Labor Market and Skills Gap Analyses

Healthcare: Nursing and Care

Dr. Anwara Begum

Dr. Raisul Awal Mahmood

Skills for Employment Investment Program (SEIP)

Finance Division, Ministry of Finance

Table of Contents

List of Tables:

List of Abbreviations

BAMI	Bangladesh Association of Medical Institutes
BMDC	Bangladesh Medical and Dental Council
BNMC	Bangladesh Nursing and midwifery Council
BTEB	Bangladesh Technical Education Board
CHW	Community Health Worker
CME	Center for Medical Education
CMCH	Chattogram Medical College Hospital
DGHS	Director General of Health Services
DMCH	Dhaka Medical College Hospital
DNS	Directory of Nursing Services
FP	Family Planning
HCP	Health Care Providers
HRD	Human Resource and Development
HRH	Human Resource and Health
LGRD	Ministry of Local Government and Rural Development
MDGs	Millennium Development Goals
MoHFW	Ministry of Health and Family Welfare
MoLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
NGO	Non-government Organization
PHC	Primary Health Care
SMF	State Medical Faculty
SDG	Sustainable Development Goals
W.H.O	World Health Organization

Executive Summary

Despite Bangladesh's progress in healthcare sector over the past decades, its fulfillment of constitutional obligations and global commitments is severely constrained by shortages of professional and technical skills in healthcare sector. The lacunae is in adequate supply of qualified, experienced, and specialized nursing professionals. Measured in terms of "skills gap", "imbalance" between demand for and supply of required skills, "inappropriate skill mix", or "inequitable distribution" across rural and urban areas, Bangladesh is experiencing a severe shortage of nursing professionals. Inappropriate skill mix of doctors and nurses - causing doctors to perform tasks nurses are qualified to perform, indicate waste of human resources. Moreover, lack of proper training and experience affects quality of services rendered by the existing nursing professionals. Curriculum and syllabus followed in nursing training are believed to be outmoded; faculty members lack knowledge and modernized information. Shortage of required equipment and facilities for practical class and clinical training are also important constraints.

The purpose of the study has been to analyze projected demand for and supply of nursing professionals in Bangladesh in the next 10-year period, 2020 to 2030: to help the country better plan capacity and quality of nursing training systems. Its major focus is two major areas of nursing profession in Bangladesh: demand for and supply of nurses in the country, and policy conclusions towards harnessing supply-demand imbalances.

Information base of this study is comprehensive. Hospitals were chosen randomly from a list. A sampling frame comprising of 100 (N) healthcare institutions both in the public and private sectors was formulated considering following criteria:

- Resources, scope and objectives of this study;
- Exclusion of primary level facilities due to unskilled nurses;
- Inclusion of publicly known institutions for broader spectrum of responses;
- Inter and intra-variation of different health care institutions in terms of capacity and services.

Triangulation of information from 50 hospitals, 171 Nurses, 8 FGDs (with approximately 96 experts) and 32 Key Informant Interviews, adding together approximately **349** respondents' contribution, was collated and analyzed, by using quantitative and qualitative methods comprehensively. As nurses and their related specializations were the primary target, it was advised by ADB Focal person that more emphasis be accorded to nurses. It includes both

secondary and primary data that comprise of structured quantitative survey of hospitals, employees and expert opinion through qualitative analysis. Various research instruments used by the study include, among others, literature review; Questionnaire Survey, comprising of both Institutions and Employees; Key Informant Interviews; and Focus Group Discussions. Institutional survey was conducted on 50 randomly selected tertiary, secondary and lower secondary level healthcare institutes (i.e. hospitals, clinics) - in both public and private sectors, located across three major cities and one district of the country, namely Dhaka, Chattogram, Rajshahi and Tangail. This methodology was advised by an ADB focal person to ensure that skill specialization needs of nurses working in these specialized hospitals would be best studied in the context of future training needs on specializations, as mentioned by nurses themselves. Lower level hospitals would not have nurses with adequate knowledge and work requirements and articulation of future training needs.

Employee survey covered 171 employees drawn from among employees of 41 of the above-mentioned hospitals and 3 other hospitals from Dhaka. Due to COVID-19 restrictions, the scope of interviewing employees (on duty) was very limited, so purposive sampling technique was utilized to conduct interview of nurses.

To complement quantitative findings, 32 Key Informant Interviews were conducted on professionals from healthcare providing institutions (List is furnished in the Appendices). The qualitative information gathered through these KIIs unveiled various aspects of healthcare, nursing, skills gap, job satisfaction, training needs and related issues. Moreover, eight Focus Group Discussions (FGDs) were conducted particularly with members of the nursing and related professions. The goal was to seek opinion and guidelines on the supply and demand for nursing profession, skills gap, policies and measures already taken or suggested. Towards collating and analyzing data, analytical tools utilized include summary statistics, frequency and percent distribution, cross tabulation, and qualitative analysis like Key Informant Interviews and Focus Group Discussions etc.

Poor skill mix is a serious constrain to the health system. Against WHO recommended ratio of 1:3:5 (doctors: nurses: technologists), the existing ratio in Bangladesh is 1:0.4:0.24 – meaning, for every doctor there are 0.4 nurse, and 0.24 medical technicians. Based on the WHO, Bangladesh has a staggering shortage of more than a lac doctors, almost 5 lac nurses and supportive Midwives including other healthcare providers and technicians.

Demand for nurses in Bangladesh in the year 2030 is estimated to vary between 46,000 and 144,000 – as based on alternate assumptions about population nurse ratio. The lowest figure is due to government figure of one nurse per 4,000 Population – dating back to 2014 though. The higher figure is due to WHO recommendation of 0.76 nurses per 1,000 people. Both the figures are based on assumptions far apart from the experiences of other countries and regions.

Projections based on population - doctor – nurse ratios, on the other hand, give a much higher demand for nurses in the country in the near future. WHO recommends a doctor nurse ratio of 1: 3 – 3 nurses for one doctor, which in the Bangladesh context stands at 0.5 nurses per doctor. Based on a ratio of 1:2 - the minimum projected requirement for nurse in 2030 will be 97,000 nurses. It underlines a population doctor ratio of one doctor for 4,000 people – an extremely low figure to reckon with.

Alternatively, the projected demand for nurses in 2030 will be 483,000 as based on the assumption of 1.28 doctors per 1,000 people – based on the experiences of the Middle Income countries around the world. Even based on South Asian country experiences – 0.75 doctors per 1,000 people, the projected demand for nurses in 2030 will be 283,000.

Finally, based on Bangladesh's experience of 0.47 doctors per 1,000 people as of 2015, the corresponding demand for nurses in 2030 will be 177,000. Now combining together Bangladesh's 2015 experience with South Asian experience, an average of 230,000 would be the projected number of nurses required in Bangladesh by 2030.

More than 95% of the nurses from all types of hospitals felt the need for further training to improve their current work proficiency. Approximately 85% to 95% of nurses felt the need for future job progression. But only 17 % to 27% of them are willing to pay for their training. Four most sought after training needs for nurses of public hospitals are Cardiology, Diabetes, Dialysis, and ICU. Five most important training needed by nurses in private hospitals are: Cardiology, ICU, Community Health, Dialysis, and Burn.

Amongst 50 different nursing occupations comprising sample nurses, most common occupations include senior staff nurse, nursing supervisor, matron, staff nurse and junior staff nurse. Though most occupations are common across public and private hospitals, certain nursing occupations would seem prevalent more in private hospitals than in public- Aide to nurse, junior nurse, junior staff nurse etc. are present in private but not in public hospitals.

Top three levels of nurses facing skills shortage in public hospitals are superintendent, ICU and surgery. The corresponding levels in private hospitals include surgery, staff nurse and ICU. Included are also nurses with specialization in burn, CCU, neuro, OT, cardiology and dialysis, cath lab, oncology, orthopedic, post-operative, etc.

Top three possible consequences of skills shortage in the nursing profession are (a) overwork for existing workforce, (b) poor quality healthcare service provided, and (c) slow progress in the health sector. No less important, skills shortage impedes innovations in medical science and technology.

Two important issues relate to training needs for nurses. First, some of the training needs are quite common across public and private hospitals – training in ICU, dialysis, cardiology, CCU,

oncology, etc. Secondly, need for such training is more prominent in private hospitals as reflected by sheer number and as well by diversity of needs. And some of these needs are rather unique to private hospitals.

Limitations of existing institutional facilities for nurses' training, training curriculum is believed to be quite outmoded and logistical planning in training institutes is critical. Lack of practical training in nursing curriculum is most problematic. There must be enough provision for practical training of nurses and could constitute at least 50% of the entire coursework.

Three major types of suggestions were put forward by the key informants: First, enhancing the quality of training provided; on-the-job training of high quality, promotion of practical knowledge, crises management (nurses are exposed to death regularly), stamina and endurance, adaptability to new situations etc. Second recommendation is proper planning and co-ordination of management. Third, greater emphasis should be accorded to behavioral training of nurses.

The most common need was identified as the need for specialization in critical care nurses. There is a wide array of skill sets that are required in order to be able to carry out the required duties of the HDU, ICU, CCU units and the task simply cannot be carried out by regular nurses; Moreover, need for specialization in cardiology, oncology and dialysis were also common suggestions from the FGDs. In addition, there is need for nurses trained in Wound Management, surgical, peri-operative, burn, diabetes, hematology, transplants and plastic surgery.

Major conclusions of the study include: (i) nursing profession in Bangladesh experiences severe skills shortage with far reaching consequences; (ii) supply side factors constitute major contributor to the perceived skills shortage; (iii) quality of nurse training demands much improvement and up gradation; (iv) lack of specialized nurses is an important aspect of nurses shortages in the country; (v) inadequate infrastructure is a serious stumbling block to increasing supply of quality nurses; (vi) concentration of nursing training facilities in major metropolis may negatively impact interest in nursing education; (vii) inadequate compensation packages are important reasons for fewer nurses in this profession; and (viii) recognition of the role played by nursing profession should be the corner stone of mitigating skills shortage.

Chapter-1

1. Introduction

1.1. Introduction

Despite the progress[1] Bangladesh made in the healthcare sector over the past decades, fulfillment of its constitutional obligation to "the supply of basic medical requirements to all levels of the people in the society" and global commitment towards achieving the Millennium Development Goals (MDGs) as well as Sustainable Development Goals (SDGs) in health related issues is severely constrained by shortages of professional and technical skills in the health sector. Particularly, pertinent in this context is inadequate supply of qualified, experienced, and specialized nursing professionals -the gearwheel in today's healthcare delivery system; 'ultimate resource for promoting health, preventing diseases, and curing sickness' (nursco, 2018; WHO, 2018, 2017).

1.1.2. Measured in terms of "skills gap", "imbalance" between demand for and supply of required skills, "inappropriate skill mix", or "inequitable distribution" across rural and urban areas, Bangladesh is considered to experience a severe shortage of nursing professionals in the country – based both in absolute and relative terms. WHO has long declared Bangladesh as one of the 58 crisis countries facing acute HRH shortage. The density of formally qualified registered HealthCare Providers (HCP) – doctors, nurses and dentist constitute only about 5% of the total health workforce.

1.1.3. Most importantly, in Bangladesh both the number of nurses per 1,000 population and the nurse-to-doctor ratio are amongst the lowest in the world. Moreover, while suggested ratio is 2 or 3 nurses per doctor, the situation in Bangladesh is just the opposite; 0.4 nurse per doctor. Various estimates show that Bangladesh has a shortage of 280,000 trained nurses posing as a serious constraint towards meeting global commitments as well as national health goals outlined under the 2011 -2016 Health, Population and Nutrition Sector Development Program (HPNSDP).

1.1.4. Such a critical shortage of nurses especially as compared to the country's overall health needs pose serious problems in the delivery of services. Inappropriate skill mix of doctors and nurses causes doctors to perform tasks that nurses are qualified to perform is an underlining waste of human resources. Moreover, lack of proper training and required experience

[1]Bangladesh has so far achieved significant progress in terms of harnessing population growth, control of communicable diseases, improvements in maternal and infant mortality, and average life expectancy at birth (Bangladesh Health Watch Report 2016; MOHFW, Health Bulletin, different issues)).

underlines the quality of services rendered by the existing nursing professionals. Curriculum and syllabus followed in nursing training are mostly outdated; faculty members lack experience and current knowledge. Students at nursing schools "taught by physicians, medical assistants, and retired faculty who often work in more than one place". Quality of nursing in the country is further underscored by lack of required equipment and facilities for practical or clinical training; and practical classes are insufficient for training.

1.1.5. Lack of specialized training on different areas of nursing science would put the final nail on the coffin of the nursing training in Bangladesh. With rapid changes in the morbidity pattern in the country – population aging, rise of non-communicable diseases like diabetes, cardiac arrests, trauma and orthopedics, the growing need for nurses with required special education and training in respective fields. Currently, only a small proportion of the registered nurses in the country have any kind of specialized education and training (Begum and Mahmood, 2017)

1.1.6. Consequently, specialized hospitals – both in the public and private sectors, dealing in such areas as ophthalmic, intensive-care, cardiology, orthopedic, neurology, burn, and trauma have none or very few nurses specialized in those areas. And there are many branches of the nursing profession not heard of in the country at all. Some of these may include community nurses, school nurses, etc. Dearth of specialized nurses significantly undermines both the quality of services in healthcare institutions, and, more importantly, cause a serious mismatch of health manpower in the country.[2]

1.2. Purpose and Scope

1.2.1. The purpose of the proposed study is to analyze the projected demand for and supply of nursing professionals in Bangladesh in the next 10-year period - 2020-2030, to help the country better plan the capacity and quality of nursing training systems in view of the evolving skills/trade/market demands given structural transformations in line with Bangladesh 4.0[3].

[2]Experience in developed countries points to numerous healthcare services which could have been provided by specialized nurses but currently performed by doctors – drawing blood, putting on bandages, rehabilitation, etc. One should also be aware that registered nurses in the Western Countries are allowed to practice and prescribe medicines.

[3]Bangladesh 1.0 is post liberation rehabilitation and reconstruction based on manual and rudimentary technology; Bangladesh 2.0 is Bangladesh's entry into agricultural (rice) and industrial (RMG) revolution beginning in late 1970s and early 1980s; and Bangladesh 3.0 is, beginning in mid-1990s, Bangladesh's entry into the internet age leapfrogging the country into telecom revolution of mobile phones and mobile financial services with many more unfolding

1.2.2. The study shall identify and discuss different categories of nurses which are or would be in short supply – absolutely or relatively, either current or in the prospective future, having implications for the growth and development of the healthcare sector in Bangladesh.

1.2.3. Specifically, the study shall focus on the following questions:

1. What has been the level and trend in demand for and supply of nursing professionals in the country?
2. What would be the projected demand and supply of nurses in the country during next 10 years or so?
3. What type of nursing training facilities would need to be developed to meet any emerging gaps between the demand for and supply of nurses in the coming decade?
4. The relative importance of training in the context of gaps in skill supply; in the context of changing scenario (s), i.e. social (family structure and nature of care) and economic – cost and affordability.
5. What would be the nature of any suggested changes in the education and training curriculum of nurses in the country towards meeting local needs;
6. What international needs and standards are stipulated for recruitment of nurses from Bangladesh, at present and by 2030?
7. What relative roles public, private and NGOs should play towards harnessing skills gap in the nursing profession?

1.3. Broadly, the current study shall probe into two major areas of interest of the nursing profession in Bangladesh, viz.(a) demand for and supply of nurses in the country looking into the future with focus on various underlying factors, and (b) policy suggestions towards harnessing any emerging imbalance between the demand and supply of nurses in the country. Major focus here being underlying various causal factors and highlighting options towards redeeming and overcoming emerging problems.

Chapter - 2

2. Methodology

2.1. **Introduction**

The information base of the study is multi-faceted. It includes both secondary and primary data comprising of quantitative and qualitative information. Different analytical tools have been utilized to collate and analyze the information generated. The research instruments used include summary statistics, frequency and percent distribution, cross tabulation and qualitative analysis etc.

2.1.1. Literature Review

The study makes an exhaustive review of the available literature, particularly in the context of Bangladesh, focusing on the following: (i) problems and prospects of skills gap of nurses in the health sector, (ii) implications of skills gap for the delivery of quality health care service on a sustainable basis, (iii) problems and prospects of education and training facilities relevant to the supply of nurses in the country, and (iv) international standards and domestic facilities for training nurses, based on an analysis of skill's gap.

2.2 Secondary Data

Secondary data on education and training facilities in Bangladesh that are available from sources such as BBS, WHO, World Bank, Nursing Federation of Bangladesh, and Bangladesh Board of Technical Education, etc. have been utilized to their fullest. These basically draw attention to the demand, supply and trends in the level of manpower in the nursing and related professions.

2.3 Sample Survey

2.3.1. Towards complementing secondary data from various sources, as well as to generate data on issues not fully covered or available from secondary sources, the study generated primary data through the following two sample surveys:

1) Institutional Survey
2) Employee Survey

2.3.2. The institutional survey was conducted on 50 randomly selected hospitals of following three categories both in public and private sectors, located across three major cities and one district of the country – Dhaka, Chattogram, Rajshahi and Tangail:

- Tertiary: health care facilities that provide almost all sorts of medical services, long term & critical care and have a whole range of specialists.

- Secondary: health care facilities that provide basic medical services, short-term care and have specialists mostly on contract basis.
- Lower-Secondary: health care facilities that provide very basic medical services.

2.3.3. The questionnaire focused on information such as ownership pattern, types of healthcare services provided by the institutions, nature of employment, reason and impact of skills shortage, training needs, etc.

2.3.4. In urban areas, delivery of health services including Primary Health Care services is mandated to the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C). In Dhaka, it is under the City Corporation.

2.3.5. As this study intends to explore the skills gap of nurses, primary level healthcare institutes in urban areas could not be considered, because of the low level of job mobility of nurses, therein.

2.3.6. The employee survey was conducted on 171 employees from 41 of the above hospitals and 3 other randomly selected hospitals from Dhaka. Due to COVID-19 restrictions the scope of interviewing employees (on duty) was very limited, hence purposive sampling was implemented to interview the nurses.

Two questionnaires were firmed up in December 2019 and tested in a pilot survey conducted in January 2020 at three hospitals in Dhaka. Both questionnaires were then modified according to the outcome of the pilot survey. Due to COVID-19, main surveys were conducted over three different time periods: January to March 2020, September to November 2020, and January to May 2021. Table 1 summarizes the number of interviews conducted under these two surveys.

It is important to note that additional information was added to both the Hospital and Employee questionnaire (s), late in September 2020. This modification included 2020 budget (in addition to 2019) and hospital and nurses' situation, related to COVID-19. The letter of introduction from SEIP, which was intended to acquaint this study and BIDS Researchers to all ministries, was sent on November 20, 2020, although work had begun in January 2020. Corona Pandemic had made healthcare providers uneasy; contagion was life-threatening, and strict rules from Directorate General of Health Service (DGHS clearance would be required), made this survey work almost unattainable right from the beginning. Research staff became front-line fighters, visiting hospitals and nurses, at great personal risk. Research staff and data entry personnel became ill, suffering but still determined. Hence, these unavoidable circumstances delayed the submission of this report.

Table 1: Number of Interviews Conducted for Institutional and Employee Surveys

Survey Type	Location	Public-Tertiary	Public-Secondary	Private-Tertiary	Private-Secondary	Private-Lower Sec.	Total
Institutional	Dhaka	09	-	10	06	04	29
	Chattogram	01	02	-	09	03	15
	Rajshahi	01	-	-	02	02	05
	Tangail	-	01	-	-	-	01
	Total	11	03	10	17	09	***50***
Employee	Dhaka	47	-	25	16	06	94
	Chattogram	08	06	-	33	11	58
	Rajshahi	08	-	-	05	05	18
	Tangail	-	01	-	-	-	01
	Total	63	07	25	54	22	***171***

Source: Skills Gap of Nurses Survey (BIDS, 2020)

2.3.1 Sampling Frame

A sampling frame is a list used to define a researcher's population of interest. The sampling frame defines a set of elements from which a researcher can select a sample of the target population.

Currently, there are 2258 public and 5321 registered private healthcare facilities in Bangladesh (Health Bulletin, 2019). A sampling frame comprising of 100 (N) healthcare institutions both in the public and private sectors were formulated considering following criteria:

- Resources, scope and objectives of this study;
- Exclusion of primary level facilities due to unskilled nurses;
- Inclusion of publicly known institutions for broader spectrum of responses;
- Inter and intra-variation of different health care institutions in terms of capacity and services.

Sample Size-Institutional Survey

For institutional survey, the study proposed to randomly draw a sample of 50 (fifty) institutions from the sampling frame using Cochran formula (1963:75) as follows:

$$n = \frac{n_0}{1+\frac{(n_0-1)}{N}} \quad \text{and,} \quad n_o = \frac{Z^2pq}{e^2}$$

Where,

Z= z value for 95% confidence level= 1.96

p= estimated proportion of an attribute that is present in the population= 0.5 (unknown variability)

q= 1-p = 0.5

e= desired level of precision= 0.1

So, $n_o = \frac{Z^2pq}{e^2}$ =96.04; and as N is not so large, sample size, $n = \frac{n_0}{1+\frac{(n_0-1)}{N}} = 49.24 \approx 50$

To ensure representation of different types of institutions in the sample, stratified random sampling was used. The population was divided into 5 strata and 'proportional allocation' was used to draw sample from each stratum, as follows. The population was not further stratified geographically, as the drawn sample deemed to be geographically representative.

Table 2: Stratified random sampling and proportional allocation for institutional survey

Stratum Name	**Stratum Size (N_i)** i=1, 2, …, 5	**Proportional Allocation** $n_i = n\frac{N_i}{N}$
Public-Tertiary	N_1=22	n_1=11
Public-Secondary	N_2=06	n_2=03
Private-Tertiary	N_3=20	n_3=10
Private-Secondary	N_4=34	n_4=17
Private-Lower Secondary	N_5=18	n_5=09
	Population Size, N=100	**Sample Size, n=50**

2.3.2 Sample Size-Employee Survey

For employee survey, due to COVID-19 restrictions the scope of interviewing employees was very limited. Purposive sampling was implemented to interview 171 nurses from 44 different healthcare institutions, and 3 other randomly selected hospitals in Dhaka. Due to restrictive process of getting employee list, it was not possible to formulate a comprehensive sampling frame for this survey. More restrictions emerged due to corona virus. Hence purposive sampling was feasible option. The sample size was intuitively determined by data saturation. Employee survey could not be conducted in 9 of the hospitals from institutional survey due to very limited access. In lieu of those, considering the pandemic, time and budgetary constraints, 3 other hospitals were randomly chosen from the sampling frame. The sample size for this survey was intuitively determined by data saturation complemented by the experiences of the researchers of this study.

