



## Internship Report

On

“Focusing On Management of Children with Diarrhea in Pediatric Department”

At

Dhaka Shishu Hospital (DSH)



**Submitted to:**

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**Date of Submission: 20 April 2021**

## Letter of Transmittal

Date: 20 April 2021

Dr. Sheikh Mahatabuddin Ph.D.

Head, Department of Nutrition & Food Engineering

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**Subject: Submission of internship report.**

Dear Sir,

I would like to take this opportunity to thank you for the guidance and support you have to provide me during the course of this report. I am here submitting my internship report on “**Focusing On Management of Children with diarrhea in pediatric department**” at Dhaka Shishu Hospital I have got opportunity to work in Dhaka Shishu Hospital in the department of Gastroenterology and Hepatology unit for 60 days, under the supervision Sabrina Makbul, Senior nutritionist and Shanta Roy, dietician.

This internship gave me both academic and practical exposures. First of all I learned about clinical nutritional assessment of Diarrhea, facility-based management of children with severe acute malnutrition guidelines and counseling of children diet. Secondly, the internship gave me the opportunity to develop and enrich my theoretical knowledge I have acquired during the study period.

I am submitting this report for your kind consideration and also shall be highly obliged if you are kind enough to receive this report and provide your valuable judgment. Thank you again for your support and patience.

Yours Sincerely,

Farhana Akter

.....

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## Approval Certificate

We are pleased to certify that the internship report on Nutritional management, of diarrhea, at Dhaka Shishu Hospital (DSH) conducted by Farhana Akter bearing student ID No: 171-34-616 of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voice. Under my supervision Ms. Sabrina Makbul worked in Dhaka Shishu Hospital (DSH) as an intern.

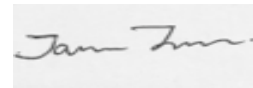
We pleased to hereby certify that the data and finding presented in the report are the authentic work of Farhana Akter. We recommended the report presented by Farhana Akter further academic recommendations and defense/viva-voice. Farhana Akter bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with her. We wish her all success in life.



20/07/2021

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**Dr. Sheikh Mahatabuddin**

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Firstly, of all my gratitude and thanks to Almighty Allah's, the most merciful, kind and gracious guidance has made this work successful.

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My deep and sincere thanks to my academic supervisor **Tasmia Tasnim (senior Scale) department of Nutrition & Food Engineering, DIU** for guiding me and for giving me the opportunity to initiate this report. More specifically, I would like to thank her for imparting her time and wisdom

I am very grateful to my internship supervisor, **Sabrina Makbul, Senior Nutritionist of the** department of DSH for helping me with her valuable suggestions regarding internship. I am also grateful to **Shanta Roy, Dietician of** DSH. It would have been very difficult to prepare this report up to this mark without their guidance.

I would like to express my warmest thanks to **Ms. Fouzia Akter, Assistant professor** and my batch advisor for her whole-hearted supervision during my organizational attachment period.

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## Chapter -1

### 1.1 Introduction:

#### About Internship Program

Diarrhea diseases are very common and well known public health problem. Diarrhea is leading cause of death in children under 5 years of age in many developing countries. DSH work to reduce of the severe malnutrition and diarrhea. Diarrhea is the second leading cause of children death who is under five years old, and diarrhea is responsible for killing around 5, 25000 children yearly. Diarrhea is the major leading cause of mortality and morbidity risk factor among children under 6 months to 5 years old age.<sup>[1]</sup>

Most of the time from contaminated food and contaminated water sources. Worldwide 7805million individuals lack access to improved drinking water and 2 billion lack across developing countries.<sup>[1]</sup> Diarrhea and malnutrition is considered to be underlying cause of about 50% of childhood death causes are considered to be due to diarrhea and malnutrition in Bangladesh.<sup>[2]</sup> Diarrhea in last several days, our body needs balance water and salts, and facing dehydration our body cannot survive without water and salts that is necessary for survival of life. As a results malnourished and malnutrition child are more likely to fall in to the diarrhea. Proper nutrition is more necessary for children growth and development. In the past, most people deaths diarrhea for the major cause of severe dehydration and fluid loss. Now such other reasons septic bacterial infections can increase the proportion of all deaths associated with diarrhea. Children who are malnourished or have weak immunity are the highest risk of life treatment diarrhea. Diarrhea is defined as an infection the watery or liquid stools three or more times per day.<sup>[3]</sup>

#### 1.2Origen of the report

Internship is the last step of student's academic career. This internship program is our final part of graduations, and our successful occupation. For as a student of department of nutrition and food engineering hospital or industry based training is essential for the understanding of a concept learned from formal education. We need to intern duty of hospital which included to the training and important for the idea of planning knowing from legal education. This is practically learning issues for me. There remains a huge gap between academic learning and the practical world of modern health and nutrition.

