



## **INTERNSHIP REPORT**

**On**

**An Orientation to the Health System and Population Studies Division (HSPSD), icddr,b  
Submitted to**

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**Head,**

**Department of Nutrition and Food Engineering (NFE)**

**Supervised by**

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**Submitted by**

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University**

**Date of Submission: 26/06/2021**

## LETTER OF TRANSMITTAL

Date: 01 June 2021

The Head

Department of Nutrition and Food Engineering (NFE)Daffodil  
International University

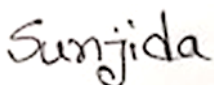
**Subject: Submission of Internship Report.**

**Dear Sir,**

It is a great pleasure to submit my Internship Report, as a partial requirement of the Internship Program and a prerequisite for completion of the BSc. in Nutrition and Food Science Program. I believe it is one of my great achievements to pursue and successfully complete my internship at icddr,b. This report is based on my work entitled “**An Orientation to the Health System and Population Studies Division (HSPSD), icddr,b**”. I have got the opportunity to work at icddr,b in the Health System and Population Study Division for four months, under the supervision of **Dr. Sabrina Rashid**, Associate Scientist. This internship opportunity gave me to gain knowledge in both academic and practical perspective. During the entire period of my internships, I specially learnt about the various research activities of this division at icddr,b. In addition, I got the opportunity of being introduced with some of my fellow intern from various backgrounds which helped me to acquire diversified information of their research area. Finally, I have joined an online presentation to my supervisor for sharing my internship outcome and report in a formal way.

I shall be highly obliged if you are kind enough to accept this report and provide me your valuable judgment. It would be my immense pleasure if you find this report useful and informative to have an apparent perspective on the issue.

Thank you again for your support and patience.



**Ebney Sunjida Abedin**

ID:171-34-587

Nutrition and Food Engineering (NFE)Daffodil  
International University

## LETTER OF APPROVAL

This is to certify that the internship report entitled **An Orientation to the Health System and Population Studies Division (HSPSD), icddr,b** has been submitted for assessment to the examination committee by Ebney Sunjida Abedin bearing ID: 171-34-587, Department of Nutrition and Food Engineering (NFE), Daffodil International University (DIU).

I am pleased to declare that this report is entirely written by the author and all the related works have been conducted by the internee under my strong supervision and observation. This is a piece of original work and has not been submitted or published anywhere for any other purpose.

I strongly recommend the approval of the report by the authority and I also pursue a positive and fair evaluation of this work.

I wish her all the success in life.



05.06.2021

**Dr. Sheikh Mahatabuddin**  
Head  
Department of Nutrition and Food  
Engineering (NFE)  
Faculty of Allied Health Science  
Daffodil International University



**Dr. Amir Ahmed**  
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## ACKNOWLEDGEMENT

First of all, my gratitude and thanks go to the Almighty Allah, the most merciful and the kind who has blessed me with the ability to make this work successful. I would like to say thanks to the Honorable Vice Chancellor of Daffodil International University (DIU) for extending me this opportunity to pursue my BSc. Degree in Nutrition and Food Engineering (NFE) Department.

My deep gratitude and sincere thanks to **Dr. Ahmad Ismail Mustafa** the Honorable Dean, **Dr. Bellal Hossain** the Associate Dean, Faculty of Allied Health Sciences (FAHS); and **Dr. Sheikh Mahatabuddin** the Head, Department of Nutrition and Food Engineering (NFE), for their kind cooperation and encouragement to assign and accept this Internship Report.

My deep and sincere appreciation to **Dr. Amir Ahmed**, for his constructive suggestions, effortless guidance and continuous support throughout my internship which has helped me immensely to complete this work successfully.

My gratitude goes to **Dr. Shabrina Rashid**, Associate Scientist, icddd,b for all the meaningful and goal-oriented learnings she has delivered with great passion and sincerity throughout my internship at icddd,b. I am also thankful to all my great teachers **Dr. Md Rezaul Karim; Sarwar Inam;** my Batch Advisor **Fouzia Akter, Dr. Nizam Uddin, Tasmiah Tasnim; Effat Ara Jahan; Nasima Akter Mukta; Najia Kamrul; Jewel Rana; Harun-Ur-Rashid and Humyra Nowshin** for their countless inspiration and encouragement during my student life.

My warmest thanks to **Mr. Emran Hossain, Mr. Reaz Mahmood Mr. Elahi Box and Md Habib.** My gratitude goes to the entire NFE Department of Daffodil International University for arranging this research opportunity and facilitating the work throughout.

## **DEDICATION**

The research work is highly dedicated by the supervisor of Dr. Amir Ahamed and Dr. Sabrina Rasheed gave me the support and held the successful to work.



**An Orientation to the Health System and Population Studies Division (HSPSD), icddr,b Organized by Health System and Population Studies Division at icddr,b. Mohakhali Dhaka-1212, Bangladesh**

**Course Advisor:** Dr. Sabrina Rasheed, Associate Scientist; HSPS division. **Course**

**Coordinator:** Syeda Mahsina Akter, Research Investigator **Course Co-coordinator:**

Rumayan Ahmed, Research Investigator Facilitators from HSPS, icddr,b:

1. Foujia Tanjir Anne, Assistant Research Investigator.
2. Morzina Akter, Assistant Research Investigator.
3. Sujaul Islam, Field Researcher.
4. Md. Salim Ahamed, Assistant Field Researcher.

