

The State of Health in Bangladesh 2007



Health Workforce in Bangladesh

Who Constitutes the
Healthcare System?

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HEALTH WORKFORCE IN BANGLADESH **Who Constitutes the Healthcare System?**

Bangladesh Health Watch

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FOREWORD

I am extremely pleased and honoured to introduce the Bangladesh Health Watch Report 2007. This is the second report put forward by Bangladesh Health Watch (BHW) since the inception of this civil society initiative in 2006. The work of civil society in any country is critical to the development process. The civil society engages the concerned people/ organizations, sets the agenda and prioritizes it in accordance with the needs of the country rather than just following those that are dictated from outside. There has been a dramatic increase in the capacity of the civil society organizations in Bangladesh to understand, analyze and make an influence on the stakeholders. The Bangladesh Health Watch, the Education Watch, and the Governance Watch are proof of a vibrant civil society.

In the last year's report BHW focused on the inequities in health that are so pervasive in our society. The human resource dimension of inequity remains a particularly daunting one. The persistent shortage of skilled professionals in rural areas and for the urban poor remains one of our most fundamental challenges. The chronic shortage of well trained health workers is not just felt in developing countries but is a global phenomenon. International agencies have been greatly concerned over the growing shortages of skilled workforce as their production rates are not keeping pace with the growing demands in health services. In fact, one of the major constraints identified for achieving the Millennium Development Goals is the lack of qualified healthcare providers in sufficient numbers and with appropriate skills.

The quality of any health care service is only as good as its practitioners. The continuing increase in the demand for health services is putting tremendous pressure on healthcare providers thereby compromising quality. Bangladesh has a huge variety of healthcare providers ranging from qualified doctors, nurses, technologists to traditional, semi or unqualified, informal providers. To go by the international standards of qualified healthcare providers per population is a tall order that is neither possible nor necessary for Bangladesh. This study has established once again the plurality of the health system in this country. But do we recognize this? Ninety five percent of the providers are in the non-State sector but there is hardly any recognition of this in the national policies. Investments from the government and donors in the form of multi-billion dollar mega projects are all in the state system. Can this help improve the health system in totality and help us reach the relevant millennium goals? As Rabindranath Tagore wrote:

সমস্ত শরীরকে প্রতারণা করিয়া কেবল মুখেই যদি রক্ত সঞ্চার হয়, তবে তাহাকে স্বাস্থ্য বলা যায় না।

(Unofficial translation: "If blood is supplied just to the face depriving the rest of the body, it cannot be called good health").

The non-State sector has to be recognized as an integral part of the healthcare system and their capacity need to be enhanced as such for them to play a more constructive role in the society. However, rapid mushrooming of unregulated informal healthcare providers and their negative aspects should not be ignored either. Our experience with training of Shasthya Shebika or community health workers for preventive and curative primary health care has shown that they can be very effective when trained and managed properly, particularly in reaching the services to the poor and women.

I must congratulate Bangladesh Health Watch to address the most crucial issue of lack of trained healthcare providers for this year's research. Analytical efforts such as this can help guide policy choices towards a viable and cost effective healthcare system. A report of this nature tells a story of effort and commitment by members of the Watch and the researchers who took upon the huge task of conducting the surveys at national level.

I am sure the various stakeholders will find this report useful.

May 2008

F. H. Abed
Founder & Chairperson, BRAC

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BRAC, Research and Evaluation Division took forward the daunting task of the national study on the density and profile of the Healthcare Providers and James P. Grant School of Public Health, BRAC University looked into the study on the quality of care while Research Training and Management International (RTM International) carried out the other two studies on selected healthcare providers and their supply.

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Bangladesh Health Watch

ACRONYMS

AITAM	Associates in Training and Management
ARI	Acute Respiratory Infection
BHW	Bangladesh Health Watch
BRAC	(formerly) Bangladesh Rural Advancement Committee
BNC	Bangladesh Nursing Council
CHW	Community Health Worker
CSBA	Community-based Skilled Birth Attendant
ESP	Essential Services Package
FPI	Family Planning Inspector
FWA	Family Welfare Assistant
FWV	Family Welfare Visitor
GK	Gonoshasthya Kendra
GOB	Government of Bangladesh
HA	Health Assistant
HCP	Healthcare Providers
HI	Health Inspector (HI)
HNPSPP	Health Nutrition and Population Sector Programme
HWF	Health Work Force
MA	Medical Assistant
MATS	Medical Assistant Training School (MATS)
MCWC	Maternity & Child Welfare Centre
MD	Doctor of Medicine
MDG	Millennium Development Goal
MA/SACMO	Medical Assistant/ Sub Assistant Community Medical Officer
MOH&FW	Ministry of Health and Family Welfare
NAP	Non-qualified allopathic practitioner
NCD	Non-communicable Diseases
NGO	Non-governmental Organisation
NSDP	NGOs Services Delivery Programme
OGSB	Obstetrical and Gynaecological Society of Bangladesh
PHC	Primary Health Care
PRSP	Poverty Reduction Strategy Papers
PSU	Primary Sampling Unit
RHC	Rural Health Centre
RMP/PC	Rural Medical Practitioner/Palli Chikitsok
SBA	Skilled Birth Attendant
TBA	Traditional Birth Attendant
TH	Traditional Healer
UHFWC	Union Health and Family Welfare Centre
UHC	Upazila Health Complex
UHFPO	Upazila Health and Family Planning Officer
UHFWC	Union Health and Family Welfare Centre
UN	United Nations
UPHCP	Urban Primary Health Care Programme
WB	World Bank
WHO	World Health Organization

OVERVIEW

Over the past two decades Bangladesh has witnessed remarkable improvement in certain health indicators; infant mortality and under 5 mortality rate. Of greater concern are the wide disparities in health that are seen across the country. Bangladesh Health Watch, a civil society voice, in its first report of 2006, 'Challenges of achieving equity in health', brought the issue of inequity and social justice to the forefront of policy development for health.

The importance of investing in human resources for health has been reiterated globally which state

Bangladesh Health Watch in this year's report explores the issues related to human resources for health

in no uncertain terms that the route to achieving the health MDGs is through workers; there are no short cuts. There is a severe shortage of skilled health workers *in the places where they are most needed*. Further, workers must be supported by a strong and vibrant health system that enables their effective work

while ensuring equitable healthcare to all. The issue is an urgent one for Bangladesh, hence its choice for the second annual report of Bangladesh Health Watch.

This year's Bangladesh Health Watch report, the second to be published since its launch in April 2006, focuses on the health workforce in Bangladesh. Bangladesh faces all five challenges identified in a recent report from the Joint Learning Initiative on health human resources (JLI 2004). These are shortages, maldistribution of staff, skill mix imbalance, negative work environment and weak knowledge base. These issues need to be explored in greater depth for improved human resource planning and strategy development for the country. The *Bangladesh Health Watch 2007* report explores a subset of

these issues which are critical for Bangladesh and have high potential for impact on strategy development.

Bangladesh has a pluralistic health system and an issue of particular concern is the role of the non-State (or "private") health workforce. This includes both qualified and informal village doctors and traditional healers. Over 80% of people in Bangladesh turn to non-State sector providers, with informal providers a frequent first resort of uncertain quality. However, our knowledge of them is very limited. The World Health Report 2006 (WHO, 2006) acknowledged the absence of credible information on this sector world-wide and thus devoted their report to the public sector alone. Other important groups of front line workers are Community Health Workers trained by NGOs, and Skilled Birth Attendants (SBA) for safe motherhood and improved newborn survival who are being trained by different agencies. Then there are broader questions about each group of personnel, both public and private, in terms of quality, practice, production, training, attrition and motivation.

The Watch report examines selected issues of density, quality, practice, production and training for providers across the spectrum from formal to informal. The health workforce also consists of health management staff but this current study only covers healthcare providers (HCPs).

The report aims to document the present health workforce in the country in order to find out their strengths and weaknesses and put forward recommendations for improvement. It is for the first time that such a

Bangladesh has a pluralistic health system and an issue of particular concern is the role of the non-State (or "private") health workforce.

large national level survey is undertaken. It lays special emphasis on:

- The profile and density of healthcare providers (public, private, NGOs, qualified, informal)
- Quality of services provided by selected group of providers
- Training, production and future challenges for healthcare providers

Findings

Density/availability

Though unqualified providers are generally not considered as part of the health system, in reality they are the bulk of the providers. The study shows that on an average there are 146 healthcare

The study shows that on an average there are 146 healthcare providers of all types for a population of 10,000 in Bangladesh.

providers of all types for a population of 10,000 in Bangladesh. Of these, 56% are male and 44% female healthcare providers.

Qualified modern practitioners are only a small proportion of the entire workforce (5% of

all healthcare providers). The physicians, dentists and nurses together have a density of 7.7 per 10,000 population. Healthcare providers who are semi-qualified or unqualified are hardly considered as part of the health system. This study shows they are the dominant providers in Bangladesh. The largest group is the traditional healers who include Kobiraj, totka, herbalist and faith healers and have a density of 64.2 per 10,000 population. Next in order of numbers are the traditional birth attendants (trained and untrained) who have a density of 33.2 per 10,000 population. Another important group is the village doctors and rural medical practitioners who mostly practice allopathic system of medicine and have a density of 12.5 per 10,000 population. Sellers of allopathic medicine from drug stores have a density of 11.4 and community health workers who are mostly trained by NGOs and practice allopathic system have a density of 9.6 per 10,000 population.

There is considerable variation in the availability of healthcare providers of any type among various divisions. Barisal has the lowest number of health care providers (104 per 10,000 population) while Chittagong has the highest (189 per 10,000 population).

For the country as a whole there are around five physicians and two nurses per 10,000 population while there are 12 village doctors per 10,000 population and another 11 drug sellers per 10,000 population making the informal practitioners of modern medicine as major actors in the health systems of the country. The nurse to physician ratio is 0.4 only; numbers of physicians are two and half times of the nurses. The male female ratio among doctors is very striking with one female to 5.6 males. The pattern is quite reverse for nurses with nine females for one male.

There is a huge shortage of qualified practitioners. An estimate done by BHW 2007 based on the doctor-population ratio currently prevalent in low-income countries and the suggested three nurses and five technologists per doctor, Bangladesh has a staggering shortage of over 60,000 doctors, 280,000 nurses and 483,000 technologists! Shortage was also reported among other cadre of workers such as Family Welfare Visitors (FWVs).

Nearly half of the physicians (55%) and a large majority of the paraprofessionals (89%) provide services at the government facilities. On the other hand nearly half of the dentists (56%) and a large majority of the unqualified allopath providers (82%) and homoeopaths (78%) provide services at the drugstores.

Bangladesh has a staggering shortage of over 60,000 doctors, 280,000 nurses and 483,000 technologists!

The largest group is the traditional providers (Kobiraj, faith healers) who constitute 43% while qualified practitioners (doctors, nurses, dentists) constitute only 5% of total providers

The unqualified practitioners or drug vendors are the first level of healthcare providers accessed by mothers

Quality of services

The unqualified healthcare providers manage patients mostly with drug and advice, and sometimes with advice only. Advice for laboratory investigation is very rarely made by the unqualified allopathic practitioners. Forty-three percent of the qualified physicians and 18% of the paraprofessionals reported advising laboratory investigations for the patients.

Use of antibiotics for the treatment of fever was highest among the qualified physicians, village doctors and drug store sales people in the study (91%, 89% and 83% respectively) followed by allopathic para-professionals (77%), nurses (76%), and CHWs (30%). Use of amoebicides and antibiotics for treatment of diarrhoeal diseases was also common among the qualified physicians and other practitioners of allopathic medicine. Use

In-depth interviews revealed that mothers considered a service by the healthcare provider for their children as good or bad based on the efficacy of the treatment in curing the illness at less cost and in a short duration.

of antibiotics for the treatment of childhood pneumonia was universal among the qualified physicians and around 95% among the allopathic paraprofessionals and unqualified allopathic providers. Indiscriminate use of antibiotics and other drugs without proper investigation and referral as documented in the study can lead to complications such as

drug resistance. Prescribing unnecessary and expensive drugs to poor people who are already struggling to make ends meet pushes them deeper into poverty. The quality of care is further compromised as often the healthcare providers keep on trying different drugs hoping the child would get better. This leads to delay in appropriate treatment and may even prove to be fatal. Varied understanding on the efficacy of medicines among mothers and providers also leads to delay in care.

In-depth interviews revealed that mothers considered a service by the healthcare provider for their children as good or bad based on the efficacy of the treatment in curing the illness at less cost and in a short duration. Unqualified allopathic

practitioners, especially in the rural area, make home visits and follow up patients in the locality to monitor progress which was highly appreciated by the mothers. This was reported in the in-depth interviews with healthcare providers

The qualitative data also reveals that mothers make first level contact with unqualified allopathic practitioners or drug vendors or a homoeopath mostly for cost consideration as they only charge for medicines and not for the consultation. Also very important for the poor is the flexibility in the mode of payment for unqualified providers and homoeopath doctors which includes deferred payment and flexibility in terms of purchasing medicines. Mothers also prefer homoeopathic treatment over allopathic for young children for they perceive homoeopathic drugs as mild and allopathic as strong for young children.

The knowledge about and use of ORT/ORS for diarrhoea is widespread as found from the interviews with mothers and providers. In contrast, for pneumonia, caregivers remain confused about when to seek treatment and the appropriate use of drugs.

The total capacity of enrolment in the medical colleges is 4,816

Production of health workforce

Currently, the skilled workforce is produced in the following ways:

- There were 15 medical colleges in the public sector and 34 in the private sector at the time of the survey. The total capacity of enrolment in the medical colleges was 4,816 with 2,280 seats in the public sector medical colleges. A total of 2,656 doctors have been produced in the past year of whom more than 1,200 are from the public sector institutions.
- There is one medical university, Bangabandhu Sheikh Mujib Medical University, in the country. It offers post graduate degrees/diplomas in various medical fields. The total enrollment in the Post Graduate Institutes and PG Medical Colleges is 2,042. So far 10,411 doctors

There are 65 nursing training institutes in the country. However, only the government College of Nursing offers B.Sc. degree in Nursing

have earned their post graduate degree/diplomas. The Bangladesh College of Physicians and Surgeons (BCPS) is responsible for providing specialized degrees in a variety

of field. A total of 2,203 FCPS (Fellow of the College of Physicians and Surgeons) and 1,595 MCPS (Member of the College of Physicians and Surgeons (MCPS) have been produced since their inception.

- Postgraduate degree in public health has been offered both by public and private institutes. In addition to NIPSOM, there are five public sector medical colleges and five private universities that have started MPH programme in the last three to five years. These institutes produce around 200 MPH graduates annually.
- There are 65 nursing training institutes in the country. Of them, 46 are run by government and 19 by private entrepreneurs. Every year a total of 2,280 students (1,790 in the government institutes and 490 in the private institutes) are admitted and around 1,200 qualify as diploma nurses. However, only the government College of Nursing offers B.Sc. degree in Nursing.
- Medical Assistants (MA) work at the upazila (sub-district) level and below in the public sector (called Sub-Assistant Community Medical Officer or SACMO) and provide curative health services in the absence of (or as assistants to) doctors. Currently, five Medical Assistants Training Schools (MATS) are functional and three have been closed down. During the survey there were 900 students in the MATS with a yearly

The FWV trainings were started in 1970s but have been terminated since 1997

intake of around 300, a majority of them being males.

- Family Welfare Visitors (FWVs) are part of the family planning activities and provide clinical contraceptives including menstrual regulation (MR) services from Upazila Health Complex and Union Centres. There are 12 FWV Training Institutes (FWVTI), based in district towns, which are managed by the National Institute of Population Research and Training (NIPORT). These training were started in the 1970s but unfortunately stopped doing any such training since 1997. This (termination of training) is a matter of great concern as the FWVs provide services mainly to women in rural areas.

- Health Technologists are produced by 32 Institutes of Health Technology (IHT). Of the 32, three are government institutes and the remainders are private. The intake of students in 2006 was 4,386 (1,011 in the government institutes and 3,375 in the private institutes). In 2007, 282 students from private IHTs appeared in the final examination and 200 passed and qualified as Health Technicians.

Postgraduate degree in public health is offered both by public and private institutes. These institutes produce around 200 MPH graduates annually.

- Community-based Skilled Birth Attendants are trained for six months by the Obstetrical and Gynecological Society of Bangladesh (OGSB). The programme involves training of Family Welfare Assistants and female Health Assistants working for the government at the ward level. On an average 480 CSBAs are produced annually. Since the beginning of the programme in 2003, a total of 3,000 CSBAs have been trained from 216 upazilas.

Community Health Workers (CHWs) are mostly trained by the NGOs for whom they work. There are over 70,000 CHWs who work for BRAC alone.

- Community Health Workers (CHWs) work at the community level and make household visits for health communication and provide selected curative services. They also act as a link between the community and the health services. They are mostly trained by the NGOs for whom they work. There are over 70,000 CHWs who work for BRAC alone.

This level of production is clearly inadequate to meet the needs of the country. It is pertinent to ask some difficult questions. First, *is it time to rethink the skill-mix of health providers in Bangladesh?* Other countries have led the way, for instance, by training paramedic cadres successfully as anesthetists. Second, *does the current array of training and skills match the needs of the country?*

Informal providers are deeply rooted in their localities. We cannot keep pretending they do not exist.

The disease scenario for Bangladesh is changing very rapidly, including new or resurgent communicable diseases (e.g., dengue) and more non-communicable diseases. Bolder thinking is needed to tackle this question in Bangladesh.

Third, *how can the vast army of informal providers be most appropriately managed?* These providers are deeply rooted in their localities and will not go away. We cannot keep pretending they do not exist but need to think creatively about how to deal with this reality and both the positive and negative aspects of their practice.

Policy implications and recommendations

This report on Bangladesh's human resources for health provides some key messages for policy makers, organisations and citizens concerned about the state of our health services. Some of these are echoed in the recent mid-term review of the Health Nutrition and Population Sector Programme (HNPSP). ***Our first message is about how we understand the health system.*** The report shows that the informal sector is very much a part of the health system (they constitute 95% of the healthcare providers in Bangladesh!) catering to the needs of probably 80% of the population, particularly the poor and women. Despite providing the first line of care for most encounters

with health services, they are not part of the HNPSP and both government and donors ignore them. Some informal providers provide adequate care. Some provide unnecessary and even harmful medications, or fail to refer serious cases, thereby contributing to unnecessary death and impoverishment. All investments in health are made via HNPSP thereby systematically ignoring the non-State sector. We need to understand that the overwhelming majority of healthcare providers are informal providers with uncertain quality.

Our second message is that by international standards, Bangladesh has an absolute and relative scarcity of qualified medical personnel.

There is an overwhelming bias towards urban areas in the distribution of qualified personnel, while gaps elsewhere are filled by a combination of unregulated providers, pharmacies, para-professionals and trained community health workers. This raises important but, for some, uncomfortable questions about deployment of qualified personnel, their work conditions, training for the future health workforce and the role of State and non-State sectors.

Our third message is that there is a gross imbalance in the skill-mix of formally trained providers.

This is particularly a problem with doctor-nurse and doctor-technologist ratios which are hugely out of line with WHO suggested norms. The non-recruitment of FWVs for last 11 years jeopardizes the backbone of reproductive health services. In addition, we must rethink the country's requirements in the light of its changing health and disease profile in terms of different types of trained staff.

Our fourth message is that the number of people trained in public health is completely inadequate. Public and private training institutions in Bangladesh produce between them less than 200

It appears that the health human resources in Bangladesh is in a crisis situation. Huge shortages of qualified providers and presence of a huge body of unqualified providers with unknown quality are major issues. With a freeze in recruitment of new healthcare workers by the government, particularly in the field, the future of health in the country is in jeopardy

MPH graduates each year. Doctors working at upazila level are responsible for public health programmes but lack any training to implement them.

Our fifth message is that quality of care in both formal and informal sectors urgently needs improvement. There are few mechanisms to monitor and regulate quality in both public and private sectors, either through external assessments through routine monitoring and supervision or through continuing education. There continue to be major complaints about the availability and behaviour of doctors particularly in public facilities. Non availability of obstetricians and anaesthetists at the time of need, for example, hampers provision of emergency obstetric care. Other cadres may not be present or may not have sufficient skills. Across the system a major impediment to utilizing the qualified personnel the country has, is failure to provide minimum standard work conditions and remuneration, necessary supplies and equipment, adequate supervision and regular skills upgrading.

Recommendations

Understanding the health system and evolving health needs

- Reassess not only the supply of qualified providers but also their conditions of employment to encourage public service.
- Recognize the large and critical role the informal sector plays and develop appropriate strategies to manage and improve practices in this sector.

Scarcity and maldistribution of qualified personnel

- Address the urban bias of the health workforce through the provision of additional incentives (monetary and in kind) to doctors and other public sector providers for service in rural areas.
- Address the scarcity of doctors, nurses, technologists, FWVs and CSBAs by further encouragement to the private and NGO sectors to set up more training institutes and ensure

quality of training through stronger regulations, accreditation and certification.

- Reassess policies towards TBAs as they will continue to be important in delivery practices for the foreseeable future and see how they can facilitate and support the work of CSBAs, FWAs and FWVs.
- In the light of the growing numbers of women in the health workforce, incorporate gender issues such as security, childcare and maternity leaves more fully into human resource planning.
- Train more CHWs, particularly women, to provide treatment of common illnesses and conditions such as TB, pneumonia and diarrhoea. Address issues of remuneration and linkage with the formal health sector.
- Restart recruitment and training of additional family welfare visitors (FWVs) and medical assistants (MAs) as a matter of urgency.
- Develop a coalition between government, civil society and media to devise a strategy to address the stigma attached to the nursing profession.

Imbalance of skill-mix among formal providers

- Advocate for changes in the medical and other professions on appropriate skill-mixes for the country's current and future needs, for example to allow non-medical graduates to train as anaesthetists or perform caesarean sections as part of the programme to provide safe delivery down to local level.
- Standardize training and curricula in public and private sectors for different types of health worker, particularly health technologists and paramedics, and institute accreditation and certification processes.
- Encourage wider debate about the changing health needs of the country and what these mean for the number, type and distribution of health providers.

Lack of trained personnel in public health and management

- Carry out research on the successes and failures of previous training programmes in health management to inform future efforts.
- Assess the public health training needs at upazila level and below in the light of the current and future health problems. Explore possibility of creating a public health cadre service that will manage the public health functions thus letting the doctors perform the clinical duties more effectively and exclusively.
- Increase resources for public health training and work towards a goal of nation-wide MPH training for all upazila level doctors and other officers over the next 5-10 years through a joint effort by government and private universities. Make MPH a requirement for staff to become upazila health and family planning officers, in case creation of a separate cadre is unfeasible.
- In the interim, develop a short, intensive public health training programme with a special emphasis on public health management at the upazila level.

Improving the quality of care among formal and informal providers

- Address management issues in the public sector in both the short and long-term, particularly absenteeism, inappropriate behavior towards clients and lack of devolved responsibility to facilities which leads to poor motivation.
- Improve technical quality of care in the formal sector by introduction of compulsory continuing medical education as a condition for remaining registered.
- Convene a national task force representing all stakeholders to recommend a policy on improving the quality of informal providers through training, registration and licensing.
- Systematise existing training programmes and provide further programmes to informal providers on minimum levels of acceptable care, including appropriate drug use, prevention of drug resistance, routine curative care management and referral of complex cases.
- Develop nation-wide counseling services for mental health and trauma sufferers, and women and child victims of violence.

The Health Indicators: Making Progress

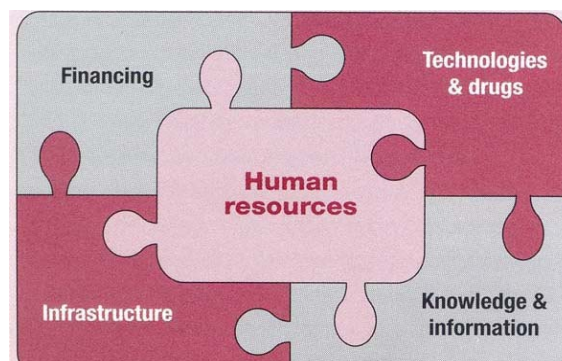
Bangladesh has made significant progress in recent times in many of its social development indicators, particularly in health. The recent Bangladesh Demographic and Health Survey (BDHS 2007) has documented further improvements. The infant mortality rate has more than halved since independence (52 deaths per 1,000 live births between 2002-2006), as has the total fertility rate (from 6.3 births per woman in 1971-75 to 2.7 births in 2004-2006). During the same period life expectancy has increased by over 50%. More importantly, this improvement has favoured a few select groups in the population who have hitherto been neglected (Bhuiya et al., 2001, Chowdhury and Bhuiya, 2001). They include women, people living in rural areas and the poor. For example, the gender gap in life expectancy that traditionally favoured men has now disappeared (Bhuiya et al., 2006). However, there are many more challenges that need to be addressed. The improvement pace in terms of the indicators needs to continue and be fast tracked. Maternal and neonatal mortality remain as major challenges. Pnuemonia is now the major killer of children after the country has been able to successfully control deaths due to diarrhoea through widespread use of oral rehydration therapy (ORT). There are also new and re-emerging conditions that need to be given attention. The 2006 report of the Bangladesh Health Watch (BHW) documented the achievements but also drew attention to the many inequities that remain in the health sector. It concluded that the country did make progress but some of these progresses were uneven (BHW 2006). There still exist huge inequalities between different groups and geographical regions. The

total fertility rate for Sylhet division, for example is almost double of Khulna division (3.7 vs 2.0) according to BDHS 2007. For countries like Bangladesh, according to the UN Task Force on MDGs 4 and 5, reaching the Millennium Development Goals would mean a paradigm shift in the way that health services are delivered. More of the same would not be enough to reach the goals (Freedman et al., 2005). A major constraint identified towards reaching the MDGs and other national health goals is the issue of the health workforce. This includes their production, training, practice, attrition and motivation.

The Health Workforce

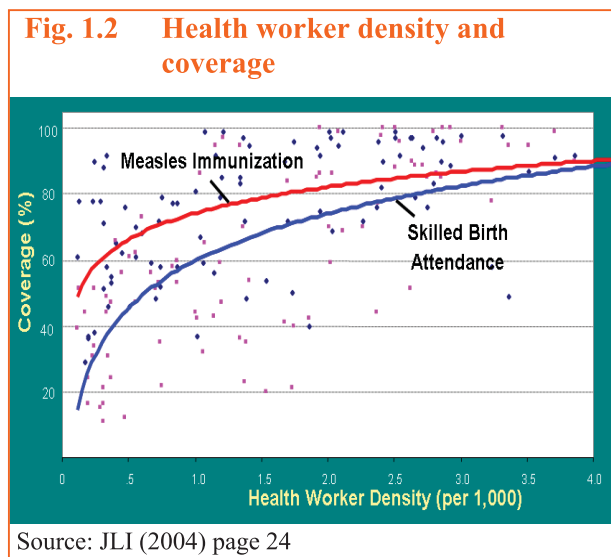
For any health system, health workers are the most critical driving force. They are the ultimate resource for promoting health, preventing disease and curing sickness. Money, drugs, infrastructures are needed but they demand a motivated, skilled and supported workforce. People, not just vaccines and drugs prevent disease and cure illness. Workers are active, not passive agents of health change. Health workers spearhead and glue together the health system. (Figure 1.1)

Fig. 1.1 The glue of the health system



Source: JLI (2004) page 22

In many countries including Bangladesh they command three-fourths of the health budget. There is much evidence to suggest that worker numbers and quality are positively associated with gains in health. The density of workers in a population is closely associated with some of the key health MDG indicators. For example, the prospects for achieving 80% coverage of measles immunization and skilled birth attendants at birth is improved where density exceeds 2.5 workers (doctors, nurses and midwives together) per 1,000 population (Figure 1.2)



Similarly, the worker density is related to maternal, infant and under-5 mortality (Figure 1.3) (JLI, 2004). According to the World Health Report 2006 which dealt with the issue of health workforce, Bangladesh has a density of 0.58 workers (doctors, nurses and midwives together) per 1,000 population (WHO, 2006). Bangladesh is among the countries with ‘severe shortages’ of health workforce. The quality of doctors and density of their distribution have been shown to correlate with positive health outcomes. In many African countries, as a result of the reforms which led to retrenchment of many health workers, malnutrition increased (WHO, 2006). ‘In health systems, workers function as gatekeepers and navigators for the effective, or wasteful, application of all other resources such as drugs, vaccines and supplies’ (WHO, 2006).

According to the WHO report mentioned above, ‘Health workers are all people primarily engaged in actions with the primary intent of enhancing

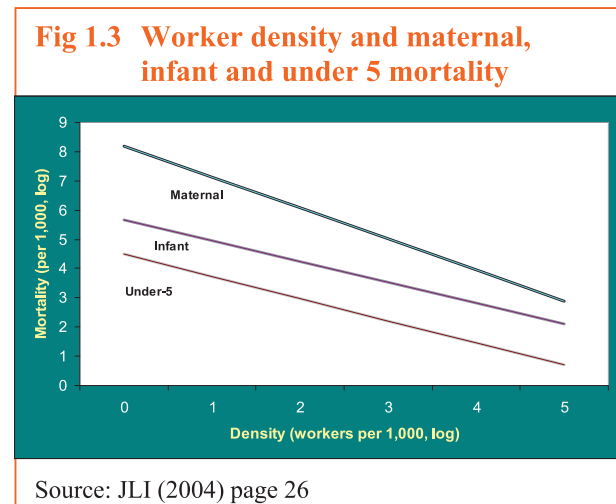
health’. Compare this with the WHO definition of health systems which is ‘all activities with the primary goal of improving health’. There are two types of health workers: *Healthcare providers* (which constitute about two-thirds of global workforce) and *health management and support workers*. These workers are found in both government and non-governmental (private and NGO) sectors.

Challenges for Health Workforce (HWF) Planning

The Joint Learning Initiative on Human Resources for Health (JLI, 2004) identified five key challenges for health workforce. These are:

Shortages: There is a huge shortage of health workforce (HWF) globally. It has been estimated to be about four millions, with Africa needing a million new workers for it to reach the MDGs. As mentioned above, if the magic number is 2.5 workers per 1,000 population for the health system to perform optimally, Bangladesh has only 0.58. In terms of skilled birth attendants (SBA), only 18% births are now attended by them requiring training of huge numbers of new SBAs in the near future to attain the MDG target. Fortunately, there has been a number of initiatives in Bangladesh that address such shortages which includes setting up of medical colleges in private sector, training programme for SBAs and training of a huge number of community health workers by NGOs such as BRAC and Gonoshasthya Kendra.

Skill mix imbalance: It creates huge inefficiency. The JLI (2004) suggested that countries should



revamp their health systems towards a workforce that more closely reflects the health needs of their populations through deployment of auxiliary as well as community workers. The doctor-nurse ratio is a case in point for Bangladesh. While the suggested ratio is 2 or 3 nurses for each doctor, the situation in Bangladesh is just the reverse or even worse.

Maldistribution and migration: Nearly all countries suffer from a maldistribution of workforce exacerbated by migration, both internal and international. The concentration of the health workforce in urban settlements is a problem everywhere including Bangladesh. The lower density of workers in some of the low performing districts including Sylhet is all too well-known. Also, like several other countries of South Asia, majority of the doctors are male and nurses are female. But for alternative providers, almost all are male except the community health workers trained by NGOs who are female. Migration to other countries is mostly restricted to doctors. Of the MBBS graduates of 1985, 28% are reported to have migrated to other countries, mostly in the North (Peters et al., 2003).

Negative work environment: The JLI recommended that the negative work environment be improved by scaling up good practices and listening to the voice of the health workers. Such negative environment is a disincentive for healthcare providers to perform to their best potentials. The disincentives include, among others, low salary, lack of reward/reprimand, inadequate clinical/ residential facilities, physical/ social insecurity, lack of supportive supervision and opportunities for continuing education.

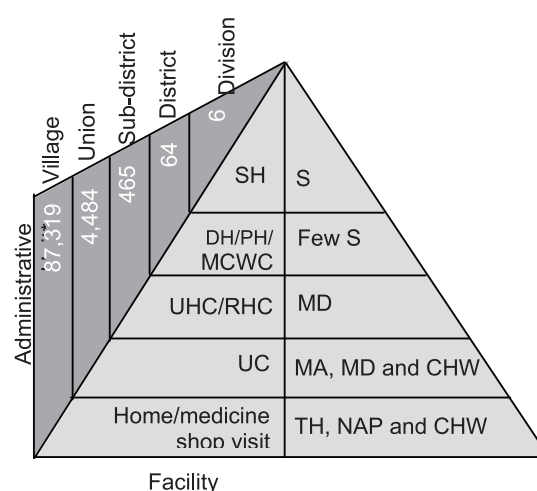
Weak knowledge base: The poor knowledge base about the workforce hampers planning, policy and programmes. The Human Resources Development Unit at the Ministry of Health and Family Welfare of the Government of Bangladesh has in recent times undertaken some studies to increase our knowledge base. These included review of higher and other education in health through the formation of seven task forces (GoB, 2003), a study on private sector providers (Peters, 2003) and a study on the skill-mix requirement under the Essential Services Package of the government (Barakat et al., 2003).

Since the publication of the JLI report 2004, there has been increased interest in the issue of health workforce worldwide. The WHO devoted their 2006 report on health workforce. A Global Health Workforce Alliance (GHWA) has been formed which held its first 'Global Forum on Health Resources' in Kampala, Uganda in March 2008. Other initiatives that have been started include the 'Task Force for Scaling up the Education and Training of Health Workers', 'Health Worker Migration Global Policy Advisory Council' and 'Health Financing Taskforce', among others.