This report is originated from the curriculum requirement of B.Sc in Nutrition & Food Engineering program. The topic of my report is Knowledge of "Diarrhea, under Six month to five Years age children" Pediatric gastroenterology hepatology and nutrition at Dhaka Shishu



Hospital (DSH), for in this purpose, I observed their guidelines counseling methods and operational activates and capable performance nearly. I make up my internship program as a regular students as per counseling with my university supervisor respected teacher Tasnia Tasnim. I have chosen my topic "Diarrhea" under six month to five years age children for my study and analysis.

### 1.3 Objective Of the study

The primary objective of preparing this report is fulfilled the requirement of B.Sc in Nutrition & Food Engineering program. It is carry on three credits for internship program and find to the affinity between relating to truth and useful idea for knowledge and experience. A short lesson of the knowledge to the instant health walk can only be acquired by practical actualization of planned thought, which we study and knowledge learn from our academic performances.

About the goal of my internship program of development of different types diarrheal disease children's health. Some people have no idea why their children are affecting in the diarrhea and the bed impact of the diarrhea in the children health. Some of the people don't maintain proper hygiene, drinking unsafe water, poor sanitation, properly hand washing practice, lack of nutritional food, lack of nutritional knowledge, about vaccination, practice of exclusive breastfeeding, eating habit of children, environment and lifestyle of the family.

## Chapter 2

### 2.1 introduction of the Dhaka Shishu Hospital (DSH)



Dhaka Shishu Hospital is the governmental organization of Bangladesh. DSH is the largest children's hospital in Bangladesh. The specialty of the DSH is the prevention of childhood disease. It is located in the Shar-e-Bangla nagar, Dhaka-1207. This is founded for poor people in

March 1972, the only children specialized hospital in our country. The hospital had only 50 beds when it was established. Now it has 650 beds. It is a government supporting public hospital for children, with the help of some voluntary organizations and the Governments. The hospital outpatient department (OPD) started a tent in the Dhanmondi in Sukrabad, Dhaka. Financial support by "Save the children fund.UK" later on from the "world Vision, Bangladesh". In December 1974 National Economic Council (NEC) of Bangladesh chaired by the father of the nation, with the approval of Ministry of Health and Family Welfare of Bangladesh, the site project refers to the current location at She-e-Bangla Nagar, Shyamoli, and Dhaka.

The major thing of this hospital started to provide better children treatment, financial supporting for the parents for better treatment their children, they also provide nutritional advice the children, counseling and provide follow up services of the patient.[4]

## 2.2 The Mission and Vision of Dhaka Shishu Hospital:

- To meet the extended load in the OPD space and therefore further expansion is required.
- Hostel for necessary staff.
- Separate Academic building need be constructed to facilitate advanced education and training facility.
- Expansion of hospital beds.
- Enough transport facility.[5]

## Chapter- 3

### 3.1 Activities

In this chapter I describe my working process. I was assign under the department of Pediatric Gastroenterology herpetology in DSH. This department is also known as the Nutritional department. Malnutrition and diarrhea are the major part of this department. Malnutrition and Diarrhea are the major cause of less than six month to five years age children. Diarrhea and malnutrition are the common cause of mortality and morbidity in the developing Country like Bangladesh. This department provides are medication, education, training of the students and research. We start our work at 8.30 am. Our working hours start at 8.30am to 2am

**Follow-Up and Observation:** We start our work in the follow –up session. Every day the follow –up session start at 9 AM the nutritional follow up the patients. The children are followed up

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daily in the morning and adjust to the nutrition plans to ensure their nutritional goals are met. In the follow-up session, the nutritionist and dietician observe how the children recover. The treatment facilities including clinical management, nutritional management, counseling and follow-up with daily and long-term follow-up. For new patients, firstly the nutritionists of DSH check if the doctors recommended any diet or meal for each child. Then 11 am start the round of the different unit.

### **Daily word Round:**

After follow-up session start the daily word round. In the DSH daily word round start at 11 am in all unit. In the nutritional department, the daily round is mandatory. The doctors along with the nutritionist, intern student review each child in the word and take care of them. Nutritionists join with the other doctors; so that she can be update her clinical plan. And every four hours, again the word round happen.

### **Communication with supervisor:**

I work in the hospital under the one efficient nutritionist's senior nutritionist Sabrina Makbul, Dietician Shanta Roy and one are feeding nurses. We start with our work in the follow up section every day all most 10-20 patient come in this department for the nutritional follow up. In this section prescribed new diet chart for a day, and monitor the children improvement. My supervisor provides are medication, education, training of the students and research.