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## ABBREVIATION

<b>ICDDR</b>	<b>International Centre for Diarrhoeal Disease Research, Bangladesh</b>
<b>WHO</b>	<b>World Health Organization</b>
<b>RUTF</b>	<b>Ready-to-use Therapeutic Food</b>
<b>RUSF</b>	<b>Ready-to-use Supplementary Food</b>
<b>UNICEF</b>	<b>United Nations International Children's Emergency Fund</b>
<b>MIYCN</b>	<b>Maternal, Infant and Young Child Nutrition</b>
<b>BMS</b>	<b>Breast Milk Substitute</b>



# CHAPTER - 1

## 1. INTRODUCTION

ICDDR,B is dedicated to saving life via testing and therapy, and it addresses several of the world's most important health issues, such as enhancing neonatal longevity and combating HIV/AIDS. It collaborates with research organizations to analyze data, teaching, and development projects, as well as curriculum events, in order to increase awareness of international lifesaving strategies (<https://www.icddrb.org>). In cooperation with education and professional groups around the globe, it supports surveys, instruction, and development initiatives, as well as curriculum events, to increase understanding of important potentially lifesaving strategies.

They produce evidence that is not only important in Bangladesh, but also improves the health and well-being of people living in comparable low- and middle-income countries, by emphasizing robust testing and scalability.

This employs a combination of nationally and internationally staff, includes global health researchers, scientific researchers, doctors, dietitians, physicians, climatologists, social and behavioral scientists, IT professionals, and professionals in evolving and post communicable diseases and vaccination science. Around 55 donors and institutions, like Sweden, Canada, the United Kingdom, Bangladesh, and the United States, as well as UN specialized institutions, charities, academics, research institutes, and private sector organizations, as well as businesses, support the facility's consideration for developed countries' health problems and value its demonstrated experience in assisting in their resolution (<https://www.icddrb.org>)



Figure 1: icddr,b Headquarter, Dhaka Bangladesh

## 1.1 ABOUT ICDDR,B

Abbreviation : International Centre for Diarrhoeal Disease Research,  
Bangladesh (ICDDR,B)

Location : Bangladesh

Headquarter : Dhaka

Formation : 60 years ago (1960)

Objective : Diarrhoeal Disease Research Formerly Called :  
SEATO Cholera Research, Laboratory Executive Director : Dr. Tahmeed  
Ahmed

Remarkable Researchers : Dilip Mohalonabis, Colin Munro Macleod, Richard A. Cas,  
David R. Nalin

Logo :



## 1.2 ACTIVITIES

1. icddr,b is a Dhaka, Bangladesh-based international health research centre.
2. There are 221 scientific personnel and a total of 4,438 employees at icddr,b.
3. Scientists are working on more than 350 research projects at icddr,b.
4. It is funded by four core donors, Sweden, Canada, the UK and the Government of Bangladesh.
5. In 2015, icddr,b received US\$50.5 million of funding from competitive sources; its overall revenue was US\$68.9 million.
6. There are 145 national and 88 foreign partnerships with icddr,b.
7. Scientists at icddr,b were authors in 2015 of 259 original research articles.
8. Five research projects and two developmental research programs concentrate on areas with significant patient needs that are not fulfilled.

### **1.2.1 Services in Hospital**

1. ICDDR, B offers clinical services at three locations, Dhaka Hospital, Matlab Hospital and Mirpur Treatment Centre, as well as research.
2. At its hospitals and treatment centre, icddr,b, treats more than 200,000 patients per year, more than half of them children under the age of five.

The international health research organization is icddr,b. It is close to around 221 workers and the overall workforce is 4438. As well as icddr,b research provides clinical activities throughout the city of Dhaka. The various types of training sessions such as clinical, science, biotechnology, microbiology is arranged by icddr,b for researchers all over the world. When they face the research issue, they plan the meeting to address the problem of the national and foreign researcher. All individuals who face the issue are highly motivated. In order to establish research work in the health sector, there is a long partnership between Bangladesh and the UK. Diagnostics and endoscopy services as well as vaccination services have been provided by Icddr,b. The research activities are primarily part of this institute. This agency, on the other hand, plays a crucial role in recovery activities. Much of the operations are related to the preparation and expansion of health research activities.

### **1.3 FIELD SITES**

#### **1.3.1 Rural Field**

Their main rural field site and a global resource for public health is Matlab. Research carried out at Matlab has had a significant effect nationally and globally on policy and practice.

- Family planning: In the 1970s, ground-breaking work with female community health workers dramatically increased contraception use and decreased fertility; these approaches were widely adopted worldwide.
- Immunization: Work at Matlab found that 63 percent of childhood deaths were due to vaccine-preventable diseases and that successful immunization programs could almost fully eliminate them.
- Child health and family planning: Thanks to the integrated services of child health and family planning, the annual number of childhood deaths has been decreased by around 75 percent in the last 25 years.