The Health System in Bangladesh: A Case of Medical Pluralism

Like most transitional societies, a wide range of therapeutic choices are available in Bangladesh, ranging from self-care to folk and western (allopathic) medicine (Ahmed, 1993). The public sector is largely used for in-patient and preventive care while the private sector (a heterogeneous group differing in their training, legal status, system of medicine used, and type of organization) is used mainly for outpatient curative care (World Bank, 2003). Fig 1.4 presents a graphical picture of the health hierarchy in Bangladesh.

Fig. 1.4 Health hierarchy in Bangladesh



Source: Paul, 1999

TH=Traditional healer, NAP=Non qualified allopathic practitioner, CHW=Community Health Worker, UC= Union Health and Family Welfare Centre, MCWC= Maternity & child welfare centres, MA= Medical assistant, MD= Doctor with graduate degree, UHC= Upazila health complex, RHC= Rural health centre, DH= District hospital, PH= Private hospital, S= Specialist, SH= Specialised hospital

* There are an additional 42 sub-districts in the four city corporations
Source: Ahmed 2005

The Public Sector

The primary care in the public sector is organized around the Upazila Health Complex (UHC) at sub- district level with in-patient (31 beds) and basic laboratory facilities, Union Health and Family Welfare Centre (UHFWC) at union level supported by two or three sub-centres at the lowest administrative level, and a network of field-based functionaries (GoB, 1998). The public sector field level staffs are comprised of Health Assistants (HAs) in each union who supposedly make home visits every two months for preventive healthcare services, and Family Welfare Assistants (FWAs) (females) who supply condoms and oral contraceptive pills during home visits. Recently, some of the female HAs and the FWAs have been trained as birth attendants, SBAs, to provide skilled services in home delivery. The number of Health Assistants and Family Welfare Assistants are determined according to the size of the population. The Health Assistants and the Family Welfare Assistants are supervised by a Health Inspector (HI) (male) and a Family Planning Inspector (FPI) (male) respectively, posted at the union level. The UHC is staffed by ten qualified allopathic practitioners and supporting staff, while the UHFWCs are staffed by paraprofessionals such as a Medical Assistant (MA/SACMO) and a mid-wife (Family Welfare Visitor), both trained in formal institutions (Annex 1). While the Upazila Health Complex (UHC) provides both inpatient and outpatient care, the Union Health and Family Welfare Centres (UHFWCs) provide only outpatient care.

Above the sub-district are the district hospitals (100-250 beds) and medical colleges (serving a group of districts with around 650 beds) providing secondary care, and national tertiary level facilities. There is also a high level of ‘unfelt’ need among visitors to primary health care (PHC) facilities (Mercer et al., 2005). A usual phenomenon is the imbalance in service utilisation at public health facilities: there is low utilisation of most facilities at the primary level (Upazila and below) and overutilisation of facilities at the secondary and tertiary levels, i.e. district and teaching hospitals (Mahmud, 2004).

The Private Sector

In the private sector, there are traditional healers (kaboraj, totka, faith healers like pir/fakirs), homoeopathic practitioners, village doctors (rural medical practitioners RMPs/*Palli Chikitsoks PCs*), community health workers (CHWs) and finally, drugstores that sell allopathic medicine on demand (Annex1). In addition to dispensing medicine, sellers at these mostly unlicensed and unregulated retail outlets also diagnose and treat illnesses despite having no formal professional training. All of these informal providers are deeply embedded in the local community and culture, easily accessible, and providing inexpensive services to the villagers with occasional deferred payment and payment in kind being accepted instead of cash. According to Cockcroft et al. (2007) the whole group of ‘unqualified practitioners’ (including the RMPs/PCs) in the private sector is responsible for providing 60% of treatment services in rural Bangladesh. To this is added an emerging cadre of semi-qualified community health workers/volunteers, who are formally trained by the NGOs (such as BRAC, Gonashasthya Kendra etc.); their numbers have been increasing since the 1990’s with the expansion of the PHC infrastructure in the country. BRAC alone provides healthcare services through 70,000 CHWs which has reached this level steadily in recent years.

Traditional Medicine

Grouped under “traditional medicine” are most of the medical practices that fall outside the realm of ‘scientific’ medicine. Thus, Kabiraj, totka, herbalists, practitioners of ‘Folk Medicine’ and faith healers (e.g., pir, fakir etc.) of different shades fall under this broad umbrella (see Annex 1). Many of these healers (e.g., faith healers) provide a much narrower range of services for a more limited set of conditions. However, traditional systems of medicine has been declining and currently occupy a very marginal position in the formal health system of Bangladesh and it is not provided through mainstream health facilities (Cockcroft et al., 2007).

The Bangladesh Health Watch: A Civil Society Initiative

During 2005-2006 a number of professional and civil society organizations came together to discuss the possibility of creating a civil society network to regularly and systematically measure and monitor the country's progress and performance in health. It was felt that health is a critical national concern and citizens groups ought to take an active interest in health policy formulation, implementation, monitoring and oversight. Further, it was argued that creating a broader citizens' understanding of the challenges and choices that Bangladeshis face, would contribute to a more democratic discussion and debate about the national policy/programme options. As a result Bangladesh Health Watch was launched in April 2006. It was decided that the 'Watch' would annually publish a report on 'State of Health in Bangladesh' focusing on different themes each year and would also report on the performance of key indicators on a continuing basis.

The Bangladesh Health Watch is governed by an advisory board consisting of preeminent personalities in the field of development, particularly health. A Working Group consisting of researchers and activists from different organizations carry out the different activities for the Watch. The Secretariat is located at the BRAC University James P. Grant School of Public Health.

The theme of Bangladesh Health Watch report for 2006 was 'Challenges of Achieving Equity in Health'. The theme was chosen because in the recent years health inequities have emerged as a major challenge for Bangladesh. The continuing gaps in health conditions and health care consumption between the rich and the poor, men and women, urban and rural residents, upper income and slum dwellers, dominant Bangalees and ethnic minorities, and people living in the different regions of the country, have become a major cause of concern, particularly in the light of our national commitment to eradicate poverty and deepen democracy. This report attempted to identify the main fault lines of inequity: income, gender and place of residence. It has also tried to identify which inequities are the most persistent

and hence require the greatest policy attention. It also looked into the policy commitment and describes both achievements and limitations. Finally it drew lessons for wider application from selected successful initiatives in delivering services as well as holding the health system accountable. The report was formally launched in Dhaka, in December 2006 by Prof. Amartya Sen, Nobel laureate in Economics.

The Focus of this Report: Healthcare Providers

This year's Bangladesh Health Watch report, focuses on the health workforce in Bangladesh. As already discussed Bangladesh faces all the five challenges identified by the Joint Learning Initiative on health human resources (JLI 2004). These are shortages, maldistribution of staff, skill mix imbalance, negative work environment and weak knowledge base. These issues need to be explored in greater depth for improved human resource planning and strategy development. The report explores a subset of these issues which are critical for Bangladesh and have high potential for impact on strategy development.

Bangladesh has a pluralistic health system and an issue of particular concern is the role of the non-State (or "private") healthcare providers. This includes both qualified and informal village doctors and traditional healers. Around 85% of the people in Bangladesh turn to private sector providers, with informal providers a frequent first resort. However, our knowledge of them is very limited. The World Health Report 2006 (WHO, 2006) acknowledged the absence of credible information on this sector world-wide and thus devoted their report to the public sector alone. Other important groups of front line workers are Community Health Workers trained by NGOs, and Skilled Birth Attendants (SBA) for safe motherhood and improved newborn survival who are being trained by different agencies. Then there are broader questions about each group of personnel, both public and private, in terms of quality, practice, production, training, attrition and motivation.

Rather than ignoring informal providers, this 'Watch Report' examines selected issues of quality, practice, production and training for

providers across the spectrum from formal to informal. The health workforce also consists of health management staff, but this current study only covers healthcare providers (HCPs). The following broad areas have been addressed by the *Watch 2007* report.

1. The profile and density of healthcare providers (public, private, NGOs, qualified, informal)
2. Quality of services provided by selected group of providers
3. Training, production and future challenges for healthcare providers including:
 - Physicians
 - Nurses
 - Medical Assistants
 - Health technologists
 - Community health workers
 - Skilled birth attendants

Methodology

Unlike the previous Bangladesh Health Watch 2006, this year's report is entirely based on primary data, due to insufficient information

available in this area. This is the first time that such a large national survey is undertaken. The findings are based on four commissioned sub-studies using both quantitative and qualitative data and one study based on secondary data. These are:

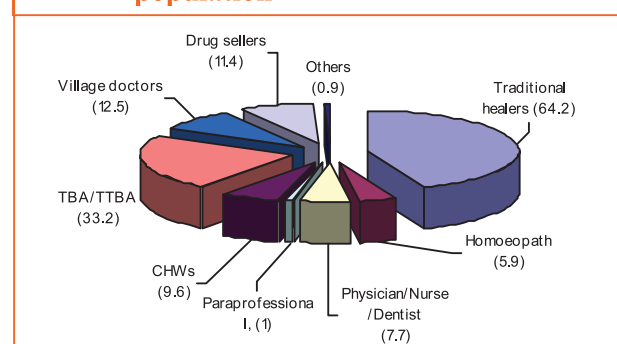
1. Sub-study I: Mapping of the health care providers in Bangladesh
2. Sub-study II: Caregivers and health care provider's perspectives on the quality of care in the context of childhood illnesses e.g. ARI and diarrhoea in rural and urban areas
3. Sub-study III: Study on the selected health service provider groups serving at the rural community level in Bangladesh
4. Sub-study IV: Training and supply of health workers in Bangladesh: An assessment of the current situation
5. Sub-study V: Situation analysis on qualified healthcare providers (Physicians)

The objectives of each study along with the detailed methodology is given in Annex 2.

Density of Healthcare Providers

On an average the study documented 146 providers per 10,000 population or almost 15 per 1,000 populations. However, one needs to be cautious in interpreting this figure. This includes all types of health providers as reported by the community people. Qualified modern practitioners including physicians, dentists and nurses have a density of 7.7 per 10,000 population. The largest group is the Traditional healers who include Kabiraj, totka, herbalist and faith healers and have a density of 64.2 per 10,000 population. Next in order of numbers are the traditional birth attendants (trained and untrained) who have a density of 33.2 per 10,000 population. The density of paraprofessionals (MA/SACMO, FWVs, lab technicians) is 1.0 per 10,000 population, village doctors and rural medical practitioners who mostly practice allopathic system of medicine have a density of 12.5 per 10,000 population. Sellers of allopathic medicine from drug stores have a density of 11.4 and community health workers who are mostly trained by NGOs and practice allopathic system have a density of 9.6 per 10,000 population.

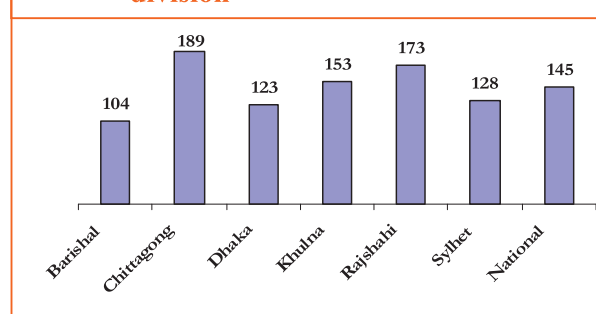
Fig. 2.1 Density of different types of healthcare providers per 10,000 population



The density of healthcare providers by geographical divisions is given in Figure 2.2. The density varies among the divisions quite significantly. The lowest number of providers is found in Barisal (104 per 10,000 population) and highest in Chittagong (189 per 10,000 population). Figure 2.3 shows that there are more male providers than females. Rural areas have a much higher density (170 per 10,000 populations) than urban areas (81 per 10,000 population) when all types of providers are considered (Figure 2.4).

Table 2.1 gives the distribution of different type of providers. It shows that traditional medicine practitioners (such as Kabiraj or herbalists, totka, and faith healers) and traditional birth attendants are the two most dominant groups of the total health workforce with 43.5% and 22.5% respectively. Qualified (MBBS or above) physicians constitute 3.7% of the providers. Village doctors (with some semi-formal training) and drug store sellers constitute 8.5% and 7.7% of the workforce respectively. At the aggregate level, doctors, nurses and dentists together represent only 5% of the total currently active health care providers in Bangladesh. There is also a huge urban-rural difference in the presence of different

Fig. 2.2 Distributions of healthcare providers per 10,000 population by division



provider groups. Only 16% of the total qualified physicians are residents of rural areas, whereas 84% of CHWs are found in rural areas. In fact, the majority of qualified providers in addition to the physicians, such as nurses, dentists, technicians etc. practice in urban areas. Further details on the density by the six divisions and geographical location are shown in Annex 3.

Table 2.2 presents the density (per 10,000 population) of doctors, nurses and dentists by division and location. There are around five physicians and two nurses per 10,000 population, the ratio of nurse to physician being 0.4 only (i.e., two and half times more doctor than nurses). Interestingly, the ratio is more favourable in Khulna (1.4 nurses per doctor), but extremely unfavourable in Sylhet (one nurse per 10 doctors) and Dhaka (2 nurses per 10 doctors). Substantial variation in the density of physicians and nurses among different divisions exists, Dhaka having the highest density of physicians followed by

Chittagong. Gross imbalance in density favouring urban areas is also observed, especially for the physicians. Similarly, there is also gross imbalance in sex ratio favouring males in case of physicians (5.6 males for one female), and females in case of nurses (nine females for one male). Together, there are about eight formally qualified registered health care professionals per 10,000 population.

The density of the other categories of allopathic health care providers (semi-qualified/unqualified) is presented in Annex 4. There are around 12 village doctors (RMPs and *PCs*) and 11 sales people at drug retail outlets (providing diagnosis and treatment) per 10,000 population. Thus, there are about two and a half times more village doctors and two times more drug store salespeople than are physicians who provide treatment/curative services to the population. There is only minor variation in the density of the drug store salespeople between urban and rural areas

Fig. 2.3 Percentage distribution of all types of healthcare providers by gender

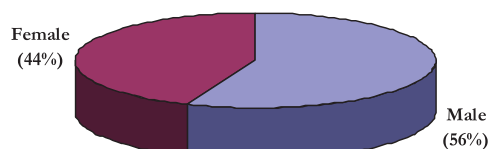


Fig.2.4 Distribution of healthcare providers per 10,000 population by location

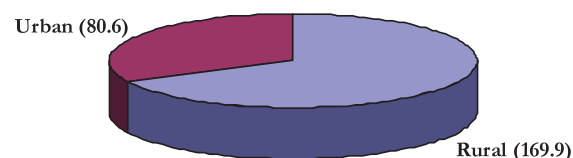


Table 2.1 Distribution of healthcare providers (HCPs) by residence (%)

	Location		All
	Rural	Urban	
Physicians	138 (0.7)	697 (22.6)	835 (3.7)
Nurses	74 (0.4)	218 (7.1)	292 (1.3)
Dentists	10 (0.1)	32 (1.0)	42 (0.2)
Allopathic paraprofessionals*	121 (0.6)	169 (5.5)	290 (1.3)
Community health workers (CHWs)	1284 (6.5)	239 (7.7)	1523 (6.7)
Village doctors (RMPs/ <i>Palli Chikitsoks</i>)	1593 (8.1)	340 (11.0)	1933 (8.5)
Drug store salespeople	1248 (6.4)	505 (16.4)	1753 (7.7)
Traditional birth attendants (TBA/TTBA)	4880 (24.8)	233 (7.6)	5113 (22.5)
Traditional medicine practitioners**	9557 (48.6)	331 (10.8)	9885 (43.5)
Homoeopaths	644 (3.3)	270 (8.7)	914 (4.0)
Others***	104 (0.5)	52 (1.7)	156 (0.7)
Total (N)	19650 (100.0)	3086 (100.0)	22736 (100.0)

*Medical Assistants/Sub Assistant Community Medical Officers (MA/SACMOs), Family Welfare Visitor (FWVs) and lab technicians/physiotherapists; **Kabiraj, totka, herbalists, faith-healers; ***circumcision practitioners, tooth extractors, ear cleaners etc.

Note: Figures in parentheses indicate percentages

Table 2.2 Distribution of physician, nurse and dentist per 10,000 population and nurse per physician ratio

	Physi- cian	Nurse	Dentist	All	Nurse per Physician ratio
Division					
Barisal	1.7	0.9	0.3	3.08	0.5
Chittagong	4.8	3.6	0.3	8.8	0.7
Dhaka	10.8	2.8	0.5	14.2	0.2
Khulna	1.3	1.9	0.05	3.3	1.4
Rajshahi	2.1	1.1	0.0	3.2	0.5
Sylhet	2.2	0.4	0.0	3.2	0.1
Location					
Rural	1.1	0.8	0.08	2.1	0.7
Urban	18.2	5.8	0.8	24.9	0.3
Sex					
Male	4.5	0.2	0.2	5.0	0.05
Female	0.8	1.8	0.03	2.7	2.1
All	5.4	2.1	0.3	7.7	0.4

indicating their uniform spread across the country. However, their density is lowest in Barisal and Sylhet divisions compared to others. Also, there are 6.4 CHWs from the NGO sector per 10,000 population which is twice the number in Public sector (3.2 per 10,000). The village doctors and the CHWs are mainly concentrated in the rural areas while the paraprofessionals (MA/SACMO/FWV) are concentrated in the urban areas. Dhaka has the lowest number of village doctors and Sylhet the lowest number of CHWs than other divisions. The village doctors and the drugstore salespeople are predominantly male compared to the CHWs or TBAs who are predominantly female.

Annex 5 presents the density of traditional practitioners and homoeopaths. There are large numbers of faith healers as well as Kabiraj etc. (31 and 33 per 10,000 population respectively) who are providing health care services as revealed from the inventory. This is supplemented by three qualified and two and a half unqualified homoeopaths per 10,000 population in the country. The traditional practitioners are predominantly male, concentrated in the rural areas of Chittagong, Rajshahi and Khulna divisions. Homoeopaths are concentrated in the urban areas.

Demographic and Socioeconomic Characteristics of the HCPs

Overall, most HCPs are in their 3rd to 5th decade of life. The CHWs are the youngest group (33%) less than 30 years followed by nurses (30%). There are more elderly people (aged 60 or more years) in the non-allopathic sector such as homoeopaths, traditional healers and TBAs than in the allopathic sector (qualified and unqualified). Except nurses, FWVs, TBAs and CHWs, the HCPs were mostly males. A substantial proportion of the traditional healers (35%) and TBAs (59%) did not have any schooling at all. The proportion of non-Muslims among the dentists, nurses and unqualified allopathic providers were 44%, 29%, and 25% respectively. However, one has to be careful in interpreting some of these results as the sample size in some groups such as dentists is very small. There was not much variation in the size or number of income-earners in the family among the different categories of HCPs. See Annex 6 for more details on their backgrounds.

The majority of the HCPs except CHWs, TBAs and unqualified allopathic providers (village doctors and drug store sales people) did not report any occupation other than practice of medicine (Annex 7). However, a substantial proportion of unqualified allopathic providers (43%) and homoeopaths (33%) were engaged in agricultural activities to supplement their income. Fifteen percent of physicians and 22% of the paraprofessionals reported that they were involved in trade or service as supplementary occupation. Around 80% of the paraprofessionals reported having a monthly income of more than Taka 10,000¹, while around 36% of the nurses, 35% of the CHWs and 30% of the unqualified allopathic providers and homoeopaths reported earning that amount. On the other hand, only 9% of the TBAs and 14% of the traditional healers reported earning more than Taka 10,000 per month. Twenty percent of the TBAs and 14% of the traditional healers self-rated their household poverty status as 'chronically deficit' round the year; the proportion was much lower for the paraprofessionals (4%), unqualified allopathic providers (3%) and CHWs and homoeopaths

¹ US \$ 1 = Taka 68

(5%). Incidentally, the majority had supplementary occupations.

Induction into the Profession, Training and Professional Experiences

Annex 8 presents mode of induction into the profession, and training and professional experiences of the HCPs who are neither formally qualified nor registered with government statutory bodies. The findings suggest that formal training facilitated entry into the profession mostly for the paraprofessionals (78%) and the village doctors (79%), the latter receiving mostly semi-formal training of varying duration from unregulated private institutions. Apprenticeship and inheritance were two important avenues for entry into the profession for the traditional healers and TBAs (37% and 42% respectively) for both and homoeopaths (23% and 11% respectively).

Among this group of HCPs, the paraprofessionals had the longest duration of professional experience (mean of 22 years) and the CHWs had the lowest (mean of 8 years). Only around 4% traditional healers and 22% of the TBAs stated that they had undergone any type of training. Thirty five percent of the paraprofessionals and 50% CHWs reported to have received short training (maximum one month) on management of specific illnesses. Interestingly, 84% of the traditional healers also reported receiving such training. The majority of the unqualified allopathic providers (62%), homoeopaths (61%) and a substantial proportion of the traditional healers (48%) received training from private institutions. The NGOs played an important role in training the CHWs. The topics covered in the training of the allopathic providers included communicable diseases commonly prevailing in the country such as diarrhoeal diseases, fever and common cold and cough, ARI/pneumonia etc. The CHWs received training mostly in diarrhoea, family planning and mother and child health. The median duration of training was highest for the paraprofessionals (18 months) followed by the homoeopaths (12 months).

Majority of the paraprofessionals (67%), village doctors (69%) and CHWs and homoeopaths (54%) reported that they thought training was necessary for practice while 29% of the TBAs and

only 7% of the traditional healers thought so (Annex 9). However, the HCPs were unanimous in stating that they used the training in real-life situations, and also, majority of them reiterated the need for continuing training.

Management and Treatment of Illness

Fever and common cold were the most frequently mentioned 'easy-to-treat' illnesses seen by the paraprofessionals, the unqualified allopathic providers, CHWs and the homoeopaths (Annex 9), whereas TBAs were most likely to perceive pregnancy-related conditions as easy-to-treat; diarrhoeal illnesses were also considered as an easy-to-treat illness by the majority of the providers except the traditional healers and the TBAs. Non-communicable diseases (such as hypertension, diabetes, asthma) were mentioned as difficult-to-treat illnesses or conditions but the responses were mixed and no clear consensus emerged. Majority of the different categories of the HCPs reported that they referred complicated cases, most frequently to the district and upazila hospitals.

Service Provision Characteristics of the HCPs

The majority of the physicians (55%) and paraprofessionals (89%) provide services through government health facilities (Annex 10). Nurses also provide services in the community (36%), in addition to in government facilities (32%). In contrast, the majority of dentists (56%), unqualified allopathic providers (82%) and homoeopaths (77%) provide services through drug shops, while the CHWs provide services in the community (51%). Most of the patients of qualified allopathic providers and paraprofessionals travel more than five kilometres, while for the unqualified allopathic providers, CHWs and the traditional healers, a large proportion of the patients come from within two kilometres (Annex 10). On average, the physicians (mean 32) and the paraprofessionals (mean 39) attend the maximum number of patients each day. CHWs see an average of 14 patients and traditional healers see five patients per day.

The most common illnesses seen by the allopathic providers included fever, common cold and

cough, diarrhoeal illnesses, and respiratory problems e.g., asthma (Annex 11). The nurses and the CHWs see a higher proportion of pregnancy-related cases (85% and 60% respectively) compared to the others. The HCPs manage the cases predominantly with treatment and advice, and sometimes with advice only. With the exception of physicians (43%) and paraprofessionals (18%), HCPs rarely advise laboratory investigations to the patients. Compared to the physicians who provide written prescriptions to the patients in all cases, only 56% paraprofessionals, 37% unqualified allopathic providers and 31% homoeopaths do so. Record-keeping of patient information was reported as frequently practiced by the paraprofessionals (74%) and the homoeopaths (75%). Only 25% of the physicians and 42% of nurses reported keeping records of the patients attended.

Management of Selected Illnesses/ Conditions by the HCPs

Annex 12 presents the treatment practices of these providers for some common illnesses such as fever, diarrhoea, pneumonia and hyperacidity/ulcer. Besides analgesics, antibiotics is the most frequently reported drug used in fever (around 80%) and diarrhoea (around 90%) by all categories of allopathic providers. The CHWs used antibiotics more frequently while treating pneumonia in children than treating fever or diarrhea. ORT is almost universally used by all types of providers except the traditional healers in treating diarrhoea. All types of HCPs advised antacids (around 70%).

As reported, patients with STIs (e.g., syphilis, gonorrhoea) mostly visit the physicians, unqualified allopathic providers, and homoeopaths (70-90% overall) and while those with RTIs most frequently visit the nurses, paraprofessionals and CHWs (for leucorrhoea), and physicians and paraprofessionals (for Pelvic Inflammatory Disease) (Annex 13). Antibiotics were stated to be the most frequently prescribed medicine by the physicians (97%), unqualified allopathic providers (96%), and paraprofessionals (89%). Antifungal and amoebicides are much less frequently used by the CHWs, traditional healers and homoeopaths than the others. Reportedly, advising clients to use condom for STIs is done more frequently by all

categories of allopathic providers (about 100%) but by only 69% of the traditional healers.

Next, the HCPs were probed to explore their knowledge on risk factors, signs of complications and management related to the state of pregnancy (Annex 14). The majority of the qualified allopathic providers (around 80%) were aware about the risk of bad obstetric history for safe pregnancy. Awareness about safe age (20-35 years) for pregnancy was also high among all the HCPs (more than 75%) except the traditional healers. Awareness about other risk factors varied at a lower level, especially among the traditional healers and homoeopaths. The HCPs knowledge on signs of pregnancy complications appeared to be low except in few instances (e.g. anaemia, swelling of the extremities). Activities regarding management of pregnancy showed mixed response. Interestingly, TT immunization was mentioned by the HCPs much less frequently than expected; the CHWs was a little better than others in this regard. Regular check-up was mentioned most frequently by the physicians (67%) and the paraprofessionals (73%) while nutritious food was mentioned much more frequently by all providers (65-75%) except the traditional healers (44%).

Accidents and injuries cases are most frequently seen by the physicians and unqualified allopathic providers (around 66%), and also homoeopaths (54%) (Annex 15). The physicians also reported to have attended maximum number of these patients in the past three months compared to others. Treatment given for different conditions varied widely according to the HCPs (Annex 15). The CHWs who are based in the community rarely reported to have managed these patients. Substantial proportions of these patients are not treated locally and are referred to nearest health facilities, thus losing valuable time when appropriate first-aid could have increased the chances of survival of some patients.

Professional Satisfaction

The HCPs were almost unanimous (around 95% except the dentists) about their professional satisfaction (Annex 16). The most common reason was that they regarded it as a gratifying social work. A tiny fraction of the HCPs who expressed dissatisfaction with the profession mentioned less

income and lack of career prospects as the two most common reasons. When probed as to how the profession can be improved, majority of the HCPs mentioned training as the most important tool for career advancement. Around one-third of the traditional healers were uncertain about how the profession can be improved. Interestingly, 50% of the traditional healers stated that they would like their son or daughter to take up the

profession. While almost all others wanted their children to follow their professions. This reflects their belief in the work they do, at least from a professional view. This expectation was higher for the physicians (87%), dentists (89%), CHWs (82%), unqualified allopathic providers (88%) and somewhat lower for the nurses (78%), paraprofessionals (70%) and homoeopaths (78%).

The assessment of quality of care which has long been based on the applications of professional standards is now increasingly being integrated with people's perceptions of quality of care. The trend towards incorporating patient's perceptions of care is based on a variety of reasons from the desire to involve patients more in decisions that concern them, to better meet their expectations and/or the need to evaluate existing quality and accessibility of services. As one study found that satisfaction does not necessarily mean that quality is good, it may only indicate that expectations are low (Creel et al., 2002).

When raising the issue of quality of care we cannot ignore the inter-personal dimensions of care, which shape not only access but result in a larger clientele who are more satisfied with the care they are receiving. Patient perceptions of care are an important factor for increased utilization of health services. Furthermore, social cultural beliefs, economic constraints and gender also impact on types of health providers accessed and perceptions of the quality of care received. Like other countries, medical pluralism exists in Bangladesh. A large percentage of the populations seek health care services from the informal sector which remains unregulated with varying capacities and qualifications. A review of the country's health sector found that 60% of the population chose unqualified practitioners and only 13% used government services for curative health care, resulting in poorer populations experiencing 'out of pocket' expenditures on their health, leaving them vulnerable to financial crises (Salim et al., 2006, Ahmed et al., 2005).

Measuring quality can be much more complex when compared with "mainstream" medical care, also when seen from the provider's perspective.

Providers of health care remain an important aspect of quality of care as they are responsible for giving clients information, treatment and guidance. Yet their ability to provide care is shaped by numerous factors, such as their acceptance in the community, local customs, traditions, medical culture, costs and relationships with clients, and technical and interpersonal skills etc. (Lantis et al., 2002).

For this study, two common infant illnesses diarrhoea and pneumonia were explored, examining how caregivers dealt with the illnesses. The focus was on quality of care in two rural and two urban settings using qualitative methods. See annex 2 for details on objectives and methodology of the study.

Health Seeking Behaviour

Health seeking behaviour somewhat varies between the communities, depending on the ease of access, socio-economic status and level of awareness of the caregivers. In all areas studied, and as reported in the previous chapter, people sought care from a range of providers, starting from rural medical practitioners or village doctors (RMP/drug sellers at pharmacy) to homoeopaths, kabirajs (herbalists), hujurs (muslim faith healers), to MBBS doctors (*pash kora daktar*). There were reported cases where people sought care from *ayurvedic* doctor, depending on the familiarity and credibility of the providers. For minor illnesses, families tended to seek care first from the closest service available, which in most cases were village doctors or rural medical practitioners. Simultaneously, some also chose to visit the local *hujur* for prayers and special medicines. When the illness became severe, or did not improve with the medication given from the local provider, parents

reported that they took their child to a qualified healthcare professional. Seeking health advice from a doctor or other healthcare provider was not something that caregivers opted to do unless the illness became serious or it was not seen as improving within 3-4 days (some parents wait even longer). Some of the common deterrents for caregivers/parents to seek healthcare from a formal provider seem to be expense, distance, and the opportunity cost of leaving housework or other income generating activities that they are engaged in. A typical comment by a mother in one of the informal discussions at Chakaria in Cox's Bazar highlights their dilemma, *"We are poor people, we cannot treat all the illnesses as diseases even though (the children) are suffering all the year round. Unless they get very seriously ill, we don't give it much importance, we don't even go to doctors. We buy medicines from the pharmacy by ourselves and do something at home; if that doesn't work then eventually we have to go to the doctors."*

Sources of Information and Home Care Practices

The most common sources of information for seeking healthcare by mothers were senior family members, neighbours, in-laws, and husbands. Many of the providers reported that there was greater awareness about common illnesses like diarrhoea and most parents were aware of what needed to be done at home to take immediate care of their children, *"Nowadays when diarrhoea starts many people immediately feed them saline (Homoeopath practicing allopathic medicine in Tejgaon, Dhaka City). But awareness regarding seeking care often depended on socio-economic determinants. According to an MBBS doctor in Chakaria, "when some one has diarrhoea or pneumonia, the people at first would go to the nearby village doctor, pharmacist, kabiraj, and homoeopath doctors. Since this requires little money, and since they live close to their households, they would go to them first. When they don't get better, they come to us for treatment. Of course there is also a class of educated people who would directly come to us."*

There was widespread knowledge regarding use of saline for diarrhoea, usually packet saline bought from the pharmacies. Some parents also

reported feeding home-made saline with salt and sugar or molasses/treacle. Some caregivers used lemon juice in the mixture. Interviews found that caregivers with very small children were aware of the knowledge that breastfeeding should not be stopped if the child had diarrhoea. For pneumonia, massage of mustard oil heated with garlic was very commonly used. Children were also given juice of basil leaf with honey and ginger extract, and sometimes a mixture made out of star fruit (high in vitamin C), lemon juice, salt, sugar (Chakaria). Among other home care treatments, children were carefully bathed when they had pneumonia, and their bodies frequently sponged. In some of the interviews, mothers mentioned using menthol balms like Nix. In several cases, the juice of *basak* leaf (herb – *Gendarussa vulgaris*) was reported to have been used interchangeably for both diarrhoea and for pneumonia in Chakaria. *Thankuni* leaf (an edible pungent herb) was reportedly used for pneumonia in Chakaria, whereas it is usually known to be used for diarrhoea or loose motion in Barisal.

Seeking Care from Providers: Perceptions of Quality of Care

In both rural and urban areas the prime concern of poor mothers was that the child should get better quickly with minimal financial costs to the household. Accessibility along with effective treatment, interpersonal communication and social relationships with providers were the key determining factors influencing whom to seek care from for their child's ill-health. In many cases, village doctors and homoeopaths accessed were found to be practising in the area for a long period and had established close relations with many families in the communities. The resort to homoeopathic and local traditional healers, while not widespread particularly for local healers (*Kabirajs*), is shaped by religious and socio-cultural beliefs. Furthermore, lay understandings of perceptions of allopathic and homoeopathic medicines and its impact on young children's bodies and the importance of prayers, protective amulets also shaped sequence of care sought for their child's ill-health. As mentioned earlier, qualified doctors were accessed but at a much later stage and only when the child was seriously ill and in these cases, costs were not mentioned as

the main concern. This is because only the ‘big’ MBBS doctors were seen as capable of providing effective treatment.

A most important factor that determined whether the quality of care was perceived as good or bad for mothers was the efficacy of the medication prescribed for their child. A common statement made by mothers was:

“Good or bad treatment, I do not know. Where less money is required and the illness gets well quickly is good treatment.”