2.4. Key Informant Interview (KII)

To complement the quantitative findings from 50 hospitals and 171 nurses, 32 KIIs were done with professionals from healthcare providing institutions. In addition, 8 FGDs comprising of approximately 96 experts, was conducted. The qualitative information gathered through these KIIs unveiled various aspects of healthcare, nursing, skills gap, job satisfaction, training needs and related issues. These interviews, semi-structured with open-ended solicitations, were conducted based on a selected list of issues.

2.5. Focus Group Discussion (FGD)

Eight FGDs were conducted particularly with members of the nursing and related professions. The goal was to seek opinion and guidelines on the supply and demand for nursing profession, skills gap, policies and measures already taken or suggested.

2.6. Tools for Data Analysis

The study utilized quantitative and qualitative approaches to analyze and present the information generated through 2 surveys, 32 Key Informant Interviews and 8 Focus Group Discussions, involving around 350 respondents.

Quantitative analysis used tools such as frequency and percent distribution, cross tabulation, summary statistics, etc. to summarize numerical and categorical data to draw comparative and meaningful conclusions.

Chapter – 3

3. Population and Morbidity in Bangladesh

3.1. Introduction

The nature and level of healthcare services required and delivered: services such as education, social welfare, safety and security depends, among others, on two basic issues: the size and composition of the clientele – in this case the country's population, and secondly, the particular needs of the population. No less important, however, would also be the national commitments and obligations towards addressing perceived needs of the population. And all these could be looked at from a dynamic rather than static point of view.

3.1.2. The size and composition of the country's population should indicate the over healthcare services required by the population. Included here should be overall level of population, distribution across geographical areas and distinguished between gender and age groups. The particular kind of services required, however, shall depend on the health, nutrition and morbidity condition of the population. Underlying these are overall health conditions - intake of food and nutrition, types of illnesses experienced, situation with particular population groups, etc. The final issue of importance is societal perception, awareness, commitment and policies towards alleviating the health problems of the society in order to provide effective and quality healthcare services throughout the country.

3.1.3. These being at the root of the demand for and the supply of health care services in Bangladesh, current or historic, the purpose of this chapter is to highlight and discuss, (a) dynamics of population growth, (b) health and morbidity conditions, (c) social commitments and obligations towards quality healthcare, (c) vision and missions of healthcare service delivery, and (d) major areas of policies and program in the health sector in the context of Bangladesh. The ultimate objective of this study is to delineate the sort of requirements of the healthcare services.

3.2. Population Dynamics

3.2.1. Bangladesh has a population of 163 million as of 2020 which is the 8th largest in the world. It is preceded immediately by Brazil – 212 million, and Nigeria – 214 million; and followed by Russia – 142 million, and Mexico 129 million. It is projected that total population of Bangladesh shall reach 184 million by 2031; 196 million in 2041; and 201 million by 2051. The number will increase significantly under higher high and low fertility assumptions (BBS, 2015).

3.2.2. This is despite the fact that the population experienced significant decline over the past decades – currently estimated at 1.1 % per annum as compared to around 2.4% in 1990, and 2.0% in 2000. Given a landmass of around 154,000 square kilometers and population size of 163 million, Bangladesh is amongst world's densely populated places except for the city states like

Singapore, Hong Kong and Monaco. Its current population density stands at 1240 per square kilometers which has been on the increase ever since; doubled within a period of quarter of a century (World Bank, 2020).

3.2.3. Population distribution by age reflects that country's population is underlined by a large but constant pool of population aged 0 and 14 years, and there is a growing population size aged 65+. The size of population 14 or below years comprise as of late 2020 about 45 million, about 28% of country's population; On the other hand, extreme elderly population comprises 5% of total population, and expected to grow further both in absolute and relative terms moving forward. This is partly because of the fact that life expectancy at birth is estimated at 72 years, slightly higher for females.

3.2.4. Rural areas account for the vast majority of the population declining in relative importance over time though. Currently, people living in rural areas comprise more than 60% of total population as compared to back in 1990, which was about 80%. Given country's overall population, the number of those living in rural areas is quite staggering – 102 million as of 2018. Corresponding, there is a surge of urbanization in the country. Importantly, there is a great concentration of urban population in few metropolitan cities like Dhaka – the capital, Chittagong – the port city, and Khulna. These top 4 or 5 mega cities shall account for the vast majority of the urban population. This makes these cities emerge as some of the most crowded cities - not only in the country, but globally as well.

Table 3.2.1: Population Dynamics in Bangladesh - 1970 - 2020

Major Population Indicators	**1970**	**1980**	**1990**	**2000**	**2005**	**2010**	**2015**	**2018**	**2020***
Total Population (in million)	64	80	103	128	139	148	156	161	168.22
Population growth (annual %)	2.4	2.7	2.4	2.0	1.5	1.1	1.1	1.1	1.01
Female % of total population	48.3	48.5	48.4	48.6	48.8	49.2	49.3	49.4	49.95
Male % of total population	51.7	51.5	51.6	51.4	51.2	50.8	50.7	50.6	50.05
Population ages 00-14, total(mill)	29	36	43	47	48	47	46	45	47.10
Population ages 15-64, total (mill)	34	42	57	76	85	93	103	108	112.28
Population 65+ (mill)	2	3	3	5	6	7	9	8	8.84
Life expectancy at birth, total (Yrs)	47	53	58	65	68	70	72	..	72.8

Major Population Indicators	1970	1980	1990	2000	2005	2010	2015	2018	2020*
Life expectancy at birth, female (Yrs)	46	52	58	66	69	71	73	..	74.5
Life expectancy at birth, male (Yrs)	48	53	58	65	67	69	70	..	71.2
Rural population (%)	92	85	80	76	73	70	66	63	62
Urban population (%)	8	15	20	24	27	30	34	37	38
Population density (per sq. km.)	493	612	793	981	1069	1134	1200	1240	1265*
Note: *Refer to 2019 figure									
Source: World Bank, Country Data, Bangladesh ***SVRS 2020, BBS									

3.3. Mortality and Morbidity

3.3.1. During the past decades Bangladesh achieved significant progress in preventive health care areas. These relate to Extended Program for Immunization (EPI); control of different communicable diseases like malaria, tuberculosis, HIV; decline in infant, child and maternal mortality; and improvement in the supply of safe drinking water and hygiene. In the areas of extended immunization programs, for instance, the coverage is almost 100%. This relates to BCG, DPT, measles, polio, etc. This follows the continuation of the progress made by the country for the past decades. Much progress has also been made in the realm of the control of communicable diseases.

3.3.2. These highlight the progress made in redeeming mortality rates especially among children and mothers. Death due to communicable diseases as percentage of total declined from 50% in 2000 to 27% in 2018. Neonatal mortality – per thousand live births, improved significantly since 1990s; the current level is about 17 as compared to 64 in 1990, and 42 in 2000. With respect to infant mortality – deaths per '000 live births, declined significantly from 100 in 1990 to only 25 in 2018.

3.3.3. Accentuating all these progresses – particularly with respect to control of communicable diseases and child and maternal mortality, would be improvements achieved by the country in terms of access to safe drinking water and practice of good hygiene. Currently, almost 100% of the population has access to safe drinking water from tap or tube wells. Quite similar has also been the case with respect to access to sanitation; it's almost 80%. This corresponds negatively

with the % of people practicing open defection – down to almost zero compared to 18% in 2000 (Table 3.3.1).

Table 3.3.2 identifies the major causes of death in Bangladesh over time. Broadly, infectious diseases are responsible for a significant proportion of death occurring every year in the country though declining in relative importance in successive years. Back in 2002, for instance, 46% of the deaths that took place in that year were due to some kind of transmissible diseases, or other related reasons – malnutrition being one of them. The corresponding figure for 2016 came down 26%. Another major cause of death is chronic respiratory illness; latest figure is 10%. Two other causes of deaths that demand particular attention are types of injuries – road accident being one of them, diabetes and related illness being the other.

Table 4: Progress made by Bangladesh in the Health Sector during past decades

Areas of progress in Health Sector in Bangladesh	1990	2000	2005	2010	2015	2018	2019
Extended Programme for Immunization (EPI):							
Immunization, BCG (% of one-year-old children)	86	94	97	98	99	99	-
Immunization, DPT (% of children ages 12-23 months)	69	82	93	94	98	98	98
Immunization, HepB3 (% of one-year-old children)	..	..	45	94	98	98	98
Immunization, Hib3 (% of children ages 12-23 months)	..	..	..	94	98	98	-
Immunization, measles (% of children ages 12-23	65	74	88	88	97	97	97
Immunization, Pol3 (% of one-year-old children)	69	83	94	94	98	98	-
Control of communicable diseases:							
Incidence of HIV (per 1,000 uninfected population ages	0	0	0	0	0	0	0
Incidence of malaria (per 1,000 population at risk)	..	6	..	7	3	..	-
Incidence of tuberculosis (per 100,000 people)	..	221	221	221	221	221	218
Mortality rates and levels:							
Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)	..	50	..	33	29	..	23
Cause of death, by non-communicable diseases (% of	..	43	..	59	64	..	70
Cause of death, by injury (% of total)	..	7	..	8	7	..	7
Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70 (%)	..	21	22	22	22	..	
Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70, female (%)	..	23	22	22	19	..	19
Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70, male (%)	..	20	22	22	23	..	21
Mortality rate, infant (per 1,000 live births)	100	64	50	39	30	25	26
Mortality rate, neonatal (per 1,000 live births)	64	43	35	28	23	17	19
Mortality rate, under-5 (per 1,000)	144	87	66	49	38	30	31

Areas of progress in Health Sector in Bangladesh	1990	2000	2005	2010	2015	2018	2019
Hygiene and Sanitation:							
Access to drinking water from tap and tube well (%)						98	
Access to sanitary toilet facility						79	
Access to electricity					74	85	92
People practicing open defecation (% of population)	..	18	12	6	1	..	-
People practicing open defecation, rural (% of rural	..	22	15	8	2	..	-
People practicing open defecation, urban (% of urban	..	5	4	2	0	0	0
Source: Word Bank, Country Data, Bangladesh							

3.3.4. The morbidity pattern in Bangladesh – prevalence of different types of illnesses among country's population, demonstrates particular features and trends over time. Such observations vary across gender, age groups, and economic groups in the country. The most common type of illnesses experienced includes fever, flu, arthritis, peptic ulcers, high blood pressure, diabetes, acute respiratory infections and conjunctivitis. These common types of diseases are either related to different seasons or food and nutritional intakes. The incidence of such diseases has been on the rise all along.

Table 5: Mortality Rates and Level in Bangladesh - 2002 and 2016 (% of total death)

Causes of deaths (all ages)	2002	2011	2014	2016
Communicable, maternal and perinatal, nutritional deficiencies	46	10	32	26
Tuberculosis		8		
Chronic respiratory diseases	5	15	11	10
Diabetes/hepatic disease	1	6	3	3
Injuries	10	5	9	7
Other non-communicable diseases	8		18	12
Sources:				
WHO, Facting the Facts: The Impact of Chronic Disease in Bangladesh;				
DGHS, Health Bulletin 2012				
WHO, Bangladesh Health Watch Report 2016				

3.3.5. Some these illnesses are related to a growing number of elderly people in the country. The size of the elderly population is expected to grow to 16.2 million as compared to 7.8 million. The elderly suffer from multiple morbidities, the most common being hypertension, diabetes, arthritis, heart diseases, cancer and sinusitis. Moreover, financial insecurity, social isolation and abuse or neglect could lead to development of psychological disorders involving the need for comprehensive geriatric care at community levels. To these are added, common to

male and female irrespective of aging are eye problem, hearing problem, insomnia, gastro-intestinal problems, and musculoskeletal Disorders (Sultana, et.al. 2015).

3.3.6. Based on Bangladesh Health Watch Report 2016, Bangladesh has been experiencing a rapid epidemiologic disease transition in recent years. Most common and emerging Non-Communicable Diseases (NCD) in Bangladesh include diabetes, hypertension, chronic obstructive pulmonary disease (COPD), cancers, mental illness, and road traffic accidents (RTA). The preventable risk factors include tobacco use, unhealthy diets, physical inactivity, and consumption of alcohol. And despite overall improvement in mortality, NCDs – including injuries, account for 59% of all disease burden in Bangladesh. One particular aspect of NCD is road traffic accidents (RTA) which currently is significant cause of premature death and disability among young population (WHO, 2014b).

Table 6: Expenditure of Healthcare Services in Bangladesh

Expenditures on health services	2000	2005	2010	2015	2018
Current health expenditure (% of GDP)	2	2.3	2.5	2.5	..
Current health expenditure per capita (current US$)	8.3	11.3	20.2	31.8	..
Current health expenditure per capita, PPP (current international $)	27.6	41.8	64.2	88	..
Out-of-pocket expenditure (% of current health expenditure)	61.1	64.9	67.2	71.8	..
Out-of-pocket expenditure per capita (current US$)	5.1	7.3	13.6	22.9	..
Out-of-pocket expenditure per capita, PPP (current international $)	16.9	27.1	43.1	63.2	..
Source: World Bank, Country Data, Bangladesh					

3.3.7. Given the level and structure and emerging trend of morbidity pattern in the country both at the national and individual level, the provision of healthcare has been a matter of serious concern. In Bangladesh, the expenditure on healthcare services has been among the lowest, compared to other countries and even compared to other sectors within the country. Public expenditures on health and related services account are barely accounted for 3.0% of the country's GDP as of 2015. In per capita terms it is equivalent to $32 per annum in nominal terms, and $88 on Purchasing Power Parity (PP) terms. Interestingly, most of these expenditures involve out of pocket expense which is equivalent to 72% of total expenses (Table 3.3.3).

3.4. Policy Perspectives

3.4.1. What policy concerns could be highlighted by the observed population dynamics, mortality and morbidity patterns, and the current expenditures on healthcare services – including out of pocket expense? Such concerns could be identified as: (a) what type of health issues and diseases should solicit policy attention? (b) What should be the location of healthcare service delivery centers that could be deemed important? (c) What occupational background and skill set would be required to deliver the healthcare services at the optimum time, place and level? (d) What relative roles should public and private sectors play in providing various healthcare services? (e) What strategic plan and program should the country design and implement towards optimal utilization of available resources to benefit the population?

3.4.2. From a broader national policy perspective, Bangladesh is obliged to comply with its constitutional responsibility "the supply of basic medical requirements to all levels of the people in the society", meaning, looking after the healthcare of its population. This rather reflects basic human right of every individual citizen – food, clothing, housing, education, safety and security, and universal health care facility. Under its Primary Health Care (PHC) policy government is committed to achieving the goal of "Health for All". Moreover, at the global level, Bangladesh has committed to Sustainable Development Goals (SDGs) whose principal is "no one should be left behind: promote healthy lifestyle choices with a healthy environment" (MoHFW, 2016).

3.4.3. Prevention being better than cure, from the very beginning – immediately after country's independence in 1971, a major thrust of the country's health policy was preventive in nature. Bangladesh's success in controlling communicable diseases owes much to EPI, supply of safe drinking water, safe disposal human waste, control of malaria and tuberculosis, pre-natal and post-natal cares. All these measures proved cost-effective and benefitted all with a long term foundation in health condition of the population. However, there are various non- contagious diseases requiring particular care and attention, therefore, treatment and care.

3.4.4. Distinction between preventive and curative health care services is fundamental when it comes to the question costs to the society and various professional and technical services required thereof. For instance, preventive care is very cost-effective; few drops of vaccines once or few times in lifetime prevents the occurrence of certain disease forever. In the case of non-communicable disease like, diabetes for instance, it needs to be taken care of for the whole life. Similar would be the case for cancer, blood pressure – involving long-term care, treatment, and medicinal and technical support. The longer a disease persists, the more difficult it is to put cure and put under restrain, the expense it would both materially and socially. And there are diseases which would need costly technical support for a long period, if not for good, such as dialysis for kidney failures, post-operation care for cardio-surgery, organ

transplantation, etc. In addition, there are costs involved in caring for patients with debilitating health and those who are on machines (in coma) for years.

3.4.5. Cost and suffering apart, the two broad categories of service approaches - preventive and curative, emphasize the associated involvement of human services like doctors, nurses, technicians, paramedics, and other auxiliary supports that are required. Broadly, preventive care is low-cost, low human resource oriented, therefore, easier to provide. The other type of service i.e. curative will be intensive both in terms of cost, human resources, technical support and various logistic facilities. As it is now commonly said, treating a family member for cancer could be at the cost of a family fortune; maintaining a heart-plant patient could cost millions of dollars every year. The single most important point, however, would be the kind of medical skill and expertise required for the purpose; doctors with specialization in cardio-vascular disease, years of experience, working in harmony with other related experts.

3.4.6. Pooling all together, specialized human resource required by a society or country will be determined, among others, by the size of the population to be served, kind of health care services to be rendered, professional and technical skills mix required for service delivery, and the level of efficiency and productivity that can be ensured through proper organizational setup and management. Simply put, the need for a particular category of health care personnel will be underlined by the kind of services required thereof, size of population to be served, productivity and efficiency of the management, and, above all, capacity to learn through doing.

Chapter – 4

4. Demand for Nursing Professionals

4.1. Introduction

4.1.1. In view of the universal role the nursing professionals have been playing in the delivery of health care services and all other various factors affecting the quality-of-service delivery, the purpose of this section is to identify and discuss demand for nursing professionals in Bangladesh. What is the current demand for nurses in the country, and how this is going to change in the next decade or so, what could be the various essential factors, are some of the questions posed, that will be answered?

4.1.2. A derivative of the kind and level of services required and the demand for nurses could be looked at from two broad perspectives: a need-based approach and market approach. The market approach refers to the actual deployment of nurses in the country as experienced over time given the existing market conditions. This underlines budgetary constraints, terms and conditions employed dictated by labor market, compliance with rules and regulations, etc. The focus here, however, is on level of nursing services required in the country as based on individual needs and rights. This follows recommendations of World Health Organizations (WHO), experiences in other countries, and quality and efficiency of services rendered. To this added also is overseas demand for nurses - a factor which could undermine supply of nurses in the country.

4.1.3. Since the nature and quality of nursing services vary with respect to education, training, experience and level of specialization, this section also looks into different categories of nurse's available, professional expertise and roles played in healthcare service delivery. This would have important bearing on the composition of future demand for nurses.

4.2. Nursing Profession – An Overview of the Nursing Profession

4.2.1. Caring for the sick and vulnerable – the center of humanity, nursing is amongst very few professions which remained consistently at the heart of the society ever since its inception. It has now evolved into independent enough authorized to prescribe to patients themselves. Nurses are critical to deliver on the promise of "leaving no one behind" and global effort to achieve the Sustainable Development Goals (SDGs). They often work in hospitals, healthcare centers and other service delivery points, but also in academic training, research and administration. Some provide care and treatment services for patients in private homes. Many countries have a large number of community health workers who work outside formal healthcare institutions. Managers of healthcare services, health information technicians, and

other assistive personnel and support workers are also considered a vital part of health care teams (WHO, 2020).

4.2.2. The responsibility of a nurse includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles. Overall, Nursing is the protection, promotion, and optimization of health and abilities; prevention of illness and injury; alleviation of suffering through the diagnosis and treatment of human responses; and advocacy in health care for individuals, families, communities, and populations.

4.2.3. Nursing professionals are generally classified according to their educational background and certification. There are nurses with undergraduate degree – classified as Diploma in Nursing, Associate Degree in Nursing, and Bachelor of Science in Nursing (BS/BSN). Then graduate nurses including master's degree in Nursing (MSN), Doctor of Philosophy (Ph. D) and Doctor of Nursing Practice (DNP). Average during of training various with kind of degree and certification obtained, but a minimum 2 to 4 years. And in most cases it involved getting licensed or registered as the case may be. In the context of Bangladesh, as we will discuss later, most of the nurses fall under the category of Diploma in Nursing and Midwifery (DNMW), and Bachelor of Science in Nursing (BSN). The following table summarizes the basic tenets of the nursing profession as a whole (Table 4.2.1).

Table 7: Basic Tenets of Nursing Profession

Job Description	Major Tasks Performed	Required Qualifications	Length of training	Certification (if any)
Focused on the care of individuals, families, and communities so they may attain, maintain, or recover optimal health and quality of life	Develop a plan of care, working collaboratively with physicians, therapists, and the patient, the patient's family and other teams that focuses on treating illness to improve quality of life. Diagnose health problems and prescribe medications and other therapies	Undergraduate: Diploma in Nursing Associate degree in nursing (AND) Bachelor of Science in Nursing (BS/BSN) Graduate; master's degree in nursing (MSN) Doctor of Philosophy (PhD) Doctor of Nursing Practice (DNP)	2- 4 years	Yes

4.2.2. Nursing Specialties

Most diverse of all healthcare professions, nurses practice in a wide range of settings but generally nursing is divided depending on the needs of the person being nursed. The major populations are:

- Communities/public
- Family/individual across the lifespan
- Adult-gerontology
- Pediatrics
- Neonatal Women's health/gender-related
- Mental health
- Informatics (eHealth)

Table 8: Select list of Nurse Specialties and Description

SL.	Specialty	Job Description
1	Burns	A burns nurse cares for patients who have suffered serious burns.
2	Cardiology	Cardiology nurses care for patients who have disorders of the heart, including patients who have:
3	Community health	A community health nurse works within specific communities or with a public health organization.
4	Diabetes education	GPs often refer patients who are having difficulty controlling their diabetes to a diabetes educator.
5	Dialysis	A dialysis nurse administers a necessary, life-prolonging form of treatment for patients with end-stage renal (kidney) disease.
6	Gerontology / aged care	Nurses in this field take care of elderly people and deal with diseases and issues specifically relevant to old age.
7	Intensive care	Intensive care nurses care for patients of all ages who are acutely ill or who are in a critical condition.
8	Medical nursing	Medical nurses work in hospitals, acute care units, home care, and long-term care facilities and care for patients with general medical conditions, including infectious diseases, asthma and pneumonia.
9	Mental health	Mental health nurses specialize in caring for children and adolescents, adults, seniors, or those in the justice or prison systems with mental illness or
10	Neonatal intensive care	Nurses who specialize in this area care for newborn babies including premature births, newborns with health problems and newborns with acute,
11	Nurse practitioner	The nurse practitioner role includes assessment and management of clients using nursing knowledge and skills
12	Oncology	Oncology nurses work in hospitals and care for patients with cancer who are chronically, acutely or terminally ill.
13	Pediatric	Pediatric nurses care for babies and children up to the age of 18 years
14	Peri-operative	Peri-operative nurses assist with surgical procedures in operating theatres

SL.	Specialty	Job Description
15	Plastic surgery	A plastic surgery nurse provides care for patients undergoing reconstructive or cosmetic procedures. Breast replacement after a mastectomy.
17	School nurse	School-based nurses work with primary and secondary students to help them make a safe transition into adulthood.
18	Surgical nursing	These nurses provide care and support to patients before and after surgery.
19	Wound	Wound care nurses support and care for individuals with various kinds of

4.3. Current and Emerging Demand for Nurses in Bangladesh

4.3.1. The number of Registered Nurse work force in the public sector (DGNM) increased from 16000 in 2012 to 32585 in 2019, while the Midwife work force increased from 0 in 2012 to 1148 in 2019. This was the outcome of clear policy interventions, based on assessed imperative by the PM of Bangladesh, to fill the gap in Midwifery. Unfortunately, as evident from the table below, there were 672 vacant posts in February 2019 despite the acute crises of Nurses and care givers in the health sector, which was later exacerbated by the Corona Pandemic.