- Longevity: Thanks to measures that have enhanced infant survival and decreased fertility, life expectancy has increased from 50 years to about 65 years in the last 40 years.

### **1.3.2 Urban Sites**

In Dhaka, at Kamalapur and Mirpur, they also operate two urban field sites. These sites have been used to produce critical health data for the urban poor and to evaluate initiatives aimed at improving access to health services. As growing numbers of Bangladeshi people live in. In smaller but more comprehensive studies of cohorts of children, Mirpur was used. The epidemiology and physiology of different infectious diseases, as well as vaccine trials and other community-based measures have been studied (<https://www.icddr.org>).

With a population of 140,000, Kamalapur is a densely populated city of informal settlements. The site has been used for research on pneumonia, shigellosis, influenza and dengue. It also provided the basis for research on urban health systems, including the best way to provide health care, the establishment of referral systems and the funding of health programs.

## **1.4 TRAINING ACTIVITIES**

The training activities are run all the time by icddr,b. There are national and foreign students entering the training session to gather some researchers' knowledge of the basic target. On March 24, 1999, both Bhutan and Bangladesh held a training session organized by icddr,b.

To know how to plan low-cost diets in middle-class households, they attend the lecture session. The community-based nutrition program is followed by this fellowship training company provided by the national training course center. It organizes various kinds of courses, such as regular, weekly, monthly, annually. There are various groups of participants joining the project at the same time. This institute has recently coordinated antimicrobial resistance surveillance in Nepal with several microbiologists' countries.

The following categories comprise their training program:

- Capacity building of study
- Medical Education

- Public and Allied Public Health
- Training customized (need-based)

## 1.5 AWARDS

In 2017, icddr,b, received the Conrad N. Hilton Humanitarian Prize with \$2 million in prize money in recognition of the institute's creative approach to addressing global health problems affecting the most vulnerable populations in the world. Most of the programs are for training activities and extension activities on health. Former UN Secretary-General Ban Ki-moon noted in 2016 that the developments of icddr,b directly contribute to sustainable growth, helping to substantially reduce infant, child and maternal mortality in Bangladesh and beyond. ICDDR, B received the Bill & Melinda Gates Foundation's first Gates Award for Global Health in 2001 (<https://www.icddrb.org>).

## 1.6 ACHIEVEMENT

1. Research laboratory for cholera
2. Surveillance for population in Matlab
3. Reducing Cholera fatality to less than 1%
4. Rice based ORS
5. Launched Cholera vaccine
6. Identified new *Vibrio cholerae* 0139
7. Opens the 1<sup>st</sup> tuberculosis laboratory
8. Effects of arsenic on human health.
9. Zinc Diarrhoea Care.
10. Tetanus Toxic Mothers' Vaccine.
11. Guidelines for Extreme Malnutrition Care.
12. Vaccine testing: rotavirus vaccine included.<sup>1</sup>
13. Solutions for Family Planning.
14. The ongoing innovation.
15. Mat for Maternal Blood Loss Assessment.
16. Ultra-Low-cost CPAP System for serious occupational pneumonia.
17. In order to avoid and manage malnutrition in the health sector, therapeutic foods.

## 1.7 STRATEGY

Achieving their Mission and Vision - Strategic Plan 2019-2022

**Table 01:** Mission and Vision - Strategic Plan 2019-2022

Goal	Mission & Vision
One	Maintain a Focused Research Strategy
Two	Support and strengthen the use of inventions for Bangladesh and the rest of the developing world.
Three	Clinical and Humanitarian Services and Response
Four	Develop in the Field Sites and Study Tools
Five	Increase the Strong Impact of Our Research Evidence
Six	Invest in Our People for the research work
Seven	Improve Organizational Efficiency and Cost Effectiveness immediately
Eight	All time ensure Financial Sustainability for this work

## 1.8 FUNDINGS

Research at icddr, b is funded by a mix of core bilateral donor funding and grant profits. The Government of Bangladesh is very grateful to Icddd,b for providing financial help for sufficient time. The overwhelming amount of financial support for research work is supported by various types of NGOs. The top 10 sources of revenue for restricted and unrestricted grants in 2017 are summarized in the table no. 02.

**Table 02:** Funding NGOs

<b>Number</b>	<b>NGO</b>
<b>1</b>	Bill & Melinda Gates Foundation, USA
<b>2</b>	UKAID: Department for International Development (DFID)
<b>3</b>	Centers for Disease Control and Prevention (CDC), USA
<b>4</b>	United States Agency for International Development (USAID)
<b>5</b>	The Global Fund to Fight AIDS, Tuberculosis and Malaria
<b>6</b>	National Institutes of Health (NIH), USA
<b>7</b>	Government of the People's Republic of Bangladesh.
<b>8</b>	Swedish International Development Cooperation Agency (SIDA)
<b>9</b>	Commission of the European Community

**Source:** icddr.b official website (2021)

### **1.9 About Health System and Population Studies Division (HSPSD)**

Access to the assessed gaps and funding policy in Bangladesh's health sector is a matter of access.