In the interviews, almost all of the mothers emphasised effective treatment so that their child recovered quickly. For them, good quality of care was when the health care providers were able to diagnose the problem and give the “right kinds of medicines” at a cheaper cost. Over and over again, mothers referred to particular village doctors in their community who were perceived as providing appropriate medicines for illnesses. In Barisal, mothers spoke of a popular village doctor: *‘Nirmol daktar is the first choice as his medicine works very fast and he behaves well too. As he is a local fellow, everyone can talk openly with him about his/her illness. Because of this, every one goes to Nirmol daktar and he does not charge much.’* Effective and cheap medication given by village doctors make them popular for poor mothers, who usually have limited mobility and cannot afford to spend limited household cash on transport to access formal doctors in the various health centres, with quality of care remaining uncertain. However, there were also a few reports of poor care and bad treatment meted out by village doctors and other informal providers (homoeopaths and kabirajs).

The *drug culture* also affected the satisfaction of the mothers and their perceptions of quality of care as meted out by providers. In an exit interview, a mother shared her dissatisfaction when the village doctor only gave her saline for diarrhoea, without any other medications. *“Everyone knows that saline has to be fed if someone has loose motions. It wasn’t necessary to come to the doctor for this. The doctor said that there are no medicines for diarrhoea and the child will get well if she is given saline regularly. After*

hearing the doctor’s words I got irritated and didn’t ask any more questions”.

Some of the MBBS doctors, other providers and even the caregivers/mothers mentioned the poor quality of care regularly experienced by poor women and their families in government hospitals. Observations and interviews revealed the government hospitals to be overcrowded with the waiting time extremely long. A caregiver said, *‘I wanted to take my child to a better doctor than the village doctor but cannot afford it and in the government hospitals the waiting queue is so long that it takes an entire day. I do not have only one child to look after, and there is lots of work in the house too. I cannot stand here the whole day and leave everything behind’.*

Role of Providers: Behaviour and Communication

Providers’ behaviour also influenced choices. A mother in one of the exit interviews revealed that she visited a particular health care provider for all kinds of illnesses as he had become known to the family. She said, *“Taher daktar behaves well with us. And I come to him more because of his good behaviour. He has seen my child with care, hasn’t hurried, and has explained the medicines well also. Of course I have asked questions. If I don’t ask questions then how will I know everything?”* Women and other caregivers reported feeling comfortable going to the local pharmacies and other informal providers in their area as they knew them and found them more approachable. As one woman explained, *“Mozaffar daktar is quite good. He behaves well with us. He lets us sit when we go to him, asks about the household. He asks how the children are doing...and if there are fewer crowds at the shop then he takes time to see the patient. Suppose around 5-10 minutes. But if there is a crowd then he doesn’t see for more than 2-1 minutes.”*

Interviews and observations in facilities revealed that basic dosage and feeding advice were usually given by village doctors (pharmacists/ RMP) but in addition, some of them were known to make house calls and made follow up visits, checking on patients in the locality. This kind of personalised care was greatly appreciated by mothers and community members. Overall, the

caregivers shared that they were able to communicate well with the village doctors (pharmacists/RMP) who were perceived to be coming from a similar background compared to the ‘highly educated doctors in the city.’ The interaction with village doctors, homoeopaths and even kabirajs helped them to unburden their concerns as well. A common statement was *“People like us who are poor mostly go to the pharmacy....and telling them about the disease we get mental satisfaction that we can share everything [about the child’s illness]”*.

In contrast in government facilities, mothers felt intimidated and often remained silent. Although they respected these doctors, many were afraid to ask questions and raise concerns with the ‘big’ doctors (MBBS in govt/free clinics) for fear of rebuke and offending them. Many of the caregivers shared that they would have preferred to utilise the government health facilities but the bad behaviour of staff kept them away. *“I like this doctor (Village doctor) because of his polite behaviour for which I do not go to any other place. Once I went to the government hospital, there was a big crowd. The doctor prescribed medicine without examining the child. The doctor even did not look at the child for a while. Then I asked the doctor “How long may it need the child to get well”? He scolded me right then. After that experience I do not go anywhere else”*.

In the interviews, a number of MBBS doctors admitted this: *“there are some bad reputations about our hospital being spread around... saying that doctors here don’t see the patients, they don’t take care of them, and they don’t care about them. Since these kinds of things are being spread around the parents do not easily want to bring their children here. These bad names didn’t start just like that; our doctors must have had some failures for which the public has these kinds of feelings about governmental hospitals’*. Observations of a health facility in Barisal found that the doctors routinely scolded and rebuked patients. They did not explain the illness condition of the child and the diagnosis. A mother said in an exit interview, *“He was screaming at the women before me. When he saw the condition of my child, he started screaming at me. “Where you were before, you all stay at home until the situation is terrible. When there is no way out you come to the*

doctor and think that the doctor will treat the patient momentarily.”” Observations and interviews found that in most cases, communication was usually hurried, impersonal (sometimes rude) and interaction minimal at government health facilities.

Costs and Flexibility

Cost is an important factor that determines health seeking behaviour. Since most people could not afford to pay the high fees to visit MBBS doctors, they preferred village doctors (drug sellers at pharmacy/RMP) or homoeopaths as they saved on high costs of consultation fees and only had to pay for medicines. However, if the child’s condition did not improve then cost ceased to be an important concern. One mother from Chakaria remarked, *“First I took my child to a homoeopathic doctor. It cost only 15 Taka but she did not get well. Then I took her to a NGO clinic. The cost is a bit high. But I cannot kill my child for fear of high cost, can I?”* The whole treatment cost her Tk 400.

Clients preferred to seek care from pharmacists at particular times, for follow up visits as they were not charged for the visit. As one mother explained, *“He (village doctor) charges for one visit only. He will not charge next time even if he has to change medicines. And government hospital and health clinic, MBBS doctor I mean big doctors will take fee every time you go, by charging for the ticket or the visit.”* However, the costs incurred at these clinics, however, fuelled a common perception that such ‘big doctors’ who charged large consultation fees also provided the most effective treatments. In the words of a mother: *“There is a doctor in Rajshahi town. He is a very big doctor. If you take treatment from Dr. Alam (an MBBS doctor) the disease may recur but if you take medicines once from Dr. Borhan (a specialist doctor), it is enough to cure the illness. But he charges Tk 300.”*

For many of the poor women and their families the incentive to go to a village doctor or other informal providers was greater because they were very flexible with payments. Observations and interviews found that if the village doctor had a pharmacy then he would not charge a consultation fee. He would only charge for the medicines

prescribed. In the Bangladeshi informal society, it is an accepted norm to get medicines on credit or on part payment. Therefore, poor people can access them without hesitation when their children get sick. They are the first line of health care providers accessed by the community.

A pharmacy drug seller in Tejgaon, Dhaka, shared that his pharmacy provided flexibility to mothers/caregivers when purchasing medicines, despite his misgivings: *‘Right now while you were sitting here (interviewer) you have seen that a child was brought here who had an upset stomach and was vomiting. The mother gave me 10 taka and told me to give medicines worth this amount. I gave her 2 Amodis and 2 Avobin tablets and 1 tasty saline. Although I told her to take 2 for now but she has to give the child at least 3 more!’* The provider initially explained to the mother to buy syrup, *‘I told her that it would have been better to give your child syrup, but then the patient’s mother said that she doesn’t have money and to give her pills instead... so I gave her pills (which were much cheaper) and told her to feed the child boiled water, and not to feed the child any type of fruits and to come back late afternoon.’* He said, *‘I asked her to come in the late afternoon to let me know, I am hoping that by late afternoon the diarrhoea has stopped.’* In most cases for poor mothers/families, it was easier to negotiate quantity of medicines purchased from village doctors (drug seller at pharmacy/RMP) and informal providers compared to formal providers.

Perceptions of Medicines

Perceptions of how different medicines affect young children’s bodies also determined which provider to seek for diarrhoea and other childhood illnesses. Popular beliefs among mothers were that allopathic medicine was ‘strong’ and could upset the ‘humeral balance’ in the body of very young children.’ The common understanding was that young babies should not be given any kind of allopathic medicines. As homoeopathic medicines were perceived as ‘slow acting’ and therefore safer on young bodies, mothers preferred to access homoeopaths first before accessing any type of allopathic care, particularly for very young infants. A mother remarked, *‘My mother-in-law told me that homoeopathic medicines are good for*

children...they are slightly low powered and though it works slowly but the body of the child becomes less weak. Medicine has side effects, has it not?’ However, it was found that mothers who found their child’s illness deteriorating and desperate for improvement did eventually seek care from hospitals, where children were put on saline, received injections and ‘strong’ antibiotics. Faith healers were also found to be influential. Usually children were taken to *hujurs* (Muslim faith healers) especially if they were perceived to have been affected by “evil air” and they have for some reason their child had become “fearful” and ill. In such cases mothers took them to receive prayers, bought chanted water or chanted oil and amulets. Faith healers and traditional healers said that they made it clear to caregivers that for healing to occur, mothers needed to have faith in Allah, and believe in the power of the chants, prayers and amulets.

In Tejgaon, Dhaka, it was found that a Lal Mia, an extremely popular hujur in the community had a thriving practice, providing prayers and chants for all kinds of ailments for adults and sick young children. Observations found the Hujur was popular and treated like a doctor as well as a spiritual guide for many of the patients, who were jam-packed in the one room. There was also a queue of mothers and children waiting outside to see him. A corner shop sold his specially concocted medicines, prayer chants, blessed water, blessed coconut for Taka 10-15. Observations found that women who took sick children often did not even get to see the hujur face to face, with interaction and diagnosis given via a window. A ticket counter in the corner ensured some order to the queue. While payment was not mandatory, clients were encouraged to donate any amount to the hujur to facilitate healing of their child, but money was usually spent on purchasing various amulets and ‘special’ medicines.

Delayed Care: Recognising Danger Signs and Appropriate Care

A common frustration among MBBS doctors and even some village doctors in all the areas interviewed was that mothers delayed seeking timely care and often brought their children when they were in a serious and critical condition. A

majority of the MBBS doctors blamed poor families, particularly mothers for this situation. They spoke of the ignorance and lack of awareness of mothers who did not understand the dire situation and neglected their children. Some doctors commented, *‘they don’t know how to keep their child clean and look after them properly.’* A few alluded to the ‘bad attitudes’ of these mothers who were ‘illiterate’ and did not listen to anyone. One doctor was particularly harsh: *‘these kinds of patients disgust me...educated patients listen and take care to take medicines on time ...’* Others were more sympathetic and conceded that poor living conditions, poverty and lack of education exacerbated the situation and as doctors they along with the government also had some responsibility to make mothers understand the dangers of delayed care. A few doctors also accused the widespread popularity of ‘illegal practitioners who were unskilled and provided wrong treatment’ and exploited poor patients. In almost all cases, homoeopathic providers and kabirajs were most sympathetic to the poverty constraints of poor women and their families.

Almost all the providers, except for a few mentioned most mothers are unable to recognize the danger signs for pneumonia and therefore care seeking is delayed. This was also substantiated by the mothers in in-depth interviews, and many said they did not know it was pneumonia till they reached a health facility. A mother in Tejgaon explained, *‘When Jui was first attacked by pneumonia, we were unable to notice it. We took it as normal cough and thought she will get rid of normally. There was also fever. During that time I poured water on her head and repeatedly sponged her body with a wet cloth. After 4 to 5 days the cold was very severe and my child could not breathe...her chest shook while breathing. We could not sleep and the next morning we took her to Addin Hospital at 6 am.’*

Delayed care also results from providers not referring when it is needed. It was observed that in a few cases, some of the informal providers were unclear of the danger signs of diarrhoea or pneumonia, and did not refer patients timely for appropriate care. A mother shared her harrowing experience in Chakaria: “Once my elder daughter was almost about to die, she had diarrhoea. For 8 days a doctor in the bazaar changed her medicine

every 2 days, but the disease wouldn’t get cured. The doctor doesn’t say anything either. Over here my daughter was almost gone, with having loose motion, and then my brother-in-law took her to another village doctor. Then she had to be admitted in the hospital (Government Upazila Health Complex) and given saline (through the vein) for 5 days. Whereas, if the doctor had told me earlier then the disease wouldn’t have been so serious and so much money wouldn’t have been spent, the child (the daughter) would also have suffered less.”

Similarly, a deep belief in faith healer’s treatment and advice can result in delayed care and risky consequences for the child. A faith healer explained his treatment of child suffering from diarrhoea, “When a child is having too much loose motion then I give them chanted water so that their loose motion stops. I also give amulets so that their appetites return and they gain strength. They must believe in Allah and have faith...” The emphasis on belief in Allah and faith introduce a moral and religious dilemma to women’s concerns about their child’s health and may discourage women from accessing care from other sources at first. Meanwhile the child’s condition in many cases deteriorates further and eventually the child requires hospitalization.

Inappropriate use of drugs such as over prescribing, multi-drug prescribing, use of unnecessary expensive drugs and overuse of antibiotics and injections as observed in this study is also identified by others to be a formidable barrier in the appropriate use of drugs in Bangladesh. A study being done by ICDDR,B in Chakaria upazila of Cox’s Bazar district sheds more light on this phenomenon. While the modern medicine as practiced by qualified practitioners such as MBBS is accessible to only about 20 percent of the population, the rest depend on informal allopathic and non-allopathic traditional providers. But the information from Chakaria presents a puzzle here that such provision is not always appropriate for the conditions they are used for. In fact, they found that in 75 percent of the cases the provision was inappropriate and in a few (7%) it was even ‘harmful’. See Box 3.1 for more on the issue in Chakaria.

Mixed Messages from Providers

Differing advice on how to take care of the child and medication dosage also have implications for the kinds of care sought and health seeking behaviour of mothers. For example, in specific cases, MBBS doctors categorically advised the mothers to keep windows open for fresh and clean air to come inside, which would help the child

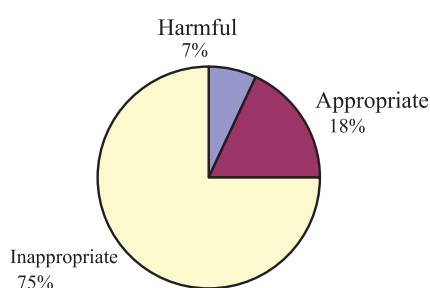
which would help the child recover quicker. They maintained, *'they (poor people) live in such congested surroundings, crowded and dirty and there is a need to air the rooms...'* In contrast the Kabirajs emphasized the importance of closing all windows and doors to keep the *alga batash* (evil spirits) out. Even home care and dietary advice varied with some MBBS doctors rebuking and advising mothers *'not to massage mustard oil on the chest which can aggravate the child's cold'* whereas other providers suggested massaging the baby's chest with mustard oil. This is confusing for mothers as massaging the child's chest with mustard oil is a common and widely accepted practice in all the areas visited. Similarly, dietary

advice varied with some providers suggesting avoiding 'cold milk and certain cold foods' and others suggesting greater intake of 'green coconut water' etc. The varied advice and messages on treatment and home practices can leave mothers in doubt as to the efficacy of their own treatment as well as the providers, and impact on future health seeking behaviour.

A number of factors impact on when, where and from whom care is sought for child's illness in both the rural and urban areas, which include economic costs, mobility and access to providers, social relations with providers, and perceptions of quality of care and local understandings regarding efficacy and quality of medicines. Furthermore, differing messages from providers on appropriate treatment, can lead to switching between providers and medicines which can delay timely care, resulting in unnecessary expenditures on poor women and their families, as well putting the child's health at risk.

Box 3.1 Informal healthcare providers and use of drugs in Chakaria, Bangladesh

Data collected during 2007 in Chakaria, a remote rural *Upazila* in the southeast coast of Bangladesh with a population of over 560,000, revealed that there are 2,623 healthcare providers in the *Upazila*. Of them, 112 (4%) are in the formal sector and the majority, 2,511 (96%) are in the informal sector. The providers in the informal sector included village doctors and drug vendors (395), homoeopaths (174), traditional birth attendants (959), kabirajs (289), and spiritual healers (694). Of the above, only the village doctors consistently use allopathic drugs.



Data on health seeking behaviour of the villagers revealed that 50% of the villagers contacted a village doctor/drug vendors for curative services and another 25% resorted to home remedies on the day of the survey for sicknesses that occurred during the two weeks preceding the survey. An examination of the providers' use of drugs for pneumonia, fever and cold, and diarrhoea revealed that 18% of the drugs prescribed were appropriate for the conditions, 75% inappropriate, and 7% harmful for the patients (see figure above)

Source: Abbas Bhuiya of ICDDR, B (pers. comm.)

Human resource for health is the backbone of the health care delivery system. As mentioned already, there is a severe shortage of trained workforce throughout the world including Bangladesh. The country is unable to educate and sustain the right kind of health workforce. Skill mix imbalance and maldistribution of the health workforce are serious impediments to providing health care to the people. This chapter looks into the total workforce of healthcare providers working in Bangladesh, their production rates, nature of trainings, process of recruitment, level of remuneration and job satisfaction. It also deals with some issues relating to imbalances in the distribution, gender and skill mix of a select group of healthcare providers (HCPs).

Situation of Physicians in Bangladesh

It is difficult to estimate the number of physicians practicing in the country and to determine the precise numbers working in public or private sector due to dual job holdings. Many physicians working in the government sector have a private practice as well, while some are employed entirely in the private sector. According to HRD 2007 data sheet, total number of registered doctors is 47,257. The estimated numbers of doctors now available in the country are 38,537. Among these 38% are employed in the public and 62% in the private sector. The total numbers of dental surgeons are 2,995 (HRD data sheet 2007).

It is expected that by the year 2010 Bangladesh will be able to produce 65,393 medical graduates and 5,795 dental graduates (assuming that the production rate remains the same as 2005). If we consider death, migration, immigration, inactivity and deviation, 10% (9,145) can be reduced from the total. This means a total of 56,248 doctors. However the population by 2010 would have increased to 150 million (projection) hence, the

doctor population ratio would remain essentially the same as before (HRDU, 2007).

A recent report published by the WHO/ SEARO on the regional strategic plan, states that ratio of health workforce to Population varies according to situations. There is no absolute right ratio. WHO has identified 2.28 per 1000 population as the threshold density for the doctors, nurses and midwives below which coverage of essential intervention including those necessary to meet the health MDGs is not possible. In the SEARO region the estimated average density of doctor, nurses and midwives are at 2.12/1000 population, ranging from 0.56/1000 population in Bangladesh to 7.43/1000 in DPR Korea (WHO/SEARO, 2007).

Education Facilities for Doctors

Bangladesh has made significant progress in establishing institutions for developing human resources especially medical colleges and to a lesser extent nursing institute. The government owned institutes producing doctors include the following:

Table 4.1 Government medical institutes

SN	Institutes	Number
1	Medical University	1
2	Post-graduate medical institutes(including medical colleges offering post graduate degree/diploma)	23
3	Medical colleges	15
4	Dental college	1
5	Dental unit (attached to Rajshahi and Chittagong medical college)	2

Source: HRD data sheet 2007, MOH&FW

Since the early 1990s the government has allowed establishment of private medical colleges. Over a period of a decade a substantial number of private medical colleges have been established. Most of these are located in the capital city, Dhaka. Compared to the government medical college, studying at a private medical college is far more expensive, yet there seems to be a great demand. The entrance into these institutes is very competitive. This reflects the extent of demand for trained doctors in the country. Admission capacity and output of each category and institute varies.

The non-government sector runs the following institutes:

Table 4.2 Private medical institutes

SN	Institutes	Number
1	Medical college	34
2	Dental college	9
3	Post graduate medical institute	5

Source: HRD data sheet 2007, MOH&FW

The medical colleges offer a 5-year MBBS degree programme to students who seek admission in medical college. After completing their education, the medical graduates have to be registered with BMDC. The MBBS graduates are required to complete an internship of one year before they are allowed to practice. The total enrollment capacity of the medical colleges is 4,816 seats. This includes the public sector medical colleges (2,260) and the private Medical Colleges (2,556). The cumulative yearly production of doctors both from the Public and the Private Medical Colleges is 2,656 (HRD data sheet, 2007).

The only medical university of the country is the Bangabandhu Sheikh Mujib Medical University (BSMMU) established in April 1998. The BSMMU offers post-graduate degrees such as MD, MS, MPhil, and PhD. It also offers diplomas in many subjects to produce trained medical technologists. The post-graduate component of Dhaka, Rajshahi, Sylhet and Chittagong Medical Colleges are also operated under the control of BSMMU. The other institution responsible for specialist practice of doctors in the country is the Bangladesh College of Physicians and Surgeons (BCPS) (DGHS and MOH&FW 2007).

The total number of institutions offering post graduate degree/diplomas is 30. Out of these 20 are post graduate institutes and 10 are medical colleges with facilities for post graduation. These institutions offer various degrees/diplomas such as MD, MS, M Phil, Ph D, MPH, FCPS, MCPS and Diplomas in a number of subjects (Table 4.3). The number of seats for Ph.D. is not fixed in any institute. Ph.D is offered by a number of government institutes such as BSMMU, post graduate medical faculty of Dhaka University, Chittagong University, Rajshahi University and Shahjalal University (Sylhet) (BSMMU, pers.comm. 2008).

Table 4.3 Number of seats available per year for selected post graduate degree/diplomas

SN	Specialization	No. of Subjects	No. of Institutes	No. of seats/ year
1	MS	16	20	478
2	MD	26	17	59
3	M Phil	16	12	278
4	Diploma	15	21	520

Source: BSMMU (2008)

The total number of enrollment in post graduate institutes and medical colleges is 2,042 excluding FCPS and MCPS. So far (till 2007), around 10,411 doctors have earned their post graduate degree/diplomas. Table 4.4 shows their breakdown by degrees /diplomas.

Table 4.4 Number of doctors with post graduate degree/diplomas

SN	Degree/Diploma	No. of graduates
1	MS	692
2	MD	460
3	M Phil	536
4	Diploma	2959
5	FCPS	2203
6	MCPS	1595
7	MPH	1,966

Source: BSMMU (2008)

Bangladesh College of Physicians and Surgeons

The college was established in 1962 by the then Pakistan Government and has in its mandate the

promotion of specialist practice in various branches of medicine through Fellowship (FCPS) and Membership (MCPS) examinations conducted every year. BCPS is the examining body for FCPS (Fellow of College of Physicians and Surgeons) and MCPS (Member of College of Physicians and Surgeons). The training requirement for FCPS part 1 is one year training in the specific field and for part 2 is two years training in the specific field from an institute recognized by the BCPS. The college arranges examination twice a year for FCPS and MCPS. It offers a variety of specializations in medical and surgical fields (BCPS 2007)

The number of Fellows that have graduated from 1968 to 2007 is 2,203. The breakdowns according to specializations are as follows:

Table 4.5 Number of fellows (FCPS) graduated from BCPS

SN	Specialization	No. of graduates
1	Medicine	490
2	Surgery	484
3	Paediatrics	236
4	Neonatology	01
5	Obs/Gynae	432
6	Cardiology	02
7	Urology	02
8	Ophthalmology	154
9	Otolaryngology	73
10	Dermatology and Venereology	24
11	Physical Medicine and Rehabilitation	30
12	Psychiatry	39
13	Anaesthesiology	94
14	Clinical Pathology	01
15	Hematology	38
16	Biochemistry	10
17	Histopathology	08
18	Microbiology	13
19	Radiology and Imaging	40
20	Radiotherapy	25
21	Conservative Dentistry and Endodontics	01
22	Orthodontics and Dentofacial surgery	01
23	Oral and Facio-Maxillary surgery	05
Total		2,203

BCPS has also conferred FCPS degrees to 111 specialists without examination and Honorary Fellowships to 116 physicians.

The number of graduates with MCPS (Member of College of Physicians and Surgeons) degree since starting from 1973 to 2007 is 1,595. The requirement for the MCPS is one year of training in the specific field and at least two years should have elapsed since graduating from a medical college. The breakdowns according to specializations are as follows:

Table 4.6 Number of members (MCPS) specializing in various fields

SN	Specialization	No. of fellows
1	Medicine	185
2	Surgery	84
3	Paediatrics	121
4	Obs/gynae	488
5	Ophthalmology	63
6	Otolaryngology	100
7	Dermatology and Venereology	24
8	Clinical Psychology	144
9	Psychiatry	32
10	Anaesthesiology	145
11	Family Medicine	68
12	Radiology	28
13	Radiotherapy	05
14	Dental surgery	36
15	Forensic medicine	72
Total		1,595
Source: BCPS (2007)		

Public Health Training Institutes

There are a number of institutes in Bangladesh training post graduates in different disciplines of public health. Upto date 1,966 postgraduates in public health have been produced.

The public health training institutes/ facilities include:

- *National Institute of Preventive & Social Medicine (NIPSOM)*. This postgraduate public health institute conducts M. Phil. course in Preventive and Social Medicine and MPH course in eight disciplines and has a total annual admission capacity of 145 students.

- *Five Government Medical Colleges* - Dhaka Medical College, Mymensing Medical College, Rajshahi, Chittagong and Sir Salimullah Medical Colleges. These institutes have been offering MPH courses in Community Medicine for the last three years.
- *Private universities*. MPH courses in different disciplines of public health, some with part-time and guest lecturers, are offered in private universities. These include the North South University, BRAC University, Independent University, State University and Asian University. The James P. Grant School of Public Health initiated by the BRAC University has an annual intake of 28-30 students and is a full time residential programme offering MPH. Almost 50% of the students recruited in this programme are international who come from different countries of Asia, Africa, Europe and the Americas.
- *Four national-level public health institutes*. These include the Institute of Public Health, the Institute of Public Health Nutrition, the Institute of Epidemiology Disease Control & Research, and the National Institute of Population Research & Training (NIPORT). These are conducting non-formal training for different level of field workers in public health sector on emerging and re-emerging public health problems.

Geographical Imbalance/Distribution

The scarcity of the qualified health personnel is being highlighted as one of the main obstacles to achieving the millennium development goals for improving the health and well being of the population. In many developing countries the low availability of the qualified health personnel is exacerbated by maldistribution between the rural and the urban areas. Another pressing concern is the geographical imbalance created by the out migration of the health personnel especially the doctors and nurses to developed countries. The ensuing brain drain has huge implications on the health system that is already suffering from acute shortage of qualified health personnel.

Rural Urban Imbalance

The more qualified health personnel tend to concentrate in the urban areas. This is a

worldwide phenomenon but has serious consequences for developing countries that have limited resources in terms of human resource as well as infrastructure. For instance fifty percent of the health personnel in Nicaragua are concentrated in the capital city of Managua. Managua comprises only 1/5th of the country's population (Dussault and Francheschini, 2006). Over 75% of the population of Bangladesh lives in rural areas but the human resources for health available is less than 20%. All the key health providers are mainly concentrated in the urban areas; doctors, dental surgeons, nurses and public health personnel where doctor to population ratio is 1:1,500 as against 1: 15,000 in rural areas (Mabud, 2005). The metropolitan areas comprising mainly of Dhaka, Chittagong, Rajshahi and Khulna house only 14.5% of the population receive a major chunk of the qualified health workforce, i.e. 35% of the doctors working in the public sector. The concentration of doctors is 4 times more in Dhaka district compared to the national average. As shown in Annex 2, there are 32 times more doctors in urban areas than in rural areas. The number of dentists produced every year is far below the desired number. Around 56% of the dentists working in the public sector are concentrated in the metropolitan and the rural districts of Dhaka. This leaves only 97 dentists to attend to a population of more than 66 million. In rural districts the population to dentist ratio range from 1 to 500,000 to more than one million meaning that access is virtually non-existent (Hossain and Begum, 1998).

Another factor that contributes to rural-urban imbalance is the high rates of vacancy in the public health system. The vacancy rates are higher in the rural and the poor regions of the country. The vacancy rates have been calculated as the difference between the sanctioned number of workers and the actual numbers in post. The social sector performance survey on Primary health and family planning in Bangladesh 2005 observes that some 39% of the Upazila Health Complexes (UHCs) have no RMO (Resident Medical Officers) (Social Sector Performance Survey, 2005). Almost 60% of UHFWCs (Union Sub-centers) have no Medical Officers. There is a high vacancy rate for Class 1 officers (Medical Officers) of DGHS (Directorate General Health Services).

Attendance at the public health clinics is another major challenge. Absenteeism for doctors is 40% at the UHCs and in the UHFWCs it is as high as 74% (Chowdhury and Hammer, 2004). The facilities in the rural areas manned by one doctor only, suffer the most as it further reduces the probability of receiving health care by the people of that area. The 'Social Sector Performance Survey' of primary health and family planning in 2005 shows similar patterns of absenteeism (SSPS 2005). This study took into account both explained and unexplained absences. Although majority was explained absences but that does not exonerate the health care providers of their responsibilities particularly given the already low number of workers. The two studies are quite comparable as seen in Table 4.7

Table 4.7 Absenteeism as reported by SSPS and World Bank

	SSPS 2004 (%)	World Bank 2003 (%)
Doctor-UHC	35	41
Doctor-UHFWC	42	44
Nurse	56	58
Paramedic-UHC	23	-
Paramedic-UHFWC	12	17.6
FWV	6	5 (20 for senior)
Source: SSPS (2005)		

There are several reasons for the health care professionals to concentrate in the urban areas. The large urban areas are the hub of latest technology and new advancements in medicine. All the tertiary care centres are located in the large urban areas. The health professionals prefer to work in these metropolitan areas that provide greater opportunity for professional development and better employment prospects. They also have easier access to private practice in these settings. It is also perceived more prestigious to work in large urban based hospitals. Studying to become a doctor is often seen as an investment as it requires a great deal of time, effort and expenses. Hence it is expected to have a substantial pay off in terms of a good job, better salary and or private practice. The rural areas lack the lifestyle related services and better access to education opportunities for their children as well. It is seen that even medical professionals who have their roots in the rural

areas do not want to go back to serve in their villages. Lack of appropriate facilities such as equipment and supplies in the rural health facilities also act as a deterrent to accepting jobs in these areas. This was cited as the most important reasons given by the medical students for not working in rural Pakistan (Dussault and Francheschini, 2006).

International Migration

International migration of the health personnel has become a universal phenomenon. The developed countries are facing acute shortage of health personnel due to ageing population. There are 70 million people who are aged 80 or above and majority are living in the developed regions of the world. By 2050, the number of those aged over 80 is projected to be five times that at present. Indeed, in the more developed regions, one person out of 11 will be aged 80 or older. Furthermore, empirical data reveal that on an average about 16 percent of male and 37 percent of female elderly people stay alone in the selected developed countries and need the constant care of a professional care giver. In the developed countries, not only do they need more health care providers to care for increasing numbers of elderly people but their nursing workforce and caregivers are also ageing. Furthermore it is seen that nursing school applicants and graduates in developed countries have declined by about 20% over the last 5 years (Zurn et al., 2004). Other competing professions which are more lucrative in terms of salary, status and emotionally less demanding seem to be the alternatives (Aminuzzaman, 2007).

There has been a considerable loss of physicians moving from Bangladesh to other developing countries. This brain drain has serious consequences for the country in terms of losing manpower where there is already a shortage and also severe economic consequences especially in terms of investment made in training a doctor. An estimate of the number of registered Bangladeshi doctors working in USA, Canada, UK, Australia, New Zealand and S. Arabia shows their number to be 1,794 until March 2001 (Peters and Kayne, 2003). There is actually no systematic data on the number of doctors working outside the country. This number has been obtained from the official registration bodies of the mentioned countries.

Physicians working in other countries of Middle East and those working in India are not available. Therefore, this maybe a gross underestimate.

Table 4.8 Estimates of number of registered Bangladeshi physicians working outside Bangladesh

Country	Number Registered
Australia	81
Canada	17 (registered from 1990)
Saudi Arabia	325
UK	191
USA	1119
New Zealand	61 (in active practice 1 st Apr 2000-31 st Mar 2001)
Current Total	1,794

Source: Peters and Kayne (2003)

During 1991-2004, around 20,825 female workers migrated from Bangladesh through formal channels. Majority of these were unskilled workers and only 5.74% (1,195) were nurses and 0.84% (175) were female doctors. Most (87%) migrated to Middle Eastern countries and the rest to the Far East, mostly Malaysia. Furthermore between June 2004 and November 2007, 102 Doctors, 460 Nurses and 22 Paramedics and technicians have left through the Bureau of Manpower, Employment and Training (BMET, pers.comm. 2007).

Table 4.9 List of medical graduates employed abroad from June, 04 to Nov 07

SN	Country	Number of doctors employed
1	Oman	02
2	Fiji	03
3	Saudi Arabia	71
4	Maldives	10
5	Libya	14
6	Bahrain	01
7	Japan	01
	Total	102

Source: BMET (2007)

However the figure above shows doctors who find employment through BMET only. Many medical graduates leave the country for higher education but may never return. Statistics show that 65% of the newly graduated doctors in Bangladesh

attempt to get jobs abroad. On an average 200 doctors from the government sector go abroad every year (Adkoli, 2006).

Gender Imbalance

In many countries women still tend to be concentrated in the lower status health occupations, and remain a minority among the highly trained professionals and managers. There are almost 3 times as many male doctors as female doctors in Bangladesh; BMDC has 33,813 male doctors and 10,666 females doctors registered with them between 1972 to 2006 (DGHS and MOH&FW 2007).

An earlier study by Reichenbach and Brown shows that out of 9,391 students in government run medical schools in Bangladesh, 46% were women (Reichenbach and Brown, 2004). The gender imbalance in the distribution of doctors is most marked in the public sector especially in the higher occupational cadres. Almost 91% of Class 1 officers (mostly medical officers) of DGHS at the Upazila Health Complexes are male and 61% of the DGFP at the union facilities are male (SSPS 2005). According to Hossain and Begum (1998), the total proportion of women accounts for a little more than 1/5th in the workforce of the government health services. Women are only in majority in the nursing profession (93%); and are very poorly represented in other categories, i.e., dentists, medical assistants, pharmacists, managers/ trainers and doctors (Hossain and Begum, 1998). In traditional societies some women may not seek care for themselves or their children where they do not have access to female health care provider. The under representation of women in managerial positions may lead to poor understanding of problems specific to women and the peculiarities of their utilization patterns (Zurn et al., 2004).