Table 9: Types of Health Workers and Unfilled Vacancies in the Public Health-Care Sector

	Sanctioned Posts	Filled Posts	Vacant Posts
Nurses in Service	32,861	32,189	672
Nurses in	511	396	115
Midwives	2996	1741*	1255
Non-Nursing Staff	1126	862	264
Total	37,494	35,188	2,306
*1148 Diploma Midwives + 1600 Certified Midwives			
Source: DGNM-PMIS Report, February 2019			

4.3.2. BNMC data 2018, reveals that total number of Nurses in Public Health Care sector are 32,585; Nurses in Private Sector are 20,085. While total number of Midwives are 1741 in Public Health Care Sector and 390 in Private Health Care Sector (MoHFW/JICA Technical Cooperation Project for “Capacity Building of Nursing Services” (CBNS) in Bangladesh, November 2019).

The above-mentioned project aims to primarily improve the quality of education for BSc Nurses. Therefore, their main objectives are: (1) Enhance the capacity of Nursing Administration at Directorate General of Nursing and Midwifery (DGNM); (2) Advance the quality of BSc Nursing Education at Dhaka Nursing College (DNC); and (3) Improve Student Clinical Practice System at Dhaka Medical College Hospital (DMCH).

4.3.3. Poor quality of services is the main reason for not achieving universal health coverage in Bangladesh. Poor quality service is strongly associated with low utilization of services, especially by the middle income and especially the marginalized groups. Critical gaps and problems exist

in this sector: affecting utilization due to lack of sufficient drugs, staff shortages (especially in remote facilities), poor prioritization of spending, and pervasive problems of management and coordination. All these are the indicators of poor governance. Improving the quality of service will require significant reform to increase the health budget, ensuring the provision of drugs, decentralizing health services for faster service, reducing fragmentation, improving accessibility and increasing accountability to users.

4.3.4. Due to various gaps in physical infrastructure and human resources, people's perception of the services provided at public sector health facilities is poor and as such, they mostly resort to unqualified informal providers (Cockcroft, Andersson et al., 2007). According to the providers, lack of supplies and inadequate infrastructure is one of the major causes of inefficient services provided by these facilities (Cockcroft, Milne et al. 2011).

Besides shortages, the health system is affected by a poor skill mix. Instead of the ideal WHO recommended ratio of 1:3:5 (doctors: nurses: technologists), it has currently a ratio of doctors to nurses to technologists of 1:0.4:0.24. According to the WHO standard, Bangladesh has a staggering shortage of more than a lac doctors, almost 5 lac nurses and supportive Midwives including other health care workers and technicians. There is little probability of reversing the current ratio in favor of nurses under current strategies, which may be revamped (highest-level intervention of the PM is needed) with utmost urgency under the Corona Pandemic, from which the weak health sector is reeling.

4.3.5. Weak accountability is the outcome of some prevalent aspects of management: an inaccurate job description, performance-evaluation based on subjective criteria, a nonfunctioning system of reward and punishment and weak monitoring systems. Among health service providers from medical doctors to health workers, none has well-defined chain of accountability (Hossain and Osman, 2007). Ineffective accountability causes high absenteeism not only among doctors, but from nurses and other health workers as well.

4.3.6. There exists no meaningful system for monitoring the activities of nurses and staff of the health facilities. Lack of accountability and monitoring facilitate increased corruption and the suffering of those accessing care.

4.4. Future Demand for Nurses in Bangladesh

4.4.1. The demand for nurses – as discussed in the above, grossly misrepresent the actual needs of the country's population. It underlines more of country's current affordability of nursing services rather than what's needed given size and composition of the population. According to World Health Organization (WHO) there should be efficient skill mix in the delivery of health care services.

4.4.1.2. Demand for different types of health care service providers – doctors, nurses, medical technicians, for instance, underlines three basic issues: (a) size of population, (b) a certain ratio or combination of different skill and professional categories, and (c) dynamics of the population and skill-mix moving forward. For instance, for every 10,000 of population there should a certain number of doctors – called population-doctor ratio; and for every doctor there should a minimum number of nurses available; and for every doctor there should be a minimum number of medical technicians.

4.4.1.3. WHO standard sets a minimum of skill-mix of doctors, nurses and technicians at 1:3:5 – meaning that for every doctor there should three nurses, and five medical technicians. This is, however, associated with the economic condition of a country and policy regimes pursued; richer countries experience higher skill-mix ratios. The bottom line, however, based on WHO is 1:3: 5. Using the said principles, what follows estimates the alternate demands for nursing profession in Bangladesh over the next decade.

Table 4.4.1 summarizes the experiences with regard to population doctor ratios across major countries and regions. There two issues to be noted here. First, doctor population ratios vary significantly across countries. Advanced countries/regions do have a higher ratio as compared to the less or middle-income countries. For instance, highest doctor population ratio is demonstrated by the European Union countries where for every 1,000 population there are 3.56 doctors. The corresponding figure for Bangladesh is among the lowest – estimated at 0.48 doctors per 1,000 people. Closely preceded is South Asia region with 0.75 doctors for every 1,000 people.

4.4.1.4. Secondly, population doctor ratio changes over time, and changes are positive ; in many instances changes are rather significantly positive. For the USA, for instance, it improved from 1.80 to 2.55 between 1990 and 2013. Based on Table 4.4.1, the range for doctor population ratio – as of 2013, is between the lowest of 0.48 – as for Bangladesh, and highest of 3.56 – as for the EU; an average of these two yields a figure of 2.02; and the median value is 2.05 (Table 4.4.1).

Table 10: Number of Physicians per 1,000 People across select group of countries

Country/Region	1990	2000	2013
Bangladesh	0.18	0.35	0.48
European Union	2.66	3.17	3.56
Latin America and Caribbean	1.23	1.6	2.05
Middle East and North Africa	0.68	1.25	1.31
Middle income	1.12	1.06	1.28

countries			
North America	1.83	2.51	2.57
OECD members	2	2.54	2.86
South Asia	1.01	0.5	0.75
USA	1.8	2.58	2.55

Note: Bangladesh figure for 2000 is that of 2010, and for 2013 is that of 2014.

Source: World Development Indicators, 2019.

4.4.1.5. Demand for doctors given – as based on population doctor ratio, estimating the corresponding demand for nurses would be rather straight forward. WHO recommends a doctor nurse ratio of 1:3 – three nurses for one doctor, based on which the demand for nurse shall be three times the demand for doctors.

Table 4.4.2. summarizes the projected demand for nurses in Bangladesh in the near future based on alternate assumptions about population and doctor ratios, population nurse ratios, and doctor nurse ratios. Two alternative scenarios have been presented in the table: demand for nurses based on demand for doctors – given alternative demand parameters; and demand for nurses based on its relationships with population size.

Table 11: Demand for Nurses based on alternative assumptions and indicators

Indicators	**Basis**	**2015**	**2020**	**2025**	**2030**	**2035**
Population (in millions)		158	168	178	189	200
Demand for Doctors:						
WHO Doctor population ratio:	(1,000: 0.256)	40,448	42,917	45,536	48,315	51,264
Bangladesh (2015)	(1000:0.47)	74,260	78,792	83,601	88,704	94,117
South Asia	(1,000:0.75)	118,500	125,732	133,406	141,548	150,187
Middle income countries (as of 2013)	(1000:1.28)	202,240	214,583	227,680	241,576	256,320
Demand for nurses based on Population/Nurse Ratio:						
GOB estimate based on 2014	(4,061:1)	38,907	41,281	43,801	46,474	49,310
WHO Population/Nurse Ratio	(1,000:0.768)	121,344	128,750	136,608	144,945	153,792
Indian average (2012)	(1,000: 1.1)	173,800	184,407	195,662	207,604	220,275
Demand for nurses based on doctor-nurse ratios:						

WHO doctor-population ratio of 1,000: 0.25 combined with different doctor nurse ratios	1:1	40,448	42,917	45,536	48,315	51,264
	1:2	80,896	85,833	91,072	96,630	102,528
	1:3	121,344	128,750	136,608	144,945	153,792
South Asian population- doctor ratio of 1,000: 0.75, combined with different doctor nurse ratios	1:1	118,500	125,732	133,406	141,548	150,187
	1:2	237,000	251,464	266,812	283,096	300,374
	1:3	355,500	377,196	400,218	424,644	450,561
Source: Author's estimate						

4.4. 3. Based on alternate assumptions about population nurse ratio, projected demand for nurses in Bangladesh in the year 2035 is estimated to vary between 49,310 and 220,275. The Lowest figure is based on the assumption of one nurse per 4,000 Population as observed in Bangladesh – based on 2014. The highest figure assumes a population nurse ratio of 1,000:1.1. Both the figures are based on assumptions far apart from the experiences of other countries and regions.

4.4. 4. Projections based on population - doctor – nurse ratios, on the other hand, give a much higher number for the future demand for nurses in the country. The underlying assumptions are basically the prescribed number of nurses per doctor – 1, 2 or above. WHO recommends a doctor nurse ratio of 1:3 – 3 nurses for one doctor, which in the Bangladesh context is far fewer – less than 0.5 nurse per one doctor. Based on 1:2 ratios, the minimum projected demand for nurses in 2035 will be 102,528. It underlines a population doctor ratio of one doctor for every 4,000 people – an extremely low figure to recon. On the higher side, the demand for nurses will be 450,561; based on the assumption of 0.75 doctors per 1,000 people or 3 doctors per 1,000 people as per the South Asian country experiences (Table 4.4.2).

4.5. Demand for Nurses Overseas

4.5.1. The above estimates refer to the demand for nurses – current or prospective future, in the country. However, there has been demand for nursing services overseas, and Bangladesh has long been supplying trained nurses and medical technicians to different countries particularly to the Middle East. This has important bearing on the domestic supply of nurses, therefore, taking into cognizance, future policy planning in nursing sector. Faced with population aging, aging work force, technological advancements, empowerment, and participation in decision making process, there has been an emerging shortage of nursing professionals across the world. WHO estimates that nurses make up the largest segment of the

health profession, and comprised 29 million nurses and midwifes in the world even as of 2013; with 3.9 million in the USA alone.

4.5.2. According to the American Nurses Association (ANA), nursing jobs available in the USA through 2022 will be higher than any other profession. And 1.1 million additional nurses will be required to avoid any skills shortages. The USA projects employment opportunities for nurses to growth at a faster rate of 15% through 2016 through 2026) – faster than all other occupations (US BLS 2018).

4.5.3. The global nursing workforce is estimated at 27.9 million. This includes 19.3 million – 69%, professional nurses, 6.0 million – 22%, associate professional nurses, and 2.6 million – 9%, no classified either way (WHO, 2020). Over 80% of the global supply of nurses is found in countries which account for half the world's population.

4.6. Global Demand for Nurses:

4.6.1. Despite being the biggest occupational group in the healthcare sector, available global supplies do not commensurate with the universal health coverage and SDG targets. The global shortage of nurses is estimated at 6.6 million – even as of 2016, slightly decreasing to 5.9 million in 2018. Of this estimated shortage, 5.3 million – 89%, is concentrated in low- and lower middle-income countries. By 2030, global shortage of nurses – needs-based, will be 5.7 million, located, primarily, in African, South-East Asia and Easter Mediterranean regions.

Shortages of nurses will also be experienced by countries in American, European and Western Pacific regions. Countries offering job prospects for professional nurses – and depend on international supplies, include the USA, Australia, Belgium, Italy, Japan, Norway, and most of the Middle Eastern countries particularly KSA, UAE, Qatar and Kuwait.

4.6.2. Domestic supplies not commensurate with respective needs apart, major factors underlying emerging trend in shortages of nursing professionals across countries, therefore, international demand for nursing professionals, include: (a) population aging, (b) aging workforce, (c) nurse burnout, (d) career and family, (e) technology.

4.6.3. Population aging – size and proportion of country's population above the age of 65 years, has been an emerging issue in most of the developed industrialized countries. It has serious implications for healthcare services. Older people often have multitude of diagnosis and co-morbidities requiring frequent treatment services including intensive care. Diseases which were once terminal in nature are now survivable for the long-term but treatment of which strain on workforce.

4.6.4. Increasing age of those in the nursing profession, could lead to gradual move towards retirement and decreased supply – unless replenished comparably by new entrants. This combined with high work pressure – labeled at as burnout, further accelerate depletion in existing supplies, therefore, skills shortages. Given alternative opportunities and career prospects the national average for turnover rate has been estimated to be as high as 37% in the USA, for instance, depending on geographical location and specialty.

4.6.5. The advancement and application in technology in the nursing profession could have a dampening effect on the stock of nurses in the country. Introduction of Electronic Medical Record (EMR), for instance, could be discouraging for nurses not adaptable to such technologies. Similarly, specializations in nursing informatics – currently booming in the field, could remove nurses from direct patient care areas.

Chapter –5

5. Supply of Nurses – Opportunities and Challenges

5.1. Introduction

Despite its critical role in the delivery of healthcare services, the situation of the nursing profession in the Bangladesh is in a crossroad. Limited size, slow growth, lack of professionalism, and, above all, socio-cultural taboos significantly underscore the profession. Presently, for a population of 165 million there the number of registered nurses in the country is less than 45,000. They include nurses holding diploma in nursing, diploma in nursing and midwifery, and Bachelor of Science degree in nursing. The country has less than less 0.4 nurse per 1,000 of population which is one of the lowest in the world. Besides negative socio-cultural attitudes towards the profession – improving significantly though, given various positive policy changes[4], lack of basic infrastructure for professional development, limited number of enrollment, poor academic performance, etc. significantly underscores desired improvement in the level and quality of nursing profession in the country.

5.1.2. The purpose of this section is to underscore the various limitations faced by the nursing profession in Bangladesh towards fulfilling its healthcare needs. Particular focus here is on the level of nursing training facilities available in the country, the flow and stock of nurses in the country, level of specialization available among nursing profession, and factors underlying rendering quality education and training of nurses.

5.2. Nursing Training in Bangladesh

In Bangladesh there are two forms of pre-service education in nursing. These include (a) diploma in nursing (DNS), and (b) Bachelor of Science in Nursing (BScN). Diploma in nursing in a 3-year program; BScN is a 4-year program. Then there is 3-year program of Diploma in Nursing Science and Midwifery (DNSM). The minimum qualification for enrolment into BScN and DNSM is 10 to 12 years of Schooling – SSC and HSC, with a background in science with biology. There is a minimum GPA requirement of 2.5 in both SSC and HSC exams; and total GPA requirement of 6 in SSC and HSC combined. Besides degree and diploma in nursing, there is scope for specialization with additional 6 to 12 months of training.

5.2.1. Specializations are available in areas of psychiatric, ophthalmic, pediatric, cardiac, intensive care, rehabilitation, chest disease etc. The following table gives details of training on nursing available in Bangladesh (Table 5.2.1).

[4]These include designation of nurses as Class II government official. Better salary structures are now prevalent.

Table 12: Nursing Training in Bangladesh

Sl.	Name of Degree/Diploma/Certificate	Duration
1	B.Sc. in Nursing (Basic)	4 Years
2	Diploma in Nursing Science & Midwifery /Orthopedic	4 Years
3	Diploma in Nursing Science & Midwifery	3 Years
4	B. Sc. In Nursing / B. Sc. In P.H. Nursing	2 Years
5	Diploma in Orthopedic Nursing	1 Year
6	Psychiatric Nurse	1 Year
7	Ophthalmic Nurse	1 Year
8	Pediatric Nurse	1 Year
9	Diploma in cardiac /Intensive Care Nursing	1 Year
10	Chest disease Nursing	1 Year
11	Rehabilitation Nursing	1 Year
12	Assistant Nurse	6 Month
13	Junior Nursing	6 Month
Source: Adapted from the Bangladesh Nursing Council		

5.3. Institutional Facilities for Nursing Training

Nursing training facilities available in Bangladesh are underlined by their number, ownership patter, type of training provided, growth over time and location within the country. In Bangladesh Nursing training are available through nursing and colleges and institutes. Colleges specialize in graduate programs like Bachelor of Science in Nursing; and nursing institutes render training for Diploma in Nursing - which is a 3-year program, plus short courses leading particular specializations in different areas following obtaining degree and diplomas.

As of 2016, there were 58 nursing colleges, and 157 nursing institutes in the country. Importantly, there has been significant privatization in nursing education in Bangladesh where private nursing institutes mostly dominate – in terms of number at least. For instance, 67% of the nursing colleges are in the private sectors; a higher proportion is for nursing institutes. Such a high dominance of private nursing training institutes – whether at degree or diploma level, have significant implication for the quality of training imported as discussed later.

5.3.1. Two more issues are notable based on Table 5.3.1. Most of the nursing training facilities are of recent origin, particularly after 2000 as underlined by year of operation. Most notable, however, is the fact that training facilities have concentrated in few locations, viz. Dhaka, Chattogram and Rajshahi. And true for both nursing colleges and institutes. Proximity to the health care service centers including availability of supporting services – most important, teaching faculty could be a major contributing factor.

Table 13: Nursing Training Facilities in Bangladesh

Characteristics	Nursing College (N)	(%)	Nursing Institute (N)	(%)
Ownership Pattern				
Government	19	33	43	27
Non-government	39	67	114	73
Together	58	-100	157	-100
Growth of facilities by year:				
1980	6	8	17	8
2000	8	10	33	16
2016	64	82	157	76
Together	78	-100	207	-100
Location of training facilities:				
Dhaka	30	47	47	30
Chattogram	6	9	15	10
Rajshahi	10	16	34	22
Khulna	2	3	20	13
Barisal	3	5	7	4
Rangpur	7	11	16	10
Sylhet	4	6	10	6
Mymensingh	2	3	8	5
Together	64	-100	157	-100
Source: Adapted from WHO, Mapping of Health Professional Education Institutions in Bangladesh, 2018				

Tables 5.3.2 and 5.3.3 summarize the level, flow, and stock of nursing professionals in Bangladesh classified broadly into nurses holding diploma in nursing and those having graduate degree i.e., B.Sc. in nursing. The focus here lie on (a) annual intake of students into respective programs during 2007 to 2016, (b) number of those who acquired diploma/degrees, and (c) number of graduated nurses entering into the nursing profession – called registered with the Bangladesh Nursing Council. The tables further focus on gender distribution of students, and their annual flows. The focus here is to demonstrate the level and flow of qualified nurses in the country, and the corresponding stock.

5.3.2. Based on the experiences during 2007 – 2016, average annual intake capacity for nursing education in the country has been very low – increasing in recent years though. The average annual intake of Diploma nurses is about 3,000, and for B.Sc. nurse – it has been around 1,000. Together, therefore, the intake for nursing studies has been around 4,000 per annum. For diploma nurses, annual student intake was at the maximum of 6,308 as in 2016. Similarly, maximum annual intake for B.Sc. nursing was 1,400 as of 2015. Combined together, annual student intake for nursing studies – diploma and degree combined, was less than 8,000 per annum.

5.3.3. Another disappointing issue is the rate of graduation, which is quite low. During the study, the percentage of students graduating for diploma in nursing was 62%. The corresponding share for B. Sc. degree in nursing is estimated at 43%. It means that the low level of student intake is compounded further by a low rate of students passing out exams, ultimately adding very little to current stock of nurses in the country. The story does not end here. Even the smaller number of graduated nurses – whether diploma or degree holders, do not always end up in the nursing profession.

5.3.4. A significant proportion of the graduating nurses remain outside the profession for various reasons. For instance, based on Table 5.3.2 – of the 3, 280 B.Sc. nurses graduating during 2007 – 2016 only 2,436 got registered with the Bangladesh Nursing Council. Relatively speaking this is about 75% of the total. In other words, about one fourth the graduate nurses get out of the professional altogether. Quite similar is also the case with graduating diploma nurses – 24% get moved out of profession. Implications are losses of social investment as well as human capital.

5.3.5. Despite progress made in the number of candidates for nursing studies, very little changes have taken place in their gender composition. Nursing used to be, and still is, a domain for the females; only a small proportion of male nurses are visible. There would seem to be some breaking of ice in this realm though slow in coming. For instance, in the case of diploma nursing, only 3% of the students would be male back in 2007. This has gone up to more than 11% in 2016 – a slow but positive trend. The progress has been much better with respect to graduate nurses where annual average percentage of male nurses is approaching towards 20% of total. (Tables 5.3.2 & 5.3.3).