**Approach:** In areas such as urban health, health funding systems, gender-related problems, creative use of emerging technology, implementation analysis and systematic reviews, capacity building enhancement of the National Health Program and demographic monitoring, the HSPS division has unique expertise.

## **2.0 PROGRAMS OF RESEARCH**

- i. Universal Health Coverage;
- ii. Non-Communicable Diseases;
- iii. Climate Change and Health, and
- iv. Gender and Reproductive Rights.

The department also maintains programs for health and population surveillance at field sites.

## **2.1 RESEARCHES AREAS**

Quantitative and qualitative study can be focused on maternal awareness, complementary eating, breastfeeding, psychological practices, community nutrition, young children, babies, this research organization division's current situation.

**Dr. Mahbub E Elahi Khan Chowdhury (Scientist)Dr. Sabrina  
Rasheed, Associate Scientist.**

## **2.2 PROJECTS AND ACHIEVEMENTS**

1. Inaugurated at the RMG factory to retain the mother's milk project.
2. A school-based intervention program to minimize children's behavioral risk factors linked to NCD in municipalities/ Bangladesh City Corporation.
3. Understanding the opportunities and challenges of providing newborn and child health (MNCH) services for maternal, infant and young child nutrition (MIYCN) in Dhaka city, Bangladesh.
4. Assessment of health facilities for breast milk substitutes (BMS) and of mothers with children under 24 months of age attending health facilities in urban Dhaka, Bangladesh.



## **CHAPTER-2**

### **02. OBJECTIVES**

#### **2.1 GENERAL OBJECTIVES**

Acquiring practical knowledge as a student of Nutrition and Food Engineering Program by working in the Health System and Population Studies Division of the International Diarrheal Disease Research Centre, Bangladesh.

#### **2.2 SPECIFIC OBJECTIVES**

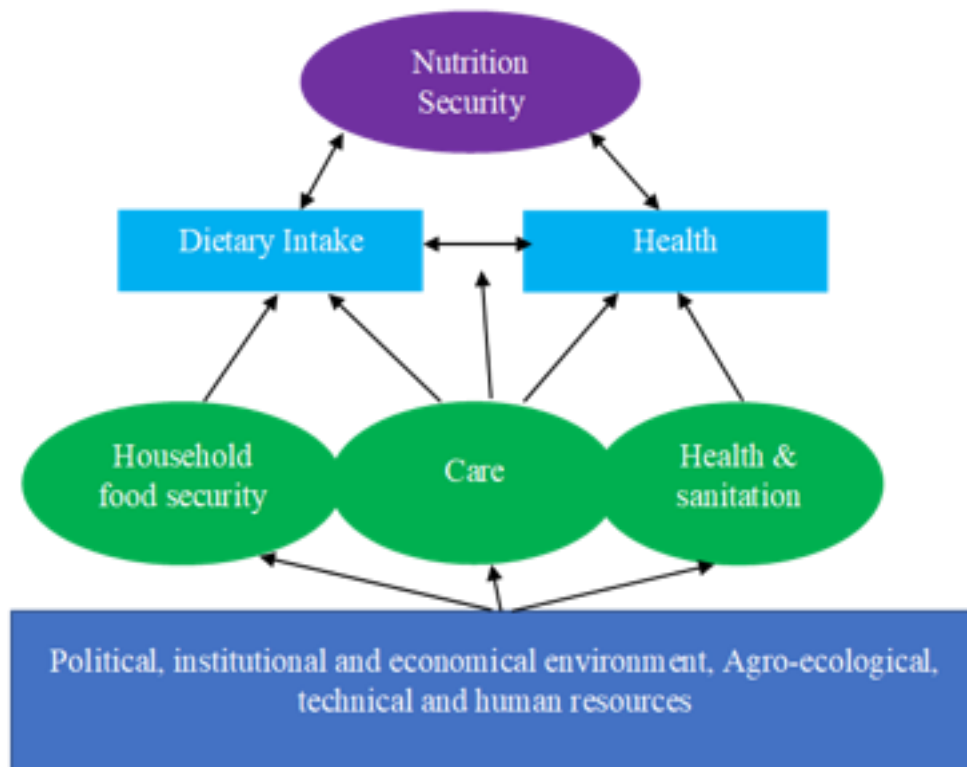
1. Acquiring preliminary knowledge and awareness of the Health System and Population Studies Division and its various functions, activities etc. at the International Centre for Diarrheal Disease Research, Bangladesh.
2. Familiarization and orientation of research in Health System and Population Studies Division (HSPSD).
3. Understanding data analysis with Mathematical Programming language, like SPSS, to learn about quantitative and qualitative data collection and analysis.
4. Experience of various ways of literature review and familiarization with scientific paperwriting techniques.
5. Getting oriented with field research activities and procedures.

## CHAPTER 3

### 3. LITERATURE REVIEW

#### 3.1 UNICEF Framework

Research titles were independently reviewed by one author to estimate studies. I use UNICEF conceptual framework work to filter the findings (Emily et al., 2008).