Situation of the Nurses

Nurses play a vital role in the treatment and recovery of patients and are an integral part of the health care system of Bangladesh. In this section, we examine the process of certification, the current situation of nursing training, the capacity of the nursing institutes, the financing of nursing training, and current utilisation of nurses in the

country. We also make an estimation of the current requirement for nurses. The materials presented below are based on information obtained from secondary sources, complemented by findings from survey of student nurses and discussions with principals and teachers of selected nursing institutes.

Number of Institutes and Students

In Bangladesh, there are 70 nursing training institutes that are responsible for producing qualified nurses every year. Of these, 51 are in the public (government) sector and 19 in the private sector. Every year, the nursing institutes admit a total of 2,280 students (1,790 in government institutes and 490 in private institutes). Around 1,200 students qualify as diploma nurses each year (HRD, data sheet, 2007).

The nursing institutes in Bangladesh offer a four-year diploma course on Basic Nursing and Midwifery/Orthopaedics. All the institutes, irrespective of whether they are in the public or private sector, teach the same subjects. These subjects are presented in the Table 4.10 below.

All the eight principals and teachers we interviewed from four nursing institutes expressed their reservations about the current curriculum and

syllabus. They mentioned that there are some shortcomings, like the absence or inadequacy of courses on mental health and genetics, school health nursing, and community nursing, etc. However, they believed that the new curriculum, which became effective from 1st January 2008, would remove these shortcomings. They also welcomed the government decision to shorten the duration of the nursing course from 4 to 3 years and upscale the educational qualification required for admission from SSC to HSC. The medium of instruction is English. However the instructors use a mixture of English and Bangla in the class. The level of English is poor and the students find difficulty in following the lectures.

Opinion on the curriculum was divided amongst the students who were surveyed. Slightly more than a half (53%) thought it was up-to-date. The reasons given for this view include: (a) the training is provided on the basis of current treatment practice; (b) the training can be applied abroad; (c) standard midwife training is given; and (d) there is similarity between theoretical and practical classes. The 47% of respondents who did not consider the curriculum to be update gave the following main reasons for their opinion: (a) the syllabus is outdated and needs to be changed; and (b) knowledge of nursing provided through the training is limited.

Table 4.10 Subjects of the nursing training

Year	Paper	Subjects
First Year	Paper 1	Anatomy and Physiology (including Chemistry and Physics)
	Paper 2	Nursing Arts (including First Aid and Bandaging)
	Paper 3	Community Health and Hygiene (including Psychology, Social Science, Microbiology, and Nutrition)
Second Year	Paper 1	Community Nursing I (including Immunisation, Family Health Nursing, and Health Education)
	Paper 2	Adult and Child Medical Nursing I and Pharmacology
	Paper 3	Adult and Child Surgical Nursing I
Third Year	Paper 1	English
	Paper 2	Community Nursing II (including Statistics and Epidemiology)
	Paper 3	Psychiatric Nursing and Management and Supervision
	Paper 4	Adult Medical and Surgical Nursing II
Fourth Year	Paper 1	Midwifery and Community Midwifery (including Family Planning) – for female students. Orthopaedic/Psychiatric Nursing – for male students.
	Paper 2	Obstetrical and Neonatal Nursing – for female students

Number and Qualification of Teachers

In government nursing institutes attached to medical college hospitals, there have to be a minimum of 6 teachers. The minimum qualification required is that of graduate in nursing/public health nursing. The institutes attached to district hospitals are required to have at least 3 teachers with graduation in nursing/public health nursing. If the above guideline is followed, there should be a minimum of 48 teachers in the 8 institutes attached to medical college hospitals and 90 teachers in the institutes attached to district hospitals, making a total of 138 teachers.

It has not been possible for us to visit all the government nursing institutes to find out whether the number of teachers there were adequate. However, according to the Directorate of Nursing Services (DNS), there were 122 sanctioned posts of nursing instructors (teachers) in government institutes, out of which 80 were working posts and 40 vacant. There were 4,540 nurses studying in these institutions. This means that the teacher-student ratio was 1:57, which is very high. A ratio of 1:20 is considered to be the standard.

In our in-depth interviews with the principals and teachers of four nursing institutes, the dearth of teachers was mentioned as one of their major problems. Similarly, when the nurse students were asked whether their institutes had enough teachers, 82% of the respondents (33 out of 40) replied in the negative. The main reason cited for this was the absence of recruitment of teachers by the government. As regards qualification of the teachers, about 94% of the students mentioned that their teachers were qualified. A similar percentage (92%) said that their teachers interacted with them to assess their understanding of the subjects taught. A large majority (85%) thought that their teachers were sufficiently skilled in conducting practical demonstrations.

According to the teachers interviewed, lectures are the most common method of teaching in the nursing institutes. In addition, group discussions, brainstorming and role play are also practiced. The teachers prepare lecture notes and handouts, which are copied by the students at their own cost, since photocopying facilities, are largely unavailable in the institutes. One teacher

mentioned using an overhead projector (OHP) but blackboards are used more commonly. All the students surveyed also mentioned blackboard as the main teaching aid, followed by hand mike and flipcharts.

The teachers also mentioned a number of difficulties that they faced in teaching/ training. These include overcrowding of students and insufficient space for accommodating them in the classrooms (in one institute)², shortage of text books, absence of text books that the students could easily understand, dearth of flipcharts and modern teaching aids, and large number of subjects that have to be taught by a small number of teachers.

The surveyed student nurses were asked a number of questions to assess the facilities available in their institutes. The responses show a mixed picture. About 60% of the respondents mentioned that their classroom facilities were adequate for training. Around 67% confirmed the existence of demonstration rooms but more than a half (52%) stated that their institutes did not have enough equipment for practical training. To make up for the shortfall, the necessary medical instruments were borrowed from the hospitals, to which the institutes were attached, for teaching before the examinations were held. Almost two thirds (65%) of the students said that there was no seminar room for them to study in. Three fourths (75%) stated that their institutes did not have any recreational facilities for the students.

Asked if their library facilities were enough for training, less than a half of the respondents (43%) replied in the affirmative. Similarly, 45% considered the books that could be borrowed from their libraries to be enough. Only 8% thought that the journals available in the libraries were adequate for their training. More than a half of the respondents (52%) said that no newspapers were available for them in their institutes, while 48% said that one Bengali daily was available.

² This particular institute had to accommodate 180 students in a classroom that was meant for 60. This means 120 students did not have any seats and had to stand in the classroom and adjoining verandah during lectures

In one government nursing institute attached to a medical hospital there was one library for 720 students. There was no librarian and an office assistant was maintaining the library in addition to her normal office work. There was no book register in the library and the books were very old and unusable. Facilities for borrowing books were not available. The library was under lock and key for most of the time.

An overwhelming majority of the respondents (80%) thought that the number of practical classes was insufficient for their training. However, more than a half (56%) confirmed that their institutes arranged visits to medical college hospitals for practical demonstration. Slightly more than three fourths (77%) declared that they had cases for practical training. It is interesting to note that, despite the alleged insufficiency of practical classes, the majority of the students interviewed (60%) mentioned that the practical training they received was sufficient for them to work in a hospital setting. It appears that the practical

training the students received at the medical college hospitals was adequate for them to work in hospitals.

Twenty-four out of forty students (60%) said that they were satisfied with the training they received in their nursing institutes. Those who were not satisfied (40%) gave the following main reasons for their dissatisfaction: (a) “having to do more night duties than envisaged”; (b) “the training is not in keeping with the modern world”; (c) “lack of teachers”; (d) “less educated candidates could get admission into the institutes”; (e) “lack of modern and necessary instruments”; (f) “no opportunity to use library”; (g) “having to go to the sub-centre for taking final exams”; and (h) “teachers do not accompany the students when they observe patients”.

In-depth interviews with the teachers of four nursing institutes revealed the following strengths and weaknesses of the current nursing training system:

Table 4.11. Strengths and weaknesses of current nursing training system

Strengths	Weaknesses
Practical and needs-based training is provided.	A lot of subjects are taught.
There is a huge demand for nurses in the market.	There are no computer facilities.
Nursing services are needed everywhere.	Hospital facilities are limited in terms of low teacher-student ratio, limited supplies for patients (like linen, diet, medicines), poor sanitation, poor waste disposal, etc.
The exam system is good.	There is a lack of subject-wise teachers.
Nurses can work practically with patients (indoor and outdoor) of the hospitals to which the institutes are attached.	There is a dearth of specialised teachers, including those for English.
Community visits give students practical ideas.	There is a shortage of part-time teachers.
Library facilities and books are available.	Teacher-student ratio is high.
There are classrooms for theoretical and practical classes.	There is a shortage of accommodation for students.

Capacity of Nursing Institutes

Discussions with the principals and teachers of four nursing institutes and survey of students in eight institutes reveal that the capacity of the institutes is limited. We have previously noted that there is an acute shortage of teachers. One respondent mentioned that in her institute there were only 6 regular and 10 deputed teachers for

750 students. Another principal remarked that, in his institute, there were 4 deputed teachers, 3 posts were sanctioned but 2 teachers were available, while 1 post lay vacant. He said that he was running the institute with deputed nursing personnel.

The physical infrastructure, particularly of government institutes, was reported to be severely

constrained. There are not enough seats in the hostels for accommodating female students. As a result, there is overcrowding in the dormitories. One principal remarked that, in her institute, 4-5 girls were living in hostel rooms that were designed for 2 students. Classrooms are small and in some cases cannot cope with the number of students. For instance, one institute had to accommodate 180 students in a classroom built for 60 students. Teaching materials and equipment are in short supply. There is very little logistic support and lack of transport facilities is a commonly heard complaint.

Against the above backdrop, the institutes are not able to increase the number of students they admit every year. Asked if the institutes could admit additional students with the existing facilities, the principals and teachers unanimously answered in the negative. It is clear that there is no excess capacity; hence institutional capacity needs to be significantly increased if the number of trained nurses is to be increased.

The principals interviewed suggested a number of steps for increasing the supply of nurses, as listed below:

- There are around 8,000 diploma nurses who are waiting to be employed in the government sector. They should be given government jobs immediately.

- More government and private nursing training institutes need to be established in order to increase the number of nurses.
- The number of posts should be increased in every (government) hospital.
- Existing nurses serving in government hospitals should be promoted and new ones recruited.
- The number of teachers needs to be increased and logistical support improved.

New Initiatives to Train Nurses

In the backdrop of the acute shortage of nurses several initiatives have been taken to start nurses training in the country. As mentioned above, there are 65 nurses training institutes in the country of which 19 are in the private sector. Most of these produce diploma nurses. However, there are also a few which have started BSc in Nursing programmes. Their aim is to fill in the domestic shortages. It is quite likely that many of the nurses passing out of these will also find employment overseas. One such institute is run by the International University of Agriculture, Business and Technology (IUBAT) in Uttara, Dhaka. It started functioning a few years ago and the first batch of BSc nurses will be graduating next year (see Box 4.1).

Box 4.1 A model nurse education programme in Bangladesh

Since 2003, educators from Vancouver Canada have partnered with the International University of Business Agriculture and Technology (IUBAT), Dhaka, Bangladesh to develop a programme Bachelor of Science in Nursing based on international standards.

The IUBAT College of Nursing aims to develop nursing leaders with a strong emphasis on primary health care which supports the Millennium Development Goals and national focus on children, women and young families. The programme is taught in a modern, comprehensive university setting. In addition to classrooms and computer lab, a clinical practice lab on campus and several hospital partners are used for clinical practice. Currently, about sixty-five students are enrolled; the first batch is expected to graduate in 2009. This programme was approved in 2004 by the Bangladesh Nursing Council.

Completing the BSN at IUBAT requires four academic years of three semesters each. Students progress through classroom lectures, skills labs, workshops from visiting faculty and practice in teaching hospitals. Besides basic sciences, computing, English is taught intensively for access to the international literature. Curriculum lays special emphasis on care of acutely ill adults in second year, followed by mental health, family nursing and community health. Because of the strong primary health care emphasis, third and fourth-year courses provide extensive exposure to these topics plus community development and global health.

The major innovation of this program is its “bottom-up” approach, building from the foundations a new model for practice and education. In partnership with progressive health care leaders, this program aspires to be a beacon for long-overdue development of the nursing profession in Bangladesh.

Source: Alex Berland of IUBAT

Estimation of Required Number of Nurses

Nurses are in high demand in Bangladesh due to the increased demand from new hospitals which are being established in the private sector. One principal of a private nursing institute observed: *“There is a crisis of nurses. We got a request from a big hospital to send them 50 nurses but we are unable to do so because we do not have that many nurses to spare.”*

There is no standard in nurse-doctor ratio. Some suggest 3:1 while others prefer 2:1. Currently, it is estimated that there are 38,537 doctors and 15,023 nurses working in the country (HRD data sheet, 2007). This means that the current ratio of nurse to doctor is far worse than what should have been the case. To correct the nurse-doctor ratio, there should be many more nurses, than the current supply is able to provide. Thus the supply of nurses is acutely short of the number required. There is indeed a strong case for increasing the capacity of existing nursing institutes and establishing many new ones for increasing the supply of nurses so as to be able to go some way to meet the requirement for nurses. Please see Chapter 5 for more discussions on this issue.

Situation of Medical Assistants

Medical Assistants play an important role in the country's health care system by providing assistance to doctors in public sector health care facilities such as the Upazila Health Complex (UHC) and Union Health and Family Welfare Centres (UHFWC) and in private facilities. In 1979, the government established eight Medical Assistants Training Schools (MATS) to produce medical assistants to serve in government health care facilities. Currently, five of these institutes are functioning in Bagerhat, Kushtia, Noakhali, Sirajganj and Tangail. Three MATS in Bogra, Comilla and Faridpur have been closed down. All the MATS are owned and managed by the government and there are no MATS in the private sector. These five institutes together take in around 300 students every year.

The MATS in Bangladesh offer a three-year diploma course, in which the following subjects are taught: (a) Paper I – Anatomy and Physiology; (b) Paper II – Pathology including Clinical

Laboratory, Microbiology and Parasitology, (c) Paper III – Food and Nutrition and (d) Paper IV – Pharmacology. The principal and the teacher pointed out that it is very difficult for the students to understand subjects like anatomy, physiology, pharmacology and community medicine because they have only passed SSC and do not have the necessary technical background. The students in general are unable to cope with the subjects and end up collecting notes from the market and memorizing them so as to pass their exams. They are unable to develop a clear concept of the subjects and would not be able to use the learning in practice.

MATS are located at the district level and all the teachers are medical doctors. The minimum qualification required to be a teacher in MATS is MBBS. The salary scale for MATS teachers is the government salary scale. Posting is given in terms of seniority. There were 35 sanctioned posts (5 principals, 5 senior lecturers, 20 junior lecturers and 5 medical officers) and around 900 students in the 5 MATS during the time of our survey. This means the teacher-student ratio was 1:26. According to the teachers interviewed, the main teaching/ training methods used are lectures and discussions. Blackboards and flipcharts are the main aids used.

One of the challenges faced by the teachers is teaching SSC-passed students complex subjects like anatomy and physiology in a manner that will be easy for the students to understand. There are no text books designed for such students, who find it extremely difficult to read and understand the available technical books because these are of a high standard and meant for medical students. The poor level of English of most students is also an impediment to understanding the subjects, since these books are written in English. So, the teachers go through different books and make notes in simple language that the students can understand. Also, the contents of the subjects are simplified and shortened so as to make them relevant to the needs of the students.

The surveyed students were asked some questions in order to assess the facilities available in MATS. All ten respondents said that, although there were enough classrooms, those were not well equipped for teaching and lacked multimedia teaching aids. While a half of them mentioned that there were

demonstration rooms, all the students remarked that their institutes did not have enough equipment and instruments for practical training. These include chemical reagents, microscopes, and computers. All of them declared that they did not have a seminar room to study in. Five out of ten students lamented that MATS did not have sufficient recreational facilities for them.

In-depth interview with the principal and teachers of one MATS and survey of ten students from two MATS revealed the following strengths and weaknesses of their training system (Table 4.12).

The five MATS currently functioning are fully utilising their capacity. All of the respondents interviewed mentioned that it is not possible to increase the number of students using the existing capacity. There are no plans for capacity expansion. In fact, there has been a reduction in the capacity to produce medical assistants as two out of the eight MATS originally established have been closed down. Another one was converted into an institute of health technology.

The purpose of establishing MATS was to produce medical assistants for government facilities like UHC, UHFWC and Union Sub-centres. As per government rules, 2 MAs are required to work in each UHC and one in each of the UHFWCs and Union Sub-centres. With the halting of government recruitment, MAs have found jobs in the private sector (including NGOs) after passing out from MATS. According to the principal and the teacher we interviewed, no

medical assistant is unemployed because there is demand for them in the private sector. Some of the MAs work as radiologists and pharmacists in various clinics and laboratories. Some of them also try to work as general medical practitioners by using their certificates from the State Medical Education Faculty, although they are ill equipped for that role, we were told.

Despite the demand for MAs, the respondents interviewed pointed out that currently there was no need for them in the health care system. They reminded us that MATS were established at a time when there was acute shortage of doctors in the country. Since then the number of doctors has considerably increased due to growth of private medical colleges. On the other hand, there is a greater need for technical people like health technologists (pharmacists, radiologists and pathologists), who should be trained in larger numbers. They suggested that MATS should be converted into health technology institutes which would be able to produce more of these technical people. This view was confirmed by the Directorate of Medical Education, DGHS, which informed that the government has decided to gradually close down the remaining MATS and convert them into Medical Assistants Training Institutes (MATI). The current curriculum will be changed accordingly and will include research and development.

This view is based on the premise that there is no shortage of doctors. Unfortunately it is not based on facts as we have seen huge shortage of doctors

Table 4.12 Strengths and weaknesses of current medical assistant training system

Strengths	Weaknesses
According to principal and teacher	
The MATS building is well constructed.	The training provided is not suitable ¹ .
The teachers (doctors) are well qualified and trained.	Budget allocation is not enough.
The working environment is good.	Books are not well prepared.
	Shortage of reagent and specimen.
	Teachers' accommodation is not good.
	Lack of transport facilities.
According to students	
Classes are held regularly.	Lack of instruments.
There is no student politics.	Lack of recreational facilities.
Students achieve good results.	Insufficient teachers.
The teachers treat the students well.	Dirty environment.
There is good security for girl students.	Dining condition is not good.

in the country. It is interesting to note how the perception of students differs from that of their teachers regarding the utilisation of medical assistants. Only 2 out of 10 (20%) students interviewed thought that all the MAs who had passed out of MATS were properly employed. Six out of ten (60%) students thought that they would have difficulty in finding a job after they complete their training. The reason cited by them was the embargo on government recruitment. They made the following suggestions for improving the utilisation of MAs:

- The government should recruit MAs for its health facilities.
- Vacant positions of MAs should be filled in.
- The government should introduce internship for MAs.
- The MAs should be given the opportunity of getting higher education.

Despite their apparent preference for government jobs, the surveyed students realistically considered their probable places of employment to be NGO clinics, private clinics, private hospitals, and medical units of readymade garment factories.

In 2003, there were 5,598 MAs working in government facilities in the rural areas (HRD data sheet 2007). We do not know how many MAs are working in the private sector. However, one can estimate the total number of MAs currently working in both the public and private sectors by taking into consideration the number of MAs who have passed out of MATS since 2003. As mentioned earlier, around 300 students are admitted into MATS every year. Of them, on average, about 60%, or 180, are reported to graduate every year. Since 2003, therefore, 720 students are estimated to have successfully completed their training in MATS. Thus, the total number of MAs currently working is estimated to be around 6,318.

Situation of Health Technologists

Health Technologists (also called Medical Technologists) are an integral part of the health workforce in Bangladesh. In this section we examine the certification process, current situation of training of technologists, the capacity of health

technology institutes, the financing of health technology training, and current utilisation of health technologists in the country. We also make an estimation of the current requirement for health technologists in the country. This account of the training and supply of health technologists is based on information obtained from secondary sources and data generated from a survey of 35 health technology students and in-depth interviews with principals and teachers of two institutes of health technology (one in the public sector and the other in the private sector).

Under the State Medical Faculty (SMF), Ministry of Health and Family Welfare, there are 32 health technology institutes, three of which are in the public sector (in Dhaka, Rajshahi and Bogra) and 29 in the private sector³. In 2006, a total of 4,386 students got admitted into these institutions (1,011 in the 3 government IHTs and 3,375 in the 29 private ones), according to the Human Resources Development Unit of MOHFW. Currently, 2,116 students are studying in the three public IHTs. Data on the number of students in private IHTs is not available. According to SMF, 282 students from 22 IHTs appeared in the 3rd year final examinations held in July 2007. Out of them 200 passed and qualified as health technologists.

It should be noted that the government IHT in Bogra was started last year and has students, numbering 357, only in the first year. Since this is a new institute and no one has passed out of it, we have excluded it from our survey of public IHTs. It should also be noted that the Bangladesh Technical Education Board (BTEB) under the Ministry of Education has sanctioned 77 private institutes of health technology. Of these, 47 are already functioning and have enrolled students. However, none has passed out of these institutes as yet. Our survey did not cover these institutes.

³ The private institutions are called Institutes of Medical Technology (IMT). However, we use the “generic” title of Institute of Health Technology (IHT) for all such institutes, irrespective of whether they are public or private. There are 32 institutes of health technology under the State Medical Faculty, MOHFW. In addition, 47 private health technology institutes are currently functioning under the Technical Education Board of the Ministry of Education. The survey did not cover the latter institutes.

The IHTs in Bangladesh offer a three-year diploma course in health technology. Each of these institutes has faculties of Pharmacy, Laboratory, Radiology, Radiotherapy, Dentistry, Sanitary Inspector Training, and Physiotherapy. A number of subjects are taught in each of these seven faculties. In this section, we highlight the views expressed on this issue by four faculty members and 35 students whom we interviewed for the study.

The principal and teachers of the government IHT mentioned that the students had great difficulty in coping with current curriculum and syllabus because their background is SSC level. There is a need to develop some modules for teaching the subjects so that it will be easy for the students to understand the materials.

Asked if the curriculum of their training was up-to-date, 6 out of 10 students of government IHTs replied in the affirmative. In the case of students of private IHTs, a larger proportion (80%) gave the same reply. The main reasons cited were: (a) the knowledge that they gained from the training was enough for them to work in hospitals; (b) they got a lot of opportunity to work as medical technicians; and (c) they learned to work practically. The minority who thought the training was not up-to-date remarked that modern methods should be included in the curriculum and new subjects added.

There are 120 sanctioned posts for the two government IHTs, of which 109 have been filled up (11 posts are lying vacant). However, teachers make up a relatively small proportion of the posts. According to faculty members of a public IHT, the number of teachers was insufficient in their institute, with only 10 teachers for a total of 1,033 students. We were informed that recently they had proposed to the government for sanctioning 218 posts, of which 58 would be for teachers.

Paucity of teachers also came up in our survey findings. For instance, all the ten students surveyed in these institutes thought that they did not have enough teachers. The main reasons given were: (a) “the management is not careful about the necessity of qualified teachers”; (b) “when old teachers retire, new teachers are not given appointment”; and (c) “doctors don’t think teaching in IHT is an honourable job.”

We were unable to obtain information about the faculty strength of private IHTs. However, the survey of 25 students from 5 such IHTs reveals that most of them (80%) thought that their institutes had enough teachers.

As regards the qualification of the teachers in government IHTs, most of them are MBBS doctors with a few senior technologists who work as instructors. Asked if their institutes had qualified teachers, 7 out of 10 students of government IHTs said “yes”. In the case of private IHTs, all of the 25 respondents replied in the affirmative.

A half of the public IHT students thought that their instructors were sufficiently skilled in conducting practical demonstrations. A larger proportion of the private IHT students (64%) believed the same. All but one of the respondents mentioned that their instructors interacted with them to assess their understanding of the subjects taught (in both public and private IHTs).

The main challenge faced by the teachers, as mentioned earlier, is to present complex subjects in a simple manner so that the students with their relatively low level of education are able to easily understand the subjects. With this in view, the teachers prepare handouts and provide them to the students. They also give demonstrations. The main teaching aids used, according to both teachers and students, are blackboard, flipchart, and OHP. A few students from private IHTs mentioned the use of skeletons for training.

We asked the surveyed students a number of questions to assess the facilities available in their respective institutes. The responses were varied. For example, 6 out of 10 (60%) students of public IHTs considered the number of classrooms to be enough for their training. A half of them also thought that the classrooms were well equipped. In the case of private IHT students, the percentages of respondents holding similar views were 84% and 80% respectively.

About a half of the students from both the groups mentioned that their institutes had demonstration rooms. However, only 3 in 10 (30%) students of public IHTs thought that they had enough equipment for practical training, as opposed to more than three fourths (76%) of the private IHT students.

Asked if their library facilities were enough, half (51%) of the students (both public and private) replied in the affirmative. However, less than a third (29%) said that the libraries had updated journals. In the case of public IHTs, only 1 out of 10 (10%) thought as much. Less than a third of the respondents (31%) said a Bengali newspaper was available in their institute, while around 17% claimed that they had both Bengali and English newspapers.

None of the public IHT students thought that the number of practical classes was sufficient for their training. This is in sharp contrast to the private IHT students, 60% of whom considered the number to be sufficient. Slightly more than three fourths of the students (public and private) said their institutes had arranged visits to medical college hospitals for practical demonstrations. All the students were convinced that the practical training they had received was enough for them to work in a hospital.

A minority of the students (31%) said that they had faced problems during their training. The main problems mentioned by them were the following: (a) “have to pay a lot of money at a time⁴”; (b) “have to pay money for internship”; (c) “inadequate accommodation in the hostel”; (d) “routine classes were not held because of the lack of teachers”; and (e) “no entertainment facility.” Seven out of ten (70%) students of government

IHTs were not satisfied with the training that they had received. The main reasons they gave for their dissatisfaction were: (a) “the scheduled time of internship and classes was not followed”; (b) “classrooms did not have modern teaching aids”; (c) “practical classes were not held properly”; (d) “teachers were not interested in taking classes”; (e) “no facility for library work”; and (f) “lack of qualified and skilled teachers⁵.” In contrast, most of the students of private IHTs were satisfied with their training. Only 4 out of 25 respondents (16%) expressed dissatisfaction. Their main reasons were: (a) “insufficient number of faculty members”; (b) “no facility for library work”; and (c) “the training was expensive”.

In-depth interviews with faculty and students revealed the following strengths and weaknesses of the current health technology training system (Table 4.13).

The faculty members with whom in-depth interviews were held suggested the following measures for improving the training of health technologists in their institutes:

- The curriculum needs to be improved because the students, who come from a low educational level (SSC), cannot cope with its contents.
- Students are weak in English, so teaching of English needs to be strengthened.

Table 4.13 Strengths and weaknesses of current health technology training system

Strengths	Weaknesses
According to faculty members	
Teachers are qualified	Insufficient number of teachers
The teaching facilities are good	Curriculum difficult for students
	Time allotted to complete each subject is not enough
	Limited hostel seats for students
	Inadequate accommodation for teachers
	No transport facilities
According to students	
Standard education	Insufficient number of teachers
Qualified and friendly teachers	No facility for entertainment
No session jam	Lack of text books
Adequate hostels for female students	Not enough classrooms
Secured environment	Inadequate library facilities

⁴ This and the subsequent remark were made by respondents who were studying in private IHTs, which charge higher fees than government institutes do.

⁵ This view was expressed by only 1 out of 35 respondents (3%), and was not shared by other students and faculty members interviewed.

- Some standard teaching modules should be developed.
- More multimedia and demonstration models are needed.
- Existing MATS need to be converted into IHTs.
- The honorarium of guest teachers, which is Taka 200 per lecture, needs to be increased because teachers are not interested to teach at this low rate.
- The number of staff and teachers needs to be increased and logistics support improved.
- Books and library facilities need to be improved.
- The supply of specimens and reagents needs to be increased.

The two IHTs in the public sector are fully utilising their capacity. All the faculty members and students interviewed mentioned that, with the present strength and available logistics, it was not possible to accommodate more students in those institutes. Their capacity limitations, like shortage of teachers, have been discussed earlier. However, by converting MATS into IHTs more capacity could be built in the public sector for producing health technologists. On the other hand, the faculty members and most of the students surveyed from the private IHTs declared that the capacity of their institutions could be increased, if needed.

Statistics on health technologists are rare and confusing; according to a data sheet compiled by the Ministry of Health and Family Welfare in 2007 (HRD Data sheet 2007) the “total number of registered medical technologists produced up to 2002” was 12,441. This number was broken down into the following categories:

Table 4.14 Medical technologists produced up to 2002

Medical Technologists	
Sanitary inspectors	952
Dentists	454
Laboratory technicians	2,220
Pharmacists	7,622
Radiographers	1,054
Physical therapists	139
Source: HRD Data Sheet 2007	

It should be noted that the MOH&FW data sheet provides the full list of health technologists who had been registered until 2002 but does not state how many of them had been working at that time. However, according to a government document, there were 10,653 health technologists in Bangladesh in 2007 (MOH&FW 2007).

The principals and teachers interviewed unanimously declared that all health technologists are employed within a short time of passing out of IHTs. They get jobs mainly in government and private hospitals and clinics, and diagnostic centres. Almost 90% of the students interviewed were confident of getting a job without difficulty. The main fields in which they expected to be employed were government hospitals, private hospitals, private clinics, diagnostic centres, NGO clinics and pharmaceutical companies. Some expected to find jobs overseas.

It is interesting to note that, despite their optimism, only a half of the students thought that all health technologists who had completed their training in IHTs before them had been employed. Lack of recruitment in vacant government positions was seen to be the main constraint to their employment.

As reported above, there seems to be a good demand for health technologists in the country. With new hospitals, clinics and diagnostic centres being established, the demand will be on the rise. It is generally accepted that the ratio of health technologist to doctor should be 5:1, i.e. five technicians for one doctor. This means that the current ratio of technician to doctor is almost the opposite of what should have been the case. The current supply of technologists is grossly short of the number required for maintaining an efficient health care system in the country. It is imperative that more institutes of health technology be established, especially in the private sector, in order to produce more and more trained technicians so that this acute gap between supply and requirement can be minimized.

Situation of Skilled Birth Attendants

In view of the persistent high maternal and infant mortality in the developing countries, two of the eight Millennium Development Goals (MDGs)

relate to reducing child mortality and improving maternal health. Hence, there is an urgency of curbing maternal and newborn mortality and morbidity both at the national and international level. A joint statement of WHO, UNFPA, UNICEF and World Bank in 1999 called on the countries to ensure skilled care during pregnancy, childbirth and immediate postnatal period for all women and newborns (WHO, 2004a).

A skilled attendant or skilled birth attendant has been defined as ‘an accredited health professional such as a midwife, doctor or nurse, who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns’ (WHO, 2004a). However, in Bangladesh the Skilled Birth Attendant is defined as the accredited health workers working at the community level, i.e., Family Welfare Assistant and female Health Assistants, who have been educated and trained to proficiency in all the core midwifery skills and abilities needed to manage normal (uncomplicated) pregnancies, child birth and the immediate postnatal period, and in identification and referral of complications after providing first-line management to the mothers and newborns (WHO, 2004b).

In March 2003, the government, with technical and financial assistance from the World Health Organization (WHO) and United Nations Population Fund (UNFPA), embarked on the “Community-Based Skilled Birth Attendant and Services” programme. The main objective of the programme was to help in the reduction of maternal mortality by increasing the percentage of trained health worker-assisted deliveries, which take place in rural homes, from 13% to 50% by the year 2010. In order to fulfill this objective, the government, with the help of the Obstetrical and Gynaecological Society of Bangladesh (OGSB) – a non-governmental professional organisation – has been providing training to two types of government health workers, namely Family Welfare Assistants (FWA) and female Health Assistants (FHA), collectively called Community-Based Skilled Birth Attendants (CSBA), for ensuring safe delivery at home.

In this section, we examine the certification process of CSBAs and the current situation of their training and utilisation. This assessment is based on a review of relevant documents and information obtained from interviews with the director of OGSB, an instructor of the CSBA training programme, and a number of CSBAs.

As mentioned earlier, OGSB is entrusted with designing, facilitating and organising the training for CSBAs with the help of other stakeholders. The training itself is provided in facilities like the Family Welfare Visitor Training Institute (FWVTI), nursing institutes, and Mother and Child Welfare Centre (MCWC). These facilities have to be accredited by the Bangladesh Nursing Council in order to be able to serve as CSBA training centres. The training is provided to batches of 16 trainees in 30 centres in 40 districts of the country. So far, 216 upazilas have been covered and around 3,000 CSBAs trained. On average, 480 CSBAs are produced each year.

Skilled Birth Attendant training is a six month training. It consists of four weeks of class room lecture and demonstration, thirteen weeks of clinical practice in hospital, eight weeks of practice at the community level and one week of final evaluation. Certificates are awarded to each qualified candidate through assessment during and at the end of the course, which forms the basis of registration by BNC.

The trainees are selected from amongst the FWAs and female HAs on the basis of certain criteria i.e., age limit up-to forty-five years, minimum educational qualification of secondary school certificate, willingness to stay at the training place during the training period of six months and willingness to work in a specific working area for at least five years. The following five modules are taught: (a) Maternal and Neonatal Health; (b) Antenatal and Intranatal Care; (c) Neonatal and Postnatal Care; (d) Clinical Midwifery Practices; and (e) Community Midwifery Practices.