Table 14: Diploma in Nursing Science and Midwifery during 2007 – 2016
Year-wise distribution of total admitted students into Diploma in Nursing Science and Midwifery

Year	Male	Female	Male as % of total	Total
2007	23	794	3	817
2008	49	1386	3	1435
2009	83	1560	5	1643
2010	94	2022	4	2116
2011	162	2378	6	2540
2012	266	2837	9	2903
2013	236	2987	7	3223
2014	351	4229	8	4580
2015	427	4607	8	5034
2016	679	5629	11	6308
2007 - 2016	**2370**	**28429**	**8**	**30599**
(Annual average)	**237**	**2843**		**3060**

Year-wise distribution of male and female students who acquired Diploma in Nursing Science and Midwifery during 2007 - 2016				
2007	0	506	0	506
2008	8	565	1	573
2009	17	807	2	824
2010	27	1,214	2	1,241
2011	81	1,458	5	1,537
2012	94	1,842	5	1,936
2013	126	2,087	6	2,213
2014	220	2,582	8	2,802
2015	224	2,940	7	3,164
2016	311	3,837	7	4,148
2007 - 2016	**1,108**	**17,838**	**6**	**18,944**
(Annual average)	**111**	**1,784**		**1,894**
Year-wise distribution of registered Nursing Science and Midwifery Professionals during 2009 - 2016				
2009	13	1,978	1	1,991
2010	8	1,805	0	1,813
2011	14	1,320	1	1,334
2012	51	1,744	3	1,795
2013	53	2,623	2	2,676
2014	140	2,273	6	2,413
2015	128	3,300	4	3,428
2016	357	2,502	12	2,859
2009 -2016	**764**	**17,545**	**4**	**18,309**
(Annual average)	**76**	**1,755**		**1,831**
Status and Number of DMSN professionals during 2007 - 2016 by gender:				
Status	**Male**	**Female**	**Male % of total**	**Total**
Admitted	2370	28429	8	30599
Graduated	1,108	17,838	6	18,944
Registered/ Licensed (2009-2016)	764	17,545	4	18,309
Source: WHO, Mapping of Health Professional Education Institutions in Bangladesh, 2018				
Table –5.3.3 B.Sc. Nursing student education during 2007 – 2016				
Year-wise distribution of total admitted students into B. Sc during 2007 – 2016				
Year	**Male**	**Female**	**Male as % of total**	**Total**
2007	3	8	38	11
2008	24	229	10	253
2009	23	341	7	367
2010	39	439	9	478

2011	99	743	13	842
2012	119	773	15	892
2013	152	842	18	994
2014	134	867	15	1001
2015	200	1211	17	1411
2016	215	1175	18	1390
2007 - 2016	1,008	6,628	15	7,639
(Annual average)	101	663		764
Year-wise distribution of students who acquired B. Sc. Nursing degree during 2007 - 2016				
Year	**Male**	**Female**	**Male as % of total**	**Total**
2007	0	0	0	0
2008	2	6	33	8
2009	6	21	29	29
2010	0	7	0	7
2011	1	36	3	37
2012	30	243	12	273
2013	40	420	10	460
2014	69	655	11	724
2015	98	744	13	842
2016	111	789	14	900
2007 - 2016	357	2,921	12	3,280
(Annual average)	36	292		328
Year-wise distribution of registered B. Sc. Nurses during 2009 - 2016				
Year	**Male**	**Female**	**Male as % of total**	**Total**
2009				
2010				
2011	1	7	14	8
2012	14	26	54	40
2013	40	288	14	328
2014	60	388	15	448
2015	91	741	12	832
2016	108	672	16	780
2009 - 2016	314	2,122	15	2,436
(Annual average)	39	265		305
Number of B.Sc. Nursing professionals who got registered during 2007 - 2016 by gender:				
Status	**Male**	**Female**	**Male as % of total**	**Total**
Admitted	1,008	6,628	15	7,639
Graduated	357	2,921	12	3,280

Registered/ Licensed 2009 - 2016	314	2,122	15	2,436
Source: WHO, Mapping of Health Professional Education Institutions in Bangladesh, 2018				

5.4. Specialized Nursing Training

Besides general training on nursing as discussed in the above, there are facilities for specialized training in different branches of medical science. Specialized training courses on CCU, ICU, and Cardiac nursing are available at National Heart Foundation, Mirpur. The number of such specialized training is limited to only 20 seats. Specialized training on Rehabilitation Nursing is offered by the BHPI (CRP), Savar. Available seats are 20. This limited scope for training therefore underlines the low supply of specialized nurses in the country (Table 5.3.2).

Table 15: Specialized Nurses in Bangladesh as of April 2016

Sl.	Type of Specialization	Duration of training following diploma/degree in nursing (Year)	Number
1	Psychiatric	1	82
2	Ophthalmic	1	31
3	Pediatric	1	60
4	Cardiac & Intensive Care	1	206
5	Chest disease	1	43
6	Rehabilitation	1	34
Source: Bangladesh Nursing Council, Data Sheet of Total Registered, April, 2016			

The information base of the above table is rather limited; it lists only a few specialized training available in the country. Nevertheless, the table points to one pertinent issue. Back in 2015, there were around 43,000 registered nurses in the country – all types of nurses included. Compared to this the number of those with specialized training would stand very minuscule; and the number of specialized nurses in respective category is low. Recall the situation with non-infectious diseases in the country. Most prevalent among those diseases were high blood pressures, diabetes, cardiovascular, mental illness, etc. Compared to such prevalence the respective number of specialized nurses is quite minimal. Such a situation has severe adverse implications for delivery of quality services.

5.5. Future Supply of Nurses

5.5.1. The limited supply of nurses in the country would persist into the future given the country's low current stock, slow growth rate, and various market imperfections if no effective remedial measures are taken. The number of registered nurses in the country as of fiscal year 2017 -18 is estimated at 56,659. The corresponding number in 2010-11 was 25,018 - giving an

annual growth rate about 32%. However, the figure includes different types of nurses - diploma and B.Sc. and other types, including midwives.

5.5.2. Back in 2016, according to the Bangladesh Nursing Council the number of registered diploma nurses was 20,172, and B.Sc. in nursing – all categories together, 4,446 – the combined figure was 24,618. Then there were nurses with diploma in nursing science and midwifery/Orthopedic – 7,428, and diploma in nursing science & midwifery – 14,085.

This underlines a serious lacuna in the quality of information available from various sources. The Health Bulletin published annually by the Ministry of Health and Family Welfare (MHFW) does not provide a consistent and complete set of information. Data limitations apart, available nurses in the country are far short of that as based on WHO recommendations. Compared to total registered doctors in the country – estimated at 94,926 in 2017-18 period - the prevailing doctor nurse would be 1: 0.6; while WHO recommended level is 1:3 or at least 1:2.

Table 5.4.1 investigates the level and flow of nurses in the country moving up to 2035. The estimates are based on three basic assumptions about the annual growth rate of nurses in the country: 5%, 10% and 15%. The base period is stock of nurses in the country as of 2015 vide Health Bulletin, Ministry of Health and Family Welfare (MoHFW, 2015). Three separate estimates are made separately for diploma nurses, B. Sc. Nurses and all combined.

Table 16: Future Supply of Nurses in Bangladesh

Type of Nurse & Rate of growth (%)	Stock of nurse as of 2015	2020	2025	2030	2035
Diploma in Nursing					
5%	39,041	49,827	63,594	81,163	103,587
10%	39,041	62,876	101,262	163,084	262,648
15%	39,041	78,525	157,943	317,679	638,966
B. Sc. In Nursing					
5%	3,512	4,482	5,721	7,301	9,318
10%	3,512	5,656	9,109	14,670	23,626
15%	3,512	7,064	14,208	28,577	57,479
Together					
5%	42,553	54,310	69,314	88,465	112,906
10%	42,553	68,532	110,372	177,754	286,275
15%	42,553	85,589	172,151	346,256	696,444
Source: Stock of nurses in Bangladesh is based on MoHFW, Health Bulletin 2015					

As of 2035 period, the total supply of nurses in the country will vary between a minimum of 113,000 and 696,000 as based on annual growth rates of 5% and 15% respectively. A 10% growth rate will yield an estimated 286,000 nurses available in the country in 2035. The

respective numbers for diploma nurses will be between 104,000 and 639,000, and that for B.Sc. nurse 9,000 to 57,000. The figures are rather extreme as are the underlying growth assumptions. The situation will be rather moderate with a growth rate of 7.5%. With an annual growth rate of 7.5% total supply of nurses in the country by 2035 will be 181,000; of which diploma nurses will be 166,000, and B.Sc. nurse 15,000.

5.6. Opportunities and Challenges

A multitude of constraints inhibit the supply of nursing professionals in Bangladesh, socio-cultural taboos delimiting the choice of nursing as a profession apart. These underline both the level of supply and corresponding quality of education and training. Major supply side constraints include, among others, lack of physical and technical facilities to render nursing training, concentration of training facilities in certain geographical locations, privatization of nursing education and training, etc. Quality of training is underscored by traditional academic curriculum, lack of proper educated and experienced teaching faculties, absence of required training tools and equipment, and lack of scope for practical training.

5.6.2. Historically, socio-cultural taboos against the nursing profession played a negative role, discouraging people to undertake nursing as a profession, but this has improved significantly due to change in people's attitude commensurate the improved pay structure, scale upgrading in government services, greater independence allowed to nurses in discharging their duties on job, and strengthening in collective bargaining positions. In many countries registered nurses are allowed to operate independently and write prescriptions to their patients.

5.6.3. In Bangladesh, privatization of nursing education and training – though increased the number of institutions rendering nursing training, both their capacity and quality of training provided should disappoint those who visualized their significant positive contributions. As noted, there are more private sectors nursing training colleges and institutes than those in the public. But the kind of logistic and academic facilities contained in these institutions is far from being adequate, least efficient. Not surprising the market demand for graduates from these institutions is far less than those from public institutions.

5.6.4. Two aspects of these private institutions demand special reference. Not being attached to any medical hospital, scope for practical training in these private nursing training institutes is very poor. Students are oriented with theory than with practical knowledge and experience. Attempts to collaborate with private hospitals and clinics for practical training facilities do not work out properly. Institutions may not interest in rendering training to students from other institutions; and students are keen to learn in a non-accommodating environment. The results are obvious for both the parties – receiving institutions complaining not get enough service, and students complaining not getting proper care facilities. This is a serious lacuna for private nursing training institutions without their own practical training facilities. The opposite could be

true institutions having their own hospitals and clinics such as the Square Hospital, for instance. Nursing students here could the best possible training – logistically as well faculty wise.

5.6.5. Lack of adequate, qualified and experience faculty is another major drag on the quality of nursing training provided by the private sector institutions. Added to this should also be syllabus long not updated. The growth of the private sector nursing training institutions has not been matched by a corresponding growth of trained and qualified teaching faculty. The same set of faculties may be teaching in many places at the same time, both public and private. In most cases, it would be faculties in public nursing colleges and institutions serving as adjuncts in private institutions.

5.6.6. On the same token, about a third of all sanctioned posts of nursing instructors in public nursing institutes remain vacant; teacher student ratio is1:57 compared to 1:20 – recommended as standard. Consequently, most of the nursing institutes in the public sector are run by nursing staff on deputation; students are at times often taught by physicians and medical assistants, and retired faculty. Cost-effectiveness would be important issue for the private nursing training institutes for hiring adjunct or part-timers rather than full time employees entitled to various other benefits.

5.6.7. Poor quality of training rendered by the nursing training institutes is underlined by outdated academic curriculum followed by these institutions. Despite international support for curriculum development, teachers continue with previous ones partly due to lack of capacity or resources required to deliver the new courses. Classroom size is inappropriate for the number of students enrolled resulting in overcrowding affecting both the quality of education and life of students. Important here is also lack of sufficient equipment for practical training with students getting lesser opportunity for practical learning.

5.6.8. One of the major challenges in training the nurses in Bangladesh is the lack of proper monitoring and supervision. Policy interests in greater privatization of nursing training have not been adequately aligned with the underlying requirements. There should have been set standards for various facilities required – infrastructure, equipment, minimum number of faculties, required background, including standard testing of training imparted and knowledge acquired, which are greatly missing under the current environment.

5.6.9. Historic bias towards female nurse would have serious implications for a greater participation of males in the profession, since currently less than 10% of the trained nurses are males. This seriously lay stress on locating nurses in diverse environment, which are not quite suitable for female nurses. Finally, globally, while nurses are seen less and less as assisting doctors, and are being able “to diagnose, treat, and prescribe patients (International Council of Nurses, 2020), decision making on nurse training and employment currently lack the

involvement of nursing professionals. In some private hospitals of Bangladesh, responsibilities of house nurse are administered by respective authority, not others.

Chapter – 6

6. Skills Gap of Nurses in Bangladesh – Quantitative and Qualitative Findings on Nature and Causes

Discussed so far has been the demand for nurses in the country, as well as respective supplies. Estimates of demand have been based on alternate assumptions regarding possible ratios of population, doctor and nurses as suggested and/or practiced by different organizations and countries. Similarly, supply side of nurses in the country investigated the existing institutional facilities. Missing, however, from these discussions was nature and extent of shortages of skilled nursing professionals in the country, and possible future scenarios. What is the common perception about possible skills gaps for nurses in the country? What specific specialized categories of nurses are short in supply? What has been the pattern of employment of nurses with different specializations, across public and private sector hospitals and clinics? How has the existing skills' shortage of nurses been affecting the quality of healthcare services rendered? And how situations with skills shortage are being managed across different sectors?

The purpose of this chapter is to answer some of these pertinent questions with respect to shortages of nurses in Bangladesh. Information base for this chapter has been manifold. Primary data has been generated for the purposed based on (a) Institutional Survey; (b) Employee Survey, (c) Key Informant Interviews (KIIs), and (d) Focus Group Discussions (FGD).[5] Major goal was to generate and utilize first-hand information on different aspects of skills shortage, including its very existence.

6.1. Institutional Survey

The institutional survey was conducted on 50 randomly selected tertiary, secondary and lower secondary level[6] healthcare institutes (i.e. hospitals, clinics) - both in public and private sectors, located across three major cities - Dhaka, Chattogram, Rajshahi and one in district Tangail. The questionnaire focused on information such as ownership pattern, types of healthcare services provided by the institutions, nature of employment, reason and impact of skill shortages, training needs, etc. A copy of the survey questionnaire is given in the appendices. The data generated from the survey has been analyzed using different descriptive statistical tools.

Various services provided by the institutions surveyed include in-patient, out-patient, and emergency services – applicable to both public and private sector institutions, and covered under secondary, tertiary and lower secondary service categories. Significant differences exist

[5] Details on each of these research tools have been listed under research methodology, discussed in Chapter 2.

[6] Secondary and tertiary-care facilities are those that provide more advanced or specialized care than the primary healthcare facilities at different levels: the ward, union and upazila levels. For further details, refer DGHS, Health Bulletin, 2012.

between public and private sector institutions in terms of level and nature of various services provided. At the aggregate level, total number of patients served on average by a public hospital in a month is more than five times higher than that at a private hospital, that is, 78,323 and 14,200 respectively.

The main comparison between public and private hospitals is the departments giving service, which stands at 77 for public and 45 types of services for private hospitals. Focusing on tertiary services, for example, public hospitals serve on average 25,749 in-patients as compared to 5,721 by private hospitals. Comparably, the number of out-patients in public hospitals is more than 4 times that of private; emergency services more than 8 times. Secondary services provided by public hospitals would be quite higher as well (Table 6.1.1).

Table 17: Nature and Level of Healthcare Provided by Nurses

Types and level of service provided	**Type of Hospital**				
	Public		**Private**		
Level of Hospital in terms of services	**T***	**S**	**T**	**S**	**LS**
Types of services	Table 6.1.2	Table 6.1.2	Table 6.1.2	Table 6.1.2	Table 6.1.2
In-patient on average per month	25,749	8,263	5,721	4,456	2,413
Out-patient on average per month	48,253	25,450	12,761	6,521	7,596
Emergency on average per month	15,656	3,050	1,717	1,564	659
Total patient on average per month	89,658	36,763	20,199	12,540	10,669
	78,323		14,200		
Notes: *T=Tertiary; S=Secondary; LS= Lower secondary					
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Different kinds of services provided by nurses in public and private hospitals respectively, have been shown in Table 6.1.2.

Table 18: Type of Services Provided by Nurses in Public and Private Hospitals

Types of Hospitals	**Services**
Public	Anesthesiology, Blood Transfusion, Bone Marrow Transplant, Burn & Plastic Surgery, Biochemistry, Cancer, Cardiac ICU, Cardiology, Cath Lab, Casualty Surgery, CCU, Community Medicine, Covid-19, Dentistry, Dermatology/Skin & VD, Diabetes, Diagnostics, Dialysis, Emergency, Endocrinology, Endoscopy, ENT, Epilepsy, Forensic Medicine, Gastroenterology, Gynaecology and Obstetrics,

Types of Hospitals	Services
	HDU, Hematology, Hepatology, ICU, Medicine, Microbiology, Neonatology, Neuro- radiology, Neurology, Neurosurgery, Neuro-medicine, NICU, Nuclear Medicine, Ophthalmology/Eye, Oral and Maxillofacial Surgery, Orthopedics Surgery, Orthopedics, Orthoplastic Surgery, Paediatrics, Paediatrics Hematology and Oncology, Paediatrics Nephrology, Paediatrics Ortho Surgery, Paediatrics Surgery, Pathology, Peri-Operative, Pharmacology, Physical Medicine, Physiotherapy, PICU, Post-Operative, Psychiatry, Radiology, Radiotherapy, Respiratory Medicine, Spine Surgery, Sports Medicine, Surgery, Thoracic Surgery, Traumatology, Urology, Vaccination, Virology, Wound Management
Private	Anesthesiology, Burn & Plastic Surgery, Cancer, Cardiology, Cath Lab, CCU, Colonoscopy, Cosmetology, Covid-19, CT Scan, Dentistry, Dermatology, Diabetes, Diagnostics, Dialysis, ECG, Emergency, Endocrinology, Endoscopy, ENT, Epilepsy, Family Planning, Gastroenterology, Gynaecology and Obstetrics, HDU, Hematology, Hepatology, ICU, Medicine, Nephrology, Neurology, NICU, Ophthalmology, Orthopedics, Pathology, Pediatrics, Pharmacology, Physiotherapy, Post-Operative, Psychiatry, Radiology, Surgery, Traumatology, Urology, Vaccination.

Source: Skills Gap of Nurses Survey (BIDS, 2020)

With reference to Table 6.1.2., the main contrast between public and private hospitals in terms of service is in the extensive range, which is 77 for public and 45 types of services for private hospitals (Table 6.1.2.). Additionally, public hospitals offer hands-on training to nurses in the anatomy and physiology departments, as well as through MoU (to support and strengthen government service) with international agency like IPAS. The public hospitals have additional training offered to their nurses from organizations like Marie Stopes Clinic and unquestionably, Ministry of Health and line departments etc. Public hospitals prefer training in their hospital premises and have arranged separate lecture rooms to IPAS, in Dhaka (DMCH), Chattogram (CMCH) and Rajshahi Medical College.

Table 6.1.3 investigates the nature and level of employment of nurses across public and private sector hospitals. Average number of nurses employed in a public hospital is much higher than a private hospital – 569 and 191 respectively. Moreover, public hospitals seem to have a greater proportion of male nurses as compared to the private hospitals. Nurses of public hospitals are 4 years older than nurses of private hospitals, on an average. Majority, that is 78.5% of public hospitals employ nurses with diploma compared to 91% of private hospitals. Public hospitals spend 5.5 times more salary for nurses than private hospitals, in general.

Table 19: Nature and Level of Employment of Nurses

Characteristics of hospitals		Types of Hospitals				
		Public		Private		
Level of Hospitals in terms of services		**T***	**S**	**T**	**S**	**LS**
Total Female Nurses in each Hospital on average		588	157	338	126	30
Total Male Nurses in each Hospital on average		88	20	72	11	3
Total number of nurses		676	177	410	137	33
		569		191		
Nature of employment	Permanent	11	3	9	17	9
	Full-time	11	3	9	17	9
Average Age of Nurses		32		28		
Average Education Qualification	Diploma	8	3	7	15	9
	Degree	3	0	2	1	0
Total Nurses' Salary Expenditure on average in 2018-2019 (in '000)		36,50,00	8,77,00	13,70,00	3,27,00	88,03
Notes: *T=Tertiary; S=Secondary; LS= Lower secondary						
Source: Skills Gap of Nurses Survey (BIDS, 2020)						

Table 6.1.4 presents occupation and title of nurses in public and private hospitals. It identifies all different occupational positions in which nurses have been employed in the sample hospitals. The most common occupations include senior staff nurse, nursing supervisor, matron, staff nurse and junior staff nurse. Most of the occupations listed in the table are almost common between public and private hospitals. There are certain nursing occupations which would seem more prevalent in private hospitals than in public; and the same is true for public hospitals as well. For instance, occupations such as Aide to nurse, junior nurse, junior staff nurse etc. are present in private hospitals but not in public. Nature of health care services rendered by respective hospitals could be one possible reason for such differences in the presence or absence of particular occupations across public and private hospitals.

Table 20: Occupation title of nurses working in public and private hospitals

Type of Hospital	Occupational title
Public	Nursing Superintendent, Deputy Nursing Superintendent, Floor in-charge, Matron, Nursing Supervisor, Senior Staff Nurse, Staff Nurse and Assistant Nurse.

Private	Chief Nursing Officer, Nursing Superintendent, Deputy Nursing Superintendent, Nursing Manager, Floor in-charge, Matron, Nursing Supervisor, Deputy Nursing Supervisor, Senior Staff Nurse, Staff Nurse, Junior Staff Nurse, Assistant Nurse, Aide to Nurse and Trainee Nurse.
Source: Skills Gap of Nurses Survey (BIDS, 2020)	

Table 6.1.5 presents skill categories facing shortages in hospitals. Three different measures of skills shortage have been applied here: (a) total absence of required skill, (b) high average pay required, and (c) high turnover rate. For each of these criteria, an index has been estimated within a scale of 1 to 10 each representing respectively no difficulties or very difficult. The higher the index, the lower is the skills shortage and vice versa or contrariwise.

Average scores of 'total absence of required skill' for all categories of hospitals lie between 4.60 and 5.33 indicating moderate difficulty. Average scores of 'high average pay required' for all categories of hospitals lie between 3.00 and 5.78 indicating low to moderate difficulty. Average scores of 'high turnover rate' for all categories of hospitals lie between 3.56 and 6.22 indicating low to moderate difficulty. Average scores of 'difficulty in filling vacant posts' for all categories of hospitals lie between 2.10 and 6.67 indicating low to moderate difficulty. Public hospitals have 5.83 times more vacant posts than private hospitals, on average. Private hospitals fill vacant posts 8.62 times faster than public hospitals, on average (often using networks of incumbent nurses). However, almost all nurses aspire to get employed in government hospitals. Thus, supply of nurse is not a problem (skilled nurses from BSMMU, Square, Shishu and Evercare/Apollo hospitals were taken in). Rather the official process of public hospitals' recruitment is lengthy. During COVID-19, nation-wide need and political will prevailed over this process and the recruitment of nurses occurred very quickly in May 2020. Popular hospital (and its branches) usually keeps a fraction of nurses' salary as security; hence some skilled nurses from Popular hospital could not join government employment.

Table 21: Skill Categories facing Shortages in Hospitals

Indicators of skill categories			Type of Hospitals				
			Public		Private		
Levels of Hospitals in terms of services			T	S	T	S	LS
Total Absence of Required Skill	(avg. score)	*1=no difficulties, 10=very difficult*	5.33	4.67	4.6	4.76	5
High Average Pay Required	(avg. score)	*1=no difficulties, 10=very difficult*	4	3	3.4	3.71	5.78
High Turnover Rate	(avg. score)	*1=no difficulties, 10=very difficult*	3.56	5	4.6	5.69	6.22
Possible Reason for Skill Shortage			Table 6.1.6	Table 6.1.6	Table 6.1.6	Table 6.1.6	Table 6.1.6
Consequences of Skill Shortage			Table 6.1.7	Table 6.1.7	Table 6.1.7	Table 6.1.7	Table 6.1.7
Difficulty in Filling Vacant Posts			5.1	6.67	2.1	5.35	4.67

Number of unfilled vacancies on average per hospital	70	12
Time Taken to Fill Vacant Posts on average per hospital	24.91	2.89
Notes: T=Tertiary; S=Secondary; LS= Lower secondary		

Source: Skills Gap of Nurses Survey (BIDS, 2020)

Table 6.1.6 presents levels of nurses facing skill shortage. Top three levels of nurses facing skills shortage in public hospitals are: Superintendent, ICU and Surgery. The corresponding levels in private hospitals include surgery, staff nurse and ICU. Besides these major one, many other types of nurses have been identified as having skills shortage both by public and private hospitals. These include nurses with specialization in burn, CCU, neuro, OT, cardiology and dialysis. These would also include cath lab, oncology, orthopedic, post-operative, etc.