### **Patient Management:**

Most of the children we are observed in the SAM( Sever Acute Malnutrition) , MAM (Moderate Acute Malnutrition)Pneumonia, Diarrhea and dysentery, Vitamin deficiencies, Dermatitis, kidney patient, other infection, some of the neurological and heart disease Et cetera. The dietician and nutritionist give the patient advice the nutritional plan, about children dietary life style and give nutritional education. Our trainers give us lots of information about dietary management, how can preparation and supply of F-75 and F-100 diet, NG tube feeding ,rice suji, Green banana khichuri, Chicken soup, rice ORS, ReSoMal and elemental diet .The special feed made help the children recovery from the critical illness maintaining the children's children nutritional status which plays a vital role in the curative and recovery phase of the children patient. The nutritionists take care about the meal, if the patients finish the children foods that are given by the management of the patients in the ward. Sometimes some outpatient comes for the children nutritional advice. Nutritional advising time start after 12 am .We was collected our data information from the different word. Than we visit in the different unit of the hospital (word: 1, 2, 4, and 15)

## **3.2 Important concept required for working in nutritional department**

### **3.2.1 Anthropometry measurement of the human body:**

Anthropometry is a branch of anthropology that enshrines the quantitative measurement of the human body. Nutritional status assessments are important for nourished and malnourished people both. It is defined the nutritional problem of the targeted group of people. It is also necessary for measurement of children physical and mental growth, development and adults in body weight in changes. The measurement of the human body for nutritional status assessments are below there:

- Height /length
- weight
- MUAC
- BMI
- Z-score[6]

### **3.2.3 Anthropometric definitions of malnutrition:**

#### **Stunted:**

Stunted growth refers to low height for age, but not when children are younger than for their age not necessarily thin. The term also known as chronic malnutrition, stunted carries the risk of child's long term development. It is a risk factor for diarrheal children.

#### **Wasting:**

Wasting refers to low weight for height, where children are thin for their height but it is not necessarily short. Wasting term also known as acute malnutrition

#### **Malnutrition:**

Malnutrition is increased the immediate risk of children mortality and morbidity rate. Wasted children have a 5-20 times higher risk of dying from common illness such as diarrhea and pneumonia than normal children. Acute Malnutrition can be divided into two types one is severe and another is moderate, those Children with face acute malnutrition. The children need to immediate medical treatment. It is risk for children life if the immediate treatment is not provided.

### **Underweight:**

When children can either be short or thin in terms of his/her refers to a low weight for age that indicates the child is underweight. Here, this term is the combination of acute and chronic malnutrition.

### **Marasmus:**

Marasmus is indicates a situation where the child is become thin and feels weak due to not getting enough energy rich food. At this stage children feel weak and appear older than present and wrinkled. They become dry and their faces are thin, with dropping cheeks and large eyes. Their belly looks swollen. They present sagging skin on legs and buttocks. Children with marasmus cry a lot, children are become very irritable and get greedy appetite and responsible for all kinds of diseases.

### **Kwashiorkor:**

It refers to situation where the children are not getting sufficient Variety of food and they are only taking cereal based diets. In this situation their body swell and becomes fat usually (WHO, 2003)[7]

### **3.3 About the nutritional department:**

In the Dhaka Shishu hospital nutritional department is under the Gastroenterology and Hepatology unit was formed in 1982 in Dhaka Shishu Hospital. The unit is located in the 2<sup>nd</sup> floor of the main building in the hospital and the unit number is 5. There are 20 nonpaying beds in this section in different cabin and words. Every 9 am start the follow up section in the patient, and 11 am start the round section. This Associate professor (head of department), Assistant professor Register, medical officers, one nutritionist, one dietitian and one are feeding nurse. Most of the patients in this department were SAM, MAM, Vitamins deficiency, dermatosis, helminthiasis, continuing diarrhea and dysentery other infections and condition. The overall advantage the department has some modern equipments and accessories such as Digital weighing machine, BM machine, Flexiflo petrol pump, heater bed, room heater, electronic glucometer, Portable plus oxymeter, body composition analyzer, infant meter, stadiometer, weighing scale. The major thing of this department is to provide better children treatment, financial supporting for the parents for better treatment of their children, they also provide nutritional advice for the children, motivation of the parents, counseling and provide follow up services of the patient, they provide each child's feeding plan and food intake chart and also record the data. All information was monitored and recorded in the CCP card. Record the type of feed provided number of children, and the number of feeding per day. Long time

follow up the children after discharge. This department also provides preparation and supply of F-75, F-100 diet, about oral feeding NG tube feed, rice suji, green banana suji, milk suji, chicken soup, khichuri, Rice ORS, ReSoMal and elemental diet. This department has an excellent educational facilities including practical and theoretical based knowledge both. All the information were monitoring and recording. [8]

### **Educational facilities of nutritional department:**

Educational opportunity including;

- ❖ Theoretical knowledge
- ❖ Practical experiment knowledge
- ❖ Bed side teaching
- ❖ Daily word round
- ❖ Daily Follow up

This department has various research facilities. This department is involved in various research works facility in collaboration with different institutes in our country and abroad. [8]

### **Department has some vision:**

- ❖ To achievement of modern learning facilities
- ❖ Planning established primary permanent diet/Total Parental Nutrition, colonoscopy, jejunal biopsy.
- ❖ The department is establishment of Pediatric Nutrition and Gastroenterology nutrition, Gastroenterology and postgraduate courses.