We present here the views on curriculum and syllabus of CSBA training expressed by a number of CSBAs interviewed by us. Opinion on the curriculum was divided amongst the CSBAs surveyed. Two out of five respondents thought that the contents of the module were not

appropriate for the training. The reason they cited was the absence of episiotomy in the curriculum.

According to the “Training Curriculum for Trainers of Community-Based Skilled Birth Attendants,” both district and national-level trainers are involved in the CSBA training programme. At the district level, 15 instructors conduct the training. Two thirds of them are technical people (clinical instructors) and the remaining one third are relevant health workers (non-technical instructors) involved in the management and coordination of training activities at the district level.

Clinical instructors are responsible for discussing with the trainees the clinical aspects of classroom sessions and helping them with practical demonstrations and competence-building exercises. The types of such clinical instructors and their qualifications are detailed in Table 4.15.

Table 4.15 Qualification of clinical instructors of CSBAs

Clinical Instructor	Qualification
District hospital consultant	MBBS
Assistant registrar (obstetrics and gynaecology)	MBBS
Medical officer working in the obstetrics and gynaecology department	MBBS
Midwife working in delivery unit	Diploma in nursing
Family Welfare Visitor	Preference is given to those who have emergency obstetrics care (EOC) training

Non-clinical instructors are responsible for non-clinical aspects of classroom sessions, including communication and counseling, creation of social awareness, state of maternal health, referral system, record keeping and reporting. In addition, these instructors play the main role in managing and coordinating the training activities. The types of non-clinical instructors and their qualifications are as follows:

Table 4.16 Qualification of non-clinical instructors of CSBAs

Non-clinical Instructor	Qualification
Resident medical officer/deputy civil surgeon of district hospital	MBBS
ADCC	MBBS
Medical officer (CC)	Diploma in Nursing
Principal/instructor, FWVTI	
Principal/nursing instructor, nursing institute	

At the national level, the national instructors who were provided an orientation on CSBA training are responsible for conducting training of trainers (TOT) of district instructors. In addition, they carry out mid-term evaluation of trainees during CSBA training sessions and, from time to time, supervise and monitor their activities. The national level instructors consist of:

- Obstetrics and gynaecology consultant.
- Paediatrics consultant.
- MBBS doctor working in gynaecology or children’s ward.
- Nurse midwife/Family welfare visitor.
- Program manager involved in reproductive health.

According to the curriculum for training CSBAs, the following methods should be used for conducting training: (a) lecture sessions; (b) discussion sessions; (c) group work; (d) case studies; (e) role play; (f) demonstration/practice sessions on models; (g) practice sessions on patients; (h) video show; and (i) checklist. The surveyed CSBAs mentioned that their instructors used the following teaching aids: (a) blackboard; (b) overhead projector; (c) flipchart; and (d) dummies.

As mentioned earlier, although OGSB organises the programme, the training itself is given in FWVTIs, nursing institutes, and MCWCs. The CSBAs interviewed drew a mixed picture of the facilities that they had experienced while undergoing training. While all five of them said that there was enough equipment for practical training, two mentioned that their classrooms did not have enough furniture. All five of them declared that there were no demonstration rooms.

The duration of the CSBA training is for six months during which time basic midwifery is taught to the trainees. Interviews with CSBAs show that the training sessions they had attended were completed in time. All of them mentioned that they had received a syllabus at the beginning of the year and the theory classes had been completed as per schedule. They added that the contents of both the theoretical and practical syllabi were completed in time.

Majority of the CSBAs (62%) had passed Secondary School Examination. Some of them (32%) had passed Higher Secondary School examination and few of them (8%) had bachelor degree as well. Most of them (95%) were married.

Their average monthly income was Taka 7,000 and average monthly family income was Taka 17,000. Hence, the income earned by the CSBAs constituted a substantial percent of their average monthly family income. However, all of them are employed by government and also do other duties, this income is not solely from their work as CSBAs.

The CSBAs reported that on an average they had attended twenty deliveries during CSBA training. Almost all CSBAs stated that SBA training had been helpful for them. Many of them considered that SBA training had changed their role from a mere counselor and service promoters to very important service provider.

Besides the SBA trainings CSBAs had also received many other basic trainings. Majority CSBAs reported of having received basic trainings on maintenance of registers (41%), family planning (39%), and immunization (30%). Very few CSBAs (16%) mentioned essential service package as subject of basic training. Most of the CSBAs (94%) reported of receiving refresher trainings. The frequently mentioned subjects of refresher trainings by the CSBAs included family planning (51%), maintenance of registers (31%) and immunization (18%). None named the essential service package as the subject of refresher training.

The FWAs and female HAs provide many health messages and information under essential service package. However, only a few CSBAs reported of getting essential service package as basic training.

Moreover, none of the CSBAs mentioned behaviour change communication as a subject of their training even though their main job centered around awareness building of people on health and family planning.

About a half of the CSBAs informed that they needed episiotomy training in order to provide better services. Some of them also mentioned that they needed training on menstrual regulation (23%) and care for new born babies (12%).

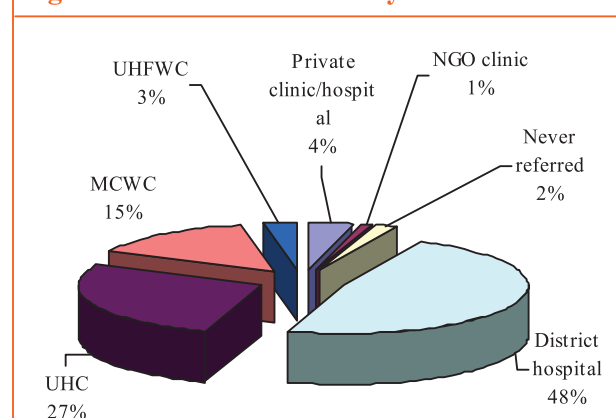
The CSBAs most frequently mentioned distribution of pills and condoms to the family planning method acceptors as one of their services. However, attending delivery at home was not among the seven most frequently mentioned services by the CSBAs. Seventy-five percent CSBAs mentioned that they attended delivery at home. Nevertheless, when they were asked if they had attended delivery at home after receiving SBA training, except one all the CSBAs replied positively. They reported to have had attended six deliveries on an average at home in the last three months or two per month. Some CSBAs mentioned to some of the field investigators on condition of anonymity that their supervisors had informally instructed them not to attend delivery in day time. Some CSBAs also stated that they are not provided with delivery kits. Delivery kits which were given to them at first were not usable.

The most preferred referral places of the CSBAs were the district hospitals. Nearly a half of the CSBAs reported that they had referred pregnant mothers to the district hospitals for management of complications beyond their skill. The most frequently mentioned reasons for referring pregnant mothers to the district hospitals included the availability of caesarean facility (47%), availability of all types of health care facility (47%) and availability of blood (38%). Twenty-seven percent of CSBAs reported of referring pregnant mothers to Upazila Health Complexes. The most frequently mentioned reasons for referring pregnant mothers to the Upazila Health Complexes included the availability of experienced doctors (50%), availability of all types of health care facility (50%), availability of cesarean facility (39%), and good transportation (35%). Therefore, it seems that most CSBAs

mentioned district hospitals as referral centers because lesser number of Upazila Health Complexes had availability of caesarean facility and other health facility. The CSBAs referred their clients to the Upazila Health Complexes in which caesarean facility and other health service facilities were available and because transportation system was better with Upazila Health Complexes.

However, contrary to the common belief, only a few CSBAs informed of referring their clients to private clinics or hospitals. Only four CSBAs reported that they had referred pregnant mothers to private clinics or hospitals. Figure 4.1 shows CSBAs' response about places of referral. Majority of the CSBAs (73%) stated that they always attended delivery at night when it was needed.

Fig. 4.1 Places of referrals by CSBAs



SBAs stated that until now people largely depended on the services of traditional birth attendants (TBAs). Most of the CSBAs (97%) were of the opinion that people liked to call TBAs for attending deliveries.

Table 4.17 Reasons for reliance of people in the services of TBAs

	CSBA
TBAs are easily available	68
TBAs are known to them	48
People have more confidence on TBAs	48
Smaller number of CSBAs in comparison to the demand	23
N	96

Majority of the CSBAs considered that they were inspired to work as CSBA because it gave them the scope of networking or building social and professional connection and the scope for developing skill and experience. The following table shows the most frequently mentioned benefits which the CSBAs considered to have inspired them to work as CSBAs.

Table 4.18 Source of inspiration to work as CSBAs

	CSBA (%)
Opportunity for networking	73
Opportunity for development of skill and experience	60
Opportunity for work as SBA even after retirement from government job	42
Opportunity of institutional training	33
N	96

Most CSBAs (88%) reported of receiving money or gifts from their clients for serving them. The most frequently mentioned gifts included sari (85%), cash (67%), money for conveyance (31%), and invitation (31%).

It is very encouraging to note that almost all the CSBAs (95%) stated that they were professionally satisfied with their job. The most frequently mentioned reasons for their job satisfaction included the followings.

Table 4.19 Reasons for job satisfaction

	CSBA (%)
Opportunity of working in the own community	67
Earned respect of the people	64
Doing an important work	53
Opportunity of training	35
Opportunity of gaining experience	34
N	91

Contrary to other categories of health service providers working at the community level or outreach health centres, majority of the CSBAs (74%) expressed their satisfaction with the financial benefits from the job. Also majority of CSBAs (78%) expressed their satisfaction over the quality of their service.

Table 4.20 Strengths and weaknesses of current CSBA training programme

Strengths	Weaknesses
All the teachers are qualified and experienced	Duration of training was too short
The teachers attached importance to the programme and provided training with dedication	Classroom was small and could not accommodate all participants
Extra evaluations of trainees were conducted	There were insufficient chairs and tables
Courses were completed in time	There was accommodation problem (some of the participants had to rent houses)
	Training on episiotomy was not provided
	Certificates were not given

Interviews with the CSBAs revealed the following strengths and weaknesses of the training sessions that they had attended:

Our key informants made the following recommendations for strengthening the CSBA training programme:

- The government should recruit more FWAs and FHAs. There has not been any new recruitment and many CSBAs have retired within a short time after getting the training.
- More funds need to be generated for provision of training and infrastructure and logistic support.
- BRAC has taken the initiative of training over 500 SBAs. Other NGOs should take similar steps so that the number of SBAs in the community can be increased.
- Private sector hospitals and community institutions can also take the initiative to create more SBAs.
- Health awareness of the people – especially on safe motherhood and delivery – should be increased by effectively using the print and electronic media.
- DGFP and DGHS should increase their supportive supervision of CSBAs.
- In order to become skilled, CSBAs need to undergo at least 18 months of training, which is the international standard.

According to OGSB, around 3,000 FWAs and FHAs have already received training and are working as CSBAs in different parts of the country. Asked if they were being able to

properly practice what they had learned, all our respondents replied in the affirmative. CSBAs, according to them, are in high demand. Since they are already in service, there is no unemployment among them. However, the respondents mentioned the following factors that were constraining their effective utilisation:

- They are not allowed to perform deliveries during office hours
- There is no official system of evaluating their performance
- There is no cooperation from the higher authorities
- Doctors do not encourage CSBAs
- Most of the people prefer the services of traditional birth attendants
- People are superstitious and there is a lack of awareness of safe motherhood in the community

Their suggestions for improving the utilisation of CSBAs are listed below:

- CSBAs should be provided refresher training
- They should be given training on episiotomy
- Their work should be properly supervised and evaluated
- Their supervisors and the higher authorities should cooperate with them
- There should be a system for them to practice in the hospitals

Almost 90% of births in Bangladesh take place at home and only 18% of the deliveries are currently assisted by qualified service providers (BDHS 2007). About 80% of maternal deaths occur among women who deliver at home. Under these circumstances, there is a real need for CSBAs because they perform the important function of assisting safe deliveries at home. OGSB plans to provide training to another 10,000 FWAs and FHAs, thereby bringing the total of CSBAs to 13,000. However, in order to handle the large number of deliveries, estimated to be around 3.5 million every year, many more CSBAs will be needed. The government should encourage the private and NGO sectors through incentives to get involved in the production of CSBAs.

Situation of Community Health Workers

Community health workers are an important part of the health workforce of many NGOs. Several different definitions of the term community health worker exist. WHO defined them as follows, “CHWs are men and women chosen by the community, and trained to deal with the health problems of individuals and the community, and to work in close relationship with the health services. They should have a level of primary education that enables them to read, write and do simple mathematical calculations” (WHO, 1990). In this study CHWs are referred to as the outreach health workforce who provide health information and services at the community level and are drawn from the community. CHWs in Bangladesh work both within the government health and family planning programme as well as in the non government health and family planning programmes. CHWs working in the major non-government health programmes or organizations are the focus of this study.

As the name suggests, CHWs are NGO health workers who work within communities at the grassroots level. They are called by various names. BRAC calls its CHWs *Shasthya Shebika* (health service provider), Swanirvar Bangladesh (NSDP partner) calls them depot holders, while Shimantik (UPHCP partner) has two types of CHWs, namely outreach workers and BCC (behavioural change communication) workers. CHWs are usually females. The types of work they do are quite similar across NGOs. Their

activities include identification and treatment of common ailments and referring complicated cases to government and other health facilities. The CHWs visit households in the community to collect information about their health conditions and also to provide them a wide variety of information related to health, nutrition, and family planning. In addition, CHWs distribute medicines, contraceptives and health products to members of the community in which they work.

BRAC, NGOs working under NGOs Services Delivery Programme (NSDP) and NGOs working under Urban Primary Health Care Project (UPHCP) are the major employers of CHWs. However, in selecting CHWs of UPHCP the study could not strictly confine itself to the definition of CHWs because CHWs working in the NGOs under UPHCP are not necessarily drawn from the community. Moreover, while the CHWs trained by NSDP and UPHCP provide remuneration, the BRAC CHWs are volunteers.

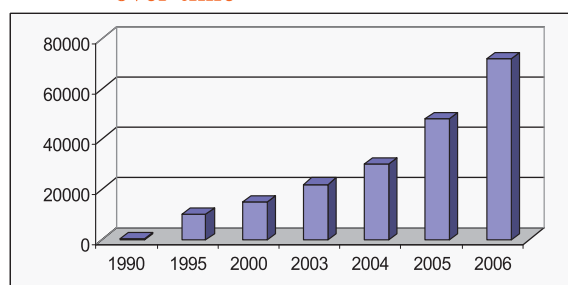
BRAC CHWs

BRAC is one of the major producers and promoters of CHWs. In particular this section gives information on the health service available under BRAC health programme and how CHWs serve in this. Health has been an integral part of BRAC programmes since its inception in 1972. BRAC Health Programme (BHP) has expanded over the years in keeping pace with national and global health priorities. BHP provides preventive, curative and promotive health services at the community level (BRAC, 2007). BRAC health programme provides basic health services to over 31 million people through its core programme Essential Health Care (BRAC 2007). EHC programme of BRAC is basically designed to support the members of its Village Organizations (VOs). Components of Essential Health Care (EHC) include health and nutrition education, water and sanitation, family planning, immunization, pregnancy related care, basic curative services and tuberculosis control. However, health services offered under EHC are not only limited to BRAC VOs. The EHC intervention comprises a package of essential health services. CHWs are the nucleus of this programme.

BRAC in collaboration with government facilities implements some of the national programmes i.e., Tuberculosis Control Programme, Malaria Control Programme, Expanded Programme on Immunization and Sanitation Programme. BRAC runs Tuberculosis Programme through the DOTS strategy in 283 Upazillas of 42 districts, reaching over 83 million people in Bangladesh (BRAC 2007).

Shasthya Shebikas (SS) are the Community Health Workers (CHWs) in BRAC. They are the first contact point between the community and BRAC's health services. They are selected from amongst the members of the Village Organizations or Micro Finance Group of BRAC's micro credit programme. They are selected by the Village Organization members and the community. Each CHW is responsible for 250 households on an average and visits 15 households per day. Currently there are over 70,000 CHWs working with BRAC health programme (BRAC 2007) which has grown steadily over the past two decades (see Figure 4.2) (Standing and Chowdhury 2008).

Fig. 4.2 CHWs working at BRAC over time



Source: Standing and Chowdhury (2008)

CHWs organize health education forum at the village level. They disseminate messages on child health, immunization, pregnancy related care, safe drinking water and sanitation, personal hygiene, nutrition, and tuberculosis and educate and encourage eligible couples for adopting family planning methods and distribute pills and condoms. They also inform families about the sources of health service. Besides giving health information CHWs also provide treatment for some common ailments such as diarrhoea, dysentery, common cold, helminthiasis, anaemia, ringworm, scabies, hyperacidity, angular

stomatitis. In cases of severe illnesses and complications they refer patients to government and other health facilities. They also sell some health commodities and drugs with a small mark-up. These commodities and drugs include paracetamol, vitamins, anti-histamines, oral rehydration saline, antacids, anthelmintics, condoms, contraceptive pills, hygiene soap, iodized salt and sanitary napkins.

In areas having TB programme, CHWs identify TB suspects and refer suspected patients having persistent cough for more than three weeks for sputum examination. Outreach smearing centres are established at the union level. After diagnosis, treatment is given to the TB patients following the national guidelines using the Fixed Dose Combination (FDC) drugs. The CHWs monitor and ensure drug intake.

CHWs only after getting basic training of 15-20 days, can start their work. Regional Training Centres for BRAC Health Programme at the district levels provide training to CHWs. Each month CHW come to the Branch Office. Day long refresher training is held there on different topics each month. Management and technical problems are also discussed in these training sessions. It is sort of an interactive training where CHWs themselves take vital role in keeping the flow of discussion.

Shasthya Kormis are the supervisors of CHWs. They meet with all the CHWs at least once in a month. They verify information collected in the registers of CHWs. Their performance is assessed on the basis of the number of patients served, number of drugs and health products sold, number of household visited, attendance in refresher training, number of patients/clients mobilized at EPI centre and ANC cluster. CHWs who do not take drug from BRAC and do not attend refresher training for three consecutive months are considered inactive. Annual drop out rate of CHWs is 5 to 7 percent.

CHWs of BRAC do not get any salary or honorarium. They charge a mark-up on the sale of health commodities and drugs. The monthly income from Shebika work is about Taka 300.

CHWs Working in the NSDP

CHWs working in the NGOs under NSDP are titled Depot Holders. Depot Holders are selected from amongst the community members. Prospective candidates for depot holders are identified through discussion with community people. One should have at least eight years of schooling and be married in order to be eligible for being depot holders.

Depot holders sell pills and condoms, oral saline and some over the counter drugs, i.e., Paracetamol, vitamin- C, Riboflavin, paediatric Cotrimoxazole, etc. In addition to selling these products they encourage and motivate people to receive health services from satellite clinics and static clinics. They give advice and treatment for some common communicable diseases and respiratory infections. They also provide information on the sources of health service.

After recruitment the CHWs are provided with 14 days long in-house training by their supervisors, i.e., service promoters on Essential Service Package of the government. Every month, day long refresher training is held at the NGO clinics. Their first referral point is satellite clinics. They also refer to the nearest Family Welfare Centres, NGO static clinics and Upazila Health Complexes. On the basis of this knowledge they refer their clients to appropriate health centres. Depot holders report to their supervisors in the monthly refresher trainings. They record their activity in the daily tally sheet. They submit consolidated monthly service record to their supervisors. Monthly reports contain information on total sale of products and total amount of service charge. Their performance is assessed on the basis of sale proceeds from the products, increase in family planning method acceptors and number of clients referred at satellite clinics and static clinics.

Depot holders get Taka 400 as honorarium per month. Besides this honorarium they get fifty percent commission on the total sale of products or fifty percent of the total profit earned from sale of products. They get fifty percent on the total sale of product if they sell products received from government, i.e., pills and condoms received from government source. They get profit on the sale of

other brands of products i.e., pills, condoms and saline of social marketing company etc. Further, they also get fifty percent commission for referring clients of injection for contraception and antenatal care. For attending monthly refresher training at the clinic they get travel allowance amounting to Taka 80.

The drop out rate of the CHWs working in NSDP is very low. It is 2 percent for all NSDP NGO clinics.

CHWs Serving in UPHCP

Partner NGOs of UPHCP categorize two types of workers as CHWs. They are outreach workers and service promoters. Approximately a total of six hundred service promoters and six hundred outreach workers are working under UPHCP program. Outreach workers and service promoters are recruited through advertisements in the daily news papers and interview. Unlike the CHWs of BRAC and NGOs under NSDP they are not necessarily drawn from the community they work in.

The educational requirement of the outreach workers and service promoters amongst the NGOs of UPHCP varies. In larger NGOs the educational requirement is higher. In larger NGOs educational requirement for outreach workers is Higher Secondary Certificate (12 years of schooling) and for the smaller NGOs it is eight years of schooling. Educational requirement for the service promoters is Higher Secondary Certificate in all the NGOs. However, larger NGOs prefer service promoters with graduation.

Outreach workers go door to door to mobilize the community for EPI, ARI, diarrhoea, TB, vitamin A supplementation, promotion of NGOs health service in satellite clinics and static clinics. They also conduct health sessions and help in satellite clinics. The main job of the service promoters is to improve the client flow of the satellite clinics and static clinics. Outreach workers and service promoters record their service in the daily activity report.

After recruitment, outreach workers and service promoters are provided with basic in-house training on Behavioral Change Communication (BCC) and all components of Essential Service

Package. Generally they are provided with 2-3 day long in-house refresher training once in two years. The Field Supervisors supervise the work of both outreach workers and service promoters. Field supervisors make surprise visits at the field level. Outreach workers maintain follow-up registers. Field supervisors randomly check the follow-up registers and verify information of the follow-up registers. Their performance is assessed on the basis of client's turn over at the respective satellite clinics, their behaviour with the clients and their knowledge on the subjects on which they had been provided training.

The salaries of the outreach workers and service promoters of different NGOs under UPHCP also vary. The salary of the outreach workers and the service promoters is much higher in Marie Stopes Clinic Society than those of other NGOs under UPHCP. Salary of these workers varies because of the differential in the quotation of the project proposal at the time of bidding for the project. Their monthly gross salary ranges from Taka 2,000 to Taka 4,000. All of them get festival bonus. CHWs of some larger NGOs also have provident fund and gratuity.

The drop out rate of CHWs working in UPHCP is very low. In most of the NGOs it is almost nil.

Educational and Economic Background of CHWs

The CHWs of UPHCP NGOs have the highest formal education. Twenty-three out of fifty CHWs in UPHCP NGOs have Higher Secondary School Certificate and nine of them have bachelors degree. Most of the CHWs of NSDP NGOs have attended school at least up-to class eight. CHWs of BRAC have the least formal education. Twenty percent CHWs of BRAC can only sign and 40 percent of them have studied up-to class five. Most of the CHWs (81%) are married. The income earned by working as CHW is the main source of personal income for all the CHWs of UPHCP NGOs, most of the CHWs of NSDP (96%) and majority CHWs of BRAC (76%).

Except for a few CHWs (8 individuals) all others reported that they were not working in any other organization. The average personal income of the CHWs from the job of CHW varies considerably. The average personal income from other sources is greater for CHWs of BRAC than that of other NGOs. It is the lowest for the CHWs of UPHCP NGOs. Therefore, even though the average personal income from the job of CHW is lowest for the CHWs of BRAC their average total personal income is more than the CHWs of NSDP NGOs.

The average monthly family income of CHWs ranges between Taka 5,000 and Taka 8,000. It is the lowest for the CHWs of BRAC and highest for the CHWs of UPHCP.

Table 4.21 Most frequently mentioned services by the CHWs

Services	NSDP (%)	BRAC (%)	UPHCP (%)
Collect information on mother and newly wed on family planning	96	88	86
Educate couples on family planning methods and motivate them to use contraceptive	80	90	70
Help in immunization programme by taking people to the site	60	78	68
Treat diarrhoea with ORS	86	72	44
Provide first aid	52	94	34
Encourage people to receive health service from satellite and NGO clinic	82	18	70
Register pregnant women	66	20	80
Counsel and advice on new born care and breast feeding	44	54	58
Refer clients for clinical contraception	48	38	58
Sell medicine, contraceptives, and health products	44	96	-
Refer pregnant women and other patients	46	42	46
Identify TB patients and follow-up their treatment	18	92	14
Build awareness on sanitation and safe drinking water	22	70	30
N	50	50	50

Even though the key informants of the respective organizations of CHWs had named varying services provided by the CHWs, they themselves most frequently mentioned the following services.

Table 4.22 Average monthly personal and family income of CHWs

	NSDP	BRAC	UPHCP
Average monthly family income	5148	5216	7739
Average personal income from service	449	72	3081
Average personal income from other sources	248	812	69
Average of total personal income	691	884	3150
N	50	50	50

Table 4.23 Reasons for serving as CHWs

Reasons for serving as CHW	NSDP (%)	BRAC (%)	UPHCP (%)
Financial gain	92	98	82
Serving own community	78	86	62
Building social connection and network	50	58	38
N	50	50	50

The most commonly mentioned services by the CHWs were collection of information of mother and newlywed on family planning and educate couples on family planning methods and motivating them to use contraceptive methods.

Even though selling medicine, contraceptives and health products should have been mentioned by all of the CHWs of NSDP, only forty-four percent CHWs of NSDP mentioned that.

The working hours of CHWs also vary considerably. It is the lowest for the CHWs who basically provide voluntary service. The mean working hour for the CHW of BRAC is half than that of the CHWs of NSDP and UPHCP (six hours per day). The mean number of households in the working area of CHWs is much more in the

NGOs of UPHCP than that of the CHWs of NSDP NGOs. Similarly their average number of visits on a day or on a week is also higher. CHWs are primarily working as CHWs in order to make some earnings for them. The most frequently mentioned reasons by the CHWs for serving in their jobs are as follows:

Table 4.24 Major problems in providing quality service

	NSDP (%)	BRAC (%)	UPHCP (%)
Lack of training	72	64	64
Communication problem with the clients	38	24	20
Non cooperation of the family members	12	4	54
Non- availability of medicine	20	18	20
N	40	41	45

About sixteen percent of the CHWs were of the opinion that they did not have any problem in providing health services. The rest of the CHWs identified the following major problems in providing services. Lack of training was mentioned most frequently (66.7%) by the CHWs as a problem in providing the services effectively.

One of the important works of the CHWs is to refer patients to appropriate health centers. CHWs of BRAC mostly refer their patients to Upazilla Health Complexes (52%) and District Hospitals (28%). CHWs of NSDP and UPHCP NGOs

Table 4.25 Most common types of patients referred by CHWs

	NSDP (%)	BRAC (%)	UPHCP (%)
Complications of pregnancy	74	70	82
Clients using long acting contraceptives	80	60	30
General diseases	58	50	48
Complicated delivery	46	58	48
TB patient	42	60	26
N	50	50	50

mostly refer their clients to their NGO clinics. They also refer their patients to the satellite clinics. The following table shows the most common types of patients referred by the CHWs.

Table 4.26 Types of problems faced by the CHWs in referring patients

Problems	NSDP (%)	BRAC (%)	UPHCP (%)
Patients do not listen to our advice	10	20	30
Unwilling to spend money on costs of treatment	12	6	19
Unwilling to spend time for treatment	-	30	-
N	14	26	22

Almost sixty percent of CHWs stated that they did not face any problem i.e., non cooperation from the patients or from other health care providers in referring their clients. Those who reported having faced problems mentioned the following problems.

Table 4.27 Subjects of basic trainings as mentioned by the CHWs

Subjects of basic training	NSDP (%)	BRAC (%)	UPHCP (%)
Common diseases	18	96	8
Child health	68	-	6
Tuberculosis	-	24	14
Menstrual Regulation	20	-	6
Acute Respiratory Infection	16	-	6
Family Planning	14	2	6
N	50	50	50

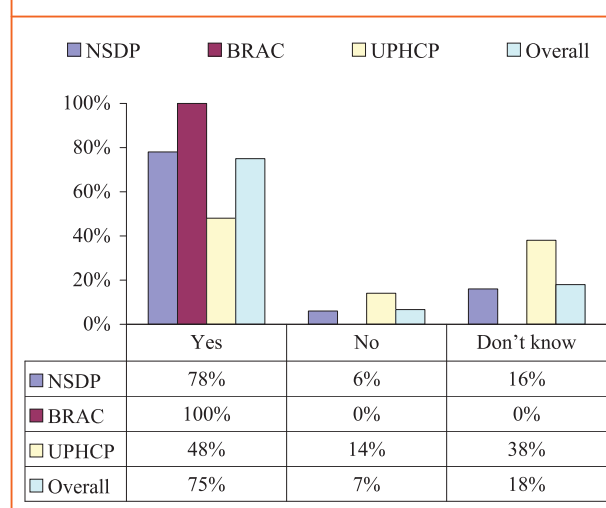
The CHWs of all the organizations mentioned varying subjects of basic training provided to them. There was no commonality in the subjects of basic trainings as mentioned by the CHWs of different organizations. Even subjects mentioned by the CHWs within the same programmes did not have much commonality. This variation was much pronounced in case of the CHWs of UPHCP. The following table shows the most

frequently mentioned subjects of basic trainings received by the CHWs.

Almost all of the CHWs of BRAC (96%) mentioned common illnesses as one of the subjects of their basic training. Amongst the CHWs of NSDP majority CHWs (68%) mentioned child health as the subject of their basic training. Amongst the CHWs of UPHCP the most frequently mentioned subject of basic training was child vaccination (22%). Most important services provided by all the CHWs included motivation and education of mothers and newly weds on health and family planning.

Nearly all CHWs of BRAC reported that they had the scope of refresher training. Amongst CHWs of NSDP NGOs seventy eight percent reported of having the scope of refresher training in their organization. However, only about a half of the CHWs of UPHCP NGOs reported of having the scope of refresher training.

Fig. 4.3 Opportunities for refresher training



However, eighty percent from amongst the CHWs who said that they had scope of refresher training in their organization reported that they had undergone such refresher trainings. They mentioned varying subjects of refresher trainings. There was also no commonality in the subjects of refresher training as mentioned by the CHWs. Ninety-eight percent CHWs of BRAC mentioned common illness as subject of their refresher training.

About the frequency of the refresher training all CHWs of BRAC reported that they had refresher training once in every month. However, more than a half of the CHWs of NSDP NGOs reported of not having any fixed time for refresher training. It is to be mentioned that the key informants of NSDP NGOs reported having refresher training for their CHWs once in every month with travel allowances for attending those trainings. CHWs of UPHCP reported not having any fixed time for refresher training.

Almost all the CHWs (98%) said that the refresher training was necessary; the reasons identified for the necessity of refresher trainings were the followings.

Table 4.28 Reasons for providing refresher training

Reasons	NSDP (%)	BRAC (%)	UPHCP (%)
Increasing skill	74	86	76
Updating knowledge and information	67	84	76
Advising patients	43	33	26
N	50	50	50

All the CHWs reported of having financial benefits other than monthly salary or honorarium. The most frequently mentioned benefits were training allowance and daily allowance (68%), commission from the sale proceeds of medicine and health products (37%) and commission for referring clients for injectable contraception

(31%). The following table shows three most frequently mentioned non-financial benefits, which they considered to have inspired them to work as CHW.

It is very encouraging to note that almost all CHWs (96%) stated that they were satisfied with their job. Conversely, most of the CHWs (74%) were not satisfied with the financial benefits they received from the job. It is interesting to note that even though CHWs of BRAC did not get any salary, lesser percent of CHWs (62%) of BRAC expressed their dissatisfaction over financial benefits in comparison to the CHWs of NSDP NGOs (82%) and UPHCP NGOs (78%).

Table 4.29 Source of inspiration to work as CHWs

Source of inspiration	NSDP (%)	BRAC (%)	UPHCP (%)
Opportunity to work in their own community	94	80	60
Opportunity to increase skill and experience	58	66	50
Scope of social networking	38	66	48
N	50	50	50

However, majority of the CHWs (89%) expressed their satisfaction over the quality of their service. Only a few CHWs of BRAC (14%) and UPHCP (20%) stated that they were not satisfied with the quality of their work.

This is the second report of Bangladesh Health Watch. This year's theme is the Health Workforce (HWF). As part of the preparation of the report, several studies were commissioned which utilized both primary and secondary data. In fact, four studies collected primary data and another was based on secondary materials. While the latter concentrated mostly on issues related to qualified allopathic physicians (mainly MBBS and those with post-graduate degrees), the former concentrated on other types of healthcare providers such as nurses, paramedics, medical assistants, health/medical technologists, skilled birth attendants (SBA) for delivery practices, informal and traditional practitioners, faith healers and community health workers (CHW). The main focus of the report is estimating the density of these different types of workers, their training and production, job satisfaction, and an understanding of the quality of care provided. The purpose was to draw conclusion on their shortages, if any, skill mix given the kind of health problems faced by the people of Bangladesh at present and in the future and identify any imbalance in the production of these different groups of HWF to address the health problems.

In recent times there has been an increased international interest in health workforce. As mentioned in the text, there have been a number of new initiatives to address this issue. The WHO has declared 58 *crisis countries* facing acute problems in health workforce of which Bangladesh is one (GHW 2008). In Bangladesh's Health Nutrition and Population Sector Programme (HNPP), the human resources consume 70 percent of the outlay. Despite this indication of importance, human resources were not included in the main framework of the programme (Mid Term Review on HNPP 2008).

As mentioned in the text, the broad term of health workforce includes both the healthcare providers (HCP) and their non-technical supervisors including the management and monitoring personnel, but our study presented in this report included only the HCPs.

Density and Distribution of the Healthcare Providers (HCPs)

Bangladesh has a pluralist healthcare system meaning that there are many different types of providers both formal and informal who provide healthcare. This study used a nationally representative sample to estimate the number of these personnel providing services to the people. It found 146 healthcare providers per 10,000 population or nearly 15 per 1,000 population. This means a big increase in the density since the 1970s. In a large study that visited 110 unions, Claquin (1981) found a density of 1 per 1,000 population. In a separate study in rural Matlab upazila about the same time as Claquin, Sardar and Chen (1981) found it to be 5 per 1,000 population. The population since the late 1970s has doubled but the healthcare providers increased many times more. If this is a manifestation of increased morbidity or improved economic condition and awareness to seek care or both remains to be understood.