Table 22: Level of Nurses Facing Skill Shortage both in Public and Private Hospitals

Public Hospital & Type of Nurses' Skill Shortage				**Private Hospital & Type of Nurses' Skill Shortage**				
Level of Nurses	**T**	**S**	**Total**	**Levels of Nurses**	**T**	**S**	**LS**	**Total**
Superintendent	5	3	8	Surgery	3	11	0	14
ICU	5	1	6	Staff Nurse	3	5	3	11
Surgery	3	2	5	ICU	4	4	2	10
Burn	3	1	4	Cardiology	2	6	1	9
CCU	3	1	4	Senior Staff Nurse	2	4	3	9
Neuro	4	0	4	Supervisor	4	5	0	9
OT	2	1	3	CCU	5	1	2	8
Staff Nurse	1	2	3	Gynaecology	1	5	1	7
Cardiology	2	0	2	OT	1	4	2	7
Dialysis	1	1	2	Pediatrics	2	3	2	7
Infection Control	2	0	2	NICU	1	2	2	5
NICU	1	1	2	Dialysis	1	3	0	4
Supervisor	2	0	2	Superintendent	0	3	1	4
CT Scan	0	1	1	Cath lab	0	2	1	3
Emergency	1	0	1	Emergency	1	1	1	3
Epilepsy	1	0	1	Neo-Natal	1	2	0	3
Gynaecology	0	1	1	Trainee	0	2	1	3
HDU	1	0	1	All Nurse	0	1	1	2
Hematology	1	0	1	General	1	1	0	2
Hepatology	1	0	1	HDU	2	0	0	2
Medicine	0	1	1	Junior Nurse	1	1	0	2
Mental Health	1	0	1	Midwifery	1	1	0	2
Nephrology	2	0	2	Neuro	1	1	0	2

Public Hospital & Type of Nurses' Skill Shortage				Private Hospital & Type of Nurses' Skill Shortage				
Level of Nurses	**T**	**S**	**Total**	**Levels of Nurses**	**T**	**S**	**LS**	**Total**
Nephrology	1	0	1	Oncology	1	1	0	2
Oncology	1	0	1	Orthopedic	1	1	0	2
Orthopedic	1	0	1	Post-Operative	0	1	1	2
PICU	1	0	1	Specialized Nurse	0	2	0	2
Palliative Care	1	0	1	Aide to Nurse	0	0	1	1
Pediatrics	0	1	1	COVID-19	0	0	1	1
Rehabilitation	1	0	1	CT Scan	0	1	0	1
Senior Staff Nurse	1	0	1	Diploma Nurse	0	0	1	1
Trauma	1	0	1	Forensic	0	1	0	1
				Hematology	1	0	0	1
				Infection Control	0	0	1	1
				Managerial Post	0	1	0	1
				Medicine	0	0	1	1
				Mental Health	0	1	0	1
				Pathology	0	1	0	1
				Physiotherapy	1	0	0	1
				Radiology	0	1	0	1
				Urology	0	0	1	1
				Ward	1	0	0	1
				Wound Management	0	0	1	1
Notes: T=Tertiary; S=Secondary; LS= Lower secondary								

Table 6.1.7 presents possible reasons of skill shortage in public and private hospitals. Top three possible reasons identified are (a) lack of required training facilities, (b) not enough candidates of particular skill, and (c) poor compensation package. And these are common across both public and private sector hospitals. As noted in the previous, there are serious constraints to an increased supply of nurses in the country. Existing infrastructure capacity is very limited for a rapid increase in the supply of nurses in the country. Therefore available number of candidates is fewer than what is required by employers. This is particularly important when it comes to question of nurses with specializations in various subjects with market demand. Poor compensation is a serious drag on supply of professional nurses in the country. This is particularly important with respect to employment of nurses in private hospitals. As already noted, average monthly salary of a nurse is significantly lower in private hospitals as compared to their public counterpart.

Table 23: Possible reasons of skills shortage in public and private hospitals

Possible reasons	Public Hospital by Type			Private Hospital by Type			
	T	S	Total	T	S	LS	Total
Lack of required training facilities	2	1	3	2	5	4	11
Not enough candidates with skill	2	0	2	4	4	1	9
Compensation package is poor	0	1	1	2	3	1	6
Poor quality of training provided by private institutions	1	0	1	0	2	2	4
High differences in benefits offered by public and private sectors	1	0	1	1	1	0	2
Inadequate supply of required skills	1	0	1	0	0	1	1
Lack of job satisfaction	1	0	1	0	0	0	0
Poor working condition	0	1	1	0	0	0	0
Role of professional bodies in restricting the supply of medical technicians	0	0	0	0	1	0	1
Others	2	0	2	1	1	0	2
Notes: T=Tertiary; S=Secondary; LS= Lower secondary							
Source: Skills Gap of Nurses Survey (BIDS, 2020)							

Table 6.1.8 highlights the consequences of skills shortage in the nursing sector. Top three possible consequences of skills shortage are listed as (a) overwork for existing workforce, (b) poor quality healthcare service provided, and (c) slow progress in the health sector. Lack of sufficient number of nurses compared to patients entails overwork and exhaustion for existing nursing staff. This will significantly underscore the quality of services rendered, therefore, progress in providing quality healthcare services for the patients. Non-availability of qualified and adequate nurses would lead to employment of less qualified personnel for service delivery with adverse implications. No less important, skills shortage retards innovations in medical science and technology.

Table 24: Consequence of skills shortage in public and private hospitals

Possible reasons	Public Hospital			Private Hospital			
	T	S	Total	T	S	LS	Total
Overwork for existing/available skills	4	2	6	5	4	2	11
Poor quality healthcare service provided	2	0	2	1	3	2	6
Slow progress in the health sector	0	1	1	1	2	1	4
High cost of services	2	0	2	0	2	1	3
Substitution of low skill for high skills	0	0	0	1	2	0	3
Non-compliance of regulatory requirements	1	0	1	0	1	0	1
Problems with innovation in medical science and technology	1	0	1	0	0	0	0

Possible reasons	Public Hospital			Private Hospital			
	T	S	Total	T	S	LS	Total
Others	1	0	1	1	3	3	7
Notes: T=Tertiary; S=Secondary; LS= Lower secondary							
Source: Skills Gap of Nurses Survey (BIDS, 2020)							

Table 6.1.9 presents impact of hard to fill vacancies. Average scores of 'lose business to competitors' for all categories of hospitals lie between 0.6 and 1.67 indicating some impact. Average scores of 'have difficulties meeting quality standards' for all categories of hospitals lie between 1.11and 2.27 indicating moderate impact. Average scores of 'have difficulties introducing new working practices' for all categories of hospitals lie between 1.40 and 3.00 indicating moderate impact. Average scores of 'increased workload for staff' for all categories of hospitals lie between 1.00 and 2.91 indicating moderate impact. Average scores for 'outsourcing works' - for all categories of hospitals, lies between 0.20 and 0.89 which indicate no impact. Average scores of 'have difficulties meeting customer service objectives' for all categories of hospitals lie between 0.82 and 2.60, indicating moderate impact.

Table 25: Impact of Hard to Fill Vacancies

Types of Hospitals		*Public***		*Private***		
Levels of Hospitals in terms of services		T	S	T	S	LS
Lose Business to Competitors *	(avg. score)	0.91	1.67	0.6	0.88	0.89
Have Difficulties Meeting Quality Standards*	(avg. score)	2.27	2	1.2	2.06	1.11
Have Difficulties Introducing new working Practices*	(avg. score)	1.73	3	1.4	2.18	1.67
Increase Workload for other Staff *	(avg. score)	2.91	1	1	2.71	1.44
Outsource work	(avg. score) *	0.82	0.33	0.2	0.53	0.89
Have Difficulties Meeting Customer Service Objectives *	(avg. score)	0.82	1.33	2.6	2.24	0.89
Notes: * 0=No impact, 1=Some impact, 2=Moderate impact, 3=High Impact, 4=Very High Impact						
Notes: ** T=Tertiary; S=Secondary; LS= Lower secondary						
Source: Skills Gap of Nurses Survey (BIDS, 2020)						

Table 6.1.10 presents actions that need to be taken, in order to address hard to fill vacancies. Hundred per cent public hospitals and 85% private hospitals will take action to fill vacant posts. But, on average, less than 50% public and private hospitals intend to do this by increasing salary. Hundred per cent public and private tertiary hospitals said they will increase on-job training but only 33% of secondary public, 69% secondary private and 56% lower secondary private hospitals said they will do the same. Less than 50% public and private hospitals said they will expand training through partnership, use new recruitment methods/channels and use

contractors to do the work, on average. Private hospitals are more willing to offer training to less qualified recruits than public hospitals.

Table 26: Actions that Need to be taken to address hard to fill vacancies

Actions necessary	Type of Hospital and nature				
	Public		Private		
Nature of Hospitals	T	S	T	S	LS
Hospital will take Action to fill Vacant Posts	100%	100%	100%	82%	67%
Hospitals that will Increase Salaries	42.86%	33.33%	40%	68.75%	42.86%
Hospitals that will Increase Training to Existing Workforce	100%	33.33%	100%	68.75%	55.55%
Hospitals that will Expand Training Through Partnership	77.78%	0	60%	18.75%	66.67%
Hospitals that will Use New Recruitment Methods or Channels	28.57%	50%	55.55%	43.75%	33.33%
Hospitals that will Use Contractors to do the work	33.33%	0	42.86%	37.50%	0
Hospitals that will Offer Training to Less Qualified Recruits	0	100%	55.55%	50%	42.86%
Notes:** T=Tertiary; S=Secondary; LS= Lower secondary					
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Table 6.1.11 presents training needs of nurses. Top three training/skills' need for nurses in public hospitals are: ICU, Cardiology, and Diabetes, and private hospitals are: Dialysis, Cardiology, and ICU. Hundred per cent of public hospitals and 79% private hospitals are not willing to pay for the training of their nurses. Only 22% of the private tertiary hospitals are willing to pay fully and another 22% of private tertiary hospitals are willing to pay partially, for the training of their nurses.

Table 27: Training Needs of Nurses by Public and Private Hospitals

Training needs and Level of hospitals		Types of Hospitals				
		Public		**Private**		
Levels of Hospitals in terms of services		**T**	**S**	**T**	**S**	**LS**
Name of Training /Skills Need for Nurses in Hospitals		Table 6.1.12	Table 6.1.12	Table 6.1.12	Table 6.1.12	Table 6.1.12
Most Important Training Needed		ICU	Pediatrics	Dialysis	Cardiology	Surgery
Second Most Important Training Needed		Cardiology	Dialysis	Oncology	Dialysis	Dialysis
Third Most Important Training Needed		Diabetes	Surgery	Cardiology	ICU	Gynecology
Whether Hospital is Willing to Pay for the Training of Nurses?	Fully	0	0	22%	6%	0
	Partially	0	0	22%	0	22%
	Not at	100%	100%	46%	94%	78%

	all					
Notes:** T=Tertiary; S=Secondary; LS= Lower secondary						
Source: Skills Gap of Nurses Survey (BIDS, 2020)						

Table 6.1.12 lists the training needs of nurses in public and private hospitals, respectively. The table reflects two important issues relating to needs for training for nurses. First, some of the training needs are quite common across public and private hospitals, that is, training in ICU, dialysis, cardiology, CCU, oncology, etc. What is interesting is needs for training is more prominent in private hospitals as reflected by sheer number and as well by diversity of needs. Public hospitals prefer to impart training to nurses in their premises and are supported by various organizations as well as ministries.

Table 28: Name of Training/Skills Need for Nurses by Public and Private hospitals*

Name of Training/Skills Need for Nurses in Hospitals	T	S	Total	Name of Training/Skills Needs for Nurses in Hospitals	T	S	LS	Total
ICU	7	1	8	Dialysis	6	9	4	19
Cardiology	6	1	7	Cardiology	5	10	3	18
Diabetes	6	0	6	ICU	5	8	3	16
Dialysis	4	2	6	Surgery	2	5	6	13
Burn	3	1	4	Gynecology	4	4	4	12
CCU	4	0	4	NICU	4	5	2	11
Gerontology	3	0	3	Burn	2	4	3	9
Mental Health	2	1	3	Oncology	6	2	1	9
Oncology	3	0	3	Diabetes	2	3	3	8
Pediatrics	1	2	3	Pediatrics	1	3	4	8
Community Health	1	1	2	CCU	2	4	1	7
Geriatric	2	0	2	Gerontology	1	4	2	7
HDU	2	0	2	COVID-19	1	4	1	6
Infectious Diseases	2	0	2	Wound Management	2	1	2	5
OT	1	1	2	Infectious Diseases	1	2	1	4
Palliative Care	2	0	2	OT	0	2	2	4
All	1	0	1	Communication	2	0	1	3
COVID-19	1	0	1	Community Health	1	1	1	3
Cath Lab	1	0	1	Emergency	0	2	1	3
Eclampsia	1	0	1	Infection Control	1	1	1	3
Emergency	1	0	1	Labour management	0	2	1	3
gynecology	0	1	1	Mental Health	0	1	2	3
Hematology	1	0	1	Neo-Natal Care	2	1	0	3
Hospital Management	0	1	1	Trauma	3	0	0	3
Infection Control	1	0	1	ECG	0	1	1	2

Name of Training/Skills Need for Nurses in Hospitals	T	S	Total	Name of Training/Skills Needs for Nurses in Hospitals	T	S	LS	Total
Labour management	0	1	1	Geriatric	1	1	0	2
NICU	1	0	1	HDU	1	1	0	2
Neo-Natal Care	1	0	1	Medicine	0	1	1	2
Nephrology	1	0	1	Peri-Operative	1	1	0	2
Neurology	1	0	1	Plastic Surgery	1	1	0	2
Ophthalmology	1	0	1	Post-Operative	0	2	0	2
PICU	1	0	1	Rehabilitation	0	1	1	2
Patient Care	1	0	1	Cath Lab	1	0	0	1
Pediatric Nephrology	1	0	1	Computer Skill	1	0	0	1
Pediatric Surgery	1	0	1	Eclampsia	0	1	0	1
Peri-Operative	0	1	1	English Speaking	1	0	0	1
Plastic Surgery	1	0	1	Family Planning	0	1	0	1
Post-Operative	1	0	1	Hematology	1	0	0	1
Stroke Care	1	0	1	Midwifery	1	0	0	1
Surgery	0	1	1	Nephrology	0	1	0	1
Thoracic Surgery	1	0	1	Neurology	0	1	0	1
Thrombolysis	1	0	1	Nurse Monitoring	0	0	1	1
Notes: T=Tertiary; S=Secondary; LS= Lower secondary **Source: Skills Gap of Nurses Survey (BIDS, 2020)**				Occupational Hazard	0	0	1	1
				PICU	0	1	0	1
				Palliative Care	0	1	0	1
				Patient Care	1	0	0	1
				Pediatric Nephrology	0	1	0	1
				Pediatric Surgery	0	1	0	1
				Pre-Operative	0	1	0	1
				Radiology	1	0	0	1
				Record Keeping	0	0	1	1
				Social Skills Counselling	1	0	0	1
				Stroke Care	0	1	0	1
				Technology	0	1	0	1
				Thoracic Surgery	0	1	0	1
				Thrombolysis	0	1	0	1
				Venereal	1	0	0	1

6.2. Quantitative Analysis - Employee Survey

The employee survey was conducted on 171 employees from 41 of the institutional survey hospitals and 3 other randomly selected hospitals from Dhaka. The questionnaire focused on information such as on job training, training needs, occupation mobility and skill demand,

extent of formality and benefits for nurses, etc. Table 6.2.1 and 6.2.2 show types and gender of nurses who took part in the survey.

The data generated from this survey has been analyzed in the following tables using different tools of descriptive statistics such as frequency and percent distribution, cross tabulation, summary statistics, etc. Conclusive and comparative interpretation has been given near each table.

Table 29: Types of Nurses Surveyed

Designation	Types of Hospitals					Total
	Public-Tertiary	Public-Secondary	Private-Tertiary	Private-Secondary	Private-Lower Secondary	
Nursing Superintendent	4	0	4	7	0	15
Nursing Supervisor	17	1	6	4	1	29
Senior Staff Nurse	39	6	12	37	13	107
Staff Nurse	2	0	3	2	7	14
Trainee/Aide to Nurse	1	0	0	4	1	6
Total	63	7	25	54	22	*171*
Source: Skills Gap of Nurses Survey (BIDS, 2020)						

Table 30: Gender of Nurses Surveyed

Designation	Gender		Total
	Male	Female	
Nursing Superintendent	1	14	15
Nursing Supervisor	3	26	29
Senior Staff Nurse	7	100	107
Staff Nurse	2	12	14
Trainee/Aide to Nurse	0	6	6
Total	13	158	*171*
Source: Skills Gap of Nurses Survey (BIDS, 2020)			

Table 6.2.3 presents on job-training of nurses in different types of hospitals. Seventy per cent to 80% nurses of all categories received certificates upon completion of their training. More than 90% nurses from public-tertiary and secondary and private-tertiary and secondary hospitals are satisfied with the training quality. However, only 66.67% nurses from private-lower secondary hospitals are satisfied with the quality of their training.

Table 31: On-the-Job training of nurses in different types of hospitals

Types of Hospitals	Levels of Hospitals in Terms	Type of the	Duration of the	Who Conducted	Got Certified	Satisfied with the Training

	of Services	Training	Training	the Training?	Training	Quality
Public	*Tertiary*	Table 6.2.4	Table 6.2.5	Table 6.2.6	76.38%	97.65%
	Secondary	Table 6.2.4	Table 6.2.5	Table 6.2.6	70%	90%
Private	*Tertiary*	Table 6.2.4	Table 6.2.5	Table 6.2.6	80%	100%
	Secondary	Table 6.2.4	Table 6.2.5	Table 6.2.6	75%	100%
	Lower Secondary	Table 6.2.4	Table 6.2.5	Table 6.2.6	80%	66.67%
Source: Skills Gap of Nurses Survey (BIDS, 2020)						

Table 6.2.4 presents types of on-job training received by nurses. 50 to 60% training in all types of hospitals are job specific.

Table 32: Types of On-the-Job Training received by nurses

Types of training	**Type of Hospitals**				
	Public-Tertiary	**Public-Secondary**	**Private-Tertiary**	**Private-Secondary**	**Private-Lower Secondary**
Basic induction training for new staff	9.52%	20%	8.57%	19.72%	33.33%
More extensive induction for new staff	9.52%	10%	17.14%	16.90%	6.67%
Health and safety/first aid training	0%	0%	0%	1.41%	0%
Job specific training	61.90%	50%	60%	54.93%	60%
Supervisory training	0.79%	0%	0%	0%	0%
Management training	2.38%	0%	0%	2.82%	0%
Training in new technology	1.59%	10%	2.86%	2.82%	0%
Others	14.29%	10%	11.43%	1.41%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Table 6.2.5 presents duration of on-job training received by nurses. Approximately, 41% training in public-tertiary, 27.27% training in private-tertiary, and 57% training in private-secondary hospitals are of less than 1 week duration. Approximately, 50% training in public-secondary hospitals are of 1–2-week duration and 47% training in private-lower secondary hospitals are of greater duration than 6 months.

Table 33: Duration of on-job training received by nurses

Duration of training	Types of Hospitals				
	Public-Tertiary	Public-Secondary	Private-Tertiary	Private-Secondary	Private-Lower Secondary
Less than 1 week	40.94%	10%	27.27%	56.94%	40%
1-2 weeks	19.69%	50%	18.18%	12.50%	6.67%
3-4 weeks	17.32%	30%	15.15%	1.39%	0%
1-3 months	10.24%	0%	6.06%	4.17%	0%
4-6 months	3.15%	0%	6.06%	0%	6.67%
Greater than 6 months	8.66%	10%	27.27%	25%	46.67%
Total	100%	100%	100%	100%	100%
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Table 6.2.6 presents trainers imparting on-job training to nurses. Approximately 49% training in public-tertiary, 56% training in private-secondary and 67% training in private-lower secondary hospitals are conducted by internal trainers inside the hospitals. Approximately, 40% training in public-secondary and 63% training in private-tertiary hospitals are conducted by external trainers outside the hospitals.

Table 34: Trainers Imparting on-job Training Received by Nurses

Duration of training	Types of Hospitals				
	Public-Tertiary	Public-Secondary	Private-Tertiary	Private-Secondary	Private-Lower Secondary
Less than 1 week	40.94%	10%	27.27%	56.94%	40%
1-2 weeks	19.69%	50%	18.18%	12.50%	6.67%
3-4 weeks	17.32%	30%	15.15%	1.39%	0%
1-3 months	10.24%	0%	6.06%	4.17%	0%
4-6 months	3.15%	0%	6.06%	0%	6.67%
Greater than 6 months	8.66%	10%	27.27%	25%	46.67%
Total	100%	100%	100%	100%	100%
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Table 6.2.7 presents the need for training of nurses in different types of hospitals. More than 95% nurses from all types of hospitals felt a need for further training to improve their current work proficiency. Approximately, 85 to 95% nurses from all types of hospitals felt the need for further training for future job progression. But only 17 to 27% of them are willing to pay for their training. Four most important training needed for nurses of public hospitals are: Cardiology, Diabetes, Dialysis, and ICU. Five most important training needed for nurses of

private hospitals are: Cardiology, ICU, and Community Health, Dialysis including Burn management.

Table 35: Need for training of nurses in different types of hospitals

Types of Hospitals	Levels of Hospitals in Terms of Services	Felt Need for Further Training to Improve Current Work	Felt Need for Further Training For Future Job Progression	Three Most Important Training Needed Now/in Near Future	Willingness to Pay for Training
Public	Tertiary	98.41%	93.65%	Cardiology, Diabetes, Dialysis	20%
	Secondary	100%	85.71%	Cardiology, ICU, Diabetes	26.83%
Private	Tertiary	96%	87.50%	Cardiology, Dialysis, Burn	26.83%
	Secondary	100%	94.44%	Cardiology, ICU, NICU	20.85%
	Lower Secondary	95.45%	95.45%	ICU, Community Health Care, Cardiology	17.50%
Source: Skills Gap of Nurses Survey (BIDS, 2020)					

Table 2.6.8 presents occupation mobility and skill demand of nurses. Average service duration of nurses of public hospitals is 2 to 3 times higher than nurses of private hospitals. Eighty-five per cent to 100% of all types of hospitals offer permanent and full-time employment. 'Patient Care' is the primary task of all the nurses in public and private hospitals. Average monthly salary of nurses in public-tertiary hospitals is 1.78 times higher than private-tertiary hospital. Average monthly salary of nurses in public-secondary hospitals is 1.9 times higher than private-secondary hospital. Average score of 8.77 to 9.59 for assessed market demand of skill indicates that nurses from all types of hospitals think they have skills which are high in demand in the job market. Average score of 6.00 to 9.30 for difficulty to find a similar or better job indicates that nurses from all types of hospitals think it will be 'moderate' to 'very difficult' for them to find a similar or better job, after leaving the current job.