Gastroenterology and Hepatology unit Nutrition department work in The Dhaka Shishu Hospital will make a positive contribution only for the management of admitted children but also the management of severely malnourished children, children suffering from gastrointestinal diseases and various disease patients. [8]

## **Chapter-4**

### **4.1 Diarrhea**

Diarrhea is a major cause of malnutrition it should be reduced in the first week of treatment providing precautionary food for rehabilitation phase. For the rehabilitation phase, loose, poorly made at this stage are no cause for concern provided satisfactory weight gain. (National

guidelines) Diarrhea is a digestive condition that causes loose or watery stools that happens more than three times a day. Diarrhea creates the excessive loose of fluids and electrolytes in the stool, due to passing loose or more frequent stools than usual. It can be last few days. There are three type of diarrhea including- acute watery diarrhea, acute bloody diarrhea that is dysentery and chronic or persistent diarrhea. [9]

## **4.2 Types of diarrhea:**

There are three clinical types of diarrhea:

### **Acute diarrhea:**

Acute diarrhea is the most common type of diarrhea. Acute diarrhea occurs when diarrhea lasts for one or two days. This type of diarrhea does not need treatment and it usually goes away after a few days. Diarrhea occurs due to viral or bacterial infections. It also happens in the food poisoning.

### **Acute Bloody Diarrhea:**

Acute bloody diarrhea is also known as dysentery diarrhea. Diarrhea refers to diarrhea that lasts for more than 14 days. The result of this diarrhea refers an intestinal disorder.

### **And Persistent diarrhea:**

Persistent diarrhea is a series of diarrhea infectious etiology that develops rapidly but lasts for 14 days and more. It is indicates passing stool 3 or more than 3 times in a day. [9]

### **Other type of diarrhea:**

#### **Mucosal damage and giardiasis:**

Mucosal common causes of diarrhea are damage in and giardiasis by microscopy where stool examination is possible.

If there is a stool treat child by oral antimicrobials that is effective against visible blood, mostly local strains of Shigella.

### **Lactose intolerance:**

Lactose intolerance rarely causes diarrhea. Children are suffering most of the time diarrhea due to lactose intolerance. It is common to seek treatment only if continuing diarrhea persists. Starter F-75 feed is containing low lactose feed. In exceptional cases:

- Substitute animal milk with yoghurt or lactose-free infant formula feed.
- Gradually reintroduce the milk feed at the rehabilitation stage. [10]

### **Osmotic diarrhea:**

Osmotic diarrhea is a common condition of diarrhea, osmotic diarrhea occurs when too many solutes the components of the food you eat stay intestine and cannot the body absorbed properly. Be suspected if diarrhea worsens substantially in young children with diarrhea who given F-75 prepared with milk powder, which has slightly higher osmolality.

#### **In these cases:**

Use low osmolar cereal –based F-75 (yoghurt/lactose free diet) or rice suji then the children reach the rehabilitation phase introduce the children with F-100 diet gradually. [11]

### **4.3 Causes of Diarrhea:**

A number of diseases and conditions can cause diarrhea, different cause of diarrhea including

- ❖ Viral Infection
- ❖ Bacterial Infection
- ❖ Food intolerance, such as lactose intolerance
- ❖ Parasitic Infection
- ❖ Intestinal disease
- ❖ Medication
- ❖ Malabsorption of food[12]

### **4.4 Common symptoms of Diarrhea:**

There are many different symptoms observe in diarrhea. The symptoms depend on the different cause.

- Nausea
- Abdominal pain
- Cramping
- Bloating
- Dehydration



- Fever
- Vomiting
- Weight loss
- Bloody stools
- A frequent urge to evacuate your bowels
- A large volume of stools in a day. [9]

#### **4.5 Other complication of diarrhea:**

##### **❖ Dehydration:**

Dehydration is the common complication of diarrhea. It is more danger in children than younger. Dehydration is the usual cause of diarrhea. Dehydration is occurs when body loses large amounts of electrolytes and losing fluids that is dehydration. Dehydration is the life threatening risk.

Severe dehydration: When observed at least two of following signs that will be severe dehydration

- Lethargy/ unconsciousness of children
- sunken eyes of children
- unable to drink
- skin pinch goes back very slowly

Some dehydration: at least two of following signs observed

- restlessness, irritability of children
- sunken eyes of children
- drink unenthusiastically, thirsty

Some time observed no dehydration no signs of dehydration. [13]

##### **❖ Malnutrition**

Malnutrition is also life threatening risk for diarrhea patient. Those Children dies from the diarrheal disease they also often suffers from underlying malnutrition, which makes them more susceptible to physical or emotional harm to diarrhea. Each diarrhea episode, in turn, makes their malnutrition even worse. Malnutrition is also a leading cause in children under five year's age. [3]

### ❖ **Electrolyte imbalance**

When our body lose lots of electrons that time we face an electrolytic imbalance. Diarrhea can last several days body face electrolyte imbalance and leave the body cannot be survive without the water and salts that are necessary for survival. Loss of sodium, Potassium, and Magnesium (that play a key role in vital body functions) [14]