The density per 10,000 population of formally qualified HCPs, viz., doctors, nurses and dentists is 7.7 and constitute about 5 percent of all providers. The density of such providers falls far short of the estimate (23.0) projected by WHO (2006) required for achieving the MDG targets. It is lower than other countries in the region such as India (14.6), Nepal (4.4), Pakistan (12.5) and Sri

Lanka (21.9) (WHO 2006). The share of physicians and nurses has increased over the last decade (from 1.9 physicians and 1.1 nurses in 1998 to 5.4 physicians and 2.1 nurses in 2007) though it remained much lower than estimated for low income countries in 1998 (World Bank 2003, Hossain and Begum 1998). The density of dentists has also increased, but remains at a very low level (from 0.01 in 1998 to 0.3 in 2007)⁶. Compared to the 1970s, the qualified provider's share has also increased. In the study by Claquin (1981), qualified providers constituted about 3 percent of all providers.

During the past decade, the increase in the number of informal unqualified allopathic providers has been phenomenal compared to the qualified or semi-qualified allopathic providers such as the paraprofessionals or CHWs. For example, the density of traditional healers including homoeopaths (70 per 10,000) in this study has been found to be three times more than what was estimated by Ali (2001) at the higher range. Also, unqualified allopathic providers (village doctors and drug store salespeople) (24 per 10,000) have increased about two times than what was estimated by ORG-Marg Quest (2000) at the higher range. During this time, the density (per 10,000) of traditional birth attendants declined (from 55 in 1981 to 33 in 2007), presumably due to termination of TBA training by the government in 1998 (WHO 2004).

The HCPs from the non-allopathic sector (mainly practitioners of traditional medicine) were comparatively older than their allopathic counterparts indicating that this sector is failing to attract new blood from the younger generation. That the importance of traditional system of medicine is declining in Bangladesh is also observed in other studies (Ahmed et al., 2005, Cockcroft et al., 2007, Chowdhury and Bhuiya 2004). In fact, Chowdhury and Bhuiya (2004) showed how the community health workers (CHWs) were replacing the traditional providers. This is unlike the increase in use of traditional medicine in other Asian countries such as Laos, India and Vietnam (Sydara et al., 2005, Gogtay et

al., 2002, Ladinsky et al., 1987). To avoid losing patients, many of the traditional practitioners in Bangladesh also use allopathic medicine to supplement their income and maintain practice (World Bank, 2003). However, improving the quality of traditional medicine through institutional training, registration and licensing so that they are dependable may reduce the cost of therapeutic care and pressure on the formal healthcare system. The Bangladesh government has already taken some measures in this direction which need to be consolidated and integrated in the mainstream of health system (APTMNET, 2004).

It is interesting to note that the overwhelming urban bias of the distribution of the formally qualified HCPs remained a persistent phenomenon as was noted a decade earlier (Hossain and Begum 1998). Also, these providers are inequitably concentrated in the Dhaka and Chittagong divisions due mainly to Dhaka and Chittagong cities. The CHWs from non-government sector and the village doctors are mainly concentrated in the rural areas while the salespeople at drug retail outlets (shops) are evenly distributed between rural and urban areas, showing their unhindered expansion across the country. This is also facilitated by easy availability of essential drugs at low price following the National Drug Policy of 1982 (Islam 1999). According to an estimate, there are about 80,000 unlicensed drugstores in the country (Drishtipat 2004). Interestingly these figures hardly lend credence to the changing health status documented for different divisions. For example, the recent Bangladesh Demographic and Health Survey 2007 found the most favourable rates in terms of fertility and mortality in Khulna division and worst in Sylhet division. However, neither the total density nor the density for any particular type of HCPs shows any relationship to health status. The study however, shows that the nurse-doctor ratio is much more favourable in Khulna than in Sylhet (1.4 vs. 0.1).

The gendered nature of the HCPs in favour of males poses special problems with respect to gender equity in healthcare seeking from qualified allopathic providers (Amin et al., 1989; Levin et al., 2001). Most of the doctors and dentists (89%) are male. So are informal allopathic (95%) and traditional healers (75%). This is problematic for

⁶ One should, however, be careful about the small number of dentists found through the survey.

women mainly due to the prevailing patriarchal norms deeply rooted in the society (Cain et al. 1979) which discourage rural Bangladeshi women to be treated by male providers (Schuler et al. 2002). The opposite scenario is also documented in the present study. Among nurses and CHWs the vast majorities are female, and so are the TBAs. In other countries such as USA, however, the women are found exclusively more among all the ‘frontline’ cadre of healthcare providers (Reichenbach 2007). Fortunately the situation is changing gradually in Bangladesh. Among the students of government medical colleges about half of them are female (Reichenbach et al. 2004). To address this problem and effect changes fast, planning is needed to increase the number of women in all sectors of health workforce, and their deployment and retention especially in rural areas. Besides, raising social awareness about the value of women’s health and well-being, and sensitize public health policies to the gender issue is also needed (Wisdom et al., 2005). Fortunately, the NGOs have been training mostly women as CHWs which is very well reflected in the distribution of HCPs.

What the above discussion indicates strongly is the important role played by practitioners who are outside the realm of ‘qualified providers’. Ninety five percent of the providers belong to this group of semi- and unqualified practitioners whether practicing allopathic or non allopathic medicine. Ensuring equity is a national objective as recognized in both the PRSP and HNPS (HNPS Strategy 1997). It has been found that these village practitioners (and in urban areas) do serve the poor most and are closest to them in their time of need. It is clear that any plan to develop human resources for health in Bangladesh which is devoid of acknowledging their existence and importance would have only limited success. With this new information about their size, one may ask the question ‘who constitute the healthcare system in Bangladesh?’ There is a tendency of denial of the existence of such a vast and overly significant informal sector in most of our official policies and programmes. The HNPS does not have any component which addresses the need of this group. It is time to recognize this and come up with plans and programmes to reach out to them. As a policy one may suggest some prioritization in this ‘recognition’. Majority of the providers

(64%), however belong to the traditional and faith healers group. As the numbers of patients seen by these are less, they may come later. There are three immediate needs for them. First to formally recognize them as part of the broader health system in the country. Second, to understand further the role of the informal (unqualified) allopathic providers in healthcare and retrain them, where necessary, so that they provide appropriate treatments. And thirdly, to train more CHWs who have been found to provide valuable, important and quality service to the community, particularly the poor. A recent review documented the impact of CHWs world-wide which showed substantial impact in reduction of child mortality (Haines et al. 2007). For example, a meta analysis of the effect of CHWs in case management of pneumonia found an overall reduction of 24% in mortality (Sazawal et al., 2003). The Gadchiroli study in India showed that home-based care and management of sepsis through CHWs reduced neonatal mortality by more than half (Bang et al., 1999). Bangladesh has also been experimenting with CHWs for a long time. Many of these have been scaled up to reach thousands of villages with measurable impact. BRAC, for instance, has been training CHWs for over about three decades. They are trained to treat a few common illnesses. Many of them have also been trained to treat illnesses like tuberculosis through DOTS and pneumonia. Studies have documented its impact on health. A study showed that the TB programme run with CHWs as the nucleus has been able to reduce TB prevalence by half (Chowdhury et al., 1997). BRAC has also been able to scale up its programmes. Currently there are over 70,000 CHWs who are working in majority of the Bangladesh’s villages (see Figure 4.2). A challenge for reaching the MDGs is how to scale up interventions for different health problems (Freedman et al. 2004) and CHWs can play a very important role in this (Standing and Chowdhury 2008).

Shortage and the Issue of Skill-mix

The gross imbalance in the skill-mix of providers, particularly the formally trained ones, is a major issue revealed by this study. This is in terms of the doctor-nurse and doctor-technologists ratios. The number of nurses is grossly inadequate compared

Table 5.1 Shortages of doctors, nurses and technologists

Name	Available in 2007 (Rough GoB estimate)	Needed based on Low Income Countries average and WHO*	Shortage
Doctors	38,537	98,550	60,013
Nurses	15,023	295,450	280,627
Hlth Technologists	9,230	492,750	483,520

* The needed number for doctors is based on the low income countries average and those for others according to the ratio Doctor:Nurse:Technologist of 1:3:5.

Box 5.1 Shortages: Reflections from an Upazila Health Complex

This Upazila Health Complex is situated in Northern Bangladesh. It is quite a large upazila, although the number of FWCs functioning was not readily known to the Upazila Health and Family Planning Officer. We visited the UHC about 1 pm on a Tuesday. The UHFPO was very impressive and talked to us candidly. He mentioned to us the various problems he faces in running the facilities. There were four doctors including him and three nurses. Other doctors are mostly deputed elsewhere although officially they are posted here. One of them was transferred to the Sidr area when the cyclone struck about five months ago but never returned. The UHFPO drew our attention to an upazila, also in Northern Bangladesh, which has earned good attention recently because of better services provided there. He told us, “This upazila has 11 doctors and 14 nurses. Give us that number and you will see how we perform. At least give us the doctors who are posted here but actually don’t stay.” This upazila that we visited was quite unique in the sense that it had an obstetrician and an anaesthetist. In the middle of the conversation, we were also joined by the anaesthetist who has been posted here for the past six years. Why the obstetrician and anaesthetist are staying here? In his own words, “I am trying to go back to my own upazila (in another district) but not successful as I don’t know anybody in the DG’s office to help me get a transfer.” The obstetrician is a local person and she commutes from the district town. Caesarian sections are performed here only until 2 pm, meaning that only ‘elective’ ones are done, not any emergencies. As the anaesthetist says due to shortage of other support staff such as nurses and *ayas*, their services are seriously affected.

Source: Faruque Ahmed, Kausar Afsana and AMR Chowdhury, BRAC

to the needs of society. Currently, according to official statistics, there are over 47,000 doctors and 22,500 nurses of whom 38,537 and 15,023 are estimated to be working in country. The number of doctors is much lower than what is needed for a country of 140 million people. If the doctor-population ratio found for low income countries is any standard, Bangladesh should have 98,550 doctors. Compare this with the number of nurses working. The above figures suggest that there are more than two doctors for a nurse. This is completely the reverse of the expected doctor:nurse ratio. The WHO suggests three nurses for a doctor and based on this Bangladesh should have 295,450 nurses. There is a huge shortage of nurses. Even worse is the situation of health technologists. If we take the WHO standards again, there should be five technologists for a doctor. The shortage in this case is even more staggering – 483,520 (Table 5.1). The government has also introduced a scheme to train community skilled birth attendants or CSBAs.

Over the past several years only about 3,000 have been trained who came mostly from among the cadres of Family Welfare Assistants (FWAs) and female Health Assistants (fHAs), the two front-line cadres of the government. Clearly this is grossly inadequate to attend the country’s two million deliveries every year.

There is an urgent need to address both shortages and skill-mix imbalance. The government has plans to train more of these cadres of workers over long-term. For example, the government intends to reach the needed doctor: technologist ratio of 1:5 by the year 2025 (MoHFW 2007a⁷). However, implementing these plans will require a lot of planning and investments. If the implementation

⁷ However, another document acknowledges the impossibility of attaining the needed Doctor:Nurse ratio of 1:3 and projects to attain a ratio of 1:0.71 (from existing 1:0.48) under ‘high production and high survival’ assumption (MoHFW 2007b).

of the HNPS is any guide, it will be very difficult to fully implement the human resource plans as well. The current supply of doctors, nurses and technologists will definitely not be able to meet the shortages even in decades. The choice is to opt for other options in the short and medium terms. These will include adopting a liberal policy to let the private and not-for-profit sectors set up training institutes to produce these skilled workforces. However, the government must also ensure preventing a *mushroom* growth through regulatory and accreditation mechanisms. The areas in which these sectors can contribute are in setting up medical colleges, nursing colleges and health technologist training institutes.

Since 1979 Bangladesh has been training medical assistants (MAs) through several Medical

Assistants Training School (MATS). These MAs have been providing services in most of the UHFWCs where the government has been finding it difficult to keep doctors. In recent times, however, there has been a decrease in the enthusiasm to train MAs and many of the MATS have been closed down (Ch. 4). To meet the shortage of doctors MAs are still very relevant. The situation in the training of Family Welfare Visitors (FWVs) is even more appalling. This has been stopped for the past eleven years giving rise to the fear that the family planning programme will face serious shortage of personnel to provide clinical contraception. The government must reconsider their policies on these training and restart training these cadres of workers in large numbers. See Box 5.2

Box 5.2 Shortage: The case of Family Welfare Visitor (FWV)

The government started recruiting FWVs in the late 1970s to fill in a critical gap of human resource shortage at the Upazila level and below. They were expected to provide reproductive health and family planning services through static centres such as Upazila Health Complex (UHC), Union Health and Family Welfare Centre (UHFWC) and Rural Dispensaries (RD). As provision of clinical family planning and MR (menstrual regulation) services was one of their major responsibilities, they were recruited and placed under the family planning wing of the MoHFW. NIPORT was assigned the task of training them for 18-months in their Family Welfare Visitors Training Institutes or FWVTIs, situated at district levels. The Nursing Council of the government provided certification to the graduates. At present there are about 4,000 (down from 5,500) working at different levels. With retirement and no new recruitment and training since 1997, there is already a shortage of about 600 of the FWVs. In case the government decides to activate the Community Clinics and post the FWVs there, then the shortage becomes about 6,000. If the FWV issue is not resolved immediately there will be major crises in the delivery of family services, including clinical contraception and also MR as they are the major force behind these services. There is an imperative now to rethink this issue urgently and revamp the FWVTIs. There are a few suggested actions:

- Allow NIPORT to recruit and train FWVs directly, with certification from the Nursing Council. The MoH&FW will employ them. A commission may look into the advantages and disadvantages of private sector employment
- After a period of service FWV may be given additional six months practical training on safe delivery and newborn care since they have been given MR training. Training in these special areas will increase their competency as skilled maternal health and FP provider
- Review the FWV curricula to include basic pregnancy, delivery and new born care (theoretical) and their role in the MoH&FW work including providing safe delivery services (and as supervisors and mentors of CSBAs)
- Revamp the FWVTIs to provide the revised training to new batches of FWVs; continue on urgent basis the in-service MR training
- Private and NGO sectors such as Kumudini Hospital in Tangail have already been involved in training within small capacities. The government should encourage such trainings and if necessary, provide infrastructural support. The government can work out a flexible and congenial policy guideline towards approving private institutions start FWV courses and oversee their quality.

The involvement of the private sector can be very important in the creation of health human resources. Indeed these are already happening to some extent but need to be further promoted with effective regulatory control. For example, there are over 30 medical colleges in the private sector set up over the past decade but there are also questions about the quality of graduates produced and the availability of adequate faculty and facilities such as hospitals to facilitate good training. Also, there are many nursing institutes which offer diploma and certificate courses where the quality question can also safely apply. Unfortunately, there has been very little in undergraduate level nursing training. One exception is the programme started by the International University of Agriculture Business and Technology with a BSc nursing course three years ago in collaboration with some Canadian volunteers (see Box 4.1). There are a few others who are following the suit. It should be mentioned that although there are many nursing institutes in the country, only the government nursing institute is producing BSc nurses. There is a great potential demand for highly trained nurses in the country because of the growth of high-end private hospitals and abroad because of the shortages of such workforce in northern countries of Europe and America. Attracting a large number of good candidates for nursing training would be a challenge but with improvement in general educational attainment (more girls and boys are now going to higher secondary levels) this should be easier. However, there is a formidable stigma in our society about the nursing profession. The government, the civil society and the media must work together in addressing this.

The same is true for technologists. There are many institutes which produce health technologists in the country. The question of quality control applies here as well. Added to this is the apparent tussle between the Ministry of Health and Family Welfare and the Ministry of Education (MoE). Both the ministries run institutes which produce health technologists. In fact, under the control of MoH&FW there are three institutes run directly by the government and 29 others run through private initiatives. On the other hand, under the MOE (through the Technical Education Board), there are 47 institutes all run through private initiatives. There are differences in the types of

graduates produced by the two ministries as the admission criteria and curricula differ. For example, in the MoH&FW institutes, the candidates must have an SSC science background with a minimum GPA of 2.5 but for the MoE institutes any SSC graduate can apply. Also, there is no age bar in the latter. Fortunately both the ministries have now agreed to work together through a committee to remove these anomalies (MoH&FW 2007a).

Another issue is the shortage of specialized personnel such as obstetricians and anaesthetists. Due to their shortage many of the emergency obstetric care facilities, which are essential in containing maternal deaths, remain unused (see Box 5.1). In Bangladesh all the anaesthetists are medical graduates. Fortunately application of anaesthetics does not require a medically qualified person. A high school graduate with adequate training can apply anaesthetics easily. The health system must be demystified by training technologists to fill the gap. This is being done in other countries without any problem. In many countries such as Mozambique even assistant medical officers have been trained in obstetrics through short trainings (Pereira et al., 1996; Pereira et al., 2007; Bergström 2005).

There is also a dearth of people trained in public health. The National Institute of Preventive and Social Medicine (NIPSOM) is the largest provider of public health education in the public sector.⁸ In recent times there has been some MPH programmes started by private universities. These include the State University of Bangladesh, Independent University, North-South University and BRAC University. The NIPSOM and private universities all together produce less than 200 MPH every year. This is grossly inadequate for a country like Bangladesh. The United States, for example, with a population about double of Bangladesh, has over 35 accredited Schools of Public Health and numerous other non-accredited ones. The public health programmes implemented in Bangladesh are at the upazila levels and below. The doctors stationed at the upazila and unions provide leadership to this. Unfortunately they lack

⁸ The MBBS course also has some public health orientation but the quality and the importance attached to this by both faculty and students is inadequate at best.

any training in public health or public health management. For expediting the gains in health outcomes it is very important for them to be equipped well in public health so that they are able to provide better leadership. Two actions may be considered in this front:

- All doctors working at the upazila level should have an MPH. But this can not be done overnight with the current supply. The government should seriously consider starting a tailored short but intensive training programme on public health with a special emphasis on public health management at the upazila level. It is possible to train all upazila level doctors (about 5,000 in number) over the next 5-10 years through a joint effort by government and private universities.

The government does not require doctors to attain any public health competency to move up the ladder in health leadership at upazila level and above. Historically there was such a requirement but this was withdrawn as there were not enough candidates found with an MPH degree. It should be reintroduced. Through the above measure of training doctors through intensive short courses, they should be able to provide a much effective leadership. This can be done in the short term. In the medium term MPH should be made a requirement for staff to become Upazila Health and Family Planning Officers (UHFPO).

- An alternative strategy would be to create a new 'Health and Family Planning' cadre under the civil service to run the management at the field level. This will free the doctors to devote their precious time to clinical work.

There is a serious shortage of community-based skilled birth attendants (CSBAs), since most of them are on the verge of retirement and the government is not recruiting new SBAs. According to the Bangladesh Demographic and Health Survey 2007, skilled attendance has increased to 18% but is far short of the government's own target of 29% by 2007. Policy makers need to address this issue and take steps to recruit and train more community-based skilled birth attendants. However, the problems faced by

them in executing both family planning responsibilities and that of CSBA demand attention. As was reported in Chapter 4, due to this they are unable to attend any deliveries during day time. In the evenings also, security and cultural norms restrict their practice as CSBAs. The NGOs may also come forward to train them, as only the government will not be able to fill in this huge gap. With the adoption of the policy of promoting and fielding CSBAs, there is an apparent denial of any role for TBAs in Bangladesh. As mentioned above, there will be decades before all the required CSBAs are put in place and have them functional. There are issues around training TBAs and its impact in reducing maternal mortality but denying their role in birthing and delivery for the foreseeable future tantamount to denial of a hard fact. The CSBAs in their interviews also acknowledged the role of TBAs and the particular trust they enjoy in the community.

Appropriate Treatment and Use of Drugs

This study provided some documentation on the extent of inappropriate treatment of common illnesses among all categories of allopathic providers including the physicians. In many instances, the physicians and traditional practitioners provide advice which is contradictory to each other. Indiscriminate use of antibiotics and other drugs without proper investigations or referral to specialists, e.g., in case of treatment of STIs/RTIs was reported by all categories of providers including the physicians and para-professionals in this study. Inappropriate use of drugs such as over prescribing, multi-drug prescribing, use of unnecessary expensive drugs and overuse of antibiotics and injections as observed in this study is also identified by others to be a formidable barrier in the appropriate use of drugs in Bangladesh (Ronsmans et al., 1996, Guyon et al., 1994, Ashraf et al., 1982). A study being conducted by ICDDR, B in Chakoria upazila of Cox's Bazar district sheds more light on this phenomenon. As reported in the text, it presents an interesting challenge. While the modern medicine as practiced by qualified practitioners such as MBBS is accessible to only about 20 percent of the population, the rest depend on informal allopathic and non-allopathic providers. We have seen in Chapter 3 that these

informal providers are the first destination of rural people, particularly the poor, for their proximity, convenience, flexibility (in terms of payments), cost, and cultural beliefs that certain illnesses are better treated by certain type of providers (for example, infant illnesses by homoeopaths for safety sake). But this information from Chakaria presents a puzzle here that such provision is not always appropriate for the conditions they are used for. In fact, they found that in 75 percent of the cases the provision was inappropriate and in a few (7%) it was even 'harmful'. The challenge is how to deal with this? Under the present circumstances where the state system is weak, a new regulatory step to control these will be extremely difficult to enforce.

As revealed in this study, the professional base of a large section of the semi-formal and informal providers (including the homoeopaths) is very poor. These providers mostly received short training (few weeks to a maximum of one month) on some specific common illnesses/conditions while some of them received training spanning from six to twelve months (e.g., *Palli Chikitsok* training) from semi-formal institutions which are mostly unregistered and unregulated. Many of them have inherited the profession and/or learned the trade by working with their father/mother or relative (Claquin 1981). Unfortunately for them, there is no opportunity for continuing education or re-training. As these providers have no other channel of information from the formal sectors open to them, they fall easy prey to the aggressive marketing strategies of the pharmaceutical companies (Applbaum, 2006). The extent of aggressive promotion by drug companies is evident from Chakaria in Cox's Bazar. It has been reported that there are at least twenty one resident medical representatives promoting sale of their companies' products for a population of a half million (pers. comm. Abbas Bhuiya of ICDDR, B). It is thus important to bring the pharmaceutical industry in this discussion.

To address this dismal situation and to ensure a minimum acceptable level of care for the poor and the disadvantaged population, both professional and refresher training is essential to counteract the biased information disseminated by the pharmaceutical companies (Mills et al., 2002, Cardarelli et al., 2006). Studies from Vietnam

(Chuc, 2002), Laos (Syhakhang, 2002)), Thailand and Nepal (Mercer et al., 2005) have shown that it is possible to improve the knowledge and practice of these providers if they receive appropriate training to fulfil their public health role in appropriate use of drugs, including prevention of resistance and misuse of antibiotics. In the Philippines, targeted training of the local drug vendors improved the quality of their practice (Sia and Valerio, 1997). In Bangladesh also, training informal village doctors to deliver DOTS services for tuberculosis is found to be feasible and effective (Salim et al., 2006). This should be combined with training on management of accidents and injuries such as burns, drowning etc. especially for the informal providers as they lack this skill which is essential for providing door-step first-aid services in order to increase survival potential of the victims and prevent complications. Also they need to be trained in the basic management of STI and RTI with appropriate referral because major proportions of these cases seek care from the traditional and informal healers and homoeopaths. Any concern that upgrading their diagnostic and curative skills may lead to abuse and malpractice may be contained by managerial and regulatory interventions by the public sector (Kamat and Nichter, 1998). Also, development of a functional referral mechanism (with algorithms) between these providers and secondary and tertiary level of healthcare facilities, both for diagnosis and treatment, is essential in the context of very low referral and lab investigations reported in this study. The links successfully established between the CHWs and higher public health services at BRAC may be further studied for replicability (Standing and Chowdhury 2008).

Counselling as a component of any healthcare system has been utterly neglected in Bangladesh. With increasing prevalence of mental illnesses contributed by violence against women and children through acid throwing and rape, counselling is becoming all the more important. Counselling is also needed to overcome the trauma resulting from accidental and natural disasters such as floods and cyclones. In addition to creating a new cadre of counsellors, all our HCPs should be trained on counselling.

Some issues related to quality of care (QoC) of formal sector providers such as MBBS doctors emerged through their reported treatment practices for some specific illnesses, which is not appropriate. Improving quality of care is essential for the disadvantaged population so as to optimize the opportunity cost of visiting a health centre. Apart from the Bangladesh Medical and Dental Council (BMDC) registration requirements, there is little assessment on the quality of physician care in Bangladesh, either in public or private sector. Findings from a few small-scale studies indicate that there is significant room to improve the technical quality of care provided by them (Howlader et al., 2001). Related to this is the question of management of health programmes in the public and private sectors. Absenteeism in public health facilities is a common and too well known phenomenon. Data collected through the present study also reflected on this aspect of the systems (see Box 5.1 and Table 4.7). The behavioural aspects of the doctors came out quite strongly in the qualitative part of the study. Some doctors were found to scold and behave rudely with the patients. Such behaviour keeps many people to shy away from the state health facilities. As admitted by a senior officer of an upazila there are serious problems:

‘There are some bad reputations about our hospital spread around saying that doctors here don’t see the patients, they don’t take care of them, and they don’t care about them. Since these kinds of things are being spread around the parents do not easily want to bring their children here. These bad names didn’t start just like that; our doctors must have had some failures for which the public has these kinds of feelings about governmental hospitals’. (Ch. 3)

However, quality of care of the physicians, especially in the public sector, does not depend only on their professional competence but motivational factors as well (Das and Hammer, 2005). Based on the above discussions, a number of steps may be considered. These include:

- Recognition of the role of informal providers in healthcare delivery (as they provide care to 80% of population and through them three-quarters of the per-capita expenditure take place)
- Further focused study on the strengths and weaknesses of different types of providers (in

terms of their training, practices, expertise, community-perception) with a view to formulating new policies for them (training and retraining, links with a formal health system).

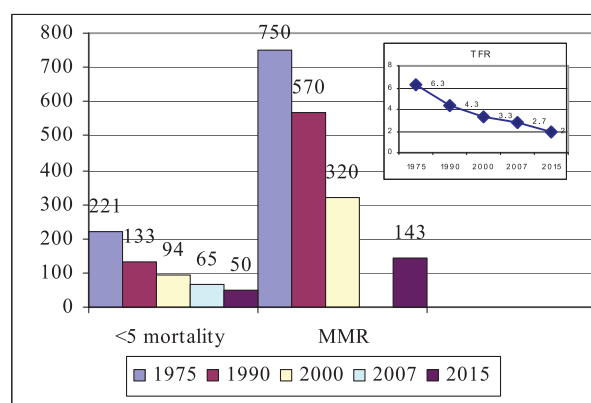
- With whatever fragmentary information we have, a training programme for some of the groups of informal providers may be useful. The initial training may target the allopathic providers and drug sellers in pharmacies as they are more popular in terms of patients seen per day (Ch. 2) and their practices can be positively moulded and changed. They are also likely to be more receptive to trainings. One of the initial focuses should be to alert them on ‘harmful practices’ and how to overcome them. Such training should include first aid in accidents and counseling.
- There will also be a need to prepare the community on these issues. Thus when training programme on ‘harmful practices’ is initiated, a simultaneous awareness campaign may be launched in the same community that are serviced by such practitioners. NGOs can play an important role in this.
- Starting a continuing medical education (CME) programme for all. This may start with those in the formal sector. All types of formal sector providers complained of lack of any continuing education/refresher training. In most other countries, there is a requirement for attaining certain amount of CME in order for them to continue practicing. This is unfortunately not required in Bangladesh.
- Restart training programmes for Medical Assistants and Family Welfare Visitors (FWVs) to meet immediate shortages of qualified providers. New policies are needed for training SBAs as the current one is beset with problems.

Looking to the Future

In terms of health workforce in Bangladesh, we now have a situation where there is a huge shortage of ‘qualified’ healthcare providers such as doctors, nurses, dentists and health technologists. There is also a serious imbalance in skill-mix when compared with what is internationally recommended. If the density of

doctors (per 1000 population) in low income countries is any guide, we need 60,000 new doctors. In order to correct for the imbalance in skill-mix and shortage, we need over 280,000 new nurses. Similarly we need hundreds of thousands of new technologists to run our health systems. Even if we set up new institutions to train them, this is simply neither possible nor feasible in the next few decades. One may, however, dare to ask a question: do we really need such a big the so-called ‘qualified’ workforce? One way to look at the future need is to examine the scenario in terms of the present and future health needs of the population. In the absence of any *burden of disease* analysis for this country we can examine the current disease profile of the population. Based on the Bangladesh Bureau of Statistics (BBS 2007), the most frequent illness mentioned by people (for both sexes) is ‘fever’ (55%), an unspecific condition which may represent different diseases. The next in importance of frequency is ‘pain’ (10%), again another unspecific condition. These are followed by diarrhoea (6%) and dysentery (4%). When seen by gender, this did not change much (see Annexes 17). Another way to look at the ‘burden’ could be by examining the various outcome indicators. The country has been consistently showing improvement in health conditions as represented by mortality and fertility rates (Fig. 5.1). If the current trends continue, there is a good likelihood that Bangladesh may be attaining the two health MDGs, viz., 4 and 5 by 2015. The same is true for some disease control programmes such as TB through DOTS (Fig. 5.2).

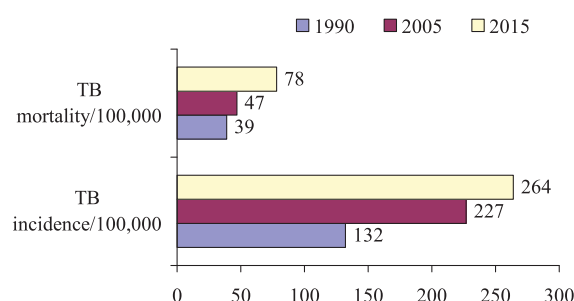
Fig. 5.1 Child and Maternal mortality and fertility trend



Source: BDHS (2007); NIPORT et al. (2001)

In terms of causes of death, Box 5.1 shows the major causes of deaths by age groups. It shows that, as of now, communicable diseases are responsible for a vast majority of deaths in children under 5 years of age. For the next higher age group (5-14 years), injuries are playing an increasingly important role as 34 percent of deaths are due to it. For the 15-45 years age group, maternal causes are responsible for 23 percent of deaths for women. But, as expected, the non-communicable diseases (NCDs) are already responsible for a majority of deaths in 45+ age groups.

Fig. 5.2 Tuberculosis mortality and incidence



Source: BRAC Annual Report (2006)

Box 5.1 Major causes of mortality by age group

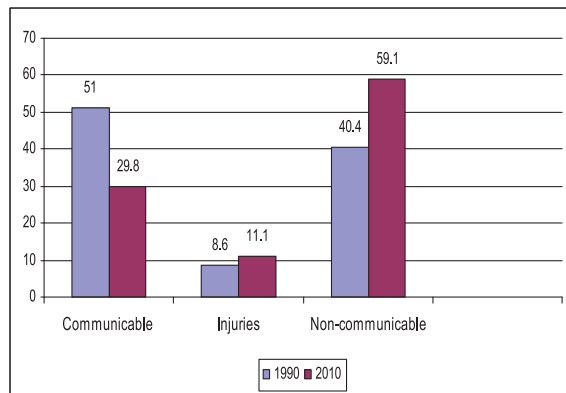
- Under 5 children: 80% communicable diseases
- 5-14 years: 45% injuries and 40% communicable diseases
- 14-45 years (Female): 34% injuries and 23% maternal causes
- 14-45 years (Male): 44% injuries
- +45 years : 59% NCDs

Source: Streatfield et al. (2001)

Because of both demographic and epidemiological transitions that Bangladesh is going through now, the scenario will change fast. The country will have to cater to the need created by the ageing of the population and sudden shift in the morbidity burdens from communicable to the NCDs. Fig. 5.3 compares the projected situation between 1990 and 2010 in respect of the relative share of communicable vs. NCDs for all age groups. It also shows the likelihood of the increase in the proportion of injury- and violence related deaths.

Another issue that is other overlooked is the question of mental health.

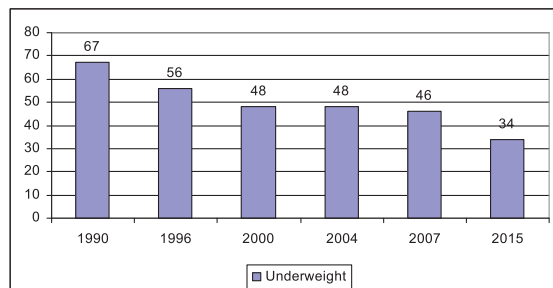
Fig. 5.3 Trends of mortality by major cause



Source: Streatfield et al. (2001)

Then, there is the question of nutrition. Although there has been some reduction in severe malnutrition, moderate malnutrition remains very high and the rate of reduction is disquietingly slow (Fig. 5.4).