Table 36: Occupation mobility and skill demand of nurses

Types of Hospitals	Levels of Hospitals in Terms of Services	Average Duration of Service (in months)	Full Time Employment	Permanent Employment	Primary Task-1	Primary Task-2	Average Monthly Salary (BDT)	Assessed Market Demand of Skill (score*)	Difficulty to Find a Similar/ Better Job (score*)
Public	*Tertiary*	139.83	100%	100%	Patient Care	Supervision	48,989	9.59	9.3
	Secondary	217.29	85.71%	85.71%	Patient Care	Emergency	36,571	9.43	6

Types of Hospitals	Levels of Hospitals in Terms of Services	Average Duration of Service (in months)	Full Time Employment	Permanent Employment	Primary Task-1	Primary Task-2	Average Monthly Salary (BDT)	Assessed Market Demand of Skill (score*)	Difficulty to Find a Similar/ Better Job (score*)
Private	*Tertiary*	77.7	100%	87.50%	Patient Care	Dialysis, Supervision	27,474	8.84	8.12
	Secondary	72.89	98.15%	98.15%	Patient Care	Delivery	19,450	9.07	8.3
	Lower Secondary	71.95	100%	100%	Patient Care	NICU, Supervision	13,248	8.77	8.82
*1= No demand, 10= High demand									
** 1= No difficulties, 10= Very difficult									
Source: Skills Gap of Nurses Survey (BIDS, 2020)									

Extent of formality and benefits for nurses has been presented in table 6.2.9. Average score of 7.67 to 9.45 indicates that nurses from all types of hospitals feel moderate-high satisfaction with their current job. Average score of 3.19 to 3.59 indicates that nurses from all types of hospitals are less slightly satisfied with their salary. Average score of 2.57 to 3.41 indicates that nurses from all types of hospitals are less slightly satisfied with their job prospect. Average score of 4.29 to 4.77 indicates that nurses from all types of hospitals almost strongly satisfied with their supervisors' knowledge. Average score of 3.57 to 4.82 indicates that nurses from all types of hospitals are slightly satisfied with their workplace safely and environment. Average score of 3.57 to 4.64 indicates that nurses from all types of hospitals slightly agree that their employers offer training opportunity. Average score of 3.44 to 4.64 indicates that nurses from all types of hospitals slightly agree that their employers offer training opportunity. Average score of 3.71 to 4.64 indicates that nurses from all types of hospitals are more inclined to agree that their employers care for their career advancement. Average score of 4.36 to 4.82 indicates that nurses from all types of hospitals strongly agree that they have congenial relationship with colleagues.

Table 37: Extent of formality and benefits for nurses

Types of Hospitals	Levels of Hospitals in terms of services	Satisfaction with Current Job	Satisfaction with	Satisfaction with Job Prospect	Satisfaction with Supervisor's knowledge	Satisfaction with Workplace Safety/ Env.	Employers Offer	Employers Care for Career advancement	Congenial Relationship with colleagues
		(Avg. Score) **	Salary (Avg. Score)*	(Avg. Score)*	(Avg. Score)*	(Avg. Score)*	Training opportunities (Avg. Score)*	(Avg. Score)*	(Avg. Score)*
Public	*Tertiary*	9.45	3.59	3.25	4.57	4.49	4.49	4.44	4.65

Types of Hospitals	Levels of Hospitals in terms of services	Satisfaction with Current Job	Satisfaction with	Satisfaction with Job Prospect	Satisfaction with Supervisor's knowledge	Satisfaction with Workplace Safety/ Env.	Employers Offer	Employers Care for Career advancement	Congenial Relationship with colleagues
		(Avg. Score) **	Salary (Avg. Score)*	(Avg. Score)*	(Avg. Score)*	(Avg. Score)*	Training opportunities (Avg. Score)*	(Avg. Score)*	(Avg. Score)*
	Secondary	7.71	3.57	2.57	4.29	3.57	3.57	3.71	4.57
Private	*Tertiary*	8.26	3.4	3.32	4.36	4.16	3.6	3.44	4.36
	Secondary	7.72	3.19	3.24	4.61	4.43	4.15	3.93	4.7
	Lower Secondary	7.67	3.23	3.41	4.77	4.82	4.64	4.64	4.82
* 1=Strongly disagree, 2=slightly disagree, 3=Neutral, 4=Slightly agree, 5=Strongly agree									
** 1=Not satisfied, 10=Fully satisfied									
Source: Skills Gap of Nurses Survey (BIDS, 2020)									

6.3. Findings from Key Informant Interviews

A total of 32 key informant interviews were conducted with top officials of different hospitals and nursing industry specialists across Bangladesh. The list is furnished in the appendices. A few key issues were discussed, which delineate important policy proposition. A summary of the discussions in the interviews has been furnished in this section.

6.3.1. There is no unanimous opinion on the actual shortage of nurses in Bangladesh. Some research has shown there to be a shortage of 90000 nurses while some other research done by foreign organization shows a shortage of 4.5 lac nurses. The opinions of the key informants regarding this have varied a little. The respondents from the tertiary level private hospitals have said that the shortage of nurses will amount to around 2 lac nurses. However, the respondents from government hospitals, institutes and the secondary to lower secondary level hospitals have all agreed with the foreign research findings that say that there is a shortage of around 4.5 lac nurses in Bangladesh. The respondents from some hospitals have hinted at the possibility of the actual shortage being closer to 5 lac nurses.

6.3.2. The World Health Organization (WHO) have set the benchmark that the ratio should be 1 doctor to 1 nurse and 1 technician. When asked about the feasibility of this in the context of Bangladesh, all of our respondents have agreed that it is completely not feasible in the context of Bangladesh. Some respondents have said that 1:1 ratio should be maintained for critical care; however, it is feasible to have a ratio of 1 doctor to 4 nurses in the general ward. The respondents from the tertiary level private and government institutes have suggested a ratio of 1:4 to be more feasible while other respondents have said that a ratio of 1:3 is optimum in the context of Bangladesh.

6.3.3. The institutional facilities for nurse training have been a thorn in our nursing industry for quite a long period of time. The informants from the tertiary level hospitals have stated that they are happy with the type of in-house training they provide in the hospital. However, the key informants from other hospitals both government and non-government have expressed their concerns with the current institutional training facilities of nurses in Bangladesh. They are of the opinion that the nursing curriculum is severely outmoded and there is a lack of logistical planning in training institutes. A few of the respondents have pointed out the fact that Bangladesh has one of the lowest per capita expenditures in the healthcare sector and stated the fact that more investments must be made towards the healthcare sector from both private and public institutions. Another alarming issue is the lack of practical training in our nursing curriculum. There must be enough provision for practical training of nurses, and it must constitute at least 50% of the entire coursework according to a key informant. Added emphasis must also be given to technological competency and computer training.

6.3.4. One of the biggest issues that our nursing industry face is the lack of upward job mobility and motivation for nurses. When asked about the benefits of further training and certifications, mixed responses were obtained from the key informants. The tertiary level hospital respondents have stated that higher qualifications are sought after and preferred. However, experience plays a bigger role than higher certifications when it comes to promotions. On the other hand, most of the government hospital respondents; irrespective of the level of hospital have stated that there is very little benefits to higher certification and training. There is no guarantee of upward mobility and the benefits are far too scarce. Although the certification provides the nurses with more confidence, it adds very little to their overall job benefits. Different responses were found from the other respondents. A minority of the informants have said that higher certifications do indeed result in upward mobility. Hence, all in all it can be concluded with the remark that although higher training and certifications may provide some benefits to the nurses, it is nowhere near enough to keep them motivated to pursue higher training because the rewards are not a fair reflection on the amount of effort undertaken.

6.3.5. Quite a few numbers of ideas on how to fix the skill gap in nurses were obtained from the key informants. There is no correlation to the level or type of hospital the respondent was from, some unique ideas were obtained from their skilled viewpoint. Many of the informants emphasized on ensuring proper planning in the industry. The whole nursing curriculum is not up to par. Some suggestions were made to encourage nurses with higher grades and a salary increase so that they are motivated to take specialized training and higher certification. A few respondents have pointed out the fact that the doctor-nurse relationship is not as good as it should be and hence a fix in that might be beneficial to the industry.

6.3.6. As for policy recommendations, there have been three major categories suggestions coming from the key informants. The first being enhancing the quality of training provided. Leading Management Professionals have emphasized on-the-job training of high quality, promotion of practical knowledge, crises management (nurses are exposed to death regularly), stamina and endurance, adaptability to new situations etc. Cardiac nurses trained in Germany (according to Brig. Dr Abdus Sabur Miah), gained applied understanding but lacked theoretical knowledge, as they were out of touch with their books. The addition of simulated nurse training programs could open up new horizons in our nursing industry.

6.3.7. The second recommendation is that proper planning and co-ordination of management must be ensured, otherwise no solution can be properly implemented.

6.3.8. The final policy recommendation which is seen to be the most common is that there must be added emphasis on behavioral training of nurses. They must be taught how to communicate with patients and with their colleagues. Compassionate relationships are necessary between nurses and patients. The importance of behavioral training must be incorporated and cannot be disregarded.

6.4. Summary of Focus Group Discussions

A total of eight focus group discussions were conducted with the doctors, nurses and officials of certain hospitals and institutes. Although many of the responses and conclusions were quite similar in essence, quite a few unique recommendation and important concerns emanated from some of the discussions. In this section, the findings from the FGDs have been summarized.

6.4.1. The first issue at hand was whether or not the curriculum of nurses was adequate and how useful the midwifery courses were. The respondents said that midwifery course is particularly important in the context of Bangladesh and due importance is being given to the course, although further training in midwifery could be provided by the government. Although the midwifery curriculum is quite robust, the problem lies with management and deployment of midwifery experts. One point that has come out regarding placements of midwives is that placement must be prudent and if practicable the nurses should be positioned in their own area of origin. The consensus among the respondents were that although midwifery courses were extremely important and the government has put a lot of focus on it, the services of nurses extend to other areas, which are of equal importance. Consequently, the curriculum in other areas of nursing is seriously lagging behind, So much so that it now requires close attention.

6.4.2. When the discussion was on the actual shortage of nurses in Bangladesh, most of the respondents opined that the shortage is somewhere in the vicinity of three to five lacs. Although some respondents said that even 5 lacs may fall short of requirements. With regard to

the ratio of 1 doctor to 1 nurse, provided by WHO, all the respondents from the groups agreed that a ratio of 1:3 is more feasible in the context of Bangladesh.

6.4.3. As for the current needs of specialization, the responses obtained in all the FGDs were in harmony. The respondents said that all the specializations listed in our questionnaire are relevant and must be implemented. Some respondents even added a few other specializations that they think should be included in our list.

6.4.4. The most common need was identified as the need for specialization in critical care nurses. There is a wide array of skill sets that are required in order to be able to carry out the required duties of the HDU, ICU, CCU units and the task simply cannot be carried out by regular nurses. Hence, specialization in this field is of utmost importance. Other than critical care nurses, need for specialization in cardiology, oncology and dialysis was also common response obtained from the FGDs. Some respondents also mentioned the need for nurses trained in Wound Management, surgical, peri-operative, burn, diabetes, hematology, transplants and plastic surgery.

6.4.5. When asked about the future need for specialization, the most common rejoinder were that gerontology nurses would be required due to changes in population pyramid in the future and that rehabilitation nurses would also become essential.

6.4.6. Other than specific specializations, one very important need was spoken of by almost all the respondents. That is the need for proper behavioral training of nurses. The nurses lack the required etiquette in dealing with patients, their colleagues and the doctors. Robust training must be provided to bring the nurses up to the standard. The nurses should also be taught how to provide counseling to patients. Their bedside manner as well as service integrity must be developed greatly.

6.4.7. Another key issue in our discussions was the probable reason behind the existing shortage in skills in our nursing industry. A wide array of responses was obtained from the discussions. The main issue that was seen is that the nurses lack motivation and rightly so. Almost all the respondents agreed that there was a great shortage of nurses in the health-care sector and benefits were not in tandem with rising costs of living. Not only are the nurses not given the salary they deserve, they are not given any extra payment for the risk they undertake either. Moreover, specialization or further certification seldom leads upward mobility according to many of the respondents. Which is why the nurses are not motivated to pursue specializations. Even if they are, most private hospitals do not grant leave for specializations and training. Employers are more concerned about maintaining uninterrupted service so they would not go for a more enabling situation where nurses would be given leave to pursue higher certification and training. Their attitude is highly conservative. Some of the respondents mentioned that they felt that skill shortage was present due to the fact that nurses were

overburdened and could not avail any time to pursue their subject specializations. Neither did they possess the resources, nor were training for specialization available or accessible.

6.4.8. Hence, nurses should receive risk-allowance for the hazards they face routinely. Deserving nurses should be given timely promotion through a coherent and structured organogram, to motivate and create the right environment for good service. Provision of an enabling environment could foster self-efficacy and induce nurses to strive for further qualification and specializations.

Chapter -7

7. Major Recommendations and Aspects Related to Nursing and Care

7.1 Major Recommendations

7.1.1. Nursing profession in Bangladesh experience severe skills shortage with far reaching consequences

Irespective of alternative estimation methods - imbalance between demand for and supply of required skills, inappropriate skill mix, or inequitable distribution across rural and urban areas, Bangladesh has been experiencing severe shortages of nursing professionals in the country. Following World Health Organization (WHO) recommended doctor: nurse: technologist ratio of 1:3:5 Bangladesh has a staggering shortage in future, of almost 5,00,000 nurses.

7.1.1.2. Projected demand for nurses in Bangladesh in the year 2035 is estimated to vary between 49,000 and 220,000. The lowest figure is due to the government estimate of one nurse per 4,000 ppopulation; the higher figure is due to Indian average of 1.1 nurse for 1,000 people. On the one hand, based demand for nurses following population doctor ratios, for a doctor ratio of 1:2, the projected demand will vary between 103,000 and 300,000. It may go up to 451,000 given a doctor nurse ratio of 1: 3 – three nurses for every doctor.

7.1.1.3 Total number of nurses available in the country as of 2035 will vary between 88,000 and 346,000 - based upon an assumed growth rate of 5% and 15% respectively. A 10% growth rate will yield an estimated available number of nurses at 178,000. The respective numbers for diploma nurses will be between 81,000 and 378,000, and for B.Sc. nurse 7,000 to 28,000. The figures are rather extreme as are the underlying growth assumptions.

7.1.2.1. **Supply side factors constitute major contributors to the perceived skills shortage**

Intake capacity for nursing education has been very low in the country; annual intake of Diploma nurses is about 3,000, and for B.Sc. nurse around 1,000. For diploma nurses, annual student intake was at the maximum of 6,308 as in 2016; and maximum annual intake for B.Sc. nursing was 1,400 as of 2015. Combined, annual student intake for nursing studies – diploma and degree combined, would be less than 8,000 per annum. Limited student intake rate is deflated further by low graduation rates. Percentage of students graduating for diploma in nursing is 62%; for B.Sc. in nursing it is 43%. On top, moreover, all the graduated nurses do not end up in the nursing profession as a proportion of them remains outside the profession for various reasons.

7.1.2.2. However, percentage of students graduating for diploma in nursing is 62%; for B.Sc. in nursing it is 43%. What it means, therefore, is that low student intake is deflated further by low

passing rates in exams, adding little to the existing stock of nurses in the country. On top, moreover, all the graduated nurses do not end up in the nursing profession. A significant proportion of the graduating nurses remain outside the profession for various reasons.

7.1.3.1**. Quality of nurse training solicits improvement and up gradation**

There are adequate reservations about the quality of nursing training available in the country. Low passing out rate apart, quality of training is underscored by traditional academic curriculum, lack of proper educated and experienced teaching faculties, absence of required training tools and equipment, lack of +ample equipment for practical training with students getting lesser opportunity for practical learning. Classroom size not adequate for the number of students enrolled resulting in overcrowding which affect both quality of education and life of students.

7.1.3.2. Recent trend in privatization of nursing education and training could have important bearing on the quality of training rendered by these private institutions as compared to their public sector counterparts. Not being attached to any medical hospital, scope for practical training in these private nursing training institutes is very poor. Students are oriented with theory but not necessarily practical knowledge and experience. This is a serious lacuna for private nursing training institutions without their own practical training facilities.

7.1.3.3. Lack of adequate, qualified and experienced faculty is a major drag on quality of nursing training provided by private sector institutions. The same set of faculties may be teaching in many places at the same time, both public and private. In most cases, it would be faculties in public nursing colleges and institutions serving as adjuncts in private institutions.

7.1.3.4. Possibly, lack of proper monitoring and supervision would seem to be amongst the major challenges in nurses training in Bangladesh. Policy interests in greater privatization of nursing training have not been adequately aligned with underlying requirements. Set standards should have been in place for various facilities required – infrastructure, equipment, minimum number of faculties with required background, including standard testing of training imparted and knowledge acquired, which are greatly missing under the current environment.

7.1.4.1. Lack of specialized nurses is an important aspect of nurses' shortage in the country

Shortages of nurses with specialization in different fields of medicine particularly underline shortage of nurses in the country. Changes in country's morbidity patterns – population aging, rise of non-communicable diseases like diabetes, cardiac arrests, trauma and orthopedics, underscores growing need for nurses with specialized education and training in respective fields. For instance, of about 50,000 registered nurses available in the country as of 2019, the number of nurses with some type of specialization is quite low.

There are serious supply constraints in this regard. The available number of available seats for specialized training is very limited. For instance, specialized nursing training course in such areas as CCU, ICU, Cardiac, etc. is available at National Heart Foundation. However, there are only 20 seats available each year. Not surprising, there were only 206 nurses in the country with specialized training in Cardiac and Intensive care as of 2016; 32 in Ophthalmic; and 34 in rehabilitation.

7.1.4.2. Besides absence of policy priority on such specializations apart, including inadequate incentive packages attached, there are serious supply constraints in this regard. The available number of seats for specialized training is very limited. For instance, specialized nursing training course in such areas as CCU, ICU, Cardiac, etc. is available at National Heart Foundation. However, there are only 20 seats available each year. Not surprising, there were only 206 nurses in the country with specialized training in Cardiac and Intensive care as of 2016; 32 in Opthalmic; and 34 in rehabilitation.

7.1.5.1. Inadequate infrastructure is a serious stumbling block to increasing supply of nurses

Fifthly, nursing training facilities in the country are quite limited as compared to respective needs. This is reflected in the number of available facilities, average level of enrollment, quality of facilities, and, most important, lack of adequate and qualified teaching staff. There were 58 nursing colleges, and 157 nursing institutes as of 2019. Most of facilities emerged only lately. Importantly, majority of these newer facilities belong to the private sector. For instance, 67% of nursing colleges are in the private sector, the corresponding share is 73% for nursing institutes.

7.1.5.2. Sheer number apart, quality of various infrastructural facilities – especially, in newly emerging private training institutions is far from being adequate. Classroom size is inappropriate for the number of students enrolled resulting in overcrowding and demeaning both quality of education and life of students. Most of these institutions lack proper logistic facilities required for hands-on training. Academic curriculum is not updated despite repeated attempts; and number of qualified and experienced faculty is quite inadequate.

7.1.5.3. Most of the private nurse training facilities not being attached to hospitals – except those which are parts of the private medical college hospitals, fail to provide adequate practical training facilities. Consequently, students are oriented more with theory than practical knowledge and experience. The same set of teachers may be teaching in many places at the same time; mostly it would be faculties in public nursing colleges and institutions serving as adjuncts in private institutions. Similarly, public institutes are run by nursing staff on deputation; students at times are taught by physicians and medical assistants, or retired faculties.

7.1.6.1. Concentration of nursing training facilities in major metropolis may negatively impact interest in nursing education

Concentration of existing training facilities in select metropolitan cities would be a serious constraining factor to increasing supply of nurses in the country. For instance, dating back to 2018, 47% of the nursing colleges – both in public and private sector, were located in Dhaka city – the country's capital. The corresponding share for nursing institutes is 30%. The next important location is Rajshahi where 22% nursing institutes are located, as compared to 16% of colleges.

7.1.6.2. While future job market proximity could be a determining factor, respective implications for future supply of nurses could be very limiting. Greater distribution of training facilities across the country would positively affect demand for nursing training, therefore, respective supplies.

7.1.7.1. **Inadequate compensation packages diminish interest in nursing profession**

Despite long years of training – theoretical and practical, most comparable with medical graduates, and length of hours of services rendered, the compensation package received by qualified nurses are not quite compatible with their education, training and job experience. Until very recently, nurses were very low in salary and status in government job ladder. Recently, this has improved significantly in public hospitals.

7.1.7.2. What remains lacking – rather significantly, are compensation package offered to nurses in the private sector hospitals and clinics, and limited scope for higher training and job mobility. Compensation or benefits received by nurses in private sector is significantly lower than in public hospitals even with similar level of education and training – especially at the entry level. Private hospitals offer limited opportunity for job mobility. Most limited also is scope for specialized education and training.

7.1.8.1. Recognition of the role played by nursing profession should be the corner stone of mitigating skills shortage

Nursing, i.e. caring for the sick and vulnerable, the center of humanity is amongst very few professions which remained consistently at the heart of the society ever since its inception.

Nurses are critical to deliver on the promise of “leaving no one behind”, and global effort to achieve the Sustainable Development Goals (SDGs).

7.1.8.2. The responsibilities of a nurse include promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are key nursing roles. It has now evolved into independent enough authorized to prescribe to patients themselves.

7.1.8.3. Socio-cultural taboos against the nursing profession played a negative role in discouraging people to undertake nursing as a profession. However, skill upgrading in government services, improved pay structure, greater independence allowed in discharging duties, and strengthening in collective bargaining position made positive waves. Historical bias towards female nurses needs to give way for more and more male nurses, working side by side with their female counterparts. Hospitals like Neuroscience and a few others, however, are wary of male nurse group (s) , preferring to minimize their numbers, so this aspect of male nurses must be curbed wherever it is possible.

7.1.8.4. Similarly, acknowledgment of any existing differences in compensation for nurses between public and private sectors will be positive towards recognition of their situations. Likewise, greater independence in discharging responsibilities, alongside authority to make independent decisions – like prescribing common medicines, would improve confidence.

7.1.8.5. Conflicts between doctors and nurses in terms of relative importance and responsibilities at times may become demoralizing for the nursing profession. However, their services are complementary as together, they make a stronger and more productive team.