### ❖ **Kidney fails and organ damage**

When our body suffering from the diarrhea our body face dehydration that's why we loss of water along with the stools, and not enough blood/ fluid is supplied to the kidneys, that time face hypovolemia. Hypovolemia reduce the blood supply in the kidney that is life threatening risk. Need to drink plenty of fluids to replace what's lost.[15]

## **Chapter-5**

### **5.1 Diarrhea diet related other term**

#### **Nutrition:**

Nutrition is essential for growth and development of health. Nutrition is regarded as the process of taking in food and using it for the biochemical and physiological growth for the body, development, metabolism, and repair. Nutrition is necessary, to meet the body's dietary needs for normal body functions. Vital nutrients are protein, carbohydrate, fat, vitamins, minerals and water. Normally 85% of our daily energy and calories come from fat and carbohydrates and 15% from protein. Balanced diet is important for the healthy life. Micronutrients and macronutrients provide sufficient energy to regulate normal body function and help to healthy life. Macronutrients are carbohydrate, proteins, fats, and micronutrients are water, vitamins and minerals.[16]

#### **Food**

Food is any substance consumed to provide nutritional support to an organism. Food is usually plant, animal or fungal origin, and contains essential nutrients, food an edible or digestible substance such as carbohydrate, protein, fats, vitamins, and minerals to provide nutritional

support for the body. It is important to produce food strengthens the energy, maintain life, enhances growth and development of the body.[17]

## 5.2 Suitable foods for the treatment of diarrhea diseases and under nutrition children

Diet plan for diarrheal patient including low fiber diet. There are foods that are low in fiber contains that food helps to fight against diarrhea and dysentery or loose motion. The right diet for diarrhea patient need fiber contains 10 grams per day. Foods with low fiber content food are tolerated during diarrhea because it will be easier to digest. Diarrhea cause dehydration, for which the patient needs to drink plenty of water, proper nutritious foods can be balanced body electrons that can avoid to dehydration, malnutrition, and rapid body growth.[18]

### 5.3 Feeding plan of children who have diarrhea and vomiting:

Diarrhea and vomiting are common cause of children disease. Body can quickly lose too much fluid and become dehydrated, and our body loss of too much water and mineral. This can be serious and even life threatening problem. When diarrhea and vomiting occurs body fluid must be replaced, provide small amount of liquids often.

For children: breast milk or formula milk is the best fluid. Breast milk is the excellent source of reducing serious diarrhea. If a child shows the sign of dehydration, the doctor may tell use an ORS. ORS solution can be replaced lost minerals. ORS solution can also reduce vomiting and diarrhea. Some severe dehydration or vomiting, a child may need to go to a hospital to have intravenous (IV) fluids.

- ORS solution may be alternated with breastfeed or formula feed.
- Use only recommend ORS solution, don't use own make solution.
- Children under 2 years should be given 50-100 ml of ReSoMal after each loose stool pass.
- Feed the child in small frequently, and feed every 30 minutes for 2-3 hours. This will help replace lost electrolytes.
- Diarrhea or vomits continues to vomit, provide half the amount of food as often as twice.
- If diarrhea or vomiting is not better after 2-3 hours, you can stop the ORS solutions.
- Take 40 ml of F-75 every 2 hours, until vomiting is not stops.
- Don't drink citrus drink or milk.[19]

### 5.3 Easily consume for diarrhea Food plan:

Eat small amount of food per meals. Stress on eating harder meals after diarrhea your stomach digestive system makes it harder for your recovery stomach to process food properly. Always be careful what you eat or drink.

Diarrhea patient recommended food

- Oral Rehydration salts
- F-75, and F-100 feeding diet
- Milk suji or low lactose containing formula milk
- Rice suji
- Chicken based diet
- Green banana khichuri
- Halwa
- Oral feeding
- Plenty drink -Coconut water that enhanced the body electrolyte or vitamins.
- Pure water and try to drink clean water.

### 5.4 The recipe and preparation of the diarrheal related children diet plan

#### Oral Rehydration salt:

This is use only for the diarrheal patient. Each saline packet contain sodium chloride BP- 1.30g, potassium chloride BP 0.75g, sodium citrate BP1.45g, and Anhydrous glucose BP6.75g

#### Preparation:

It is easy to make and the making process is written by the packet. In this saline packet dilute in 500ml of pure drinking water. The saline solution can not drink making after 12 hours. It can be kept at room temperature for 12 hours. It is recommended for maintaining the body electrolytic balanced.

#### ORS formulation is given below:

Ingredient	Amount
------------	--------

Water (boiled and cooled)	850ml
WHO-ORS	one packet contain 500ml
Sugar	20g
Electrolyte-mineral solution	16.5ml

### Electrolyte-mineral solution:

Ingredients	Quantity in gram	Molar content of 20 ml
Potassium Chloride	224g	24ml
Tripotassium Citrate	81g	2ml
Magnesium Chloride	76g	3ml
Zinc Acetate	8.2g	300ml
Copper Sulphate	1.4g	45
Water make up to	2500ml	

### F-75 diet

F-75 is known as starter formula for the therapeutic diet during the management of malnutrition. Most of the diarrhea patient were malnourished this therapeutic diet is given to malnourished children as soon as possible recover. Until this diet is continue the children reach the stabilized phase. Malnourished and diarrheal children body has already more sodium and low potassium and it cannot contain normal amount of protein. This excess amount of sodium and protein can cause of death in the severely malnourished children. To treat severe malnutrition a therapeutic diet is prepare which is low sodium and low protein diet. F-75 is provided: 100 ml of F75 contain 75 kcal and 0.9g protein.