Fig. 5.4 Nutritional status of children under 5 over time



Source: BDHS (2007)

In summary, what are the major challenges for health in Bangladesh? Some are as follow:

- High maternal and under-five mortality
- Decreasing fertility rate but increasing trend in the lowest two wealth quintiles
- Malnutrition of child and mother
- Universal access to (safe) drinking water and sanitary latrines
- Double burden of continuing high communicable and increasing trend of non-communicable diseases

- Weak health system and important but largely unregulated private sector (modern urban and traditional rural)
- Inequitable health status of the population
- Rapid urbanization

To deal with these issues what kind of health workforce we need or will need? Dealing with the challenges of high maternal and newborn mortality requires a balance of activities between the community and health facilities that is equipped to deal with emergencies such as emergency obstetric care (EmOC). It has been shown that many of these deaths can be prevented by organized activities at the community level through empowerment of women and informal healthcare providers such as CHWs and skilled and traditional birth attendants. The case of Gadchiroli in India was mentioned earlier where use of these providers had significant impact on neonatal mortality. It has also been shown that such programmes can be scaled up to reach millions of women and children in need. For example, BRAC has been implementing a maternal newborn and child health programme in a district in Bangladesh with over a million population with a strong community-focus and links with the existing facilities. Some of the early process-related indicators show that the programme has indeed been able to reach over 80% of the pregnant women with 90% of them being provided antenatal care and 80% receiving postnatal care within 24 hours of delivery. This programme is also being implemented for urban slum population where 8 million people will be reached by end of 2009. However, such community-based activities will not be able to save all deaths from all causes. For this, a responsive, well-equipped and motivated health system is the need of time. This is particularly true when NCDs take over as the major cause of death in the country.

There is, however, some confusion about the constituents of a health system. In most literature, unfortunately, it refers to the public-sector alone. In a situation such as Bangladesh where public sector serves only a small portion of the population and where the informal sector is so vast (95% of healthcare providers are in the informal sector), ignoring the latter tantamount to ignoring the reality. Our health system does

include these numerous *barefoot* providers. The question is how we integrate the formal and informal into the system. As has been repeatedly emphasized in the text, it will be several decades before the massive shortage of formal providers can be fully addressed. This leaves us with no other option but to make best use of the existing army of informal providers. The different types of providers have specific strengths and the challenge for the health planners is to make best use of this. For many of the common illnesses such as normal fever, pain, acidity, diarrhoea, dysentery, skin disease etc. which constitute the vast majority of reported illnesses, the informal providers can continue to be used, leaving the more complicated illnesses for the formal sector doctors and facilities. This is being done anyway now. But there are evidences that in many cases the informal providers provide treatments which are either inappropriate or harmful. The poor people's money is being wasted this way thus exacerbating poverty. Addressing this issue will require imaginative ideas and programmes, some of which were indicated above. This will be a worthwhile exercise to try. A concomitant and parallel intervention would be to train more medical assistants (MAs) to quickly fill in the shortage of doctors who would be willing to serve in the least served rural areas. Restarting the training programme for Family Welfare Visitors (FWVs) is essential if the gain in family planning service delivery should continue. Efforts should also be taken to develop the drug shops as part of the PHC infrastructure and broader health system so that these can fulfil public health role of transforming the 'unfelt need' of health care to 'felt need' through raising awareness on health issues and also, in the appropriate use of drugs including prevention of resistance due to misuse of antibiotics. In the Philippines, targeted training of the local drug vendors improved the quality of their practice (Sia and Valerio 1997). Then there is the tested case of CHWs. This has been done by the government in Pakistan (Haines et al., 2007) and NGOs in Bangladesh (Standing & Chowdhury 2008). They are found to be good vehicle to provide primary care and family planning at low cost. The Bangladesh health scene will change dramatically over the next few years with non-communicable diseases claiming the most burden. Due to poor economic base and poor quality of the health facilities the country will not

be able to face this situation unless more investments are made in prevention. Fortunately many of the NCDs such as diabetes, hypertension, injuries etc. are preventable and community-based workers such as informal providers and CHWs can play very important roles. The success of a health system combining both the formal and informal sectors will depend on how good a link is made between the two sub-systems. NGOs have shown how to link the CHWs with the formal system. Now the challenge is how to link with the other informal providers.

Policy Implications and Recommendations

This report on Bangladesh's health human resources provides some key messages for policy makers, organisations and citizens concerned about the state of our health services. Some of these are echoed in the recent mid-term review of the Health Nutrition and Population Sector Programme (HNPSPP). ***Our first message is about how we understand the health system.*** The report shows that the informal sector is very much a part of the health system (they constitute 95% of the HCPs in Bangladesh!) catering to the needs of probably 80% of the population, particularly the poor and women. Despite providing the first line of care for most encounters with health services, they are not part of the HNPSPP and their role in healthcare delivery in Bangladesh must be accepted as a reality. Some informal providers provide adequate care. At the same time in some cases they provide unnecessary and even harmful medications, or fail to refer serious cases, thereby contributing to greater impoverishment. All investments in health are made via HNPSPP thereby systematically ignoring the non-State sector. We need to understand that the overwhelming majority of healthcare providers are informal providers with uncertain quality.

Our second message is that by international standards, Bangladesh has an absolute and relative scarcity of qualified medical personnel. There is an overwhelming bias towards urban areas in the distribution of qualified personnel, while gaps elsewhere are filled by a combination of unregulated providers, pharmacies and briefly trained community health workers. This raises important but – for some – uncomfortable

questions about deployment of qualified personnel, their work conditions, training for the future health workforce and the role of state and non-state sector.

Our third message is that there is a gross imbalance in the skill-mix of formally trained providers. This is particularly a problem with doctor-nurse and doctor-technologist ratios which are hugely out of line with WHO suggested norms. The non-recruitment of the FWVs for the past 11 years jeopardizes the backbone of reproductive health services. In addition we must rethink the country's requirements in the light of its changing health and disease profile in terms of different types of trained staff.

Our fourth message is that the number of people trained in public health is completely inadequate. Public and private training institutions in Bangladesh produce between them less than 200 MPH graduates each year. Doctors working at upazila level are responsible for public health programmes but lack any training to implement them.

Our fifth message is that quality of care in both formal and informal sectors urgently needs improvement. There are few mechanisms to monitor and regulate quality in both public and private sectors, either through external assessment or through continuing education. There continue to be major complaints about the availability and behaviour of doctors particularly in public facilities. Non availability of obstetricians and anaesthetists at the time of need, for example, hampers provision of emergency obstetric care. Other cadres may not be present or may not have sufficient skills. Across the system a major impediment to utilizing the qualified personnel the country has, is failure to provide minimum standard work conditions and remuneration, necessary supplies and equipment, adequate supervision and regular skills upgrading.

Recommendations

Understanding the health system and evolving health needs

- Reassess not only the supply of qualified providers but also their conditions of employment to encourage public service.

- Recognize the large and critical role the informal sector plays and develop appropriate strategies to manage and improve practices in this sector.

Scarcity and maldistribution of qualified personnel

- Address the urban bias of the health workforce through the provision of additional incentives (monetary and in kind) to doctors and other public sector providers for service in rural areas.
- Address the scarcity of doctors, nurses, technologists, FWVs and CSBAs by further encouragement to the private and NGO sectors to set up more training institutes and ensure quality of training through stronger regulations, accreditation and certification.
- Reassess policies towards TBAs as they will continue to be important in delivery practices for the foreseeable future and see how they can facilitate and support the work of CSBAs, FWAs and FWVs.
- In the light of the growing numbers of women in the health workforce, incorporate gender issues such as security, childcare and maternity leaves more fully into human resource planning.
- Train more CHWs, particularly women, to provide treatment of common illnesses and conditions such as TB, pneumonia and diarrhoea. Address issues of remuneration and linkage with the formal health sector.
- Restart recruitment and training of additional family welfare visitors (FWVs) and medical assistants (MAs) as a matter of urgency.
- Develop a coalition between government, civil society and media to devise a strategy to address the stigma attached to the nursing profession.

Imbalance of skill-mix among formal providers

- Advocate for changes in the medical and other professions on appropriate skill-mixes for the country's current and future needs, for example to allow non-medical graduates to train as anaesthetists or to do caesarean

sections as part of the programme to provide safe delivery down to local level.

- Standardize training and curricula in public and private sectors for different types of health worker, particularly health technologists and paramedics, and institute accreditation and certification processes.
- Encourage wider debate about the changing health needs of the country and what these mean for the number, type and distribution of health providers.

Lack of trained personnel in public health and management

- Carry out research on the successes and failures of previous training programmes in health management to inform future efforts.
- Assess the public health training needs at upazila level and below in the light of the current and future health problems. Explore possibility of creating a public health cadre service that will manage the public health functions thus letting the doctors perform the clinical duties more effectively and exclusively.
- Increase resources for public health training and work towards a goal of nation-wide MPH training for all upazila level doctors and other officers over the next 5-10 years through a joint effort by government and private universities. Make MPH a requirement for staff to become upazila health and family planning officers, in case creation of a separate cadre is unfeasible.

- In the interim, develop a short, intensive public health training programme with a special emphasis on public health management at the upazila level.

Improving the quality of care among formal and informal providers

- Address management issues in the public sector in both the short and long-term, particularly absenteeism, inappropriate behavior towards clients and lack of devolved responsibility to facilities which leads to poor motivation.
- Improve technical quality of care in the formal sector by introduction of compulsory continuing medical education as a condition for remaining registered.
- Convene a national task force representing all stakeholders to recommend a policy on improving the quality of informal providers through training, registration and licensing.
- Systematise existing training programmes and provide further programmes to informal providers on minimum levels of acceptable care, including appropriate drug use, prevention of drug resistance, routine curative care management and referral of complex cases.
- Develop nation-wide counseling services for mental health and trauma sufferers, and women and child victims of violence.

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Annex 1. Training and type of services provided by rural healthcare providers in Bangladesh

Provider	Training	Type of services provided	Health sector
Traditional healer (Faith healer: <i>Ojha/pir/fakir</i>)	Not applicable	Non-secular; based on religious belief	Private
Traditional healer (<i>Kabiraj</i>)	Practice based on ayurvedic system medicine commonly involving diet, herbs, and exercise. Mostly self-trained, but some may have training from govt. or private colleges of Ayurvedic medicine	Ayurvedic, based on diet, herbs and exercise etc. Sometimes also combine allopathic medicine such as antibiotics and steroids etc.	Private/ Public
Traditional healer (<i>totka</i>)	Self-trained, combines ayurvedic, unani (traditional muslim medicine originating from Greece) and shamanistic systems; also use allopathic medicine	Combination of ayurvedic, unani and faith healing	Private
Homoeopath	Mostly self-educated, but some possess recognized qualification from govt. or private Homoeopath Colleges	Homoeopathic	Private/ Public
Village Doctors (Rural Medical Practitioners, RMPs and <i>Palli Chikitsoks</i> , <i>PCs</i>)	Majority (RMPs) have three to six months training from semi-formal, unregulated private organizations. Few (<i>PCs</i>) have had one year training from a short-lived govt. programme in the early '80s (<i>PC</i> training programme) which stopped in 1982	Allopathic	Private
Drug store salespeople/Drug vendor/drug seller; also village 'quack'	No formal training in dispensing; none of them are trained in diagnosis and treatment; some learn treatment through apprenticeship or working in drug stores ('quack')	Allopathic; in addition to dispensing, they also diagnose and treat	Private

Provider	Training	Type of services provided	Health sector
Community Health Workers (GO/NGO)	Training on basic curative care for common illnesses and preventive health by Govt./ private/NGO organizations of varying duration	Allopathic: curative and preventive/ health promotion	Public/private/non-profit NGOs
Traditional Birth Attendant	No training or short training on safe and clean delivery by govt./private organizations/ NGOs	Assisting normal delivery	Private
Family Welfare Visitor (FWV)	1 ½ years training in govt./private facilities on midwifery and clinical contraception management	Conducting normal delivery; clinical contraception and Immunization services	Public/private
Medical Assistant/ Sub-assistant Community Medical Officer (MA/ SACMO)	3 years training in govt. Medical Assistant Training School (MATS)	Allopathic; curative	Public/private
Qualified allopathic providers (Doctor, nurse, dentists)	MBBS, Nursing diploma, BDS respectively	Mostly curative; training of the various cadres of health workers	Public/private

Source: Ahmed, 2005

Annex 2. Methodology of the study

In order to operationalise the broad objectives of the Bangladesh Health Watch 2007 as outlined in the previous chapter, five independent but interconnected sub-studies were designed. Four of them collected primary data while the fifth utilized secondary information. The following gives details of the design of each sub-study.

Sub-Study 1: Density and Profile of the Healthcare Providers

Objectives

Carried out by BRAC's Research and Evaluation Division, this study had the following specific objectives:

- Estimate the density (per 10,000 population) of different types of male and female health care providers in the country, in rural and urban areas, and in the six divisions;
- Explore the educational, training, and professional experiences of the different types of healthcare providers, and the range of services provided by them;
- Assess the knowledge and practice of the health care providers with respect to specific illnesses;
- Assess the professional satisfaction of the health care providers.

Study Population and Sampling

The study population in this survey comprised of all types of health care providers (HCPs) who were currently active in providing health care services to the community in the study areas. The survey used 60 primary sampling units (PSUs), drawn randomly from the 1,000 PSUs used by the Bangladesh Bureau of statistics (BBS) for Sample Vital Registration System (BBS 2004). Since a PSU (a cluster of 200 households) may not be large enough to have sufficient primary healthcare providers in terms of number as well as diversity, we used the Union and the Ward containing the selected PSU as the sampling unit for the rural and the urban areas respectively. These are the lowest level of functional administrative units and have comparable population size (around 25,000). The number of PSUs was conveniently determined given constraints in time and resources, and also getting a sizable number of health care providers for subsequent quantitative survey. The sample PSUs were proportionally allocated based on PPS (Probability Proportion to Size) sampling technique for the six divisions and types of residence (rural/urban) (Table 1). Thus, the sampling provided representative estimates of density of healthcare providers for the country as a whole, for the urban and the rural areas separately, and for each of the six administrative divisions.

Table 1. Number of PSUs included in the survey from the urban and rural area and from the six divisions based on probability proportional to population size⁹ (PPS)

Division	Dwellings in 2001 census		Number of PSUs		
	Proportion for all	Proportion for urban	All	Rural	Urban
Barisal	0.0788	0.0112	4.7 ≈ 5	4	1
Chittagong	0.1717	0.0407	10.3 ≈ 10	8	2
Dhaka	0.3067	0.1052	18.4 ≈ 18	12	6
Khulna	0.1251	0.02502	7.5 ≈ 8	6	2
Rajshahi	0.2632	0.0387	15.8 ≈ 16	14	2
Sylhet	0.0546	0.0068	3.3 ≈ 3	2	1
Rural	0.7743		46.5 ≈ 46		
Urban	0.2257		13.5 ≈ 14		
Total	1.0000		60	46	14

⁹ Note: Urban area included the statistical metropolitan area (SMA), municipality area and other urban area (thana sadar which has the quality of municipality).

For quantitative survey to elicit socio-demographic and relevant information of interest, we selected around 51 HCPs from each Union/Ward (thus aiming to interview around 3,000 HCPs) through systematic random sampling from the inventory list of HCPs. The numbers of different categories of the HCPs were determined according to their proportion in the inventory list. Distribution of sample HCPs by background is shown in Table 2.

Table 2. Distribution of the HCPs interviewed from different categories (n=51) per PSU according to their proportion in the sampled (study) population

	Category	Providers included	Sample		No. interviewed per PSU
			N	%	
1	Physicians	MBBS/Specialist	835	3.67~ 4	2
2	Nurses	Nurse	322	1.41~1	1
3	Dentists	Qualified dentist (BDS)	42	0.18~1	1
4	Community Health Workers	HA, FWA, FPI, HI, AHI, CNO, CNP, SBAs, TBA, TTBA, other community health volunteers of NGOs	6606	29.05~ 29	14
5	Allopathic para-professionals	SACMO/MA, FWV	158	0.69~ 1	1
6	Unqualified Allopathic providers	Allopathic drug sellers/vendors (untrained)	1753	7.71~ 8	4
7	Traditional medicine practitioners (traditional healers)	Village doctors (RMPs/PCs)	1933	8.5~8	4
		Kabiraj, Totka, herbal drug sellers/canvassers, Faith-healers	9889	43.49~ 43	21
8	Homoeopaths	Trained and untrained homoeopaths	914	4.02~ 4	2
9	Others	Lab Technicians, physiotherapists, circumcision practitioners and others	284	1.24~ 1	1
Total			22,736	100.0	51

Data Collection

Data was collected in two stages: first, an inventory of all types of healthcare providers was made during July 11-Sept. 3, 2007. Secondly, the sub-sample of the selected HCPs was interviewed during Sept. 9-Oct. 15, 2007.

Inventory of the healthcare providers

All the villages, markets and health facilities/centres under each Union/Ward were visited by the field enumerators (social science graduates) recruited and trained by the research team. The community people in informal discussions/focus group discussions were asked as to who were the people providing health services of any kind in their locality. They were also asked specifically about health services for pregnant women TBAs/TTBAs and others like MBBS doctors, Nurses, Homoeopaths, CHWs, *Palli Chikitsoks* etc. A simple free listing technique was used for creating an inventory of the practicing HCPs in each of the geographical areas visited. These were cross-checked with community members for proper identification, to avoid duplication and omission, especially in case of the informal sector providers. This exercise yielded a list of different HCPs by union/ward. During this process, rapport building was done with the

HCPs when field workers explained the purpose of the inventory and sought their cooperation for subsequent quantitative survey.

Tools development for the quantitative survey

Two sets of semi-structured questionnaires were developed for the quantitative survey based on the researchers' knowledge and experience on the subject from earlier work. The first covered socioeconomic and demographic information, information on training, professional experience, service provision characteristics and professional satisfaction. Average monthly income of the household was recorded as reported by the respondents. Prior rapport building and the assurance that this information would only be used for research purposes is expected to have led to valid reporting of income. The second questionnaire further probed their practices with respect to the management of specific illnesses such as fever, diarrhea /dysentery, acute respiratory infection, and reproductive health/STI as reported. Both sets of questionnaires were pre-tested in a village outside the study areas for ascertaining consistency, appropriateness of languages, sequencing of the questions, and to obtain insight into the field operation procedure. These were then edited in the light of feed-back received. The easily identifiable color-coded questionnaires were backed by an instruction manual in Bangla for the interviewers.

The Survey

The study passed through the usual institutional review process at BRAC Research and Evaluation Division and the review board of the James P. Grant School of Public Health, BRAC University for ethical approval. The final questionnaires were administered in face-to-face interview by the field enumerators after obtaining informed verbal consent. All interviewers hired for the survey underwent a five-day training which consisted of didactic lectures followed by practice sessions outside the study areas. These were backed by long de-briefings at the end of the day. The day-to-day field activities of the teams were overseen by a field researcher based in the upazila field office. The entire survey activity was supervised and managed by the principal author who made frequent field visits and provided assistance and guidance when needed. SPSS PC+ Version 12 was used for data analysis. Further detail on the methodology is available in Ahmed and Awlad (2007).

Sub-Study 2: Caregivers and healthcare provider's perspectives on the quality of care in the context of childhood illnesses- ARI and diarrhoea

Objectives

This sub-study which was carried out by the James P. Grant School of Public Health of BRAC University had the following specific objectives:

- Understand the health seeking behaviour of mothers/caregivers for sick infant/children and the type of providers accessed;
- Capture the experiences and perspectives of mothers/caregivers regarding quality of care as they seek or sought treatment for their child's ailment;
- Understand from the perspectives of providers (both formal and informal depending on where infants/children are taken for care) regarding quality of care given.

Adopting a qualitative design, this study focussed on two common infant illnesses – diarrhoea and pneumonia -in two rural and two urban areas. The rural sites were villages of Barisal and Chittagong divisions and two urban areas of Dhaka and Rajshahi cities. The selection of the sites was guided by the mapping and listing of health providers conducted in Sub-Study 1 as well as through informal discussion within the sites. A number of methods were used to get insight into different perspectives such as

informal discussions, in-depth interviews, observations, case scenarios and exit interviews. Rationale for using the different methods was to ensure triangulation and validation of the data.

In the first phase qualitative investigators were given intensive training on key objectives of the study. Eight researchers were trained on communication with the community through informal discussions and in-depth interviews on key issues surrounding children's illnesses (ARI and Diarrhoea) and mother's health seeking behaviour. They were also trained on presenting case scenarios and observations using checklists for each. The tools for the study were tested in Badda area of Dhaka city. After further discussions they were revised.

The researchers worked in pairs. A team leader coordinated the study and supervised and reviewed the transcripts. Following informed verbal consent, informal discussions were conducted with a group of 6-8 people in the community. This helped to gain entry into the community and also gave valuable insight into the common illnesses afflicting the children. The healthcare providers more commonly accessed for the children's illnesses and mothers with children under 5 years of age were identified for in-depth interviews to be conducted later.

Initially 48 informal discussions took place in the community regarding diarrhoea and pneumonia and the kinds of providers accessed by care givers for their children. The informal group discussions with community members included mothers, grandmothers, fathers, young women and men. The discussions helped to gain entry into the community and to identify popular providers most often accessed by the mothers. In-depth interviews were conducted with 36 (17 from rural/19 from urban) mothers/caregivers identified in the informal discussions. Information was gathered on the type of care accessed for symptoms of diarrhoea/pneumonia. Care givers were asked to recall a case history of an episode and asked to narrate the processes which took place from 'resort to care' to medicines given to child.

Health care providers were selected from the most popular ones identified by the caregivers in in-depth interviews and informal discussions. To ensure representation different types of health care providers were included in the in-depth interviews. Thirty nine providers (19 from rural/20 from urban both formal and informal providers) were interviewed in-depth. To triangulate the findings 15 healthcare providers were selected for observation of their practice pattern from those who had been previously interviewed.

Similarly case scenarios on ARI and Diarrhoea were presented to 15 providers who had been in-depth interviewed. This linkage helped to understand provider's knowledge of the disease and how they deal with the illnesses in their practice. To get the mothers perspective on the quality of care by the health care providers Exit interviews were conducted of 31 mothers outside the health facility that they just visited. This also gave insight into the interpersonal and technical care as perceived and reported by the caregivers.

Transcripts were first translated into English, Atlas Ti was then used for coding the data which was analyzed for writing the report. Further details on the methodology are available in Iqbal et al., (2007).

Sub-Study 3: Study of selected health service providers serving at the rural community level in Bangladesh

Objectives

Carried out by Research Training and Management International (RTM, International), the prime goals of the study were to investigate the training, recruitment, salaries, incentives, job satisfaction and their job performance of the paramedics working in the NGO clinics, CHWs working with the NGOs, government outreach workers, i.e. FWAs and HAs (female) turned into paramedics as SBAs and nurses working at the private clinics. The specific research objectives of the study were to:

- identify the services provided by the paramedics, CHWs, Community-based Skilled Birth Attendants (CSBAs) and nurses;
- find out the trainings received by the health service providers;
- assess the selection process of the providers for their training;
- explore their salaries, incentives, attrition; and
- assess the job performance as well as job satisfaction of the providers.

The study is primarily based on the qualitative information collected from different target population of the study. Both the primary as well as secondary data were collected. The primary data were collected through structured questionnaires. The study population consisted of paramedics, nurses, CSBA and CHW. The supervisors of these target groups were also interviewed. The methodology and the technical approach by different target groups are explained in the following sections.

Survey of paramedics working in the NGO sector

In the first phase, Gonoshasthya Kendra (GK) and Associates in Training and Management (AITAM), two major producers of paramedics were selected. In the second phase, NGOs employing their graduates were identified who came from the NGOs Services Delivery Programme (NSDP) as well as Urban Primary Health Care Programme (UPHCP). GK themselves are also employer of their own trained paramedics. It is important to note that for NSDP clinics sample was selected from those working in the clinics where safe delivery service is not available.

A total of 90 paramedics were interviewed. They came from two partner NGOs of NSDP, five partner NGOs of UPHCP and thirty randomly selected from three areas of GK. In addition, in-depth interviews were also conducted with eight of the paramedics' employers and 15 of their supervisors on their selection, salaries, incentives, attrition and job performance.

Survey of CHWs working in the NGO sector

Since BRAC, the partner NGOs of NSDP and those of UPHCP are the major 'employers' of CHWs, they were included for the CHW survey. A total of 150 CHWs were randomly selected, 50 each from these three employers for interview with a structured questionnaire. In-depth interviews were conducted with nine key informants of these organizations as employers to get information on the services provided by CHWs and their selection, salaries, incentives, attrition and job performance. Table 3 shows the distribution of sample coverage for paramedics and CHWs.

Table 3. Distribution of Sample for CHWs and Paramedics

SN	Name of the Programme	Name of the Districts	Name of the Upazila/ NGO	No. of paramedics included in the study	No. of CHWs included in the study		
1	NSDP (Swanirvar Bangladesh)	Panchagarh	Atowari	3	5		
		Tangail	Debigonj	3	5		
			Basail	3	5		
			Delduar	3	5		
			Feni	3	5		
		Manikganj		3	-		
	NSDP (Jatiya Tarun Sangha)	Rajshahi	Godagari	3	6		
		Chuadanga	Bagmara	3	7		
			Jibonnogor	3	6		
			Netrakona	Atpara	3	6	
		Total			30	50	
2	UPHCP	Dhaka City Corporation	BWHC	10	18		
		Rajshahi City Corporation	Nari Maitree	5	8		
			Population Services and Training Center	5	8		
		Khulna City Corporation	PA-1, PSKP	5	8		
		Barisal City Corporation	Mari Stopes Clinic Society	5	8		
		Total		30	50		
		3	GK	Dhaka	Savar & Dhamrai	15	-
				Gazipur	Sripur	15	-
Total				30	-		
4	BRAC	Barisal	Sadar (Kazipur & Banaripara)	-	13		
		Noakhali	Begamganj	-	13		
		Jessore	Sadar (Bakra and Gongarampur unions)	-	12		
		Jaipurhat	Sadar (Gopinathpur & Tilokpur unions)	-	12		
		Total		-	50		
		Total			90	150	

Survey of CSBAs working in the public sector

A total of one hundred CSBAs were randomly selected from ten Upazilas of five districts where they are highly concentrated. However, only 96 of them could be actually interviewed through structured questionnaires. Table 4 presents the distribution of sample CSBAs.

Table 4 Distribution of Sample Coverage for Community Skilled Birth Attendants

Sl. No.	Name of the Districts	Name of the Upazila	Total Number SBAs*	Sample
1	Habiganj	Total	101	30
		Madhabpur	16	10
		Chunarughat	15	09
		Nabiganj	15	11
2	Jessore	Total	123	30
		Jhikargacha	15	10
		Monirampur	15	10
		Abhoynagar	15	10
3	Manikganj	Total	105	19
		Harirampur	14	10
		Singair	14	09
4	Sirajganj	Total	108	17
		Shahzadpur	15	05
		Kazipur	15	12
Total			437	96

*Note: OGSB was contacted (training provider of SBA) to get the list of CSBAs posted in various districts.

As Family Welfare Visitors (FWVs) and Medical Officer-Maternal and Child Health (MO-MCH) are assigned as technical supervisors of FWAs turned into SBAs and Upazila Health and Family Planning Officers (UHFPO) have been assigned as the technical supervisors of Female Health Assistants turned into SBAs, five MO-MCHs and 5 FWVs, 5 UHFPO were interviewed to get information on the performance of SBAs.

Survey of nurses working in the private clinics

Thirty junior level nurses were interviewed from six private clinics of Dhaka city for this study. Of these one was large, two medium, and the rest were small clinics. The clinics are located in the areas where the middle and lower middle-income people of Dhaka city reside. Further details on the methodology are available in Ghafur et al., (2007).

Sub-Study 4: Supply and training of health workers in Bangladesh: an assessment of the current situation

Objectives

Carried out by Research Training and Management International, this study assessed and analysed the current situation of education and training background of selected groups of providers including nurses, medical assistants (MA) and health technologists in Bangladesh. It also investigated the effectiveness of CHWs of selected NGOs and the certification and training of community-based skilled birth attendants (CSBA). The specific objectives of this sub-study were to:

- Assess the capacity of the institutes to produce nurses, medical assistants, health technologists and CSBAs;
- Examine the quality of education and training imparted at the institutes;
- Identify the strengths and weaknesses of current education and training systems;
- Identify problems in expanding the institutional capacity or in increasing the number of workforce in the context of Bangladesh;
- Identify the effectiveness of CHWs;

- f) Examine the relevance of nurses, medical assistants, health technologists, CHWs and CSBAs in the Bangladesh context.

Methods

The following research methods were used for the sub-study:

- **Review of documents** on the current situation in education and training of nurses, medical assistants, health technologists, CSBAs and CHWs, as well as on the initiatives undertaken to improve the availability and efficiency of healthcare providers. The training curricula of these providers were also reviewed.
- **Structured interviews** with a sample of students of public and private nursing institutes, medical assistant training schools, and institutes of health technology, as well as a sample of CSBAs and CHWs. These interviews were conducted to identify factors that affect the strengths and weaknesses of the current education and training systems in the sampled institutes.
- **In-depth interviews** with selected key informants of public and private organisations that provide education/training to nurses, medical assistants, health technologists, CSBAs and CHWs. These interviews were conducted to identify the present and future supply situation and the problems in expanding the supply of providers.

Sample size and field data collection

The study sample comprised 105 respondents from 21 organisations that provide training to various types of health workforce. These organisations were selected from a total of 106 such entities (both in the public and private sectors¹⁰) that are currently functioning in Bangladesh. The sampled entities included eight nursing institutes (6 public and 2 private), two medical assistant training schools (both in public sector), seven health technology institutes (2 public and 5 private), 1 organisation for CSBA training, and 3 NGOs that provide training to community health workers. These organisations were selected from all six divisions of the country.

From each of the sampled organisations, 5 respondents were chosen for conducting *structured interviews*. The respondents included 40 students of nursing institutes, 10 students of medical assistant training schools (MATs), 35 students of institutes of health technology (IHT), 5 community-based skilled birth attendants and 15 community health workers. The sample size by categories of organisations is presented in Table 2.5.

The respondents from the nursing institutes, MATs and IHTs were all 3rd year students of their respective institutions. All nurses interviewed were females, while most of the respondents from MATs and IHTs were males (60% and 80% respectively). The CSBAs and CHWs interviewed were all females.

¹⁰ Public sector institutions are owned and operated by the government, while private ones are owned and operated by private individuals, firms, companies, and NGOs. The number of training institutes in the health sector was obtained from the Human Resources Development Unit, MOHFW. It should be noted that there are other types of health workforce training institutes, in addition to the ones shown in the table such as FWVTI, making a total of 138 institutes, according to HRDU. The survey did not cover the other type of institutes.

Table 5. Sample Size by Categories of Organisations

Category	Total number of institutions	Sample institutions	Number of respondents per institute	Total number of respondents	Type of respondent
Nursing Institute	Public – 46	Medical college attached – 3	5	15	Student nurses (40)
		District hospital attached – 3	5	15	
	Private - 19	Private – 2	5	10	
Medical Assistant Training School	Public - 5	2	5	10	Student medical assistants (10)
Institute of Health Technology ¹¹	Public - 3	Public – 2	5	10	Student health technologists (35)
	Private - 29	Private – 5	5	25	
Obstetrical and Gynaecological Society of Bangladesh	1	1	5	5	Community-based skilled birth attendants (5)
Non-governmental organisations	BRAC/NS DP/ UPHCP - 3	BRAC – 1 NSDP – 1 UPHCP – 1	5	15	Community health workers (15)
Total	106	21	-	105	

Out of the 21 sampled organisations, 11 were selected for key informant interviews. The selected organisations included four nursing institutes (2 public and 2 private), one MATS, two IHTs (1 public and 1 private), one private CSBA training organisation, and three NGOs. In-depth interviews were carried out with two key informants from each of the selected training organisations and one key informant from each of the NGOs, making a total of 19 respondents (Table 6).

Table 6. Sample of Key Informants by Institutions

Category	Sample institutions	Number of key informants	Type of key informant
Nursing Institute	Medical college attached - 1	2	Principal and Teacher
	District hospital attached - 1	2	Principal and Teacher
	Private – 2	4	Principal and Teacher
Medical Assistant Training School	Public – 1	2	Principal and Teacher
Institute of Health Technology	Public – 1	2	Principal and Teacher
	Private – 1	2	Principal and Teacher
Obstetrical and Gynaecological Society of Bangladesh	1	2	Director and Instructor
Non-governmental organisation	BRAC – 1	1	Programme Manager (Training)
	NSDP - 1	1	
	UPHCP – 1	1	
Total	11	19	

¹¹ There are 32 institutes of health technology under the State Medical Faculty, MOHFW. In addition, 47 private health technology institutes are currently functioning under the Technical Education Board of the Ministry of Education. The survey did not cover the latter institutes.

Five *questionnaires* were developed for interviewing (a) student nurses, (b) student medical assistants, (c) student health technologists, (d) CSBAs, and (e) CHWs. In addition, *guidelines* were prepared for conducting in-depth interviews of the following types of key informants: (a) principal and teacher of public and private nursing institutes, (b) principal and teacher of MATS, (c) principal and teacher of health technology institutes in the public and private sectors, (d) director and instructor of organisation providing training to CSBAs, and (e) program manager of NGOs providing training to CHWs. The survey instruments were reviewed by the members of the Technical Committee and revised accordingly.

Seven research assistants were recruited for conducting the field survey (structured interviews). They were provided intensive training on data collection techniques. The questionnaires were pre-tested in the field and modified accordingly. The members of the core study team carried out in-depth interviews with the principals and teachers of nursing institutes, MATS, and institutes of health technology. They also interviewed the director and an instructor of the Obstetrical and Gynaecological Society of Bangladesh (OGSB) and programme managers entrusted with the training of community health workers of three NGOs.

The quantitative data collected through the field survey were entered into computers, processed and analysed. The qualitative information generated by the in-depth interview of key informants was manually processed and analysed. Further details on the methodology are available in Faiz et al., (2007).