**Figure 2:** UNICEF Conceptual Framework

#### 3.1. LITERATURE REVIEW

Some literatures I have studied to increase my knowledge in this area as suggested by the supervisor at icddr,b. Following table has been incorporated according to the instruction and style followed by icddr,b.

**Table 3:** Literature Review

<b>Author &amp; Year</b>	<b>Purpose/ Aim</b>	<b>Design</b>	<b>Sample size</b>	<b>Dependent variables</b>	<b>Results / Findings</b>	<b>Theoretical framework</b>
1.Alhusseini N. & Alqahtani A. (2020)	Will explain the effect of the Covid-19 disease outbreak on individuals' dietary patterns, nutrient content, and availability.	Cross sectional design	2706	content & availability of food	At COVID-19, the proportion of participants (85.6%) said they ate home-cooked meals every day, relative to 35.6 percent the year before (p0.001). Until the COVID-19 cycle (16.462.84), the average score for the standard of food consumption was slightly greater (p=0.002) than after the cycle (16.392.79). By comparing the COVID-19 cycle (15.702.66) to the preceding cycle (14.622.71), the average score for the amount of food was greater (p0.001).	None

<p>2. Chakraborty S. et al (2020)</p>	<p>will evaluate the present state of food insecurity and its potential influence on health in the days ahead</p>	<p>secondary information</p>		<p>Food Security, stability, utilization</p>	<p>Bangladesh's total sustainability output is fine, but it could be better. COVID-19 anxiety induces comparatively large potential dangers, psychiatric risks, income loss, and trouble living life in community. The food system must keep moving forward, and the poor and disadvantaged should have access to affordable food by the Community Support System, Food for Jobs, VGF, Money Transfer, and other social possibly the best net projects.</p>	<p>None</p>
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<p>2. Chakraborty S. et al (2020)</p>	<p>will evaluate the present state of food insecurity and its potential influence on health in the days ahead</p>	<p>secondary information</p>		<p>Food Security, stability, utilization</p>	<p>Bangladesh's total sustainability output is fine, but it could be better. COVID-19 anxiety induces comparatively large potential dangers, psychiatric risks, income loss, and trouble living life in community. The food system must keep moving forward, and the poor and disadvantaged should have access to affordable food by the Community Support System, Food for Jobs, VGF, Money Transfer, and other social possibly the best net projects.</p>	<p>None</p>
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3. Ruszczyk H. A. et al (2020)	examines the effects of the lockout on sustainability and coping strategies in 2 minors Bangladeshi areas (Mongla and Noapara)	Cross sectional design	201	food security and household financial security	While people with assured wages and sufficient reserves did not cause dramatically during the quarantine, the disease outbreak has compounded the dangers of current diet and health protection in these towns. Although intervention programs and the significance of social assets are common in minor and major cities, there are variations in menu planning and partnership with various governments.	None
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4.Syed S.M et al (2020)	to give knowledge into the administration of COVID-19 in Bangladesh in order to recognize the issues that are crucial in handling a disease outbreak in a developed world	archival method	336,044	providers, patients and society of health care system	significant and specific aspects of the health sector. Doctors, nurses and community were the primary factor. This is a seminal paper detailing the key lessons learnt from COVID-19 management in Bangladesh affecting three health care system stakeholders, i.e., providers, patients and population. supplier, Customers and society will also continue to improve further studies on the advancement of models of health care management to counter the pandemic.	Dimension
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5. Kundu S. et al (2020)	During the Bangladesh COVID-19 disease outbreak, researchers tried to find out what influences influenced sustainability and domestic food choices	cross-sectional	1876	occupation and income	The average HFS and HDD scores were 31.86 and 6.22, respectively. Around 45% and 61% of Bangladeshi households didn't receive the same volume and form of food, as they received before the pandemic. Over 10% of respondents who had lost their work over 70% of household income earners reported a decrease in income.	none
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6. Fernandes N. (2020)	To estimate the potential global economic costs of COVID-19, and the GDP growth of different countries		30	economic crisis; recession	In particular, service-oriented economies would be adversely impacted and have more at-risk employment. Countries like Greece, Portugal and Spain (more than 15% of GDP) that are more focused on tourism would be more affected by this crisis. The current recession is producing spill over consequences across supply chains. Countries that are heavily dependent on international trade are also affected more adversely. Each additional month of crisis, on average, costs 2.5-3 percent of global GDP.	None
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7. Alam S et al (2020)	Assessment of the possible effect of the COVID-19 pandemic on the Bangladeshi economy	empirical review	-	Economy of Bangladesh , SDGs	In particular, the Readymade Garments Industry, International Remittance, Bank and Financial Institutions, Food and Agriculture, Local Trade, Foreign Trade, GDP, SDGs, Government Revenue and Employment, etc. have major impacts on the various economic indicators of Bangladesh.	none
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8. Kodlish SR. et al (2019)	to recognize how the nutrition situation could have been impacted by EVD; and second, to determine the perceived acceptability and efficacy of the nutrition solution.	emergent design	27	impact of EVD on health and nutrition	major determinants affecting the nutrition situation, especially among IYCs. At an underlying stage, along with impaired care-seeking behaviours, IYC eating practices, and coping mechanisms, household food security was adversely affected. Consequently, after the epidemic, care availability for childhood infections and IYC diets were adversely affected. In retrospect, most respondents have favorable views of the general	none
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9.Stephen R. et al (2019)	To understand how the 2014-2016 epidemic of EVD virus disease affected the Sierra Leone nutrition industry and use results during potential outbreaks of this nature to enhance nutrition responses.	qualitative study	42	health and nutrition, food value-chain	A number of direct and indirect influences on the production and storage and manufacturing of agricultural goods and food, as well as on transportation, shipping, commerce and retail. The combined negative effects of this outbreak on core foundations of food management, feeding habits for babies and young children, and nutrition	
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10.Kim J. et al (2016)	To evaluate the possible effect of EVD on Sierra Leone's national access to obstetric treatment.	Cross sectional	61	emergency obstetric care	the number of in-hospital deliveries and C parts fell by over 20 percent. In the EVD epidemic, the downturn emerged early on and was largely attributed to the closure of private non-profit clinics rather than government services.	None
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11. Bowles J. , et al (2016)	actually proves of the degree with which Liberia's economy shrank and workers vanished after the epidemic.	Cross sectional	1000	economic recovery	A significant decline in economic activity and employment in all of Liberia during the Ebola epidemic, and a notably significant drop in Monrovia. The restaurant and food and beverage sectors have suffered the most of the surveyed sectors outside Monrovia, and in Monrovia, the building and restaurant sectors have lost the most staff, while the food and beverage sectors have seen the greatest decrease in new contracts. There is no correlation between the occurrence of cases of Ebola and economic development decreases outside of Monrovia.	None
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## CHAPTER-4

