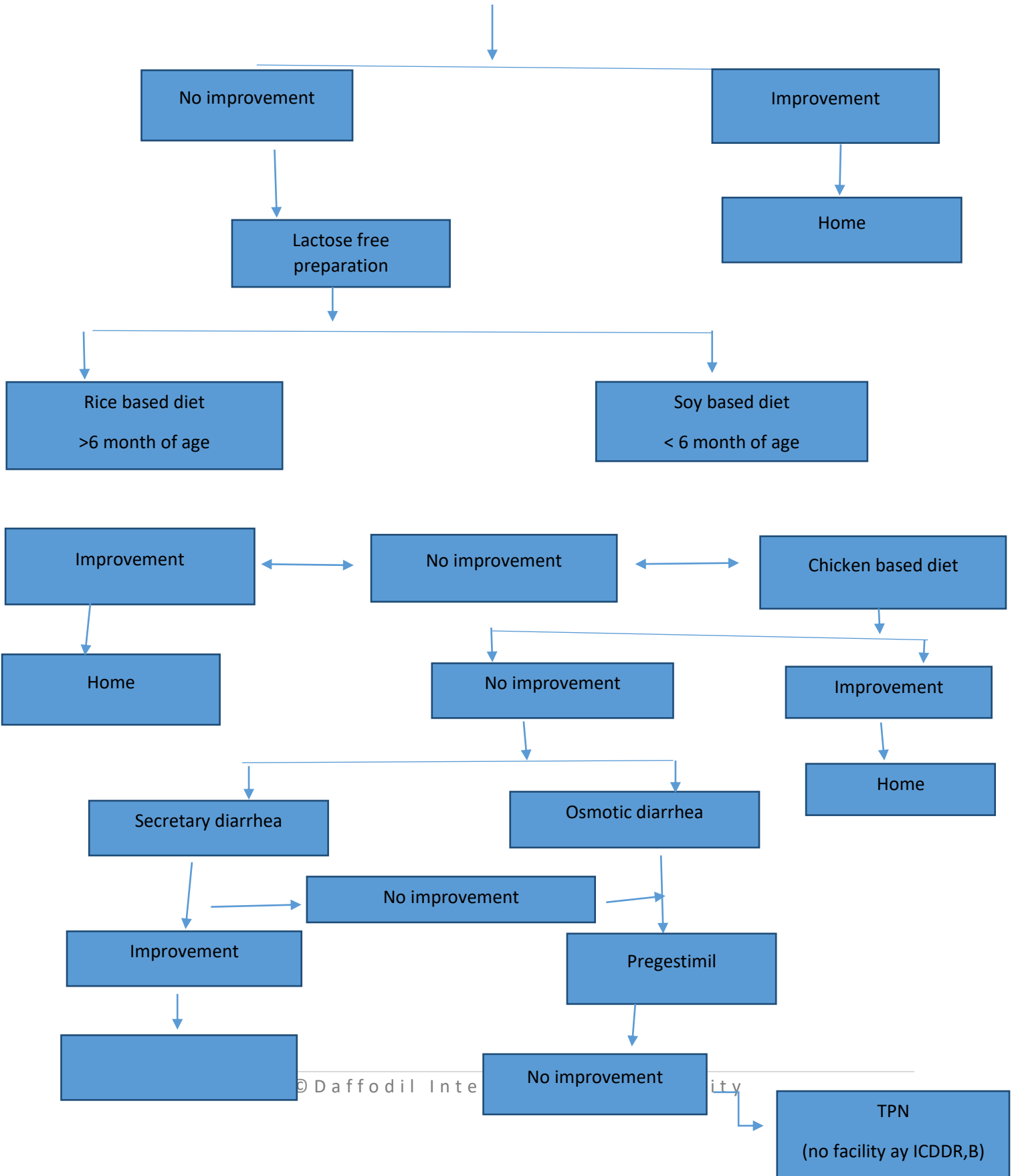
Full Strength Comminuted Chicken

Ingredients	Amounts
Chicken minced	180 g
Oil edible	30 g
Glucose	35 g
Onion	10 g
Salt	1 g
Potassium chloride	1 g
Magnesium chloride	.5 g
Calcium carbonate	2 g
After cooked volume	1000 ml
Energy	60 kcal/100 ml
Protein	4.7 g/100 ml
Osmolality	272 mom/L
PER	31%
PER	45%



Dietary Manipulation

Milk based diet



Conclusion

In ICDDR,B visit we can learn many things. Only reading books cannot give us proper training/education. Practical knowledge is also needed. Thanks to our teacher for this visit. We are very thankful to you and hope you will give us another visit. In this internship program I can know about OPD, SSU, LSU, NRU including breast feeding counseling.

It was a journey of 10 days to learning some different thing from our text book. Finally it can reach us at the level of high position of the knowledge about ICDDR,B.



Picture: After two week internship