Annex 3. Distribution of different types of healthcare providers (HCPs) from the 60 sampled clusters by division, location of residence, n (%)

	Division						Location		ALL
	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Sylhet	Rural	Urban	
Qualified allopathic professionals									
Physicians	25 (1.7)	90 (2.6)	586 (8.8)	23 (0.9)	97 (1.2)	14 (2.2)	138 (0.7)	697 (22.6)	835 (3.7)
Nurses	12 (0.8)	61 (1.7)	144 (2.2)	29 (1.1)	44 (0.6)	2 (0.3)	74 (0.4)	218 (7.1)	292 (1.3)
Dentists	5 (0.3)	6 (0.2)	30 (0.5)	1 (0.0)	0 (0.0)	0 (0.0)	10 (0.1)	32 (1.0)	42 (0.2)
Semi-qualified allopathic providers									
Paraprofessionals*	13 (0.9)	46 (1.3)	136 (2.0)	14 (0.5)	78 (1.0)	3 (0.5)	121 (0.6)	169 (5.5)	290 (1.3)
Community Health workers (CHWs)	235 (16.2)	286 (8.2)	335 (5.0)	188 (7.1)	455 (5.8)	24 (3.9)	1284 (6.5)	239 (7.7)	1523 (6.7)
Unqualified allopathic providers									
Village doctors (RMPs/ <i>Palli Chikitsoks</i>)	216 (14.9)	316 (9.1)	530 (8.0)	196 (7.4)	613 (7.8)	62 (10.0)	1593 (8.1)	340 (11.0)	1933 (8.5)
Drug store salespeople	92 (6.3)	161 (4.6)	642 (9.7)	214 (8.1)	613 (7.8)	31 (5.0)	1248 (6.4)	505 (16.4)	1753 (7.7)
Traditional Birth Attendants (TBA/TTBA)	358 (24.7)	746 (21.4)	1246 (18.8)	673 (25.4)	1893 (24.0)	197 (31.6)	4880 (24.8)	233 (7.6)	5113 (22.5)
Traditional healers**	426 (29.4)	1660 (47.6)	2682 (40.4)	1149 (43.3)	3709 (47.1)	259 (41.6)	9554 (48.6)	331 (10.7)	9885 (43.5)
Homoeopaths	47 (3.2)	87 (2.5)	256 (3.9)	150 (5.7)	344 (4.4)	30 (4.8)	644 (3.3)	270 (8.7)	914 (4.0)
Others (circumcision practitioner, tooth extractor, ear cleaner etc.)	22 (1.5)	28 (0.8)	53 (0.8)	15 (0.6)	37 (0.5)	1 (0.2)	104 (0.5)	52 (1.7)	156 (0.7)
Total (N)	1451	3487	6640	2652	7883	623	19650	3086	22736

*Medical Assistants/Sub-Assistant Community Medical Officers (MA/SACMOs), Family Welfare Visitors (FWVs) and lab technicians/physiotherapists

**Kabiraj, totka, herbalists, faith healers

NB. the PC_s are included in the village doctor group because they are few in numbers, were trained on or before 1982 without any further re-training, and no different from the RMPs in practice

Annex 4. Distribution of semi-qualified and unqualified allopathic providers per 10,000 population

	Semi-qualified allopathic providers*				Unqualified allopathic providers			Traditional Birth Attendants, Untrained and trained (TBA/ TTBA)
	Para- Professionals	Govt. Workers	Non- Govt. Workers	All	Village doctors (RMPs/ PCs)	Dug store sales- people, drug vendors	All	
Division								
Barisal	0.9	4.5	12.2	16.7	15.5	6.5	22.1	25.6
Chittagong	2.5	4.6	10.5	15.1	17.1	8.7	25.8	40.4
Dhaka	2.5	2.6	3.4	6.0	9.8	11.9	21.8	23.6
Khulna	0.8	3.0	7.5	10.5	11.3	12.3	23.6	38.7
Rajshahi	1.7	3.0	6.7	9.7	13.5	13.4	26.9	41.6
Sylhet	0.6	3.8	1.0	4.8	12.7	6.3	19.0	40.43
Location								
Rural	1.0	3.6	7.3	10.9	13.8	10.8	24.6	42.2
Urban	4.4	2.0	3.9	5.9	8.8	13.2	22.1	6.0
Sex								
Male	1.0	1.2	0.2	1.4	12.0	11.0	23.0	0.0
Female	0.8	2.0	6.2	8.2	0.4	0.4	0.9	33.2
All	1.0	3.2	6.4	9.6	12.5	11.4	23.9	33.2

*received some kind of training from formal institutions, GO or NGO

Annex 5. Distribution of traditional healers, homoeopaths and others per 10,000 population

	Traditional healers			Homoeopaths			Others*
	Kabiraj, Totka, Herbalists	Faith healers	All	Qualified	Un-qualified	All	
Division							
Barisal	12.8	17.7	30.5	1.0	2.3	3.3	1.6
Chittagong	49.3	40.6	89.9	3.0	1.6	4.7	1.4
Dhaka	29.6	20.3	49.8	3.6	1.2	4.7	0.9
Khulna	38.2	28.0	66.2	3.9	4.7	8.6	0.8
Rajshahi	35.7	45.8	81.6	3.6	3.9	7.5	0.7
Sylhet	14.9	38.1	53.1	3.8	2.2	6.1	0.0
Location							
Rural	42.1	40.5	82.6	2.5	2.9	5.5	0.85
Urban	4.4	4.2	8.6	6.1	0.9	7.0	1.20
Sex							
Male	23.4	22.2	45.6	3.2	2.3	5.5	0.7
Female	9.3	9.3	18.6	0.3	0.1	0.4	0.2
All	32.7	31.5	64.2	3.4	2.5	5.9	0.9

*Circumcision practitioners, ear cleaners, tooth extractors etc

Annex 6 Demographic characteristics of the healthcare providers (%)

	Types of healthcare providers (HCPs)									
	Physicians	Dentists	Nurses	Allopathic Paraprofessionals	Community Health Workers	Village doctors (RMPs/ PCs)	Dug store salespeople, /drug vendors	TBA/ TTBA	Traditional healers	Homoeo-paths
Age (years)										
<30	10.6	22.2	30.5	0.0	33.3	23.7	27.9	1.7	4.1	15.7
30 – 39	29.8	44.4	22.0	14.8	36.7	32.8	28.8	10.0	13.6	20.7
40 – 49	29.8	22.2	15.3	55.6	20.8	19.7	19.8	29.1	21.6	27.3
50 – 59	21.3	11.1	13.6	25.9	7.1	14.6	15.3	30.3	23.5	22.3
≥60	8.5	0.0	18.6	3.7	2.1	9.1	8.1	28.9	37.2	14.0
Mean age ± sd	43.1 ± 12.1	36.5 ± 8.1	40.9 ± 14.5	45.1 ± 6.9	34.5±9.8	39.6±12.6	38.6±13.2	51.5±11.7	52.9 ± 14.7	44.3 ± 13.9
Sex										
Male	89.4	88.9	3.4	29.6	16.3	94.5	97.3	1.2	75.6	92.6
Female	10.6	11.1	96.6	70.4	83.8	5.5	2.7	98.8	24.4	7.4
Religion										
Muslim	76.6	55.6	71.2	85.2	83.3	74.5	77.0	89.5	87.2	77.7
Non-muslim	23.4	44.4	28.8	14.8	16.7	25.5	23.0	10.5	12.8	22.3
Completed years of schooling										
None				0.0	1.7	0.0	1.4	58.9	35.4	1.7
1 – 8				3.7	26.3	2.9	10.4	39.0	46.8	5.0
9 – 10				48.1	37.5	45.3	50.0	1.8	9.2	42.1
11 – 12				44.4	32.5	49.6	34.7	0.3	5.5	39.7
12+				3.7	2.1	2.2	3.6	0.0	3.1	11.6
Mean ± sd				10.6±1.0	9.1±2.7	10.6±1.2	9.9±2.2	1.6±2.5	4.0±4.0	10.4 ±2.1
Family size	4.9 ± 2.3	6.7± 2.8	4.9 ± 2.6	5.0 ± 1.6	5.3±2.4	5.7±2.5	6.2±2.9	5.3±2.2	5.8 ± 2.5	6.3 ± 3.1
Mean ± sd										
No. of income-earners	1.6 ± 0.8	1.5 ± 0.7	2.1 ± 1.2	1.9 ± 0.4	2.0±0.8	1.6±0.9	1.9±1.0	1.7±0.8	1.7 ± 0.9	1.8 ± 1.1
Mean ± sd										
N	47	9	59	27	240	274	222	598	1185	121

Annex 7. Economic characteristics of the healthcare providers (%)

	Types of healthcare providers (HCPs)									
	Physicians	Dentists	Nurses	Allopathic paraprofessionals	Community Health Workers	Village doctors (RMPs/PCs)	Dug store salespeople, /drug vendors	TBA/TTBA	Tradi-tional healers	Homoeo-paths
Supplementary occupation										
None	76.6	66.7	74.6	55.6	32.6	39.1	45.5	38.5	90.3	49.6
Agriculture (self), poultry/livestock	8.5	22.2	11.9	18.5	17.6	42.7	40.5	14.9	6.7	33.1
Trade/service	14.9	11.1	5.1	22.2	7.2	15.7	9.5	6.8	1.9	10.7
Other	0.0	0.0	8.5	3.7	42.5	2.6	4.5	39.9	1.2	6.6
Mean monthly household income (TK)*										
≤ 5,000			35.6	11.1	30.0	24.1	29.7	65.4	57.7	31.4
5,001-10,000			28.8	7.4	35.0	44.5	40.1	25.3	28.4	38.0
>10,000			35.6	81.5	35.0	31.4	30.2	9.4	13.9	30.6
Self-rated poverty status of Households										
Always deficit			8.5	3.7	5.8	3.3	3.2	20.1	14.5	5.0
Occasional deficit			16.9	3.7	15.8	13.5	15.3	30.8	29.1	13.2
No deficit			74.6	92.6	78.3	83.2	81.5	49.2	56.4	81.8
N	47	9	59	27	240	274	222	598	1185	121

*US \$1=Tk. 68

Annex 8. Mode of induction into the profession, and professional and training experiences of the healthcare providers (HCPs)

	Allopathic Para-professionals	Community Health Workers	Village doctors (RMPs/ PCs)	Dug store salespeople/drug vendors	TBA/ TTBAs	Traditional healers	Homoeopaths
<u>Induction into profession by</u>							
Formal training	77.8	61.3	78.8	.0	11.7	2.6	52.1
Apprenticeship	3.7	2.5	9.1	21.6	36.8	37.4	23.1
Selling medicine	0.0	00.4	5.8	55.9	0.0	1.1	9.9
Service	18.5	35.4	1.8	5.4	1.0	1.6	0.8
Inheritance	0.0	0.4	4.0	14.0	41.6	40.8	10.7
Others	0.0	0.0	.4	3.2	8.9	16.5	3.3
<u>Professional experience</u>	22.5± 8.4	8.5± 9.0	14.2±11.7	11.3±10.3	17.7±10.9	18.1± 12.2	15.5± 11.9
(mean±sd) years							
Ever received any training	96.3	90.8	100.0	0.0	22.4	4.0	60.3
<u>Type/Name of training</u>							
MAT	29.0	9.2	0.8	0.0	0.0	0.0	0.0
PC	0.0	0.9	86.8	0.0	0.7	10.0	8.1
Homoeo	0.0	0.0	0.0	0.0	0.7	0.0	86.5
TBA/SBA	6.5	2.8	0.0	0.0	97.8	2.0	0.0
Basic training	29.0	43.6	0.8	0.0	0.0	4.0	0.0
Short training (max. 1 month)	35.5	50.0	17.7	0.0	0.7	84.0	5.4

Training institution

Government	96.2	34.6	36.7	0.0	56.5	50.0	38.7
Private	3.8	22.6	61.9	0.0	23.7	47.9	61.3
NGO	0.0	46.5	3.7	0.0	19.8	2.1	0.0

	Allopathic Para-professionals	Community Health Workers	Village doctors (RMPs/ PCs)	Dug store salespeople/drug vendors	TBA/ TTBAs	Traditional healers	Homoeopaths
<u>Topics covered in training*</u>							
Diarrhoeal diseases	96.3	56.4	92.9	0.0	6.6	68.2	91.8
Fever/common cold/cough	88.9	53.2	88.1	0.0	6.6	65.9	89.0
ARI/Pneumonia	74.1	25.9	50.6	0.0	2.9	38.6	71.2
Skin diseases	66.7	23.6	53.9	0.0	2.2	72.7	68.5
Digestive disturbances	51.9	26.4	67.7	0.0	2.2	59.1	75.3
Family Planning	59.3	50.5	42.8	0.0	22.1	11.4	19.2
Anemia	74.1	34.1	52.0	0.0	3.7	52.3	63.0
Tuberculosis	48.1	35.9	21.2	0.0	3.7	27.3	28.8
Mother and child health	51.9	56.8	35.7	0.0	94.9	15.9	31.5
Others	44.4	40.0	35.3	0.0	3.7	52.3	53.4
Duration of training in months							
Median	18.0	0.7	6.0	0.0	0.0	0.0	12.1
N	27	240	274	222	598	1185	121

Annex 9. Relevance of training in professional life of the healthcare providers (HCPs)

	Allopathic Para- professionals	Community Health Workers	Village doctors (RMPs/PCs)	Dug store salespeople, /drug vendors	TBA/ TTBA	Traditional healers	Homoeopaths
Thinks training is very necessary for practice	66.7	54.6	69.3	44.1	28.8	6.8	54.5
Training knowledge applied in practice	96.3	100.0	98.5	0.0	99.3	95.6	98.7
Training is necessary for prof. development	81.5	85.4	92.0	68.0	60.0	21.7	76.0
Illnesses perceived easy to treat*							
Fever	96.3	67.1	96.7	94.6	4.5	18.7	85.0
Common cold	92.6	56.1	92.7	90.0	3.0	8.8	81.7
Headache/body ache	55.6	31.6	75.2	74.2	2.7	32.4	55.0
Diarrhea/dysentery	74.1	53.2	84.3	67.9	5.0	19.3	63.3
Pain in abdomen	37.0	13.1	50.0	42.5	3.5	31.4	36.7
Illnesses of pregnant women	3.7	2.5	0.0	0.0	94.3	0.8	1.7
Others	22.2	38.8	11.7	7.2	4.5	72.0	26.7
Illnesses perceived difficult to treat*							
Diabetes	59.3	44.2	56.0	60.4	33.7	42.1	55.9
Asthma/difficulty in breathing	51.9	50.4	44.3	50.9	39.1	49.3	42.4
Hypertension	63.0	33.5	44.7	47.7	24.4	28.0	34.7
Abdominal ulcers	7.4	27.2	17.2	22.1	25.1	29.7	25.4
Illnesses of pregnant women	25.9	31.3	38.5	47.7	41.5	27.2	21.2
Rheumatism	11.1	16.5	9.5	15.3	25.7	27.8	16.9
STI/RTI	14.8	19.2	31.1	33.3	17.3	19.5	25.4
Others	33.3	25.9	31.1	23.9	26.2	25.2	38.1
Refers complicated cases	96.3	97.1	99.3	98.6	96.2	76.8	95.9
Place of referrals							
District Hospital	42.3	22.3	35.3	33.3	36.9	32.1	28.4
Upzila Health Complex	38.5	42.1	39.0	38.8	49.0	32.3	26.7
Union Health and Family Welfare Centre	0.0	4.3	0.4	1.8	1.9	1.6	0.9
Private clinic/hospital	0.0	3.0	3.3	2.7	4.3	1.2	0.9
NGO clinic/hospital	3.8	17.2	1.8	0.5	4.5	0.4	0.0
Private practitioners	7.7	2.6	6.6	13.2	0.5	5.8	3.4
Specialists	3.8	3.4	12.5	8.7	0.5	12.0	37.1
Others	3.8	5.2	1.1	0.9	2.3	14.5	2.6
N	27	240	274	222	598	1185	121

*Multiple responses

Annex 10. Service provision characteristics of the healthcare providers (HCPs)

	Types of health care providers (HCPs)								
	Physicians	Dentists	Nurses	Allopathic paraprofessionals	Community Health Workers	Village doctors (RMPs/PCs)	Dug store salespeople /drug vendors	Traditional healers	Homoeo-paths
Service delivery points									
Govt. health facilities	55.3	22.2	32.2	88.9	22.9	2.2	0.9	0.5	0.8
NGO health facilities	2.1	0.0	8.5	11.1	18.3	2.2	0.0	0.0	0.8
Private health facilities	19.1	22.2	20.3	0.0	0.4	1.5	0.0	0.7	2.5
Drug shops	19.1	55.6	0.0	0.0	0.8	81.8	83.3	4.8	77.7
Village, mobile	0.0	0.0	35.6	0.0	51.3	2.2	4.1	12.8	1.7
Village, own household	4.3	0.0	3.4	0.0	6.3	10.2	11.3	80.3	16.5
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.0
Patients seen per day (mean±sd)	31.7± 25.1	17.3± 31.1	12.0± 12.6	38.9± 31.4	14.4± 18.8	17.7±18.1	16.1±15.8	4.8± 6.5	12.6± 10.3
Distance they come from									
<2 Km	10.6	11.1	27.1	7.4	46.3	36.9	51.4	45.3	31.4
2-5 Km	12.8	33.3	30.5	37.0	34.2	44.2	38.3	30.5	32.2
5+ KM	76.6	55.6	42.4	55.6	19.6	19.0	10.4	24.2	36.4
N	47	9	59	27	240	274	222	1185	121

Annex 11. Common illnesses seen and its management by the healthcare providers HCPs)

	Types of health care providers (HCPs)							
	Physicians	Nurses	Allopathic Para- professionals	Community Health Workers	Village doctors (RMPs/ PCs)	Dug store salespeople /drug vendors	Traditional healers	Homoeo- paths
Most common illnesses seen *								
Fever	89.4	66.1	96.3	70.0	99.6	99.1	24.2	95.0
Common cold/cough	87.2	59.3	92.6	66.7	97.1	95.5	11.5	90.9
Diarrhea	89.4	57.6	96.3	67.5	95.6	91.4	21.5	76.9
Digestive disturbances	85.1	47.5	77.8	48.3	89.1	89.6	41.1	76.9
Headache	59.6	30.5	70.4	3.8	69.0	75.2	32.2	61.2
Asthma/breathing problems	83.0	37.3	92.6	32.5	53.6	36.0	11.4	57.0
Physical weakness	44.7	20.3	51.9	20.0	43.4	39.2	10.5	33.9
Joint pain	59.6	15.3	37.0	7.1	49.3	34.2	20.0	44.6
Menstrual problems	40.4	42.4	85.2	39.6	36.1	20.7	11.7	48.8
Pregnancy related problems	42.6	84.7	77.8	60.4	34.3	17.1	12.3	50.4
STIs	29.8	5.1	18.5	8.8	18.2	10.8	13.4	36.4
Skin diseases	31.9	11.9	37.0	22.5	38.3	29.3	10.8	42.1
Others	12.8	16.9	7.4	38.8	12.0	6.8	72.2	16.5
Management strategies								
Advice only	53.2	27.1	11.1	31.7	7.7	2.7	1.1	0.8
Treatment only	0.0	0.0	3.7	6.7	6.2	26.1	13.9	8.3
Treatment and advice	46.8	66.1	85.2	61.3	85.8	71.2	85.0	90.9
Refer to specialist	0.0	6.8	0.0	0.4	0.4	0.0	0.0	0.0
Orders laboratory investigations	42.6	6.8	18.5	10.0	9.5	2.3	0.4	2.5
Gives written prescription	100.0	11.9	55.6	9.2	55.8	14.4	3.5	31.4
Keeps patient records	25.5	42.4	74.1	50.0	7.7	3.6	2.7	75.2
N	47	59	27	240	274	222	1185	121
*Multiple responses								

*Multiple responses

Annex 12. Reported treatment practices for fever, diarrhoea and pneumonia (multiple responses %)

	Types of healthcare providers (HCPs)							Homoeo- paths
	Physicians	Nurses	Para-professionals	Allopathic Health Workers	Village doctors (RMPS/PCs)	Drug store salespeople/ drug vendors	Traditional healers	
Fever								
Analgesics	97.7	92.7	96.2	85.6	98.5	96.7	4.5	2.5
Antihistamines	50.0	31.7	38.5	29.9	47.6	38.5	2.7	0.0
Antibiotics	90.9	75.6	76.9	29.9	88.6	82.6	2.4	1.7
Homoeo medicine	0.0	0.0	0.0	0.6	0.0	0.5	2.1	95.0
Others	6.8	14.6	3.8	16.8	3.7	4.2	93.4	4.2
<i>Mean days of medication</i>	6.1±2.1	5.1±2.2	5.2±1.6	4.2±1.7	5.6±3.2	5.1±2.0	4.7±4.1	4.4±2.4
Diarrhea								
Amoebicide	82.5	57.1	76.2	48.7	77.6	82.1	3.3	1.1
Antibiotics	97.5	80.0	90.5	43.0	93.3	88.0	3.8	3.4
Anti-motility	22.5	8.6	4.8	3.8	25.4	20.7	0.5	1.1
Zinc	60.0	57.1	52.4	37.3	37.3	30.4	1.6	0.0
ORS	100.0	97.3	100.0	91.9	99.3	99.5	39.9	60.9
Homoeopathic	0.0	0.0	0.0	0.6	0.4	1.1	1.6	86.4
Others	2.5	11.4	0.0	25.3	2.6	3.3	95.1	27.3
<i>Mean days of medication</i>	6.3±1.9	7.8±11.5	6.3±1.4	4.5±2.0	5.2±2.0	5.0±2.7	3.9±3.1	4.3±5.2
Pneumonia (Children)								
Antibiotics	100.0	73.1	95.2	69.4	97.2	96.1	1.4	3.5
Bronchodilator	59.1	61.5	57.1	19.4	48.9	51.9	1.4	2.4
Analgesics	36.4	50.0	47.6	30.6	29.5	35.1	0.0	0.0
Antihistamines	34.1	38.5	42.9	11.3	28.4	22.1	0.0	0.0
Homoeopathic	0.0	0.0	0.0	0.0	0.0	1.3	0.0	92.9
Others	38.6	42.3	19.0	33.9	26.7	26.0	100.0	22.4
<i>Mean days of medication</i>	7.4±1.7	7.2±2.8	6.5±2.1	7.0±2.5	4.1±3.5	2.3±3.3	7.0	5.6±2.3
Ulcer/ hyperacidity								
Antacid	79.5	59.6	70.0	70.3	72.4	68.9	25.5	53.2
Ranitidine-like	15.4	7.7	10.0	7.7	15.6	14.6	3.7	26.6
Omeprazole-like	2.6	13.5	5.0	23.4	23.7	22.8	13.3	26.6
Homoeo	0.0	0.0	0.0	4.8	3.1	4.4	27.6	6.4
Others	2.6	17.3	10.0	4.3	1.6	2.4	31.8	0.9
<i>Mean days of medication</i>	35.9±23.8	20.7±15.4	33.0±24.4	15.9±10.7	25.5±18.5	17.6±18.2	35.0±32.4	30.0
N	47	59	27	240	274	222	1185	121

Annex 13. Reported treatment practices for Sexually Transmitted Infections (STIs) and Reproductive Tract Infections (RTIs)

	Types of healthcare providers (HCPs)							Homoeo- paths
	Physicians	Nurses	Allopathic Para- professionals	Community Health Workers	Village doctors (RMPs/PCs)	Dug store salespeople/dr ug vendors	Traditional providers	
Common types of STI/RTI Illnesses seen								
Syphilis	90.3	0.0	47.4	48.6	71.2	76.6	48.4	85.4
Gonorrhoea	90.3	0.0	57.9	51.4	73.5	79.7	56.6	84.3
Leucorrhoea/white discharge	77.4	100.0	94.7	81.1	74.2	62.5	73.3	68.5
PID	74.2	58.3	78.9	54.1	27.3	31.3	12.2	29.2
Others	71.0	25.0	52.6	43.2	30.3	23.4	33.5	25.8
Most frequent types of medicine prescribed								
Antibiotics	96.8	72.7	89.5	68.8	96.2	89.4	1.7	4.5
Amoebicides	58.1	81.8	84.2	31.3	50.0	48.5	1.3	2.3
Antifungal/ Antiprotozoa	83.9	54.5	52.6	31.3	53.1	51.5	0.9	1.1
Homoeopathic	0.0	9.1	0.0	0.0	2.3	3.0	1.3	75.0
Others	3.2	18.2	10.5	31.3	10.0	12.1	97.9	38.6
<i>Mean days of medication</i>	7.6±2.5	6.8±3.7	11.3±12.9	8.2±5.4	11.5±16.9	10.8±12.1	10.0±4.6	12.2±4.8
Advise clients to use condom during sex	100.0	100.0	100.0	100.0	98.5	97.0	69.2	92.0
N	47	59	27	240	274	222	1185	121

Annex 14. Reported pregnancy-related knowledge and practices, multiple responses %

	Types of healthcare providers (HCPs)								
	Physicians	Nurses	Allopathic Para-professionals	Community Health Workers	Village doctors (RMPs /PCs)	Dug store salespeople/drug vendors	TBA/ TTBA	Traditional healers	Homoeo- paths
Risk factors for unsafe pregnancy									
Pregnancy <20 years or >35 years	92.6	96.5	100.0	87.0	86.4	80.6	70.8	54.5	93.4
No child or >4 children	37.0	24.6	34.6	29.4	19.5	8.3	12.6	9.1	19.7
Birth interval <2 yrs	55.6	52.6	46.2	33.9	28.0	33.3	15.3	6.1	19.7
Height less than 145 cm	44.4	33.3	50.0	27.7	19.5	25.0	9.8	8.1	14.8
Past history of operation/surgery during delivery	48.1	38.6	42.3	29.4	36.4	30.6	23.8	13.1	29.5
Bad obstetric history	81.5	71.9	80.8	62.1	58.5	63.9	58.1	39.4	47.5
Don't know	0.0	0.0	0.0	1.7	1.7	0.0	9.0	30.3	0.0
Others	25.9	17.5	23.1	9.6	13.6	2.8	8.1	13.1	14.8
Signs of complications during pregnancy									
Anemia	88.9	84.2	88.0	83.4	86.4	80.6	63.0	47.5	76.7
Moderate/severe swelling of the feet/legs	66.7	80.7	60.0	62.9	65.3	55.6	58.1	44.6	51.7
Bleeding at any stage of pregnancy	77.8	75.4	68.0	62.9	64.4	66.7	55.4	40.6	60.0
Breathing problems	37.0	35.1	32.0	26.3	30.5	30.6	20.9	10.9	26.7
Abnormal position of foetus	51.9	42.1	48.0	30.3	25.4	27.8	33.8	24.8	33.3
Albumen in urine/blood pressure (>140/90mm Hg)	70.4	42.1	68.0	30.9	10.1	25.0	8.4	6.9	25.0
Don't know	3.7	0.0	4.0	2.9	1.7	0.0	5.1	32.7	3.3
Others	33.3	24.6	44.0	15.4	24.6	22.2	11.0	6.9	23.3
Management of pregnancy									
Nutritious food	77.8	72.4	73.1	65.9	69.7	81.6	65.6	44.4	66.7
Not to do heavy works	51.9	43.1	46.2	52.3	48.7	57.9	47.0	29.3	46.7
Keep rest/ Careful movement	48.1	46.6	46.2	47.2	41.2	52.6	44.6	43.4	60.0
Regular checkup	66.7	53.4	73.1	45.5	37.0	18.4	22.3	9.1	28.3
Maintain cleanliness	7.4	12.1	15.4	10.2	11.8	5.3	11.4	12.1	10.0
TT immunization	14.8	13.8	46.2	23.3	10.9	7.9	7.4	4.0	6.7
Others	29.6	51.7	38.5	44.9	45.4	36.8	39.1	57.6	43.3
N	47	59	27	240	274	222	598	1185	121

Annex 15. Reported treatment practices for accidents/injuries by the healthcare providers, multiple responses%

	Types of healthcare providers (HCPs)							Homoeo- paths
	Physicians	Nurses	Allopathic Para- professionals	Community Health Workers	Village doctors (RMPs /PCs)	Dug store salespeople/dr ug vendors	Traditional providers	
Manages cases of accidents/injuries	66.0	39.0	37.0	12.5	70.1	51.8	31.0	53.7
Cases seen in last 3 months	31.1±34.6	13.8±18.2	15.2±14.6	8.7±18.5	18.5±27.3	13.7±21.4	10.7±19.8	7.8±16.4
Treatment given for bone fractures								
Medicine/NSAID	54.8	28.0	53.8	8.3	33.8	31.3	14.4	28.4
X-ray/ Plaster	54.8	20.0	15.4	13.9	13.8	9.6	3.0	3.0
Others	0.0	0.0	7.7	0.0	0.0	0.9	38.6	1.5
Do not treat/ Referral	64.5	76.0	92.3	94.4	87.7	83.5	59.7	80.6
Treatment given for burn								
Medicine/ Ointment	90.6	56.0	63.6	40.5	84.5	81.7	15.0	92.6
Bandage/Ice-pack	56.3	52.0	36.4	35.1	53.1	51.3	8.0	20.6
Others	75.0	40.0	54.5	27.0	44.3	37.4	28.8	17.6
Do not treat/Referral	37.5	44.0	54.5	62.2	44.3	36.5	64.5	26.5
Treatment given for drowning								
M-to-M breathing/CPR	68.8	58.3	33.3	50.0	37.8	27.8	7.4	13.6
Others	65.6	50.0	41.7	50.0	30.9	24.3	7.2	15.2
Do not treat/Referral	31.3	45.8	58.3	50.0	62.8	71.3	91.3	83.3
Treatment given for snake-bite								
Medicine	18.8	4.0	0.0	5.6	1.1	0.9	7.9	9.2
Faith-healing	3.1	0.0	0.0	0.0	0.0	0.0	39.8	0.0
Others	12.5	8.0	16.7	13.9	2.1	1.8	19.5	4.6
Do not treat/Referral	84.4	92.0	100.0	97.2	98.9	100.0	61.2	92.3
N	47	59	27	240	274	222	1185	121

Annex 16. Professional satisfaction by the healthcare providers (HCPs)

	Types of healthcare providers (HCPs)									
	Physicians	Dentists	Nurses	Allopathic paraprofessionals	Community Health Workers	Village doctors (RMPs /PCs)	Dug store salespeople/ drug vendors	TBA/ TTBA	Traditional healers	Homoeo-paths
% satisfied with the profession	93.6	77.8	94.9	96.3	90.4	94.9	94.1	94.8	94.0	95.9
Reasons for satisfaction*										
Social work	76.6	44.4	84.7	85.2	61.9	73.4	55.2	89.1	86.3	80.2
Means of income	17.0	44.4	22.0	25.9	36.4	37.6	37.1	6.0	5.9	24.8
People honor	21.3	11.1	5.1	18.5	10.5	19.6	21.7	3.7	5.3	12.4
Others	14.9	44.4	6.8	7.4	13.4	9.2	12.7	7.9	7.6	10.7
% not satisfied with the profession	6.4	22.2	5.1	3.7	6.4	5.1	5.9	5.2	6.0	4.1
Reasons for non-satisfaction*										
Less income	100.0	50.0	0.0	100.0	65.2	50.0	46.2	25.8	22.5	60.0
No progress in the profession	0.0	0.0	33.3	100.0	26.1	42.9	53.8	41.9	56.3	40.0
Risky profession	0.0	0.0	33.3	0.0	8.7	7.1	0.0	12.9	8.5	0.0
Can't give medicine	0.0	0.0	33.3	0.0	0.0	0.0	15.4	6.5	2.8	20.0
Others	0.0	50.0	0.0	0.0	0.0	0.0	0.0	22.6	14.1	0.0
Suggestions for improvement of the profession*										
Training	66.0	55.6	52.5	51.9	61.3	67.9	64.0	62.7	21.9	47.9
Financial assistance	2.1	11.1	11.9	3.7	20.4	22.3	29.2	10.4	11.4	24.0
Physical set up	12.8	0.0	6.8	7.4	6.7	14.6	13.5	6.4	3.2	24.0
No need	4.3	0.0	6.8	3.7	4.2	2.9	4.1	8.9	23.6	5.8
Don't know	2.1	0.0	15.3	7.4	3.8	1.5	2.3	14.2	27.3	0.8
Others	25.5	33.3	18.6	29.6	16.3	13.1	9.9	6.9	15.8	14.0
Like to see son/daughter in the profession	87.2	88.9	78.0	70.4	82.1	88.0	80.6	54.0	50.1	78.5
N	47	9	59	27	240	274	222	598	1185	121

- multiple response

Annex 17. Distribution of population who suffered from some sort of illness in the preceding 30 days by type of diseases

Type of ailment	Percent of population suffered		
	Both sex	Male	Female
Total	100.00	100.00	100.00
Diarrhoea	6.48	6.84	6.14
Fever	55.32	56.78	53.95
Dysentery	4.49	4.95	4.06
Pain	9.60	8.22	10.90
Injury	1.65	2.37	0.98
Blood pressure	1.82	1.48	2.14
Palpitation	0.74	0.59	0.87
Respiratory trouble	2.51	2.76	2.27
Weakness	2.79	2.22	3.34
Headache	0.85	0.66	1.03
Pneumonia	1.07	1.15	1.00
Typhoid	0.70	0.82	0.59
Tuberculosis	0.07	0.82	0.06
Malaria	0.61	0.89	0.34
Jaundice	0.85	1.00	0.71
Female diseases	0.82	0.00	1.59
Cancer	0.04	0.02	0.08
Leprosy	0.02	0.02	0.02
Paralysis	0.26	0.25	0.27
Epilepsy	0.10	0.08	0.13
Other	9.09	8.73	9.43

Source: BBS 2007.