### 4.1 GLOBAL FOOD SECURITY & ECONOMY

In Wuhan, Hubei Province, China, an outbreak of pneumonia of unknown origin was reported in December 2019 (Marco et. al., 2020). Inoculation into human airway epithelial cells and Vero E6 and Huh7 cell lines of bronchoalveolar lavage fluid collected from patients with pneumonia of unknown origin led to the isolation of a novel coronavirus, SARS-CoV-2, previously named 2019-n Cov. Coronavirus is a pandemic that will begin in 2020. Clinicians are battling against this emerging epidemic and are working on multiple variables that began in late 2019 in China and have now spread to the world by 2020. Chemicals are battling against this emerging epidemic and are working on multiple variables that will contribute to improved results of recovery (Fernandes, 2020).

The Public Health Emergency of International Significance for Ebola Virus Disease (EVD), an epidemic of haemorrhagic fever in West Africa, was terminated by the WHO Director- General on 29 March 2016. An estimated 30,000 people were contaminated with EVD by then, and more than 10,000 people died as a direct result, most of them in Guinea, Liberia or Sierra Leone (Kodish et. al., 2019).

Series of epidemics caused not only severe threats to human life on a large scale, it also affected largely the world sustainable and seemed uncontrolled and heading to uncertainty. If this problem affects health issues, then it will affect everything. So, it is multidisciplinary. All challenges issues need to be solved with the help of research that will be done in multidisciplinary (Brolin et. al., 2016).

Food and Nutrition Security is divided into four subsections.

- 1) Food availability.
- 2) Food access
- 3) Food utilization
- 4) Stability

## 4.1 COVID-19

In Bangladesh, people were faced a serious situation causing the arise of food insecurity and economic problem is now a threat for low- and middle-income countries. The COVID-19 pandemic is now actively impacting food environments through Impacts on food supplies and demand, and directly, but equally critically, through declines in buying power, food processing and delivery capability, and the intensification of care tasks, both of which would have distinct impacts and would have a greater effect on the defenseless (Chakraborty et. al., 2020). About 20% of outrageous weak family units and greater amounts of people with inefficient vocational dependency will expect extreme financial and human results. There could be an issue in the storage and processing sector as the level of food grain production could deteriorate. Less food supply can consequently influence the processing of food. Of the 201 respondents, 84 percent reported consuming three meals daily. Most respondents from both cities reported a complete or near total loss of sales and livelihoods in the wake of the lockout. The pandemic is an emerging environmental epidemic that, for decades to come, is expected to have cascading and enduring effects for cities and their inhabitants (Ruszczuk et. al., 2020). A complex view of food (in) security in small urbanizing cities of the global South on the basis of an observational study of the situation in Mongla and Noapara in Bangladesh and a comparison of the perceptions of informal settlement dwellers and middle-class inhabitants. COVID-19 has a disproportionate effect on low-income families who, in any event, reside in tenuous daily conditions (Uddin et. al., 2020). It is still having an impact on middle-class families, though. Residing under added strain from the pandemic. Any critical facets of understanding of this pandemic and its impact on Bangladesh's health sector. They are divided into three perspectives: supplier, consumer and community. This paper explores how many providers in the medical care industry do not demonstrate sufficient response to the increasing demand for customers. Owing to defective equipment, they are still without adequate logistics. The cumulative average HFS and HDD scores were 31.86 (SD 2.52) and 6.22 (SD 5.49), respectively. Possible determinants of lower HFS and HDD were being a rural citizen, having no formal schooling, household head profession other than government work and low monthly salary (Kundu et.al., 2020). Around 45 percent and 61 percent of Bangladeshi households did not get the same number and type of food, respectively, as the same quantity and type of food. GDP growth, ranging from 3-6 percent depending on the



region, will take a hit. As a result, we will see a median fall in GDP in 2020 of -2.8 percent in the study of 30 countries represented. GDP will drop more than 10 percent in some scenarios, and more than 15 percent in certain countries (Fernandes, 2020).