#### The recipe of F-75 with dried whole milk:

Ingredients	Amount for F-75
Dried whole milk	35g
Sugar	70g
Cereal flour	35g
vegetable oil(soya)	20g or 20 ml
Electrolyte mineral mixture	20ml
Water make up to	1000ml

### And other recipes of F-75 with fresh cow's milk:

Ingredients	Amount for F-75
Full cream cow's milk	300ml
sugar	70g
cereal flour	35g
Vegetable oil(soya)	20g/20ml
Electrolyte mineral mixture	20ml
Water make up to	1000ml

### And F-100:

F-100 is recommended when the children reached the "Catch up growth" F-100 is contains 100kcal and 2.9g protein.

### Recipes for F-100 with dried whole milk

Ingredients	Amounts for F-100
Dried whole milk	110g
Sugar	50g
Vegetable oil	30g or 35ml
Electrolyte/Mineral Mixture	20ml
Water make up to	1000ml

### Recipes for F-100 with full cream milk

Ingredients	Amounts for F-100
Full-cream cow's milk	880ml
Sugar	75g
Vegetable oil	20g
Electrolyte/mineral mixture	20ml
Water make up to	1000ml

### Milk suji:

Milk suji is recommended for the Persistent diarrheal children. Milk based diet. That is low lactose contain. Milk suji is for greater than 6 months of age group and children and modified infant formula is for less than 6 month age group children. After that if

children can pick up improvement then milk suji-100 is recommended to use as a “catch up growth” formula.

### **Preparation of milk suji:**

At first measure all the ingredients and clean in the pan and mixture all the ingredients thoroughly. Then about 900 ml of water is added to the saucepan and again mixture thoroughly. Cook the mixture thoroughly and stir frequently with spoon, and let boil for one minute then measure the flask. The volume of the standard adds up to one liter and one liter of water.

### **For milk based diet**

Ingredient	Modified infant formula( Amount)	Milk suji (amount)	Milk suji -100 (amount)
Whole milk powder (g)	60g	40g	80g
Rice powder(g)		40g	50g
Sugar(g)	50g	25g	50g
Oil (ml)	20ml	25ml	25ml
After cooked volume(ml)	1000ml	1000ml	1000ml
Energy (Kcal)per 100ml	68Kcal	67Kcal	100Kcal

### **Rice suji**

Rice suji is recommended those children who cannot tolerance the lactones. It is lactose and sucrose free formula for the children. If the patient is not improved by the milk base diet the condition is worse than provide the rice base diet to them.

### **Preparation of Rice suji:**

At first measure all the ingredients and clean in the pan and mixture all the ingredients thoroughly. Then about 900 ml of water is added to the saucepan and again mixture thoroughly. Cook the mixture and stir frequently with spoon and let it boil for one minute. Then allowed to cool and then allow to flask to be measured. The stander volume is one liter and adds water to make up to one liter.

### **Rice based Diet**

Ingredient	Full strength rice suji/ liter	$\frac{3}{4}$ strength rice suji/liter
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	amount	amount
Rice powder(g)	60g	40g
Egg white	100g	100g
Glucose(g)	35g	30g
Soya oil(ml)	30g	25ml
Salt (g)	1g	1g
After cooked volume	1000ml	1000ml
Energy(Kcal/100)	70Kcal	57Kcal
Protein in gram /100 ml	2.1g	1.9g

### Chicken based diet:

Chicken base diet is lactose, sucrose and maltose free diet. Chicken based diet is provided to the patient when the rice base diet is not improvement the condition.

Preparation of chicken based diet:

At first all the ingredient measure thoroughly and mix all ingredient such as chicken, glucose, onion, oil, salt, and mineral mix in a clean pan, Then cooled boiled water added up to 1000ml. Then transfer the mixture into a clean cooking pan. Then boil gently until cooked and stirring continuously. Some water will be evaporate while cooking, so after cooking transfer in a measuring jar and added enough water make up to 1000ml.

### Recipe of chicken based diet:

Ingredient	Full strength chicken (Amount)	$\frac{3}{4}$ strength chicken (amount)
Chicken minced(g)	180g	100g
Glucose(g)	35g	30g
Soya Oil(ml)	30ml	20ml
Onion(g)	20g	10ml
Salt(g)	1g	1g
After cooked volume	1000ml	1000ml
Energy(Kcal/100ml)	60Kcal	46Kcal
Protein(g/100ml)	4.5g	3.8g

### Khichuri:

Khichuri is used for the diarrheal children and with the malnourished children recover. Khichuri is nutritious food also. It is prepared from rice, mashur dal, Green banana/ green leafy vegetable and oil. 1000g of khichuri contain almost 1442kcal energy and 29.6g of protein.