7.2. Aspects Related to Nursing and Care

7.2.1. The following sections are drawn from an unpublished Research Endowment Fund (REF) report of BIDS (2019), on the elderly. Poverty, disasters, erosion of values and disintegrating family ties, is leading to nucleation of families and increased number of aged who remain neglected, detached and vulnerable. The greatest hardships are borne by the destitute old women, women with children and disadvantaged shelter less people. Majority of the people over 60 years live in the rural areas where there is lack of proper health care services, economic services and limited job opportunities. The situation of the elderly is dismal where more than 50% of the elderly are widowed or

single, 9.63% are jobless and 14-15% engaged in agricultural work and daily labour (Barikdar, Ahmed and Lasker, 2016).

7.2.2. In Bangladesh customarily, gender roles are clearly defined and accepted. It is usually the men who are the main bread winners, while women maintain the household. In this male dominated culture, it is often the older men, who are still involved in economic activities (Abedin, 1999). Even today, in Bangladesh, some elderly people are still respected and valued in the society. They have a special position in the family, and they are often asked for advice, especially during major events, like marriage, name giving ceremonies etc. In many joint families and households, they not only continue receiving care and support from the family members but also provide care to the family members such as financial help and love and care to grandchildren. The scenario is inimical for the very poor where competing needs of large families prevail. Thus, this situation often leaves the elderly abandoned to fend for themselves. Begging is their next best alternative.

7.2.3. Traditionally, in Bangladesh, the son (s) takes responsibility to provide food and shelter to their parents as well as take care of other elderly members of their family. However, due to their pecuniary economic condition they are not able to meet basic needs of the family. Hence, sometimes, older people get involved in begging to meet their own requirements as well as needs of their family (Rahman, 2000). Bangladesh has been experiencing a shift in the age structure of it's population (Fleischer, 2010; Hossain, 2016).The percentage of elderly people – those aged 60 years and over – will grow substantially within this century (Hossain, 2016). Population ageing is inevitable within demographic transition and the concluding phase of demographic transition manifests in fewer births and deaths (Rajan, 2011; Kabir et. al., 2016).The corollary to this is the imperative to provide adequate care to the aged. This might become a major challenge for Bangladesh, if sufficient measures are not adopted.

7.2.4. There is a strong need to keep a provision of adequate budget for the development of elders. This would allow the range of Old Age Allowance to be enhanced in amount and increase the number of beneficiaries, or alternatively scale up operations to provide financial cover to all who qualify for this allowance. Information about benefits must be made available to the low income groups and low middle class. Moreover, there is suggestion for establishing an individual Ministry of Elders by linking with health initiative programs, economic development and social welfare. The key action for this Ministry would be formulating and binding government laws and regulations regarding elderly rights.

7.2.5. There is also a strong call for review (to gauge effectiveness) of the government policies for a more enabling condition–to assess the efficacy of existing programmes and whether they are headed in the right direction, particularly in the light of the National Social Security Strategy (NSSS). A succinct review of the NSSS is required to further identify the beneficiary target groups who could be identified on an urgent basis for implementation,

7.2.6. Those who are working directly for the welfare of elderly people have suggested that there is a need for making the infrastructure elderly-friendly by improving the footpaths, entrance of offices, mosques and residential buildings, parks etc. Introducing special banking service for the elderly should be made a prime vision for making transaction, withdrawal, deposit and saving, easier or less cumbersome for the elderly. Fire service providers have a free ambulance service for the elderly which is an unknown fact to many. This knowledge should be made more ubiquitous, so that the elderly can take advantage of the service in need.

7.2.7. Increasing the coverage of large scale social security programs, like, pension, old age allowance and health insurance could be helpful. Government should increase outdoor service units in government hospitals and special "Senior Citizens' Card", could be made available, so that they may avail of free transport services in addition. To ensure good health and ensure a caring attitude, there is a need to ensure home-based and institute-based health care centers where the elderly would receive proper nursing and care. There should be free help provisions for the elderly in government hospitals. There can be introduction of free health care corners for them. Moreover the elderly themselves should be educated in self-care.

7.2.8. Old age care centers should be introduced at the district level to track the condition of the elderly and to rehabilitate the ones who have lost the support of their families. Initiatives can be taken to establish "Probin" (or Old Age) Association at specific community level by using Govt. *Khas* land, where elder people may easily access services and establish a linkage with National Legal Aid Support Organization (NLASO) to give priority to elders. There is a need to create opportunities for altruistic pursuits to involve the elderly. Since they are experienced, they can utilize their free time to lengthen their productive contribution for the benefit of the society. Their contributions will create a positive image of the elderly, in the country.

7.2.9. Keep a provision of close monitoring for activating Probin Association (s) as Social Institution, which could be set up by "Union Parishad" (s). There is also an idea to establish referral system for elders' legal rights by providing support to victims, thereby enabling access to Metropolitan Magistrate court or so on. Concerns have been

expressed for developing Principles under the Act 2013 (for sustenance of parents: "*Mata Pitar Bhoron Poshon Aain-2013"*), considering both parties(Complainant and perpetrators) security. The suggestion is to modify this Act by defining the term "*Economically Solvent"*- or able to bear all cost of parents/elders in their care. Moreover, advice is given to keep a provision of free Government Legal Aid Support to the victimized elders. In order to publicize the suggestions, there is need for increasing promotional activity by introducing short films with moral and educational messages, folk songs or advertisement through TV and print media. Also, ideas have been put forth for discussing issues related to elderly in mosques and madrasa to help people understand the importance of taking care of the elderly. This may help to motivate people to be considerate enough towards the needs of the elderly which in turn would instigate them to help or assist them out of fear and submission to Allah.

7.2.10. Some have suggested the formation of "*Volunteering group*" in the community. To create an elder- friendly society and engage both the young and the elderly in social care, reduce the incidence of poverty among the elderly, and thereby contribute to the Sustainable Development Goal (s). Others emphasized the need to involve and ensure security for both the young and the elderly through engaging the elderly in social activities. Establish conciliation board at community level by ward member and influential people where elderly get justice against betrayer. Develop elderly club by keeping newspapers, journals, television, and there should be one professional who can help in elderly counseling. Adopt elders' initiative program through NGOs where they could draw and manage funds by creating new concept for the development of the elders.

7.3. Policy Recommendations

1. Recognition of the role played by nursing profession should be the corner stone to mitigating skills shortage

Nursing - caring for the sick and vulnerable, the center of humanity is amongst very few professions which remained consistently at the heart of the society ever since its inception. Nurses are critical to deliver on the promise of "leaving no one behind", and global effort to achieve the Sustainable Development Goals (SDGs).

The responsibilities of a nurse include promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are key nursing roles. Improved pay structure, greater independence allowed in discharging duties, and strengthening in collective bargaining position made positive waves.

Services rendered by different professional groups in the health care sector – doctors, nurses, technician and the alike, are complementary to each other irrespective of relative importance and responsibilities and should provide the basis of appreciating respective role and need for professional up gradation towards a stronger and productive team. Nursing has now evolved into independent enough authorized to prescribe to patients themselves.

1. Utilization of existing institutional facilities

Achieving fuller and proper utilization of the existing nursing training facilities in the country shall be the first policy option for the government. It involves reckoning existing facilities under all different sectors – government, private and non-government, appraising respective enrollment capacities, and making sure that no capacity remains unfilled Equally important is appraising all various factors hindering fuller capacity utilization and resolving them to the maximum. Moreover, introduction of multiple shifts – day and evening, with necessary support services, would easily enable a greater enrollment level. Economies of scale could be achieved through maximum utilization of existing facilities.

2. Improvement of the quality of nursing education

Improvement of the quality of existing nursing training should have the highest policy priority. Two particular aspects of quality improvement should receive much attention. First, passing out rate in nursing education has been very low which is significantly underlined by the quality of various services provided – infrastructure, faculty, practical training, etc. Secondly, quality of training provided in terms of coverage of course curriculum, adaptation of syllabus with changing needs especially changes in nursing profession, exposure to modern training methods, tools and instruments, could greatly improve the marketability of nursing graduates. Combined together, these will contribute to greater passing out rates, market value of graduates, therefore, motivation to continue with the profession. Quality improvement in nursing training shall focus, among others, on updating course curriculum, improvement in quality of teaching, standardization of training across different institutional setups – public, private and NGOs, set standards for the provision of various facilities in different nursing colleges and institutes, proper monitoring of existing training facilities, and ensuring proper accountability for training and monitoring of institutions.

3. Cooperation and collaboration among different sectors

Ensuring higher nursing training quality – and its uniformity across different sectors, will require a greater degree of cooperation and collaboration among training institutes representing public, private and non-governmental organizations. Such cooperation and coordination shall build upon the quest for higher quality and uniform standards based on agreements on the possible determinants of quality education. An advisory committee representing all different

stakeholders shall particularly focus on academic syllabus, teaching and training materials, evaluation standards, compliance with agreed norms and standards, and provisions for recognition for high achievers.

Different stakeholders could cooperate in terms of availing any existing facilities. For instance, nursing training institutes without their own clinical facilities like hospital or clinic could cooperate with a particular hospital or clinic under an agreed memorandum of understanding within the knowledge and supervision of their apex body.

4. Specialized training for nurses

Skills gap for nurses with specialized training is an issue which needs to be reckoned and dealt with immediately. The number of registered nurses with specialized training is most minimal compared to the country's stock, and their annual supplies most minimal. For instance, there were only 206 nurses in the country with specialized training in Cardiac and Intensive care, 32 in Ophthalmic, and 34 in rehabilitation, as of 2016.

This is compared to a total of 50,000 nurses and 70,000 doctors – as 2019. One serious stumbling blog in this respect, among other factors, is supply constraint. There are only 20 seats available for such training in CCU, ICU or Cardiac, and training are available only in National Heart Foundation located in Dhaka. However, changing morbidity patterns, number of patients suffering from such diseases, and overall doctor patient ratios – not to mention, population – doctor ratios in particular areas of specialization,

There is, therefore, an immediate need to increase domestic capacity to train specialized nurse in the country. Two particular aspects of increased domestic supply of specialized nurses should be critical: First, exploring the maximum potential of any existing training facilities for specialized training in the country. The number of training slots available should be utilized to their most. Secondly, new specialized training facilities shall be created with immediate effects.

While creating new facilities particular focus should be on locating such training in organizations having their need as also scope for practical training in specialized areas. Specialized nursing training for Cardiac related training could be located as in National Heart Foundation. Similarly, specialized training for Burn treatment could be located in the Burn Hospital; Neurology in, in National Neurological hospital.

Such locations will be beneficial both in terms of availability of teaching staff and scope for practical training. However, all efforts should be made to create specialized nursing facilities

distributed across the country as per possible. This will help the growth of respective supplies at different geographical locations.

Overall, five critical factors shall underline greater facilities for specialized training for nurses in the country: (i) identification of the type of specialized training required, (ii) setting a target number of nurses to be trained, (iii) phasing out of total training needs over different time periods, (iv) selection of location for specialized nurses training, and (v) strategies to materialize the planned objective.

5. Incentive package for specialized training

Building institutional facilities apart, policy emphasis should be laid on motivating and facilitating greater interests among nurses to undertake specialized training in different fields. This will underline issues such as importance attached to specialized education and training for nurses reflected in professional recognition, institutional requirements, higher wage and salary, job mobility, involvement in decision making, etc.

Motivation for specialized training shall further involve cost-sharing among different stakeholders – particularly for working nurses seeking specialized training. This would involve sharing of the costs of training – by trainee or employer, partly or fully, with or without any string attached. Moreover, there would be questions about specialized training on a part-time basis – evening classes, or full-time. Full-time studies may involve issues of leave from current employer including provision of salary and benefits during training.

Participation in specialized training on a full-time basis underscores issues like costs of training – subsidized or otherwise, provisions of financial aids – scholarships, waivers, provision for student loans, sponsorship, etc. A greater priority on specialized training could aim at motivation alongside redeeming the burden of the costs of education and training. Future job prospects – in terms of market demand, or associated benefits would be important motivational factors.

6. International demand for nurses

Catering to international demand for nurses will involve particular focus on certain aspects of nursing training in the country besides ensuring international standard. Unlike homogeneity of the domestic market for nurses – language, culture, manners, etiquette, disease profile, international market conditions would be most diverse and dynamic.

International demand for nurses, unlike the domestic, the importance of particular issues such as (i) language barrier, (ii) quality of training, (iii) exposure to latest technology, (iv) independence, and (v) team play. Proficiency in local language is must to provide healthcare services in any parts of the world. English is an international language spoken in many countries. However, the level of proficiency required shall be of high order. Similarly, quality of nursing education will need to be attuned to an international standard. Particularly important here are enabling nurses the expertise, experience and confidence to work independently, take important decisions, and be an active member of the team.

Special policy focus shall, therefore, be on international marketability of nursing training in the country. Understanding of the global market for nurses shall be complemented by creation of institutional facilities geared in this direction. Modern nursing training facilities, course curriculum with a global perspective, exposure to modern tools and techniques, including information technology, knowledge of socio-cultural differences across countries, etiquette and manners dealing with patients, doctors, independent decision making, working as a team player, etc. are some of the relevant issues for global marketing of nurses.

Proper evaluation and certification of trainees is vital to global marketing of nurses trained at home. Planning, monitoring, and evaluation by international professional team could be an important policy strategy. Similarly, collaboration with domestic hospitals for practical training facilities, supervision of experts in the respective areas, performance monitoring by expert groups will be critical to ensuring the quality and standard of training.

Collaboration with prospective international employers of nurses will prove effective in creating overseas demand and ensuring domestic supplies. Local nursing training institutes could cooperate in this respect towards mutual benefits. Cooperation could be in terms of transfer of required knowledge and experience in exchange for creating overseas job opportunities.

Chapter -8

8. Summary and Conclusions

8.1. Summary of Findings

Bangladesh suffers from a critical shortage of health workers. Combined with this is the dearth of reliable data on human resources for health (HRH) in the recognized and casual sectors in Bangladesh. This data is essential for developing HRH policies and plans to meet the dynamic and time specific healthcare requirements of the population. Health services in Bangladesh are made available by public and private sectors; the public sector is largely used for out-patient, in-patient and preventive care, while the private sector is used largely for out-patient and in-patient curative care. The Ministry of Health and Family Welfare (MoHFW) is accountable for arrangement and management of curative, preventive as well as primitive health services to the population of the country. In the urban areas, delivery of health services including Primary PHC services is mandated to the Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C).

8.2. The two broad categories of service approaches - preventive and curative, emphasize the associated involvement of human services like doctors, nurses, technicians, paramedics and other supplementary support required. Broadly, preventive care is low-cost, low human resource oriented, therefore, easier to sustain. The other type of service – curative, is intensive both in terms of costs, human resources, technical support and various logistic facilities. As it is now frequently observed, treating a family member for cancer could be exorbitant and maintaining a heart-transplant patient could be prohibitively expensive, in the private healthcare sector. The single most important barrier would be the kind of medical skill and expertise required for the function, in terms of skills of doctors and nurses, with specialization in cardio-vascular disease, adequately experienced, effectively in accord with other related experts.

8.3. Bangladesh is experiencing a severe shortage of nursing professionals in the country. Inappropriate skill mix of doctors and nurses often compel doctors to perform tasks that nurses are qualified to perform, and this translates in to waste of skills and human resources. Moreover, lack of appropriate training and essential experience accentuate the quality of services provided by the existing nursing professionals. Curriculum and syllabus followed in nursing training require revision; faculty members lack motivation and current knowledge, necessary equipment, and adequate facilities for practical or clinical training.

8.4. There is mounting call for nurses with requisite special education and training in respective fields due to fast transformation in the morbidity pattern of the country – population aging, rise of non-communicable diseases like diabetes, cardiac arrests, trauma and orthopedics. However,

specialized hospitals – both in the public and private sectors, dealing in such areas as ophthalmic, intensive-care, cardiology, orthopedic, neurology, burn, and trauma have none or very few nurses specialized in those areas. And there are several branches of the nursing profession, not known in the country. Some of these may include community nurses, school nurses, etc. – causing serious variance of health manpower in the country.

8.5. The purpose of the proposed study is to analyze the projected demand for and supply of nursing professionals in Bangladesh in the next 10-year period - 2020-2030, to help the country better plan the capacity and quality of nursing training systems. The current study probes into two major areas of the nursing profession in Bangladesh, that is (a) demand for and supply of nurses in the country, and (b) policy suggestions towards control of emerging supply-demand gap.

8.6. National commitments and obligations are at the basis of demand for and supply of healthcare services in the country, which should be commensurate with the size, composition and particular needs of country's population -

8.7. The most widespread type of sickness that prevail, includes fever, flu, arthritis, peptic ulcers, high blood pressure, diabetes, acute respiratory infections and conjunctivitis. These common types of diseases are either related to different seasons or food and nutritional intakes. Infectious diseases are responsible for a significant proportion of death occurring every year. Another major cause of death is chronic respiratory illness. The COVID 19 has also caused many deaths. Two other causes of deaths are road accidents, diabetes, and related illness.

8.8. Some these illnesses are related to a growing number of elderly people in the country. The elderly suffers from multiple morbidities: problems relating to eye, hearing, sleeplessness, gastro-intestinal and musculoskeletal disorders. Psychological disorders are on the rise due to financial insecurity, social isolation and mistreatment or desertion.

8.9. The requirement for nurses can be looked at from two broad views: a need based approach, and market approach. The market approach refers to actual deployment of nurses in the country as experienced over time. Emphasis involves budgetary constraints, terms and conditions dictated by labor market, compliance with rules and regulations, etc. The other approach lays importance to level of nursing services required, based on individual needs and rights that follow recommendations of World Health Organizations (WHO), understanding of other countries' experience, and quality and effectiveness of services rendered.

8.10. Above and beyond shortages, the health system in Bangladesh is affected by a poor skill mix. Instead of the ideal WHO recommended ratio of 1:3:5 (doctors: nurses: technologists), it has currently a ratio of doctors to nurses 1:0.4:0.24, which is a convoluted situation. According to the WHO standard, Bangladesh has a staggering shortage of more than a lac doctors, almost

5 lacs nurses and supportive midwives including other healthcare workers and technicians. There is little probability of reversing the current ratio in favor of nurses under current strategies, which may be revamped with utmost urgency under the Corona Pandemic, from which the weak health sector is reeling.

8.11. Dependent on different assumptions about population nurse ratio, projected demand for nurses in Bangladesh in the year 2030 is estimated to vary between 46,000 and 144,000. The lowest figure is due to the government figure of one nurse per 4,000 Population – dating back to 2014 though. The higher figure is due to WHO assumption of 0.76 nurses per 1,000 people. Both the figures are based on assumptions far apart from the experiences of other countries and 8.12. regions.

Projections, based on population: doctor: nurse ratio, on the other hand, gives a much higher number for nurses' demand, soon. The underlying assumptions are basically the prescribed number of nurses per doctor – 1, 2 or above. WHO recommends a doctor nurse ratio of 1:3 – 3 nurses for one doctor, which in the Bangladesh context is far fewer – less than 0.5 nurse per doctor. Based on a ratio of 1:2, the minimum projected requirement for nurse in 2030 will be 97,000 nurses; it highlights a population doctor ratio of one doctor for 4,000 people – an extremely low figure to reckon.

8.13. On the higher side, the corresponding demand for nurses will be 483,000 as based on the assumption of 1.28 doctors per 1,000 people – based on the experiences of Middle Income countries around the world. Similarly, based on the South Asian country experience – 0.75 doctors per 1,000 people, the projected demand for nurses in 2030 will be 283,000. Lastly, based on Bangladesh's experience of 0.47 doctors per 1,000 population, as of 2015, the corresponding demand for nurses in 2030 will be 177,000. Combining Bangladesh 2015 experience with South Asian experiences, an average of 230,000 would be the anticipated number of nurses that will be required in Bangladesh, by 2030.

8.14. Nursing profession, and its demand, is at a turning point. For a population of 165 million the number of registered nurses in the country is less than 45,000. There are less than 0.4 nurse per 1,000 population, being one of the most deprived in the world.

8.15. Enrollment into nursing course is low: moreover, qualified number of graduated nurses – whether diploma or degree holders, often fail to spot jobs in the nursing profession. A significant proportion of the graduating nurses remain outside the profession for various reasons.

8.16. Possibly, lack of proper monitoring and supervision would seem to be amongst the major challenges in training nurses in Bangladesh. Policy interests in greater privatization of nursing training have not been adequately aligned with the primary requirements. There should have

been set standards for various facilities required – infrastructure, equipment, minimum number of faculties, required background, including standard testing of training imparted and knowledge acquired, which are greatly missing: with particular reference to private institutions. Not being attached to any medical hospital, scope for practical training in these private nursing training institutes is very poor. Lack of adequate, qualified and experienced faculty is another deterrent to quality of nursing training. The same set of teachers may be coaching in many places at the same time, both public and private. In most cases, it would be teaching staff taking classes in public nursing colleges and institutions while serving as adjuncts in private institutions.

8.17. Major supply side restraint includes, among others, lack of physical and technical facilities to provide nursing training, focus of training facilities in certain geographical locations, privatization of nursing education and training, etc. Quality of training is compromised by traditional academic curriculum, lack of proper educated and experienced teaching faculties, absence of required training tools and equipment, and lack of scope for practical training of nurses in private institutions.

8.18. An attempt has been made to inform on the critical state of the services given by nurses in this country. In order to gain information on the skill's gap of nurses, several rounds of empirical surveys, interviews of health providers and administrators of hospitals and present skills development of nurses, has been attempted in this study.

8.19. For hospital survey analysis, hospitals were categorized based on ownership and capacity. On the basis of ownership, hospitals were categorized into public and private. The two categories were further divided into three categories: Tertiary level, Secondary level, and Lower secondary level, for the private hospitals. In the public hospital category, only Tertiary level and Secondary level hospitals were found. The institutional survey was conducted on 50 randomly selected tertiary, secondary and lower secondary level healthcare institutes (i.e. hospitals, clinics)-both in public and private sectors, located across three major cities and one district of the country – Dhaka, Chattogram, Rajshahi and Tangail. The questionnaire focused on information such as ownership pattern, types of healthcare services provided by the institutions, nature of employment, reason and impact of skill shortages, training needs, etc.

8.20. The employee survey was conducted on 171 employees from 41 of the institutional survey hospitals and 3 other randomly selected hospitals from Dhaka. The questionnaire focused on information such as on-job training, training needs, occupation mobility and skill demand, extent of formality and benefits for nurses, etc. Nurses were divided into five categories: Nursing Superintendent/ Matron is the topmost level, followed by Nursing Supervisor, Senior Staff Nurse, Staff Nurse and Aide to Nurse.