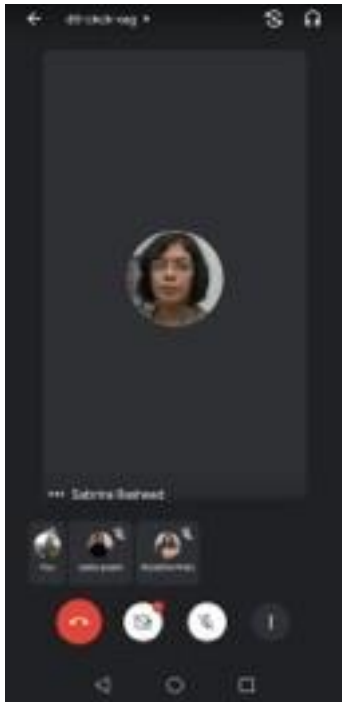
## **4.2 EBOLA VIRUS DISEASE**

EVD concerns Guinea's food condition. Complex social aspects of health, unpreparedness of response and market disruption were perceived at the basic level to be major determinants affecting the nutrition situation, especially among IYCs. Household food protection was adversely affected at an underlying basis, along with weakened care-seeking behaviors, IYC eating practices, and coping practices (Kodlish et. al., 2019). Sierra Leone's agricultural supply chain was greatly disrupted, adversely impacting the availability of food and food distribution across regions. Adequate investment in increased emergency epidemic preparedness across the food value chain at the policy level will place nutritional health systems in more timely and organized roles to counter not just the direct threat of an infectious disease, but also the indirect threat of an infectious disease (Stephen R. et al 2019). Ebola virus, they used logit with cluster-adjusted standard errors to examine the relationship between food insecurity and having been diagnosed with EVD and having died of EVD, Adapting the Domestic Food Insecurity Accessibility Measure, a nine-item system that has been tested throughout Africa (Stephen et. al., 2018). We spoke with 326 people who had been exposed to the Ebola virus; 61 of them (19%) were diagnosed with the disease, and 45 of them (74%) died. We discovered high levels of food insecurity (87%) but no connection between food insecurity and having been diagnosed with EVD. Those that became food deprived had 18.3 times the modified odds of developing EVD (Weiser et. al., 2018)

## CHAPTER-5

### 5. INTERNSHIP PROCEDURE

During the internship period, the intern was assigned to work virtually in the Health System and Population Studies Division (HSPS) at the head office of icddr, b. during this pandemic caused due to Covid-19 situation, the internship was completed online and my topic was **Dietary changes during pandemic**. I was given some related tasks such as review literatures and study on secondary data provided by the supervisor. I had done three classes in a week for 3 months. From these classes I learnt a great deal of knowledge about icddr,b and their ongoing researches in my subject area. I had to learn about the way of literature review also in this training period. At the end of my Internship, I have given an online presentation to my supervisor in presence of other interns. Some snapshots of online class and some pictures of icddr,b activities for reference. Figure 3: Class through online and other activities.



## CHAPTER-6

### 06. LEARNINGS

#### 6.1 QUANTITATIVE RESEARCH

##### 6.1.1 An Introduction to Quantitative Research:

Systematic inquiry is quantitative research. This research system is intended for data collection and numerical data analysis. The statistical and mathematical tools were used for research work. The number and the grapes for confirmation are expressed (Brannen, 2005).

##### 6.1.2 Quantitative Research Methods:

Survey methods are the main methods for quantitative research. Different kinds of questionnaires are used to get the perfect research outcome. The situation is variable, controlled by experimentation. Observation can be controlled by a survey of projects. On the other side, using the data collection duration to use the stored pulls (Reinhardt, 2014).

##### 6.1.3 Advantages of Quantitative Research:

1. Understanding behaviors is becoming feasible.
2. It is a generator of information.
3. Money is saved.
4. It may provide perspectives that are unique
5. Creativity enables it to be a guiding force.

##### 6.1.4 Disadvantages of Quantitative Research:

1. Do not consider social phenomena.
2. It sometimes creates unnatural situations.
3. There is no access to specific feedback.
4. Very costly research
5. Doubt over the final outcome.