### The khichuri recipe:

Ingredient	Amount for 1 kg khichuri
Rice	120g
Lentils (mashur dal)	60g
oil(soya)	70ml
potato	100g
pumpkin	100g
Leafy vegetable (shak)	80g
Onion two medium size	50g
Spices(ginger ,garlic, turmeric and coriander powder)	50g
water	1000ml
Total energy/kg	1442kcal
Total protein/kg	29.6g

### Halwa:

Halwa is another nutritious food. It is prepared from the wheat-flour, mashur dal, molasses and oil. 1000 g of cooked halwa contain almost 2404kcal energy and 50.5 g of protein contain. It is used for the malnourished children to recover the condition.

### The recipes of Halwa

Ingredient	Amount for 1 kg
Wheat flour (atta)	200
Lentils(mashur dal)	100
Oil	100ml
Molasses( brown sugar/gur)	125g
Water( to make a hick paste)	600ml
Total energy/kg	2404kcal
Total protein/kg	50.5g

### Oral feeding:

Oral feed is given a children encourage to eating habit. It is necessary to feed very weak children those don't eat properly by mouth they use by the dropper or syringe for feed. Well trained nursing staff should do this task at first if possible. Mothers may help with feeding after children become stronger and more willing to eat. Never leave the children along when oral

feed. Spend more time with the child, hold the child, encourage the children breastfeeding on her demand between formula feeds. Ensure that the children gets proper amount of F-75 with breastfeeding. [20]

## **5.5 Diarrheal patient restricted food items:**

There are some foods that are restricted for the diarrheal patient. This food can be bad impact for the diarrheal patient health. This food affects the digestive system. Some diarrhea can occur for the food poisoning and allergies, that food are irritable in our bowel syndrome. That's why a diarrheal patient needs to avoid some food. [21]

### **Restricted food list is below here:**

- Milk and dairy products that carry lactose
- Fried, fatty, greasy food items
- Spicy foods
- Raw vegetables
- Alcohol drink
- Coffee, and soda
- Artificial sweetness. [21]

## **5.6 Treatment for Diarrhea**

- Plenty of fluids to prevent dehydration: Drinking plenty water and other electrolyte balanced fluids (such as thin as and pulp free fruit juices, sports drinks and caffeine-free sodas) which make sure to hydrate body thought-out a day. When body suffering from diarrhea each time body's thoughts one day when the body is affected by diarrhea each time the body loses water and electrons. Drink plenty of extra fluids, minerals that can protect body dehydration.  
Drink Oral Rehydration Solution to replace greedy minerals and salts. These drinks are available from any medicine corner. An alternative is to mix one part of pure fruit juice diluted with four parts of water.
- Avoiding anything foods and drinks that produce gas in the stomach. When you experience cramping in your abdomen with diarrhea disease, it can help to reduce stomach gas. Gas producing foods include beans, cabbage, Brussels and drinks are sprouts, beer and carbonated beverages.

- Changing diet: Changing diet is the main fact of the treatment of diarrhea. It can help to prevent the diarrhea. Alternatively sticky, fatty or fried foods, go for the BRAT diet

#### BRAT diet mean

- B for Bananas
  - R for Rice
  - A for Applesauce
  - T for Toast which made by white bread
- Intravenous replacement of fluids in severe cases
  - Avoid Caffeine: Caffeinated foods and beverages can have mild laxative effect, which can make your diarrhea worse. Caffeinated foods and drinks include coffee, diet sodas, strong tea / green tea, and even chocolate.
  - Lactose Intolerant: Diarrhea can also make Lactose intolerant. It is usually necessary to avoid temporary and lactose contaminated items which contain lactose (such as daily products) prevent diarrhea.
  - Antibiotics and anti nausea drugs are anti diarrheal drugs but take them only prescribed doctors.
  - Treatment for any underlying condition, such as intestinal disease. [22]

## 5.7 Some personal precautions can be prevent diarrhea

### Good personal hygiene habits:

This habit can reduce the risk of diarrhea. Hand washing practice with soap and clean water after using the bathroom, as well as when cooking, handling, and eating, it is important to prevent diarrhea. Wash hand for at least 15-20 seconds, especially after visiting the toilet and before eating. Hand washing and sanitizer is more effective. Hand washing completely prevents disease in all regions of the world. Through hand washing can really help keep you and everyone around you stays healthy. Hand washing practice is not only preventing diarrhea it also prevent many viral infectious disease. Don't share eating utensils like as glasses, plates and bottles etc. Never share toothbrush with other and other personal items. Maintain properly hygiene we getting a healthy life.

### Clean Surrounding area:

After an episode of vomiting and visiting to the toilet make sure the surrounding area is clean. Use disposable gloves. Use wet paper towels to wipe up the stool. And put the paper towels in the plastic bag. Wear clean or dry clothes; clean the living place, using toilets and other personal items that is use the diarrheal patient.