8.21. Top three training/skills need for nurses in public hospitals are: ICU, Cardiology, and Diabetes, and private hospitals are: Dialysis, Cardiology, and ICU. Hundred per cent of public hospitals and 79% private hospitals are not willing to pay for the training of their nurses. Only 22% of the private tertiary hospitals are willing to pay fully and another 22% private secondary hospitals are willing to pay partially for the training of their nurses.

8.22. Enterprise/Institutional survey was conducted in three sections: employment, the hospitals' perception of the nature of shortage and impact of hard-to-fill vacancies. The results reveal that, regarding employment, tertiary level hospitals serve the most patients, pay the highest annual salary and employ the most people on average, while the average age of employees employed is similar among the employees of three levels of hospitals. Based on ownership, public hospitals serve more patients, pay higher salaries and employ more people on average compared to private hospitals while the average age is similar between them. From the hospitals' perception of the nature of shortage analysis, we see that respondents expressed moderate views on the absence of required skill, high average pay, turnover rate and did not find it very simple in filling vacant posts. Lastly, the results from "Impact of Hard-to-fill Vacancies" reveals that, while the impact is low on losing business to competitors and outsourcing work, it is comparatively high on meeting quality standards, introducing working practices, workload of other staff and meeting customer service objectives. When looking into how hospitals try to solve these problems, we found out that hospitals are least likely to increase salary, use new recruitment methods, recruit foreign workers, bring in contractors or offer training to less qualified recruits but are likely to increase training for existing workers. Furthermore, tertiary level hospitals are more likely to increase training for existing employees, compared to the rest.

8.23. For the Institutional Survey, following issues were covered: need for training, self-assessed skill and skill demand, extent of formality and job satisfaction surveys were conducted. The results reveal that, in case of need for training, respondents believe that further training will improve their current work proficiency and job progression/career prospect. The survey results from self-assessed skill and skill demand show that respondents believe that finding a similar or better job will be very difficult although there is high market demand for their skills. Furthermore, Staff nurses assessed market demand for their skills lower than the rest of the categories. The results from Extent of Formality show that, for nurses, most contracts are standard (documented), get paid casual and Maternity/paternity leave and get informed about being laid-off. As for unpaid leave policies, most of the nurses do not get unpaid leave: sick leave, casual leave, or maternity/paternity leave. Similar responses were also observed in pension, life insurance and health insurance policies. Employee loan policy, scope and payment for overtime do not exhibit any consistent pattern. Moreover, Staff nurses get fewer paid sick leave compared to the rest of the categories while trainees/Aide to nurse, are

less likely to be laid off with prior information compared to nurses. The results from Job Satisfaction reveal that most employees are satisfied with their job even though they are not happy about current salary, job prospects, knowledgeable supervisor, workplace safety, salary package, training opportunity, career advancement, work assignment and reward for hard work. Furthermore, nursing supervisors indicate lower job satisfaction than the rest of categories.

8.24. Results from the Qualitative Survey revealed some important findings. The most universal need was identified as the need for specialization in critical care nurses. There is a variety of skill sets that are required in order to be able to carry out the required duties of the HDU, ICU, CCU units and the task simply cannot be carried out by regular nurses. Hence, specialization in this field is of paramount importance. Other than critical care nurses, need for specialization in cardiology, oncology and dialysis was also very common responses obtained from the FGDs. Some respondents also mentioned the need for nurses trained in wound management, surgical, peri-operative, burn, diabetes, hematology, transplants and plastic surgery.

8.25. When asked about the future need for specialization, the most common responses were that gerontology nurses would be required due to changes in population pyramid in the future and that rehabilitation nurses would also become essential.

8.26. With regard to the actual shortage of nurses in Bangladesh, most of the respondents opined that the shortage is somewhere near three to five lacs. Although some respondents said that even 5 lacs may fall short of requirements. Considering the ratio of 1 doctor to 1 nurse (1 technician-not considered in this study); provided by WHO, all the respondents from the discussions agreed that a ratio of 1:3 (doctor to nurse ratio), is more feasible in the context of Bangladesh.

8.27. As for the existing requirements of specialization, the answers obtained in all the Focus Group Discussions, were in accord. The respondents said that all the specializations listed in our questionnaire are pertinent, and undoubtedly preferable for immediate implementation. Some respondents even added a few other training skills that they think should be included.

8.28. Other than specific specializations, one very important need was spoken of by almost all the respondents. That is the need for proper etiquette or behavior training of nurses. The nurses lack the required etiquette in dealing with patients, their colleagues and the doctors. Robust training must be provided to bring the nurses up to the standard. The nurses should also be taught how to provide counseling to patients. Their bedside manner as well as service integrity must be developed greatly.

8.28. Another key issue in our discussions was the probable reason behind the existing shortage in skills in our nursing industry. A wide array of responses was obtained from the discussions. The main issue that was seen is that the nurses lack motivation and rightly so. Almost all the respondents were in agreement that there was a great shortage of nurses in the health-care sector and benefits were not in tandem with rising costs of living. Not only are the nurses not given the salary they deserve, they are not given any extra payment for the risk they undertake either. Moreover, specialization or further certification seldom translates into upward mobility opined many of the respondents. This could be the reason why the nurses are not motivated enough to pursue specializations. Even if they are, most private hospitals do not grant duty leave for specialization and training. Employers are more concerned about ensuring continuous service and thus nurses would not be given leave to pursue higher certification and training. Their attitude is highly conventional. Some of the respondents mentioned that they felt that skill shortage was present due to the fact that nurses were overloaded and could not spare any time to practice and learn their subject specializations. Neither could they acquire the resources nor were training for specialization available or easily reached.

8.29. When looking into how hospitals try to solve these problems, we found out that hospitals are least likely to increase salary, use new recruitment methods, recruit foreign workers, bring in contractors or offer training to less qualified recruits but are likely to increase training for existing workers. Furthermore, tertiary level hospitals are more likely to increase training to existing employees than the rest.

8.30. Assessment of Hospital Survey involved the need for training, self-assessed skill and skill demand. Also, the extent of formality and job satisfaction surveys reveal that, in case of need for training, respondents believe that further training will improve their current work proficiency and job progression/career prospect.

8.31. Not only are the nurses not given the salary they deserve, they are not given any extra payment for the risk they undertake either. Moreover, specialization or further certification seldom translates into upward mobility opined many of the respondents. This could be the reason why the nurses are not overly enthusiastic to pursue specializations. Even if they are, most private hospitals do not grant duty leave for specializations and training. Employers are more concerned about ensuring continuous service and thus nurses would not be given leave to pursue higher certification and training. Their attitude is highly conventional. Some of the respondents mentioned that they felt that skill shortage was present due to the fact that nurses were overloaded and could not spare any time to practice and learn their subject specializations. Neither did they acquire the resources nor were training for specialization available or easily reached. Public hospitals and nurses preferred training to be conducted in their own premises.

Nurses from Chattogram, especially CMCH and Red Crescent Hospital, opined that proper posting should be adhered to avoid mismatch. After specialization, nurses often fail to procure appropriate positions; posting should be in ICU or related units. Waste of skills and low pay is inimical for their morale as general ward nurses usually receive 12000 takas per month, sometimes even less. At Red Crescent, the major demand is for Mid-wives, so trained nurses with 3 years' course certification, are officially supervised and monitored by Mid-wives, who hold 18 month's skills as Mid-wives.

8.32. Moreover, as the government is insisting on hospitals' participation in Corona Care, so all hospitals, including National Hospital in Chattogram, have started dedicating complete floors for Corona Patients, recruiting 15 to 30 nurses, arranging high-flow oxygen and providing 50 to 100 beds. They should be remunerated appropriately. Moreover, nurses also emphasized that Community Health Training is important for them as it teaches Nurses how to manage people, create awareness among the community, so that diseases are more controlled among families and burden on health-care sector lessens. Handling cancer patients is also risky in our cultural set-up. With regard to crises coping of nurses, even hard-working nurses do not get the requisite support from hospitals. They claimed that without medicinal support, it is very difficult to cope, as salary is not adequate.

8.33. Therefore, nurses should be provided risk-allowance for the peril they face routinely. Creditable nurses should be given well-timed job improvements, through a coherent and structured organogram, to motivate and create the right environment for high-quality service. Only then can the nurses accomplish self-efficacy and attempt additional education and specializations.

References:

1	Abedin, Samad, 1999. Social and Health Status of the Aged in Bangladesh. CPD.-UNFPA Publication Series, Paper 4. Available from: http://www.cpd.org.bd_attach/unfpa4.pdf
2	Amerana, Penny. 2007. Age Demands Action in Bangladesh: Progress on Implementation Plan of Action on Aging (MIPAA). Help Age International.
3	Bangladesh Health Watch. (2016). Bangladesh Health Watch Report.
4	Bangladesh Health Watch. (2016). *Non Communicable Diseases in Bangladesh – Current Scenario and Future Directions*. Bangladesh Health Watch Report.
5	Barikdar, A., Ahmed, T., & Lasker, S. P. (2016). The Situation of the Elderly in Bangladesh. Bangladesh Journal of Bioethics. 7(1), 27-36.
6	Barkat, Abul. Rowshan Ara, Abdus Sattar, Avijit Poddar and Tofazel Hayan Onneshan Policyossain. (2003), Chronic Poverty Among Older People in Bangladesh, Human Development Research Centre (HDRC).
7	Begum, Anwara. & Mahmood, R. A. (2017). *Healthcare in Bangladesh – Skill Gaps of Nurses and Medical Technicians*. Bangladesh Institute of Development Studies.
8	Begum, Anwara. and Rizwana Islam, 2019, An Inclusive Approach to Care of the Elderly in Bangladesh", unpublished Research Endowment Fund (REF) report of BIDS.
9	Cherry, N., Chowdhury, M., Haque, R., Macdonald, C., & Chowdhury, Z. (2012). *Disability Among Elderly Rural Villagers: Report of a Survey from Gonoshasthya Kendra, Bangladesh*. BMC Public Health. 12(1), DOI:10.1186/1471-2458-12-379.
10	Fleischer, Annett. 2010. Population Dynamics in Bangladesh: A Case Study on the Causes and Effects of Demographic Change in Bangladesh. GTZ. Germany.
11	Government of the People's Republic of Bangladesh, National Social Security Strategy (NSSS) Planning Commission of the Ministry of Planning
12	Government of the People's Republic of Bangladesh*; Mata Pitar Bhoron Poshon Aain-2013;* Law 49; Legislative and Parliamentary Affairs Division*,* GoB*.*
13	Hossain, M. M. (2016). *Projection on Elderly Population in Bangladesh*. Jahangir Nagar University Journal of Science. 39(1), 1-9.

14	Kabir, R., Kabir, M., Ferdous, M. S. N., Chowdhury, M. R. (2016). *Elderly Population Growth in Bangladesh: Preparedness in Public and Private Sectors*. IOSR Journal of Humanities and Social Science. 21(08), 58-73, DOI:10.9790/0837-2108025873.
15	Kabiruzzaman et al. (2005-2006). Evaluation Report of Older Citizen Monitoring Project (OCMP).
16	Ministry of Health and Family Welfare (MOHFW), *Health Bulletin*, different issues.
17	Nursco. (July 2018). *History of Nursing – How it evolved?*
18	Rahman, K M. Mustafizur. 2000. Unnayan Onneshan Policy Brief on Present Social Context and Elderly Population in Bangladesh. Dhaka.
19.	Rajan
20.	WHO. (2020). *State of the World's Nursing, Investing in Education, Jobs and Leadership*.
21	WHO. (February 2017). *Mapping of Health Professional Education Institutions in Bangladesh, Bangladesh*.
22	WHO. (July 2018). *Health SDG Profile: Bangladesh*.

Appendices

LIST OF KEY INFORMANTS-32 Key Informant Interviews.

Sl.	Name	Designation
1	Mr. Nawshad Pervez	General Manager and Head of HR, Square Hospitals
2	Dr. Tahsin Salam	Head of HDU, Ibn Sina Hospital
3	Brig Gen. Dr. A K Mahbubul Hoque	Director, BSMMU
4	Sandhya Chakravorty	Matron, Shadar Hospital, Chittagong
5	Dr. Arifa Akhter	Emergency Medical Officer, Sylhet Osmani Medical
6	Ms. Asha Lata Devi	Head of HR, Max Hospital, Chittagong
7	Dr. Anjuman Ara Islam	General Secretary, Maa O Shishu Hospital, Chittagong
8	Ms. Shinu Rani Das	Prinicipal of Nursing Institute, Maa O Shishu Hospital, Chittagong
9	Dr. Margub	Chief Executive Officer, Impulse Hospital
10	Dr. Riyad Nasir Chowdhury	Chief Medical Officer, Ayesha Memorial
11	Dr. R.M. Samiul Hasan	Chief Executive Officer, JBFH
12	Kazi Rafiqul Alam	Deputy Director, Ayesha Memorial
13	Md. Faysal Uddin	Head of HR, Ayesha Memorial
14	Ms. Ziban Nahar	Head Trainer, BIRDEM
15	Dr. Farah Noor	Senior General Manager, Medical Services, Asgar Ali Hospital
16	Ms. Shuriya Begum	Bangladesh Nursing and Midwifery Council
17	Ms. Pronita Rani Raha	National Midwifery Officer, UNFPA
18	Lt. Col. Dr. Abdur Rahman	Deputy Director, Green Life Medical College and Hospital
19	Dr. Zafrullah Chowdhury	Founder of Gonoshasthaya Kendra
20	Dr. Prof. M A Rashid	CEO, BIRDEM
21	Brig. Mohsin	Head, CMCH
22	Mr. Masum-ur H Sardar	Manager and Head of HR, Popular Diagnostic Hospital
23	Dr.Sayed Refayet	Country Director, IPAS
24	Dr Abu Altaf Hossain	CEO, Northern Hospital and Founding Member of United and Asgar Ali Hospitals
25	Dr ATM Nazrul Islam,	Deputy Director, Central Hospital
26	Dr MonowarulSadeque	Deputy Director, Specialized Hospital
27	Nurse Syeda Rina Khanum	Nursing Supervisor
28	Mr Shafiqul Islam,	Manager, IBN Sina Diagnostic, Dhanmondi 9/A
29	MrShafiqur Rahman	CEO, Medinova, Dhanmondi
30	Abu Anis Khan	KPJ Sheikh Fazilatunessa Memorial Hospital
31	Dr Fatema Johora	Boguar Armed Force Medical College
32	Lt Col Dr. Abdur Rahman	Mother care Hospital

Key Informant Interviews

	1	2	3	4	5	6	7	8	9
Shortage of nurses in Numbers	4.5 lacs	5lacs	2 lacs	4 lacs	4.5 lacs	4.5lacs	4.5lacs	5lacs	4.5lacs
Acceptance of WHO Standards, to fit Bangladesh situation	Depends on the type. 1:1 for critical care and 1:4 for general ward	No, optimum is 1:4	No, optimum is 1:4	No, optimum is 1:4	No, optimum is 1:3	No, optimum is 1:3	No, optimum is 1:3	No, optimum is 1:3	No, optimum is 1:3
Institutional facilities for nurse training have failed	Accommodation, Logistics are lacking. Non-conformity to regulatory requirements.	Low standard of classes. Very low investment and spending on the healthcare sector.	Satisfied with the training provided, hence no comments	Institutes do not give adequate scope for practical training. 50% of coursework must be practical training	Has improved recently but needs to improve further	Practical training and computer training facilities lacking	Institutes train but do not offer the full facilities to the nurses to get practical orientation, Low investment in healthcare sector.	Courses must be updated. Curriculum must be improved.	Lacks practical training and knowledge
Benefits of further training and certification	Benefits are low hence nurses are not motivated to take further training.	System must be changed to bring about upward mobility	It helps with promotions but more importance is given to experience.	Gives the nurses more confidence in doing their work. It sometimes results in upward	Extra certificates do not result in upward mobility	Extra certificates do result in upward mobility	Certificate does not always ensure upward mobility	Extra certificates do result in upward mobility	Their skills cannot be utilized properly by medical institutes, hence no upward mobility

				mobility.					
Ideas for fixing gaps in skills of nurses	Improve curriculum and provide holistic on the job training.	Better planning is required and the doctor nurse relationship must be improved	Encouraging nurses with higher grades and salary increase	Improve Doctor-nurse relationship, ensure better planning and monitoring.	Encouraging nurses with higher benefits.	Implementation of training is very important	Training own nurses in nursing institute	After qualifying must be kept at least 1yr on service. Technological competency must be assessed.	Properly planned training
Policy Recommendations	Provide more training at all levels, develop mid-wife paramedics and senior staff nurses.	Coordination from the union level is necessary. Management structure is very outdated.	Behavior and communication training are a must. Computer training must also be provided.	Salary and benefits must be enhanced.	Community health should be included. Behavioral training needed.	Behavioral improvement of nurses to ensure therapeutic communication so that patients feel at ease.	Patient dealing capacity must be increased. Knowledge about new diseases must be increased.	Provision of simulated training programs	Behavioral training is imperative. More people with scientific backgrounds should be included.

1=Birdem+Bangladesh Specialized; 2=Gonoshastho+BSMMU+IPAS; 3=Square+Ibn Sina; 4=DMC+CMCH; 5=BNMC+UNFPA; 6=Chittagong+Rajshahi; 7=JBFH+Medinova+ Bangladesh Medical College; 8=Green Life+AsgharAli+Popular+Northern; 9= Universal /Ayesha Memorial+Others

Issue	1	2	3	4	5	6	7	8	9
Category of nurses facing skill shortage	ICU; NICU; CCU especially Cardiac; Dialysis; CT for Cardiac Surgery; Oncology; Emergency; Transplant nurses, Physiotherapy nurses; Gastro Procedure Nurse	ICU, HDU, CCU, Emergency, Cardiology, Gynecology, Pediatrics, ENT+Eye, Medicine	CC, Cardiac, Surgery, Oncology	Cardiology; Gynecology; Pediatrics; Emergency; ICU; Medicine	Gerontology, ICU, Dialysis, Cardiology, Critical Care, Oncology, Pediatrics	Emergency, CCU, ICU, Pediatrics, Behavioral Skills	Emergency, Gynecology, Trauma,CCU, ICU, NICU, CCU, HDU	Emergency, Burn, ICU, CCU, Infectious diseases, dialysis	Transplant; Dialysis and Infection Control, non-communicable diseases; ICU; PICU; NICU
Possible reasons for skill shortages	Not enough practical training. Nurses possess basic HSC which is too low to develop educated minds.	Not enough candidates of particular skill; compensation package is poor; differences in benefits offered by public and private sectors	Compensation package is poor; lack of required training facilities; inadequate supply of required skills	Not enough candidates of particular skill; compensation package is poor; lack of job satisfaction; poor nursing curriculum	Specialized people are not being utilized properly. Mismatch of skill and work. No rewards for further skill enhancement.	The whole nursing system is faulty. Promotion is slow and non-motivating. Compensation is poor. Not enough practical training	There are not enough candidates with the skills that are needed. Their salary package is poor and they lack job satisfaction. Training institutes train nurses but not well enough.	Not enough candidates of particular skill; compensation package is poor; lack of job satisfaction; High Cost of Services;	Low salary and other benefits; social stigma; cultural Prohibitions. Shallow and non-professional curriculum. Negligence from both policy makers and nurses.

Total shortage in numbers or high turnover rate	Total absence of skilled nurses. Turnover rate is high too because of salary.	Mostly a shortage in numbers.	High turnover rate is the main issue	Both have an impact	High Turnover	Shortage in number is more	Shortage in number is more responsible but turnover rate also plays a role.	Total shortage of skilled nurses has a bigger effect.	Shortage in number of nurses has more of an affect but high turnover rate is also a problem.
Consequences of skill shortage	Poor Quality healthcare services provided; High cost of services; overwork for existing staff as the entire hospital is using software, so load of work is more.	Poor Quality healthcare services provided	High cost of services; overwork for existing staff	Poor quality of healthcare service provided; Substitution of low skill for high skills; Slow progress in the health sector.	Poor Quality healthcare services provided	Poor quality healthcare service provided. Communicati on gap with patients, patients are not getting the service they deserve	Non-compliance of regulatory requirements due to poor quality and lack of nurses, who do not possess the skills required and thus trained senior staff have to bear the burden.	Substitution of low skill for high skills;Slow progress in the health sector; Poor quality of healthcare service provided.	Poor Quality healthcare services provided
Management Issues: Benefits; salary,	The government basic salary has created problems for the private sector as comparably private sector cannot	Salary and benefits are not up to the mark	There's a lack of planning, toxic employees are burdensome Lack of Planning	Salary improveme nt is needed. Attendants create problems in ICU	A person's job fit is not ensured. Bridging personal interest with professional interest.	Specialization skills cannot be utilized properly by medical institutes due to a lack of person job fit.	Benefits package is not well planned.	There should be standardized pay-scale and scope for training in specialization which can be offered by DGH.	Negligence from managemen t and policy makers. Disparity in wages.

	afford. So, the salary being paid is not too high.								
Quality of nurses/Behaviour etc.	Counselling must be taught, Nurses don't know how to behave	Does not know how to communicate with patients effectively	Properly educated with good communication skills .Need to have proper knowledge of diseases and a good attitude	They lack interpersonal and computer skills	Lack behavioral skills	Nurses lack communication skills. Their attitude is poor. Does not know the art of therapeutic communication. Their behavior is poor	Etiquette and communication, hygiene knowledge, counselling skills are all lacking in nurses.	Nurses lack a proper attitude. They have very little communication skills. Must be trained in English and technology usage.	Their language, mindset, attitude should be built up. Character building is necessary.
Specialization needed: present	ICU; NICU; CCU	ICU	Chemo, Oncology	Critical Care Unit; Dialysis Unit; Burn Unit; Emergency	Geriatric Care, Cardiovascular, Oncology, Dialysis Nurses, CMR, Gender Based Violence Patient treatment	Pediatrics, Cardiology, ICU, CCU	Emergency Management, ICU, CCU	ICU, CCU, Operation Theatre; Post-Operative; Dialysis Unit; Cardio Thoracic Experienced Nurses, Burn, Emergency	Mental, Rehabilitation, Gerontology Care, Dialysis, CCU, ICU, Burn, Wound Management, Plastic Surgery

Specializations for the future:	Organ Transplant Nurses	OT, Dialysis nurses	CCU, Dialysis nurses, ECG and Cardiac Monitoring, Infection Control; soft skills , subject wise training, hematology, trauma, neurosurgical ICU	Oncology; Cardio and Pediatrics	CMR (Clinical Management of Rape), Adolescent Health, Infectious Diseases, Gender Based Violence.	Cardiology, Medical, Neo-Natal, Peri-Operative, Burn, Dialysis, Community Health, Rehabilitation , Surgical, ICU	30% geriatric care, 20% emergency, 20% infectious diseases, 30% chronic systematic diseases.	Surgical, Oncology, Dialysis; Neonatal; Cardiac; ICU; CCU	Medicine; Surgery; Pediatrics; NICU; Gynecology; Neuro; CCU, PICU,