## **6.2 QUALITATIVE RESEARCH**

### **6.2.1 An Introduction to Qualitative Research:**

Qualitative analysis entails collecting and analyzing quasi data in order to further comprehend concepts, emotions, or experiences (e.g., text, video, or audio). It may be used to gain in-depth knowledge about a subject or to generate new research topics. In the humanities and social sciences, qualitative analysis is widely used in subjects such as anthropology, sociology, education, health, history, etc. (Kitto et. al., 2008)

### **6.2.2 Qualitative Research Methods:**

There are numerous forms of qualitative methods of study, such as in-depth interview (deep interview), FGD (focus group debate), ethnography. It is primarily the deep understanding of the social environment that is offered. Qualitative study is the basis of social and behavioral science. Online qualitative research is more communicative and easier to define (Kundu, 2020).

### **6.2.3 Advantages of Qualitative Research:**

1. It is a system which is often open-ended.
2. It integrates the experience of humankind.
3. The higher sample protects it.
4. Quickly gather information.
5. It is a sample at random.
6. Usage of the Knowledge Sequence.
7. It needs no direct observation.

### **6.2.4 Disadvantages of Qualitative Research:**

1. It is not a statistically representative method of information gathering. ...
2. It depends on the researcher's experience.
3. Data may be lost.
4. Several sessions can need it.
5. Results can be hard to reproduce.
6. It can create disappointing conclusions.

## 7. LESSONS LEARNT

Intern learn about this topic during the internship period

1. Skills in written correspondence, growth and outstanding verbal skills.
2. Creation of Time Management abilities
3. Task Project Planning and Training.
4. A Governance Risk Assessment and Compliance Insight
5. Learn about the culture of the sector submitted for study.
6. Strong PC skills using software from Microsoft office

### 7.1 WHO recommendation in diet for Ebola virus disease:

1. If they are aware and can eat, then patients should be supplied with food.
2. In any person, the nutritional needs and access to nutritional care will be determined by the leading nutritional status, disease severity and age of the patient.
3. Ideally, the food offered to the patient should be tasty and striking; be nutrient dense; be liquid, semi-solid or solid (depending on the condition of the patient); be simple to take and do not require health care staff support when the patient intake; carry a limited risk of bacterial contamination when kept for 2-3 hours at the bedside; and do not require help when the patient eats (as they have limited time to help)
4. In order to bridge the difference between what is nutritionally required and what the patient needs to consume, an appraisalment should be carried out on patients as possible, to determine what they can and want to feed.
5. The consumption of high nutritionally foods (e.g. [RUTF] and [RUSF]) can be effective in patients who still have desire and no dietary problems in the early phase of the disease; in patients who are ill for extended periods of time (e.g., up to 3 weeks); in patients who are in the hospitalization phase; and after release.
6. For EVD patients (adults and children over 6 months) in ETUs, food commodities to be used for each eating phase are introduced. As the application of nasogastric tubes is not generally recognized for the management of EVD in very many field settings, internal feeding items are not specified. However, when patients tolerate the placement of nasogastric tubes, exceptions can be made for medical clinics that are completely equipped with appropriate and suitable personnel and materials, good

practice of infection-prevention/control, and good management of waste disposal.  
(World Health Organization, n.d.)

### **7.3 WHO recommendation for Covid-19 disease:**

Stay healthy if COVID-19 is circulating throughout any area by using basic measures like physical separation, wearing masks, maintaining areas properly insulated, preventing crowds, hand washing, and coughing into a bent elbow or tissue. Examine local recommendations in the area where we live.

1. To consume pure fresh and homemade foods daily
2. To intake enough water daily
3. To consume adequate amounts of unsaturated fat
4. Intake least amount of salt and sugar
5. Ignore outside foods
6. Support from counselling and psychosocial.

## **8. CHALLENGES**

For me, the intern's big challenge was a new lifestyle. The internship offered a new way of living, helping life in the future. In a day, the intern sat for eight (8) to nine (9) good hours typing and preparing a high student satisfaction. Reporting that the project work was performed manually through online analysis, often it may be an error. It was very difficult to thoroughly measure weight and height to make sure that this work defined the problem. During the calculation time, learners could not maintain their patience.

## **CHAPTER-9**

### **9.1 CONCLUSION**

The internship program helps the intern to have a detailed understanding of the practical problem solving in the research environment and to ensure the recognition of the question. The internship program offered a real-life experience and exposure that has been enlightened in real life circumstances to the application of theories.

I have gained a lot of experience. I was lucky enough to have learned through my work experience at icddr, b, several different sides of what goes into a project, the general process of how a project is originally conceived, created and completed, as well as how much work.

I express my sincere gratitude to the management of icddr, b; in particular, Dr. Sabrina Rasheed, Associate Scientist, and all the staff of icddr, b. I consider this opportunity as a major milestone in my career growth for the great opportunity given to me for their careful and exquisite guidance that was extremely useful for my analysis of research work both technically and practically.

### **9.2 RECOMMENDATION**

This internship program with icddr,b was a great experience and was very helpful for my future professional life. I experienced so many new challenges and I learnt a lot. The doctor and scientist ma'am who was assigned for us was very helpful and always ready to teach new things. The management was also great.

Though this program was online based, it was full of new information and lessons. It would be better for us if the program were being arranged offline. We could do field works and practical sessions. But I am totally satisfied and I enjoyed the whole period of my internship with icddr,b. I recommend my fellow brothers and sisters for internship at this hospital.

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