### **Used of improved sanitation:**

An improved sanitation can be decreased diarrheal disease. That improves drinking water and Sanitation help to reduce the risk of diarrhea, for example using high quality piped water with well preserved water. There are some international organizations and local NGOs and governments use to make people aware of improved sanitation. To providing well sanitation facility; this includes toilets use, household waste disposal or reuse, transport and collection the waste disposal that reduce the risk of diarrhea.

### **Water:**

Water pollution is a very common cause of diarrhea leads to clean water supply and improved sanitation supply which has the potential to dramatically reduce the rate of diarrhea disease. In fact clean water provides 88% reduce in children mortality rate due to clean water, sanitation and improved personal hygiene results. Clean water is a vital need for diarrheal patient. It is mandatory for prevent a patient dehydration. Diarrheal patient loss of water from the body that is why after every episode of vomiting and stools need to drink clean fresh water. Water is need to supporting the body biological functions, helps to eliminate the toxins from body, and also maintain the food digestive system.

### **Vaccination:**

Diarrhea vaccination is important to reduce the diarrhea. Vaccination is important for treatment with a vaccine to produce immunity against a disease. Vaccination against diarrhea causing pathogens is an effective prevention strategy; however it requires targeting certain pathogens for vaccination. Rotavirus, which is responsible for about 6% of diarrhea episodes and 20% deaths of diarrhea disease in children in developing countries, vaccines reduce the overall 6-10% diarrhea. A diarrhea vaccine shown a strong reduction in mortality and morbidity r in children, and are now more effective in developed. It that could potentially save the lives of thousands children life in developing countries, decrease the cost of treatment, and decrease the costs to society. Rotavirus vaccine decreases the rates of diarrhea disease in large population. As well as other sources of infectious diarrhea disease are under developing.

### **Nutrition:**

Nutrition is very important for children growth and development for the children. Proper nutrition can be preventing many diseases. Dietary deficiencies in developed countries can be further improved and promoted eating habits proper nutrition is very important for a diarrhea

patient. Zinc and vitamin A supplements have proven successful showing a significant reduction in diarrhea. Increased incidence of diarrhea compared to vitamin A and Zinc Supplements and vitamin A supplements were announced as modern strategies to prevent diarrhea significantly more effective than nutrition for diarrhea disease. And vitamin A supplement is good to prevention for diarrhea

### **Breastfeeding:**

Exclusive breastfeeding practices are very important for every child. It is very important for the first 6 months of children's life. Breast milk can prevent many diseases. It helps to children's have strong immunity. Breastfeeding has been shown to have dramatic effects diarrhea disease occur in weak immune children. It is better to breastfeed exclusively during 6 months of life exclusive breastfeeding which protects against diarrhea, is currently recommended for 6 months the lives of children, including continued breastfeeding until at least two years of age, and are compulsorily mandated by the WHO.

### **Storing food properly:**

Properly preserving food is very important to prevent diarrhea. Storing your food is very important to prevent diarrhea and other contaminated disease. Temperature is very important to maintain quality of food, avoid eating spoiled food, to cook food for the recommended temperature and safe handling of all foods, these practices can prevent diarrhea disease.

### **Probiotics:**

Probiotics reduce the risk of diarrhea among antibiotic recipients. Spraying pesticides can reduce the number of fly and the risk of diarrhea in children in a setting where the numbers of fly varies throughout the year. It can prevent diarrhea. [23]

## **Chapter-6**

### **6.1 Discussion and conclusion**

#### **Discussion:**

This report has been conducted to assess the impact of infectious disease like diarrhea and malnourished children. From this study it has been found that nutritional and clinical services. And division sector is potential source of public health and development of Bangladesh. DSH is the children specialist hospital. This hospital is providing the children better treatment, and financial support. It is government that supports tertiary level public hospital. Main goal of this hospital is through developed and improved children health related factors, In this hospital our country gain more health benefits.

#### **Conclusion:**

This internship at DSH was well organized as well as useful experience. I think that I have gain new knowledge, skills and achieve into professional works of practical and extra activities of all

section. Diarrhea and malnutrition has a negative impact on children health, which can lead to increase children's mortality and morbidity rates in developing countries such as Bangladesh and low income countries. Most of the children were suffering from with diarrheal disease and malnutrition. Most of the children come from the rural area of Bangladesh. They are affected in the dangerous disease due to lack of proper knowledge and treatment. With the help of few voluntary organizations and the Governments of Bangladesh, and giving the financial support by the "Save the children fund", "UK", and "World vision" work jointly to reduce the risk of children mortality and morbidity rate. Reduce the diarrheal disease and malnutrition related disease of our country. Not only giving the treatment of diarrheal disease but also work for the improving the nutritional status of the children. They provide the some diet for the diarrheal and malnourished children like F-75, F-100, milk suji, rice suji, khichuri, halwa etc. They also provide children care giver counseling, nutritional advice and motivation. The main goal of the hospital is better treatment of all over the children.[24]





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